

**FINAL  
SEDIMENT CHARACTERIZATION REPORT  
FOR BERTHS 212–224  
YTI CONTAINER TERMINAL IMPROVEMENTS PROJECT  
LOS ANGELES HARBOR**

**Submitted to:**



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

**Submitted by:**



**AMEC Environment & Infrastructure, Inc.  
9210 Sky Park Court, Suite 200  
San Diego, California 92123**

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## EXECUTIVE SUMMARY

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The Port of Los Angeles (Port) is proposing to conduct a project at Berths 212–224 Yusen Terminals Inc. (YTI) Container Terminal to accommodate wharf improvements and upgrades (Project). The proposed Project includes dredging of harbor sediment to accommodate wharf improvements and placement of these dredged materials at the LA-2 Ocean Dredged Material Disposal Site (ODMDS) and/or at the Port's agency-approved Confined Disposal Facility (CDF), located at Berths 243–245. The Project has two separate dredging components:

1. Berths 214–216 would be dredged to a design depth of –53 feet (ft) mean lower low water (MLLW) plus a 2-foot overdredge allowance.
2. Berths 217–220 would be dredged to a design depth of –47 ft MLLW plus a 2-foot overdredge allowance.

The Project site is the YTI Container Terminal along the East Basin Channel, between the Evergreen Container Terminal and the SA Recycling scrap metal facility. In addition, Berths 167–169 of the Shell Oil Terminal and Berths 174–181 of the Pasha break bulk terminal are located across the East Channel Basin from the Project site. The YTI Terminal is bounded to the south by Seaside Avenue and the Vincent Thomas Bridge. The terminal is used by YTI to provide stevedore and terminal services to container shipping lines. The area surrounding the Project site is used for transportation and industrial purposes.

As part of the permitting process for the wharf improvement Project, the Port contracted AMEC Environment & Infrastructure, Inc. (AMEC) to characterize the sediment of the Berths 212–224 dredge footprint to assess the suitability of the dredged materials for placement at either of two proposed disposal locations (LA-2 ODMDS and/or the Berths 243–245 CDF).

A previous sediment characterization study within a portion of the Project site (Berths 212–215) was performed in 2000 by Advanced Biological Testing. Sediments were analyzed to a depth of –47 feet MLLW with a 2-foot overdredge allowance. The sediments were determined to be suitable for disposal at LA-2 ODMDS or for placement at upland disposal facilities. The material was dredged in 2001 and ultimately disposed of at the Port's Anchorage Road Soil Storage Site.

More recently, a dredged material study was conducted at Berths 212–225 by Kinetic Laboratories as part of the Port of Los Angeles 2006 Marine Exploration program for the Federal Channel Deepening Project. This study indicated that the Berths 212–225 dredged material is suitable for unconfined aquatic disposal. Dredging at Berths 212–215 was conducted in 2011 and 2012; portions of the dredged material were placed at the Cabrillo Shallow Water Habitat as well as at the Berths 243–245 CDF.

For the current dredged material characterization study, 10 vibracore samples (5 from each dredge footprint) were collected. Subsamples from each of the 5 cores were combined to create two separate site composite samples (Composites A and B) for analysis. The two site composites underwent full Tier III ocean disposal evaluation according to the Green Book guidance document (*Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual*, USEPA).

Overall, the results of the chemical analyses conducted on the two site composite samples showed the proposed dredged material to be substantially free of chemical contamination. Slightly elevated (i.e., above effects-range low [ERL] guideline levels) concentrations of arsenic, copper, mercury, nickel, polychlorinated biphenyls (PCBs), and dichlorodiphenyltrichloroethane (DDT) were observed; however, all chemical levels were well below effects-range median (ERM) guidelines. None of the chemical levels measured in this study were unusual in comparison to what is normally found in an industrial harbor.

Significant stratification was observed in sediment cores collected in Composite Area A. The top two feet of sediment consisted of unconsolidated silts, while the remaining bottom four to six feet of each core was hard clay material, similar to modeling clay. Composite sediment chemistry results and core stratification observations were presented (in a draft version of this report) to the Contaminated Sediment Task Force (CSTF) at its November 2013 meeting. After considering the results, the CSTF suggested further testing, using the frozen archived bottom samples collected in Composite A, to better evaluate disposal options. These Composite A Bottom samples were subsequently tested and their sediment chemistry results were presented to the CSTF at its January 2014 meeting. This supplementary chemistry testing indicated low chemical levels, and led to approval of suitability for placement of the Composite A top two feet of unconsolidated silts in the Berths 243–245 CDF and the remaining bottom material, as well as all of Composite B, into the LA-2 ODMDS.

For the most part, the toxicity tests conducted on the two site composites showed no statistically or ecologically significant effects. Specifically, no toxicity was observed in the solid-phase worm test or the suspended-particulate-phase fish and mysid shrimp tests. The survival levels in the amphipod tests (an average of 68 and 87 percent for Composites A and B, respectively), were both found to be statistically reduced, compared to the Reference sediment survival level (98 percent); however, the Composite B level (87 percent) was only 11 percent below Reference survival, and is therefore within the allowable 20 percent ecological significance window. Because of the low levels of chemicals observed in Composite A, there does not appear to be a clear cause and effect between chemistry and toxicity. It is possible that the reduction in amphipod survival noted in the Composite A exposure is due to confounding factors (e.g., the elevated level of clay observed in the sediment core sample). Statistically significant effects were observed in the mussel tests performed on both site composites. The calculated median effect concentrations ( $EC_{50s}$ ) for the bivalve larvae tests were 75 percent and >100 percent for Composites A and B, respectively. The toxicity testing laboratory reported that the effects observed on mussel larvae development may be attributed to the elevated level of un-ionized

ammonia in the elutriate samples. No toxicity tests were conducted on the archived Composite A Bottom material.

The bioaccumulation-phase clam and worm tissue chemistry levels observed in this study were well below action levels of the U.S. Food and Drug Administration (FDA) and the levels of concern reported in the Environmental Residue Effects Database (ERED). In addition, biological concentration factor values were low. These results indicate that the bioaccumulation potential of the proposed YTI Terminal dredged material is low and well within acceptable limits.

The results of this sediment characterization study indicate that most of the dredged material from the Berths 212–224 YTI Container Terminal Improvements Project complies with the ocean disposal suitability requirements outlined in Title 40 *Code of Federal Regulations* (CFR) Parts 220–228 and is suitable for placement at the LA-2 ODMDS. The top two feet of Composite A are recommended to be placed instead in the Berth 243–245 CDF, as was determined at the January 2014 CSTF meeting.

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## ACRONYMS AND ABBREVIATIONS

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°C	degrees Celsius
µg	microgram(s)
AMEC	AMEC Environment & Infrastructure, Inc.
BCF	bioconcentration factor
BP	bioaccumulation-phase
Calscience	Calscience Environmental Laboratories, Inc.
CDF	Confined Disposal Facility
CFR	<i>Code of Federal Regulations</i>
CSTF	Contaminated Sediments Task Force
cy	cubic yard(s)
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethane
DDT	dichlorodiphenyltrichloroethane
DGPS	Differential Global Positioning System
EC <sub>50</sub>	median-effect concentration
ERED	Environmental Residue Effects Database
ERL	effects-range low
ERM	effects-range median
FDA	U.S. Food and Drug Administration
ft	foot/feet
kg	kilogram(s)
Kinnetic	Kinnetic Laboratories, Incorporated
L	liter(s)
Lab Dup	laboratory duplicate
LC <sub>50</sub>	median lethal dose
LCS	laboratory control sample
LD	lethal dose
LOED	lowest-observed-effect dose
mg	milligram(s)

## ACRONYMS AND ABBREVIATIONS (Cont.)

mL	milliliter(s)
MLLW	mean lower low water
MS	matrix spike
MSD	matrix spike duplicate
Nautilus	Nautilus Environmental
NA	not analyzed; not applicable
NOAA	National Oceanic and Atmospheric Administration
NOED	no-observed-effect-dose
Ocean Testing Manual	<i>Evaluation of Dredged Material Proposed for Ocean Disposal: Testing Manual.</i> USEPA-503/8-91/001
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
Port	Port of Los Angeles
Project	Berths 212–224 YTI Container Terminal Improvements Project
QA/QC	quality assurance and quality control
ODMDS	Ocean Dredged Material Disposal Site
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SM	Standard Method
SOP	standard operating procedure
SP	solid-phase
SPP	suspended-particulate-phase
TEG	TEG Oceanographic Services
TICTF	Terminal Island Container Transfer Facility
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TRPH	total recoverable petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
YTI	Yusen Terminals Incorporated

## **1.0 INTRODUCTION**

---

This document is the Sediment Characterization Report for the Port of Los Angeles (Port) Berths 212–224 Yusen Terminals Inc. (YTI) Container Terminal Improvements Project (Project). The proposed Project is to dredge sediment to accommodate wharf improvements and place the dredged materials at the LA-2 Ocean Dredged Material Disposal Site (ODMDS) and/or at the Port's agency-approved Confined Disposal Facility (CDF), located at Berths 243–245.

AMEC Environment & Infrastructure, Inc. (AMEC) was contracted by the Port to prepare a Project-specific Sampling and Analysis Plan (SAP), conduct sediment sampling at the Project site, and provide a Sediment Characterization Report based on results of laboratory testing. AMEC prepared a SAP in April 2013 and submitted it to the Los Angeles Contaminated Sediments Task Force (CSTF) for review and concurrence. The specifics of the characterization program were presented to the CSTF at its April 24, 2013, monthly meeting. Based upon input from the CSTF, the SAP was revised and finalized in May 2013.

The dredged material sample collection program was initiated in June 2013 and involved the collection of sediment samples within the dredge footprint. Sediment samples were submitted to several laboratories for analysis. AMEC obtained physical and chemical test results from Calscience Environmental Laboratories, Inc. (Calscience) in June and December 2013, and received a report on toxicity test results from Nautilus Environmental (Nautilus) in September 2013. The purpose of this report is to provide an overview of the sediment quality within the Project dredge footprint and to evaluate disposal suitability for the two disposal options being pursued.

The results of the laboratory testing were presented (in a draft version of this report) at the November 2013 meeting of the CTSF, which requested supplemental sediment chemistry analysis, using Composite A Bottom sediments. Subsequently, the chemistry of the Composite A Bottom sediments was analyzed, and these supplemental results were presented at the January 2014 CTSF meeting.

### **1.1 Project Description**

The proposed Project involves construction of terminal improvements at Berths 212–224 within the YTI Container Terminal along the East Basin Channel of Terminal Island in Los Angeles Harbor (Figure 1-1).

Major Project construction activities will include:

- Wharf upgrades at two locations, Berths 214–216 and Berths 217–220,
- Addition of cranes and height extension of cranes,
- Backland improvements, and
- Expansion of the Terminal Island Container Transfer Facility (TICTF) on-dock rail.

In-water work is limited to Berths 214–216 and Berths 217–220. The proposed Project does not involve any improvements or changes to existing operations at Berths 212–213 or to Berths 221–224, which are within the Project footprint. Construction duration is anticipated to be approximately 22 months and the operational period is to be 10 years, from 2016 through 2026.

The existing depth at Berths 214–216 and Berths 217–220 is –45 feet (ft). Improvements at Berths 214–216 consist of dredging to –53 ft mean lower low water (MLLW) with an additional 2 ft of overdredge, for a total maximum depth of –55 ft MLLW, and installation of sheet and king piles (Figure 1-2). Improvements at Berths 217–220 consist of dredging to –47 ft MLLW with an additional two feet of overdredge, for a total maximum depth of –49 ft MLLW, and installation of sheet piles. Design depth at Berths 217–220 was restricted to –47 ft MMLW because dredging to a greater depth may compromise the structural stability of the pier.

The total dredge volume is approximately 27,000 cubic yards (cy)—approximately 21,000 cy at Berths 214–216 and 6,000 cy at Berths 217–220.

The proposed Project includes disposal of dredged material at the LA-2 ODMDS (Figure 1-3) and at the Port's agency-approved CDF, located at Berths 243–245. The disposal location(s) were selected based on the results of this sediment characterization study, which used a tiered approach to sampling and analysis. The tiered approach of the study initially conducted chemical analyses on the dredged material samples, followed by full Green-Book-required toxicity and bioaccumulation testing. The results of the chemical, toxicity, and bioaccumulation analyses conducted on the proposed YTI dredged material (as described in detail in this report) indicated that portions of the dredged materials are suitable for placement at the LA-2 ODMDS and the remainder is suitable for placement at the in-harbor CDF. The top two feet of material at Berths 214-216 is approximately 5,200 cy and will be placed in the Berths 243-245 CDF. The remaining 15,800 cy from Berths 214-216 is proposed to be placed at the LA-2 ODMDS. The full 6,000 cy from Berths 217-220 is also proposed to be placed at the LA-2 ODMDS. The proposed disposal location(s) were determined in consultation with the CSTF in January 2014.

As noted in Section 1.0, the initial analytical results were presented to the CSTF (in a draft version of this report) at its November 2013 meeting (refer to CSTF meeting minutes in Appendix F). The results of the supplemental chemical testing requested at the November 2013 meeting were presented to the CSTF at its January 2014 meeting in a memorandum that provided additional testing results (refer to memorandum and CSTF meeting minutes in Appendix G).

The CSTF determined in January 2014 that sediment in the top two feet of Composite A is suitable for placement at the Berth 243–245 CDF, and that the bottom portion of Composite A (approximately 2 ft below the surface) and all of Composite B are suitable for placement at the LA-2 ODMDS (Appendix G).



Path: R:\2013\Aquatics\POLAMXD\Berths 214-220\_YTI\Figure 1-1 Project Vicinity.mxd, jessie.lee 4/12/2013

Source: ESRI - 2011



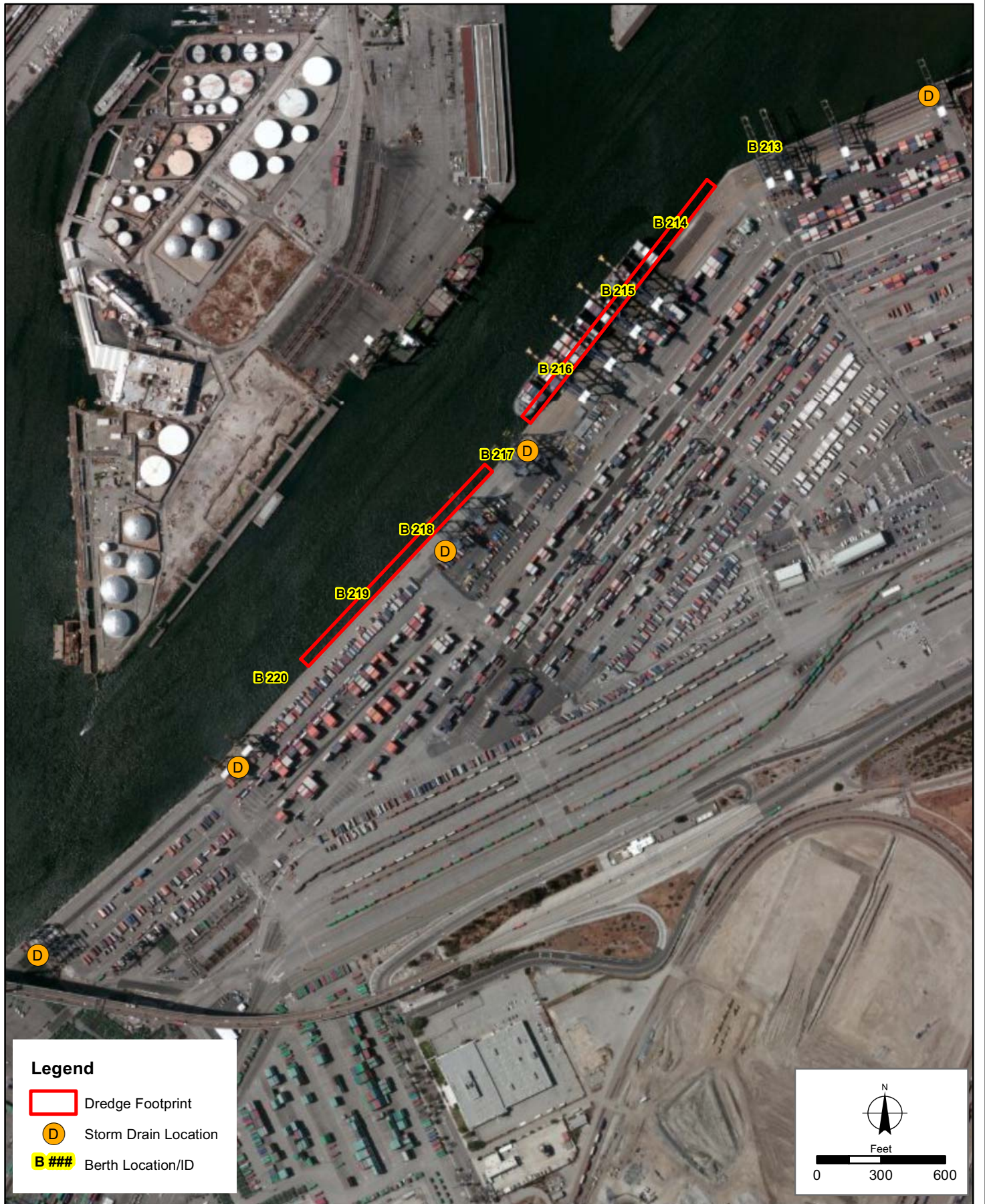
**Project Vicinity**  
**Berths 212-224 [YTI] Container Terminal Improvements Project**  
**Port of Los Angeles**

**FIGURE**

**1-1**

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**Legend**

- Dredge Footprint
- D Storm Drain Location
- B### Berth Location/ID

N  
↑  
Feet  
0      300      600

Path: R:\2013\Aquatics\POLAIMXD\Berths\_214\_220\_YTI\Figure 1-2 Project\_Location.mxd, jessie.lee 9/30/2013

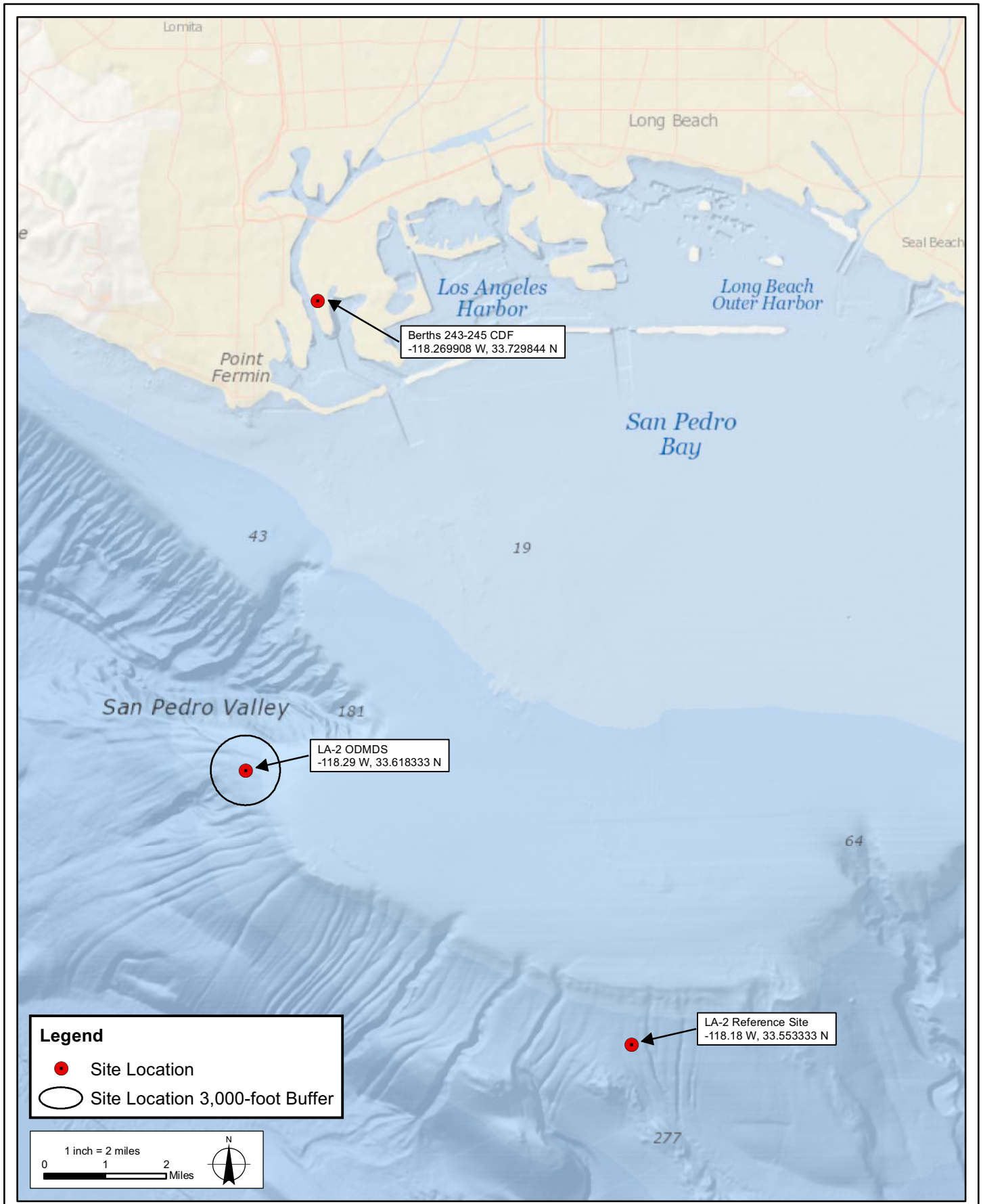
Date: 9/30/2013

**Project Location**  
**Berths 212-224 [YTI] Container Terminal Improvements Project**  
**Port of Los Angeles**

**FIGURE**  
**1-2**



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Path: R:\sd11\Aqualca\POLA\_Berths\_163-164\Sept2013\Location\_LA2\_site.mxd, jessie.lee 9/10/2013

Aerial Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

FIGURE

Location of LA-2 Ocean Dredged Material Disposal and Reference Sediment Collection Sites

1-3

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## 1.2 Land Uses and Influences

The Project is located on the YTI Container Terminal along the East Basin Channel between the Evergreen Container Terminal and the SA Recycling scrap metal terminal (Figure 1-1). Land surrounding the Project site includes transportation and industrial uses. Berths 167–169 of the Shell Oil Terminal and Berths 174–181 of the Pasha break-bulk terminal are across the East Channel Basin from the Project site. The YTI Terminal is bounded to the south by Seaside Avenue and the Vincent Thomas Bridge.

The terminal is used by YTI to provide stevedore and terminal service to container shipping lines. Features of the YTI Terminal include:

- 21,937-square-foot (sq-ft) administration and in-gate building,
- 23,386-sq-ft maintenance and repair building with 10 bays,
- 4,798-sq-ft marine building,
- 1,200 wheeled slots (including 500 reefer plugs),
- Sixteen entry lanes with six scales,
- Seven exit lanes, and
- TICTF on-dock rail facility.

There are 14 cranes at the terminal, 10 of which are currently in operation. Four of the operating cranes are super-post-panamax and six are post-panamax. (There are also two post-panamax and two panamax cranes that are not operating.) The Project area has five storm drain locations (Figure 1-2).

### 1.2.1 Previous Sediment Characterization Studies

Advanced Biological Testing conducted a sediment characterization study in 2000 for dredging operations at Berths 212–215 (Kinnetic Laboratories, Inc [Kinnetic] 2006). The project depth was –47 ft MLLW with a 2-ft overdredge allowance. Arsenic, copper, lead, mercury, nickel, zinc, dichlorodiphenyldichloroethane (DDE), total dichlorodiphenyltrichloroethane (DDT), and total polycyclic aromatic hydrocarbons (PAHs) were found in concentrations above the ERL guideline levels. Significant levels of bioaccumulation of several metals, PAHs, dichlorodiphenyldichloroethane (DDD), and polychlorinated biphenyls (PCBs) were found in the tissues of test organisms when compared to the Reference site tissues. The sediments were determined to be suitable for disposal at LA-2 ODMDS or for placement at upland disposal facilities. The material was dredged in 2001 and ultimately disposed of at the Anchorage Road Soil Storage site.

A study conducted by Kinnetic Laboratories outlined the sediment characterization results of a maintenance dredging study conducted at Berths 212–225 as part of the Port of Los Angeles 2006 Marine Exploration Program carried out for the Federal Channel Deepening Project (Kinnetic, 2006). The sediment was tested to a depth of -47 ft MLLW at Berths 212–215, -46 ft MLLW at Berths 216–221, and -39 ft MLLW at Berths 222–225. The dredged material was found to be suitable for unconfined aquatic disposal. Dredging at Berths 212–215 was conducted in 2011 and 2012; a portion of the dredged material was placed at the Cabrillo Shallow Water Habitat as well as at the Port Berths 243–245 CDF.

## 1.2.2 Current Sediment Characterization Study

As outlined in the SAP, this sediment characterization study for the proposed Project included the collection of ten vibracore samples in two separate dredge footprints. Five of the ten samples were collected in the area of Berths 214–216, to a depth of -53 ft MLLW plus a 2-ft overdredge allowance to a final sampling target depth of -55 feet MLLW. The remaining five samples were collected in the area of Berths 217–220 to a depth of -47 ft MLLW plus a 2-ft overdredge allowance to a final target sampling depth of -49 ft MLLW. When possible, an additional 0.5 ft layer below the overdredge allowance (i.e., the Z-layer) was collected from each core. The Z-layer represents the resultant post-dredging sediment surface. To assess ocean disposal suitability, testing was conducted according to guidelines set forth in the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) *Evaluation of Dredged Material Proposed for Ocean Disposal: Testing Manual*, USEPA-503/8-91/001 (commonly referred to as the “Green Book”).

The primary disposal option being pursued for the Project was ocean disposal; therefore, analyses for this study included full Green Book chemical, physical, toxicity, and bioaccumulation testing. Sediment core samples underwent analyses for physical properties (grain size, percent solids, organic carbon content) as well as a full suite of chemicals of concern (ten heavy metals, petroleum hydrocarbons, ammonia, sulfides, chlorinated and pyrethroid pesticides, PCB congeners, PAHs, phenols, phthalates, and organotins). In addition to bulk sediment analyses, the composites samples were also subjected to (1) toxicity analyses to evaluate potential biological impacts during dredging and ocean disposal operations, and (2) bioaccumulation exposures, which were performed to assess the potential for chemicals to accumulate in test organism (clams and worm) tissues.

The following report sections provide information on:

- Sample collection methods and locations;
- Sediment chemistry, toxicity, and bioaccumulation testing methods;
- Sediment chemistry, toxicity, and bioaccumulation testing results;
- Data analysis;
- A comparison of the results and data analysis to available sediment and water quality guidelines and databases;

- Quality assurance/quality control (QA/QC) evaluations of all results and deliverables for the Project; and
- Project-specific conclusions based on sediment chemistry, toxicology, and tissue analysis results.

Core logs, chemistry reports, and photographs are included as appendices to this document for reference.

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## **2.0 MATERIALS AND METHODS**

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This section describes the locations and techniques that were employed to collect test sediments at ten locations in the Project dredge footprint. Coordination between AMEC and the Port, pertinent security personnel, TEG Oceanographic Services (TEG), Seaventures Inc (Seaventures), and Calscience was conducted prior to the initiation of any field activities.

### **2.1 Sediment Collection**

Sediment collection followed the guidance provided in *Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual* (USEPA 2001), and as detailed in the SAP submitted by AMEC to the Port prior to conducting sample collection and testing (AMEC 2013). The sample collection activity was documented using core logs and photography. Core logs are in Appendix A and photographs of cores are in Appendix B.

#### **2.1.1 Core Collection Locations**

Sampling activities included sediment collection adjacent to YTI Terminal Berths 214–220. For Green Book testing purposes, the Port partitioned the dredge footprint into two separate testing areas: Composite Area A for Berths 214–216 and Composite Area B for Berths 217–220 (Figure 2-1).

As described in the SAP, the proposed dredge design depth for Composite Area A is –53 ft MLLW, and the design depth for Composite Area B is –47 ft MLLW. AMEC collected ten vibracore samples (five in each composite area) to Project depth plus a 2-ft overdredge allowance (a resultant total sample depth of –55 ft MLLW and –49 ft MLLW for Composite Areas A and B, respectively).

Sample collection locations were selected using bathymetry provided by the Port (Figure 2-1); locations were selected to maximize the recovery of characterization of proposed dredge sediment. During the field activity, the Differential Global Positioning System (DGPS) was used to navigate to each of the sampling locations listed in Table 2-1. To maintain position, a three-point anchoring technique was used by tying to nearby docks. Once the vessel was secured, AMEC recorded the position and water depth (measured with a weighted fiberglass tape) in the field log. The water depth was corrected to MLLW using National Oceanographic and Atmospheric Administration (NOAA) tide tables and compared to the bathymetric data provided by the Port. The target navigational accuracy of the DGPS is approximately  $\pm 3$  meters (approximately  $\pm 10$  ft).

### **2.1.2 Test Sediment Collection**

Trained TEG equipment technicians deployed the vibracore to collect sediment core samples. The vibracore uses a 4-inch-diameter aluminum tube connected to a stainless-steel cutter. The aluminum-encased vibrating unit uses 240-volt, 3-phase, 26-ampere electricity to drive two counter-rotating concentric vibrators. The vibracore and tube were lowered by a hydraulic winch and vibrated until the target penetration depth was achieved. Core penetration depth was determined using a tape measure secured to the vibracore head. After the vibracore was turned off, the sediment core was returned to the boat deck for processing. Core samples were carefully extruded into clean, polyethylene-lined trays, photographed, and inspected for unique strata, color, odors, etc.

Vibracore operations in Los Angeles Harbor commonly encounter the Malaga Mudstone Formation, which the vibracore equipment will not penetrate. The Malaga Mudstone Formation consists mostly of massive radiolarian mudstone or fine-grained siltstone with layers of diatomite and diatomaceous shale and limestone concretions and lenses (Woodring, Bramlette, and Kew, 1946). The Malaga is found only along the northern and eastern margins of the Palos Verdes hills. When the Malaga Mudstone layer is encountered, it typically leaves a “plug” of hard material in the core cutter and further penetration is refused. The presence of the plug in the extracted core material verifies the native refusal depth. Native refusal typically represents the extent of recently deposited material and indicates that further attempts of collection to the design and overdredge depth are unnecessary.

In several instances during the Project, the field manager was unable to verify that the Malaga Mudstone Formation had been reached (i.e., there was no plug) and the core had not achieved the desired target penetration (i.e., to the dredge design depth plus a 2-ft overdredge allowance). In these cases, the collection boat was repositioned slightly and another core attempt was made to verify refusal. Refusal during the Project was typically due to sticky clay sediments (see logs and photographs included in Appendix A and B).

### **2.1.3 Reference Sediment Collection**

Reference sediment was collected from the established offshore Reference site near the LA-2 ODMDS. This site is south-southeast of San Pedro, California, at –118.18 west, 33.553 north (Figure 1-3).

### **2.1.4 Control Sediment Collection**

The solid-phase amphipod laboratory control sediment consisted of coarse sand collected in the same location as the organisms. The fine-grained size control sediment was collected from Sail Bay, in Mission Bay, San Diego. The control sediment for the solid-phase polychaete test consisted of clean beach sand collected from Scripps Institution of Oceanography in La Jolla, California. The bioaccumulation-phase control consisted of sediment from the clam collection location.



**Core Sampling Locations**  
**Berths 212-224 [YTI] Container Terminal Improvements Project**  
**Port of Los Angeles**

**FIGURE**

**2-1**



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**Table 2-1.  
 Sample Collection Locations**

Station ID	Attempt	Date and Time of Sample	Collection Coordinates		Sample Collection Depths				Notes
			Latitude WGS84 (DD° mm.mmm')	Longitude WGS84 (-DDD° m.mmm')	Existing Mudline <sup>1</sup> (ft MLLW)	Target Penetration Depth (ft)	Actual Penetration Depth (ft)	Total Core Length (ft) <sup>2</sup>	
A1	1	6/3/2013 08:55	33°45.5420'	-118°15.5004'	-46.2	9.3	9.1	8.7	Less consolidated, 0.0' to 1.1'. Z-layer, 8.4' to 8.7'. Bottom is hard clay plug.
	2	6/3/2013 10:01	33°45.5395'	-118°15.5024'	-48.6	6.9	8.0	3.3	Core was watery at surface. Consolidated and dense below 1.0'. Long (~1.5') piece of core fell out of barrel upon retrieval.
A2	1	6/3/2013 10:40	33°45.5070'	-118°15.5309'	-47.1	8.4	8.0	7.5	Less consolidated from 0.0' to 1.2'. Dense and consolidated at 3.4'. Did not penetrate Z-layer, additional (A) collected because of apparent increase in lithology.
	2	6/3/2013 11:35	33°45.5130'	-118°15.5393'	-46.5	9.0	7.5	6.5	Top of core is less consolidated. Consolidation and density increase at 1.9'. No Z-layer collected.
A3	1	6/3/2013 12:12	33°45.4718'	-118°15.5737'	-47.7	7.8	7.8	4.3	Sleeve tore because of rocks in core, possible Z-layer material was mixed into core material and unable to be separated from remainder of core.
	2	6/3/2013 13:40	33°45.4660'	-118°15.5720'	-49.8	5.7	5.6	3.2	Unconsolidated from 0.0' to 0.4'. Z-layer collected from 2.8' to 3.2' (A), rest added to composite Z-layer.

**Table 2-1.  
 Sample Collection Locations (Cont.)**

Station ID	Attempt	Date and Time of Sample	Collection Coordinates		Sample Collection Depths				Notes
			Latitude WGS84 (DD° mm.mmm')	Longitude WGS84 (-DDD° m.mmm')	Existing Mudline <sup>1</sup> (ft MLLW)	Target Penetration Depth (ft)	Actual Penetration Depth (ft)	Total Core Length (ft) <sup>2</sup>	
A4	1	6/3/2013 14:22	33°45.4532'	-118°15.5983'	-47.7	7.7	7.8	6.7	No Z-layer. Core tube bent upon removal, barrel was cut open to retrieve core because liner was compressed during penetration.
A5	1	6/4/2013 08:19	33°45.3992'	-118°15.6336'	-47.1	8.4	7.8	7.8	No Z-layer. (A) collected from 0.0' to 1.8' A5-A, (A) collected from 1.8' to 7.8' A5-B.
B1	1	6/7/2013 07:48	33°45.3313'	-118°15.6955'	-46.2	3.3	3.3	3.0	Z-layer and sample jars collected.
	2	6/7/2013 08:00	33°45.3313'	-118°15.6955'	-46.2	3.3	3.3	2.2	Z-layer bag added to composite.
	3	6/7/2013 08:24	33°45.3357'	-118°15.6929'	-46.4	3.1	3.1	2.6	Z-layer added to sample composite, separate bag.
	4	6/7/2013 08:41	33°45.3360'	-118°15.6942'	-46.4	3.1	3.3	3.3	Z-layer added to sample composite, separate bag.
	5	6/7/2013 09:05	33°45.3303'	-118°15.7008'	-46.6	2.9	2.9	2.5	Z-layer added to bag for composite.
B2	1	6/6/2013 14:39	33°45.2934'	-118°15.7408'	-48.1	1.4	1.8	1.5	None
	2	6/6/2013 14:56	33°45.2934'	-118°15.7408'	-47.0	2.5	3.0	2.3	No plug; samples collected from Attempt 2.
	3	6/6/2013 15:19	33°45.2934'	-118°15.7408'	-47.0	2.5	3.0	2.0	Z-layer bag added to composite (A) collected from 0.0' to 1.' B2-A.

**Table 2-1.  
 Sample Collection Locations (Cont.)**

Station ID	Attempt	Date and Time of Sample	Collection Coordinates		Sample Collection Depths				Notes
			Latitude WGS84 (DD° mm.mmm')	Longitude WGS84 (-DDD° m.mmm')	Existing Mudline <sup>1</sup> (ft MLLW)	Target Penetration Depth (ft)	Actual Penetration Depth (ft)	Total Core Length (ft) <sup>2</sup>	
	4	6/6/2013 15:30	33°45.2934'	-118°15.7408'	-47.0	2.5	3.0	1.5	Z-layer added for composite bag.
	5	6/6/2013 15:46	33°45.2960'	-118°15.7436'	-47.0	2.5	3.0	2.0	Plug lost; no Z-layer.
B3	1	6/7/2013 10:08	33°45.2643'	-118°15.7706'	-44.5	5.0	5.0	1.5	No Z-layer collected, likely pushing plug.
	2	6/7/2013 10:40	33°45.2669'	-118°15.7684'	-44.5	5.0	4.0	1.0	Core penetration got hard at 2.5', probably on concrete, lots of unconsolidated silts on top of concrete, likely blowing out sediment and having poor recovery.
	3	6/7/2013 10:55	33°45.2679'	-118°15.7677'	-44.5	5.0	5.0	5.0	B-3A from 2.2' to 5.0' (bottom)/clay, 1x8oz jar, Z-layer jar collected from Attempt 3, no jar collected from top because sediments are similar to Attempt 1.
	4	6/7/2013 11:40	33°45.2699'	-118°15.7663'	-44.8	4.7	4.7	2.6	Z-layer added to composite; separate baggie.
	5	6/7/2013 11:52	33°45.2699'	-118°15.7663'	-44.8	4.7	4.7	2.0	Z-layer sampled, added to composite, separate baggie.
B4	1	6/7/2013 13:02	33°45.2384'	-118°15.8026'	-45.0	4.5	4.5	2.0	No Z-layer.
	2	6/7/2013 13:15	33°45.2379'	-118°15.8024'	-45.0	4.5	3.0	1.3	None



**Table 2-1.  
 Sample Collection Locations (Cont.)**

Station ID	Attempt	Date and Time of Sample	Collection Coordinates		Sample Collection Depths				Notes
			Latitude WGS84 (DD° mm.mmm')	Longitude WGS84 (-DDD° m.mmm')	Existing Mudline <sup>1</sup> (ft MLLW)	Target Penetration Depth (ft)	Actual Penetration Depth (ft)	Total Core Length (ft) <sup>2</sup>	
	3	6/7/2013 13:33	33°45.2380'	-118°15.8018'	-45.0	4.5	3.5	1.8	None
	4	6/7/2013 13:55	33°45.2611'	-118°15.7990'	-46.8	2.7	2.7	2.7	No Z-layer collected. Subsamples B4-A from 0.0' to 1.6', B4-B from 1.6' to 2.7'.
	5	6/7/2013 14:14	33°45.2420'	-118°15.7985'	-46.8	2.7	2.7	2.0	Z-layer collected, added to separate bag for composite.
B5	1	6/7/2013 14:56	33°45.1932'	-118°15.8529'	-45.9	3.6	3.6	1.3	No Z-layer collected, lost plug.
	2	6/7/2013 15:15	33°45.1926'	-118°15.8533'	-45.9	3.6	2.5	1.8	No Z-layer, hit refusal.

Notes:

<sup>1</sup> Determined at the time of sampling

<sup>2</sup> Core length recovered after extraction; represents length of core after compaction and possible loss of fines at seafloor surface.

(A) = archive; DD/-DDD° mm.mmm' = degrees decimal minutes; ft = foot/feet; MLLW = mean lower low water; WGS 84 = World Geodetic System 1984



### **2.1.5 Z-layer Sediment Collection**

AMEC also collected a Z-layer sediment sample from each core where penetration allowed collection. The Z-layer samples consist of the 0.5 ft core segment immediately below the overdredge depth, which best represents the new harbor bottom once the dredged material is removed. All Z-layer samples were archived for future testing if warranted.

## **2.2 Sample Collection Documentation, Handling, and Delivery**

Sample documentation followed procedures included in the SAP. The integrity of each sample was maintained throughout the study by recording accurate core logs, filling out chain-of-custody forms at the time of sample collection, and photographically documenting each core and collection attempt.

The sample material was then homogenized and subsampled for analytical and archival purposes during the field collection, which took place from 3 June to 7 June 2013. The remainder of the sample was retained to be added and mixed into a site-wide composite sample to be used for chemical, physical, and toxicity testing. Immediately after the analytical sample containers were filled and sealed, samples were placed on ice in a cooler at 4 degrees Celsius (°C). The site-wide composite sample was mixed and prepared on 11 June 2013 and delivered to the laboratory on 11 and 12 June 2013.

## **2.3 Chemical and Physical Analyses**

The two sediment composites were prepared by combining the sediment collected at the five individual core locations from each composite area and thoroughly homogenizing them with a stainless steel mixing paddle and electric drill. The final mixtures were considered representative composite samples that were then subsampled for physical and chemical analyses, as well as for archiving. Subsamples collected for analysis were transferred to Calscience in labeled 16-ounce glass jars and plastic bags for chemical testing and grain-size analyses, respectively.

Archived samples were collected and handled in the same manner as the test material, then frozen to  $-20^{\circ}\text{C}$ , and stored at AMEC's office. Archive samples will be retained for one year from the collection date. The physical and chemical analyses, USEPA- and USACE-approved analysis methods, and target detection limits for sediment and elutriate testing are listed in Table 2-2.

As recommended by the CSTF at its November 2013 meeting, an additional sub-composite was created from the frozen archive samples from the Composite A footprint to create a Composite A Bottom sample. This sample represented the heavy clay sediment encountered at the bottom of most of the cores in this area. The sample was homogenized, prepared, and analyzed by Calscience in December 2013.

**Table 2-2.  
 Chemical Analyses of Sediment and Tissue Samples**

Analyte	Analysis Method	Target Detection Limits <sup>a, b</sup>	
		Sediment	Tissue
Total Solids	160.3/SM 2540 B	0.1 %	0.100 %
Total Organic Carbon	9060	0.1 %	NA
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	0.2 mg/kg	NA
Total Sulfides	376.2M <sup>c</sup>	0.5 mg/kg	NA
Soluble Sulfides	SM 4500 S2 – D <sup>c</sup>	0.5 mg/kg	NA
Arsenic	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	NA	0.1 %
TRPH	418.1M <sup>d</sup>	10 mg/kg	NA
C6–C44 TPH	8015B(M)/8015B <sup>d</sup>	5.0 mg/kg	NA
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	1.0 – 20 µg/kg	0.5 – 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	20 – 100 µg/kg	NA
Pyrethroids	GC/MS/MS <sup>j</sup>	0.5 – 1.0 µg/kg	NA
Phthalates	8270C SIM <sup>d</sup>	10 µg/kg	NA
Organotins	Rice/Krone <sup>h</sup>	3.0 µg/kg	NA

Notes:

- a Sediment minimum detection limits are on a wet-weight basis; tissue minimum levels are on a wet-weight basis.
  - b Reporting limits provided by Calscience Environmental Laboratories, Inc.
  - c Standard Methods for the Examination of Water and Wastewater, 19th Ed. American Public Health Assoc. et al., 1995.
  - d USEPA 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,  $\alpha$ -benzene hexachloride (BHC),  $\beta$ -BHC,  $\gamma$ -BHC (lindane),  $\delta$ -BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (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, C.D., et al., 1987, or similar (e.g. Krone et al., 1989)
  - i National Oceanographic and Atmospheric Administration (NOAA), 1993
  - j allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cyhalothrin-lambda, cypermethrin, deltamethrin (decamethrin), esfenvalerate, fenpropathrin (danitol), fenvalerate (sanmarton), fluvalinate, permethrin (cis and trans), resmethrin (bioresmethrin), resmethrin, sumithrin (phenothrin), tetramethrin, and tralomethrin
- µg/kg = micrograms per kilogram (parts per billion); µg/L = micrograms per liter; mg/kg = milligrams per kilogram (parts per million); mg/L = milligrams per liter; NA = not applicable; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl; SM = Standard Method; SOP = standard operating procedure; TPH = total petroleum hydrocarbon; TRPH = total recoverable petroleum hydrocarbon

### 2.3.1 Grain-Size Analyses

Composite samples were analyzed for grain size. The analyses were performed at Calscience using a laser method (ASTM D4464M). The results were reported as the percentages of gravel, sand, silt, and clay (to 0.1 percent), the corresponding millimeter and phi sizes, and a cumulative grain-size distribution diagram. The grain-size distribution and mean grain size for each sample were classified by Calscience using Plumb 1981. The Composite A Bottom sample was not tested for grain size. The full grain-size analysis is in Appendix C.

### 2.3.2 Chemical Analyses

Full laboratory reports, including analytical methods, detection limits, and relevant QA/QC information, are in Appendix C. A sample analysis matrix for whole sediment chemicals is in Table 2-2. Calscience, a California-accredited laboratory, conducted all analytical chemical analyses on both the sediment and tissue samples. Samples were analyzed according to USEPA- and USACE-approved methodologies, as summarized in the analytical laboratory report in Appendix C.

## 2.4 Toxicity Analysis

Solid-phase (SP) toxicity testing was conducted on the composite area samples, control sediment, and the Reference sediment. The Composite A Bottom sample was not tested for toxicity because the sediment volume was insufficient. Suspended particulate-phase (SPP) toxicity testing was also conducted on an aqueous elutriate prepared from the composite area samples using test sediments and clean seawater. Bioaccumulation-phase (BP) exposure tests were also performed for the dredged material composite samples as well as the Reference sample; then chemical tissue analyses were conducted. Toxicity testing methods followed USACE- and USEPA-approved methods as outlined in the Project-specific SAP.

All toxicity and bioaccumulation exposures were conducted at the Nautilus laboratory in San Diego, California. The control sediment used for the SP toxicity and BP tests was the native sediment collected where amphipods and clams were collected. Clean seawater was used as the control in the SPP tests. The test species used and the endpoints assessed follow.

#### Solid-Phase Tests

- Amphipod 10-day survival (*Eohaustorius estuarius*)
- Marine polychaete worm 10-day survival (*Neanthes arenaceodentata*)

#### Suspended Particulate-Phase Tests

- Mysid shrimp 96-hour survival (*Americamysis bahia*)
- Inland silverside fish 96-hour survival (*Menidia beryllina*)
- Mussel embryo larvae 48-hour survival/development (*Mytilus galloprovincialis*)

### **Bioaccumulation-Phase Test**

- Polychaete 28-day bioaccumulation potential test (*Nereis virens*)
- Bivalve 28-day bioaccumulation potential test (*Macoma nasuta*)

The SP organisms used for this study met the Green Book requirement that at least two of the benthic species tested be from filter-feeding, deposit-feeding, or burrowing species. *Eohaustorius* is a burrowing filter feeder, and *Neanthes* is a burrowing deposit feeder. The full Nautilus laboratory report is in Appendix D.

#### **2.4.1 Solid-Phase Toxicity Tests**

Ten-day amphipod and polychaete SP tests were conducted under static or static-renewal conditions according to Green Book and ASTM 1998 protocols. Each of the five replicate SP test chambers (1-liter glass jars) contains a 2-centimeter layer of control, Reference, or test sediment, along with 950 milliliters (mL) of clean seawater. Test chambers were permitted to equilibrate for 24 hours before test organisms were added. Test chambers were lightly aerated for the duration of the test period.

Twenty amphipods per test replicate were distributed randomly to each chamber. The polychaete test was conducted with five individuals per replicate container. Water quality parameters of dissolved oxygen (DO), pH, temperature, and salinity were measured before test initiation, then daily during the 10-day test period. Aliquots of porewater were collected and tested for total and un-ionized ammonia before test initiation. Aliquots of overlying water were collected from test chambers of each site at Days 0 and 10 for measurement of total and un-ionized ammonia. The organisms were not fed during the test period.

After 10 days, test organisms were removed by gently sieving the contents of each chamber through a 0.5mm Nitex mesh screen. The organisms were collected on the screen and the number of surviving organisms was recorded.

#### **2.4.2 Suspended Particulate-Phase Toxicity Tests**

The test solution used in the SPP toxicity tests was prepared by mixing seawater and test sediment to yield a volumetric water-to-sediment ratio of 4:1. A stainless steel impeller was applied to mechanically mix and vigorously agitate the mixture for 30 minutes. A 1-hour settling period followed (or longer if the mixture had not settled enough), after which the supernatant was drained from the top of the mixing chamber. The supernatant is the 100 percent SPP liquid (elutriate). Test concentrations included 100, 50, and 10 percent of the dredged-material elutriate. To attain desired concentrations, the 100 percent elutriate was mixed with clean, filtered seawater (obtained from Scripps Institution of Oceanography) to prepare the 50 and 10 percent exposure concentrations. The clean seawater used to prepare the dilutions was used for the negative control.

Control and test solutions were distributed to individual test chambers, and initial water quality readings were recorded. Readings included DO, pH, temperature, ammonia, and salinity. If DO was below 60 percent of saturation in any concentration, all test chambers were lightly aerated for the duration of the test. Water quality was monitored daily for the duration of the test period to ensure that acceptable test conditions were met. Tests were initiated by adding 10 mysid shrimp and 10 inland silversides to separate test chambers. Bivalve larvae test vials were stocked with approximately 20 fertilized embryos per milliliter (mL). During the test period, bivalve larvae were not fed; silversides were fed once daily; and mysid shrimp were fed twice daily to prevent cannibalism.

The test durations were 96 hours for the mysid shrimp and inland silverside, and 48 hours for the bivalve larvae. Counts of mysids and inland silversides were recorded daily, depending upon the visibility of the test organisms, given the opaqueness of the test solution. At test termination, final counts were made of surviving mysid shrimp and inland silversides. The bivalve larvae test was terminated by adding 1 mL of 10 percent buffered formalin to each exposure test chamber. Normal versus abnormal bivalve development was assessed by visually observing the preserved larvae on an inverted microscope. (Normally developed larvae are those that have reached the D-shaped prodissiconch I stage.)

### **2.4.3 Bioaccumulation-Phase Tests**

BP testing was performed by exposing the polychaete worm (*Nereis virens*) and the bent-nose clam (*Macoma nasuta*) to control, Reference, and test sediments for a 28-day test period. Testing was initiated in the same manner as described for other 10-day testing, except that tests were carried out in 10-gallon glass aquaria designed to accommodate 10 polychaetes and 35 clams per replicate, to yield enough tissue biomass to achieve the specified detection limits. The chambers were maintained under flow-through conditions, producing two complete turnovers of water per test chamber per day. During the test period, the water quality in each chamber was measured daily (as described in the 10-day test) and aliquots of overlying water (for analysis of total and un-ionized ammonia) were collected at Day 0, then every seven days thereafter.

Upon test termination, all sediments were sieved to remove the worms and clams. The number of surviving organisms was recorded. Surviving clams and worms were then placed, by replicate, back into clean aquaria containing clean seawater, and held in flow-through conditions to depurate for 24 hours.

Following depuration, animals were carefully removed from the holding chambers, rinsed of any debris, and placed into labeled Ziploc® plastic storage bags and frozen. Each bag was assigned a random number. Frozen test tissue was shipped via a same-day courier to Calscience for chemical analyses. As a quality control measure, pre-test samples of tissue (i.e., time zero) from both species were also frozen for future analysis, if needed. The same suite of chemical analyses used to analyze sediments was measured in the organism tissue samples.

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### 3.0 RESULTS

#### 3.1 Physical Characteristics

The grain size of the two sediment composite samples was analyzed. For both samples, the mean grain size was classified as silt. The proportion of silt in the Composite A sample was greater than 70 percent; in the Composite B sample, it was greater than 60 percent. The percentage of silt and clay was approximately 97 percent in Composite A and approximately 80 percent in Composite B. Field observations of sediment collected within both Project footprints indicated that the material primarily consisted of sticky, solid gray clay, similar in consistency to modeling clay. This clayey sediment was especially prevalent in Composite A; it was present in Composite B to a slightly lesser extent.

Table 3-1 summarizes the grain-size results. Photographs of characteristic sediment core samples with clay material are in Section 4.1, as Figures 4-1 through 4-3. The original laboratory data report from Calscience on grain size is in Appendix C.

**Table 3-1.  
 Grain-Size Results**

Grain Size	Units	Reference	YTI - Composite A	YTI - Composite B	Sail Bay F.G. Control	Amphipod Home
Clay	%	7.24	22.89	19.66	15.45	1.08
Silt	%	31.59	74.2	60.82	76.18	3.08
Total Silt and Clay	%	38.82	97.09	80.48	91.63	4.17
Very Fine Sand	%	44.58	2.91	18.21	8.24	3.21
Fine Sand	%	16.59	ND	1.31	0.13	35.81
Medium Sand	%	0.01	ND	ND	ND	54.42
Coarse Sand	%	ND	ND	ND	ND	2.34
Very Coarse Sand	%	ND	ND	ND	ND	0.05
Gravel	%	ND	ND	ND	ND	ND
Mean Grain Size	mm	0.12	0.019	0.033	0.023	0.271
Plumb (1981) Classification	–	Very Fine Sand	Silt	Silt	Silt	Med. Sand

Notes:

% = percent; ASTM = American Society for Testing and Materials; mm = millimeter; YTI = Yusen Terminals Inc.

#### 3.2 Bulk Sediment Chemistry Results

The sediment results of this study were analyzed to determine whether test sediments contained elevated chemical contaminants relative to the Reference sediment and whether the concentrations of the contaminants may have the potential to cause adverse biological effects. Sediment chemistry results are summarized in Table 3-2. All results are reported in dry weight. More details are in Appendix C.

### **3.2.1 Sediment Quality Guidelines**

The sediment chemical analyses results presented in Table 3-2 are compared to effects-range low (ERL) and effects-range median (ERM) sediment quality guidelines as a relative measure of sediment quality (Buchman 2008). These benchmark values for sediment quality were originally developed in cooperation with NOAA. In addition, a variety of guideline values have been developed to screen sediment results to evaluate potential effects on sediment-associated biota. The ERL and ERM guideline values were derived by matching chemical and biological data.

The ERL values represent the lower 10<sup>th</sup> percentile concentration, and ERM values represent the median concentration at which statistically significant biological effects have been reported. These values were calculated using a large database of study results, including laboratory-generated and field-generated data for a large number of endpoints for species and biological effects. In summary, the ERL values represent concentrations below which biological effects are rarely expected to occur, and ERM values represent concentrations above which biological effects are expected to occur (Buchman 2008). Because of the wide range of site-specific factors that may influence the toxicity and bioavailability of any given compound in the sediment, these guidelines are not intended for use as strict criteria for regulatory application, but rather as a general screening gauge.

### **3.2.2 General Chemistry**

The general chemistry components analyzed as part of the Project were total solids, total organic carbon (TOC), total ammonia, and total and soluble sulfides. In the Composite A, Composite B, and Composite A Bottom samples, total solids were measured at 72.9, 66.4, and 73.5 percent, respectively. In the Composite A and Composite B samples, TOC was measured at 0.71 and 0.87 percent, respectively; the concentration of total ammonia was 7.7 milligrams per kilogram (mg/kg) and 2.1 mg/kg, respectively; and the concentration of total sulfide was 41 mg/kg and 3.1 mg/kg, respectively. Composite A Bottom was not tested for TOC, total ammonia, or total sulfide. No soluble sulfides were detected in either the Composite A or Composite B samples.

### **3.2.3 Metals**

Of the ten metals analyzed, four (arsenic, copper, mercury, and nickel) exceeded the ERL sediment quality guidelines, but were lower than their ERM guidelines in the Composite A, Composite B and Composite A Bottom samples.

### **3.2.4 Chlorinated Pesticides**

The chlorinated pesticide 4,4'-DDE was detected in both the Composite A and Composite B samples at concentrations of 3.1 µg/kg and 12 µg/kg, respectively. Additionally, 2,4'-DDE was detected at a concentration of 3.1 µg/kg in the Composite B sample. These concentrations were above the ERL but below the ERM. No other chlorinated pesticides were detected above analytical method limits. The Composite A Bottom sample had no detectable chlorinated pesticides.



**Table 3-2.  
Additional Sediment Chemistry Testing Summary**

Analytical method	Compound Name	Type	ERL	ERM	Units	References	Composite A – Bottom	Composite A	Composite B
SM 2540 B (M)	Solids, Total	General Chemistry	.	.	%	71.1	73.5	72.9	66.4
EPA 9060A	Total Organic Carbon	General Chemistry	.	.	%	0.77	NT	0.71	0.87
SM 4500-NH3 B/C (M)	Total Ammonia	General Chemistry	.	.	mg/kg	3.2	NT	7.7	2.1
EPA 376.2M	Total Sulfides	General Chemistry	.	.	mg/kg	0.7	NT	41	3.3
EPA 376.2M	Soluble Sulfides	General Chemistry	.	.	mg/kg	ND < 0.1	NT	ND < 0.10	ND < 0.10
EPA 6020	Arsenic	Metals	<b>8.2</b>	<b>70</b>	mg/kg	2.86	6.35	<b>8.77</b>	<b>8.44</b>
EPA 6020	Cadmium	Metals	<b>1.2</b>	<b>9.6</b>	mg/kg	0.195	0.383	0.471	0.423
EPA 6020	Chromium	Metals	<b>81</b>	<b>370</b>	mg/kg	21.3	33.7	35.2	32.9
EPA 6020	Copper	Metals	<b>34</b>	<b>270</b>	mg/kg	10.4	<b>48.8</b>	<b>60.1</b>	<b>54.5</b>
EPA 6020	Lead	Metals	<b>46.7</b>	<b>218</b>	mg/kg	5.37	11.1	27.7	25.7
EPA 7471A	Mercury	Metals	<b>0.15</b>	<b>0.71</b>	mg/kg	ND < 0.0282	0.110	<b>0.217</b>	<b>0.171</b>
EPA 6020	Nickel	Metals	<b>20.9</b>	<b>51.6</b>	mg/kg	10.9	<b>28.5</b>	<b>27.3</b>	<b>22.4</b>
EPA 6020	Selenium	Metals	.	.	mg/kg	0.322	0.339	0.237	0.415
EPA 6020	Silver	Metals	<b>1.0</b>	<b>3.7</b>	mg/kg	0.176	0.112 J	0.183	0.219
EPA 6020	Zinc	Metals	<b>150</b>	<b>410</b>	mg/kg	46.5	85.8	112	112
EPA 8015B(M)	C6	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C7	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C8	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C9-C10	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C11-C12	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C13-C14	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C15-C16	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C17-C18	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C19-C20	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C21-C22	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C23-C24	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C25-C28	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C29-C32	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C33-C36	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C37-C40	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	11
EPA 8015B(M)	C41-C44	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C6-C44 TPH	TPH	.	.	mg/kg	ND <7	NT	ND < 6.9	24
EPA 418.1M	TRPH	TRPH	.	.	mg/kg	18	NT	65	38
EPA 8270C SIM	Naphthalene	PAH	<b>160</b>	<b>2100</b>	µg/kg	ND < 14	<b>410</b>	ND < 14	ND < 15
EPA 8270C SIM	Acenaphthylene	PAH	<b>44</b>	<b>640</b>	µg/kg	ND < 14	4 J	15	15
EPA 8270C SIM	Acenaphthene	PAH	<b>16</b>	<b>500</b>	µg/kg	ND < 14	11 J	ND < 14	ND < 15
EPA 8270C SIM	Fluorene	PAH	<b>19</b>	<b>540</b>	µg/kg	ND < 14	ND < 14	ND < 14	ND < 15
EPA 8270C SIM	Phenanthrene	PAH	<b>240</b>	<b>1500</b>	µg/kg	ND < 14	11 J	17	16
EPA 8270C SIM	Fluoranthene	PAH	<b>600</b>	<b>5100</b>	µg/kg	ND < 14	7.3 J	70	27

**Table 3-2.  
 Additional Sediment Chemistry Testing Summary (Cont.)**

Analytical method	Compound Name	Type	ERL	ERM	Units	References	Composite A – Bottom	Composite A	Composite B
EPA 8270C SIM	Pyrene	PAH	665	2600	µg/kg	ND < 14	23	220	52
EPA 8270C SIM	Benzo (a) Anthracene	PAH	261	1600	µg/kg	ND < 14	4.3 J	27	26
EPA 8270C SIM	Chrysene	PAH	384	2800	µg/kg	ND < 14	3.7 J	48	46
EPA 8270C SIM	Benzo (k) Fluoranthene	PAH	.	.	µg/kg	ND < 14	7.6 J	82	100
EPA 8270C SIM	Benzo (b) Fluoranthene	PAH	.	.	µg/kg	ND < 14	8.8 J	100	130
EPA 8270C SIM	Benzo (a) Pyrene	PAH	430	1600	µg/kg	ND < 14	9.2 J	80	100
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	PAH	.	.	µg/kg	ND < 14	5.9 J	42	61
EPA 8270C SIM	Dibenzo (a,h) Anthracene	PAH	63.4	260	µg/kg	ND < 14	ND < 14	ND < 14	16
EPA 8270C SIM	Benzo (g,h,i) Perylene	PAH	.	.	µg/kg	ND < 14	5.8 J	48	68
	Total Detectable PAHs	PAH	4022	44792	µg/kg	ND	512	749	657
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	3.1
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	2.0	20	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	2.2	27	µg/kg	2.6	ND < 1.4	3.1	12
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	1	7	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Total Detectable DDTs	Chlorinated Pesticides	1.58	46.1	µg/kg	2.6	ND < 1.4	3.1	15.1
EPA 8081A	Aldrin	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Beta-BHC	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Chlordane	Chlorinated Pesticides	0.5	6.0	µg/kg	ND < 14	ND < 14	ND < 14	ND < 15
EPA 8081A	Delta-BHC	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Dieldrin	Chlorinated Pesticides	0.02	8.0	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan I	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan II	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor epoxide	Chlorinated Pesticides	.	.	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Toxaphene	Chlorinated Pesticides	.	.	µg/kg	ND < 28	ND < 27	ND < 27	ND < 30
EPA 8270C SIM PCB Congeners	PCB018	PCB Congeners	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	0.86
EPA 8270C SIM PCB Congeners	PCB028	PCB Congeners	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB037	PCB Congeners	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB044	PCB Congeners	.	.	µg/kg	ND < 0.70	ND < 0.68	1.2	ND < 0.75

**Table 3-2.**  
**Additional Sediment Chemistry Testing Summary (Cont.)**

Analytical method	Compound Name	Type	ERL	ERM	Units	References	Composite A – Bottom	Composite A	Composite B
EPA 8270C SIM PCB Congeners	PCB049	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB052	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.4	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB066	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.85	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB070	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.82	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB074	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB077	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB081	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB087	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB099	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB101	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB105	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB110	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB114	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB118	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB119	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB123	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB126	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB128	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB138/158	PCB Congeners	·	·	µg/kg	ND < 1.4	ND < 1.4	3.2	ND < 1.5
EPA 8270C SIM PCB Congeners	PCB149	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	4.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB151	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB153	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	4.3	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB156	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB157	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.91	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB167	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB168	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB169	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB170	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB177	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB180	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	3.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB183	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB187	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.0	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB189	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB194	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB201	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75

**Table 3-2.**  
**Additional Sediment Chemistry Testing Summary (Cont.)**

Analytical method	Compound Name	Type	ERL	ERM	Units	References	Composite A – Bottom	Composite A	Composite B
EPA 8270C SIM PCB Congeners	PCB206	PCB Congeners	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
	Total Detectable PCBs	PCB Congeners	<b>22.7</b>	<b>180</b>	µg/kg	ND	ND	<b>38.44</b>	0.86
EPA 8270D (M)/TQ/EI	Allethrin (Bioallethrin)	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	0.41 J	0.22 J
EPA 8270D (M)/TQ/EI	Cyfluthrin-beta (Baythroid)	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cyhalothrin-Lamba	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Deltamethrin (Decamethrin)	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	.	.	µg/kg	ND < 0.70	0.055 J	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenpropathrin (Danitol)	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Permethrin - Cis/Trans	Pyrethroids	.	.	µg/kg	ND < 1.4	0.27 J	4.5	2.2
EPA 8270D (M)/TQ/EI	Sumithrin (Phenothrin)	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tralomethrin	Pyrethroids	.	.	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
Organotins By Krone et al.	Dibutyltin	Organotins	.	.	µg/kg	ND < 4.2	NT	0.72	14
Organotins By Krone et al.	Monobutyltin	Organotins	.	.	µg/kg	ND < 4.2	NT	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tetrabutyltin	Organotins	.	.	µg/kg	ND < 4.2	NT	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tributyltin	Organotins	.	.	µg/kg	ND < 4.2	NT	19	11
EPA 8270 SIM	2,4,5-Trichlorophenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4,6-Trichlorophenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dichlorophenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dimethylphenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dinitrophenol	Phenols	.	.	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	2-Chlorophenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2-Methylphenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2-Nitrophenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	3/4-Methylphenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	4,6-Dinitro-2-Methylphenol	Phenols	.	.	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	4-Chloro-3-Methylphenol	Phenols	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	4-Nitrophenol	Phenols	.	.	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	Pentachlorophenol	Phenols	.	.	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	Phenol	Phenols	.	.	µg/kg	33	NT	ND < 14	ND < 15
EPA 8270 SIM	Bis(2-Ethylhexyl) Phthalate	Phthalates	.	.	µg/kg	14	NT	170	270
EPA 8270 SIM	Butyl Benzyl Phthalate	Phthalates	.	.	µg/kg	ND < 14	NT	47	52

**Table 3-2.**  
**Additional Sediment Chemistry Testing Summary (Cont.)**

Analytical method	Compound Name	Type	ERL	ERM	Units	References	Composite A – Bottom	Composite A	Composite B
EPA 8270 SIM	Diethyl Phthalate	Phthalates	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	Dimethyl Phthalate	Phthalates	.	.	µg/kg	210	NT	ND < 14	ND < 15
EPA 8270 SIM	Di-n-Butyl Phthalate	Phthalates	.	.	µg/kg	ND < 14	NT	15	ND < 15
EPA 8270 SIM	Di-n-Octyl Phthalate	Phthalates	.	.	µg/kg	ND < 14	NT	ND < 14	ND < 15

Notes:

Results are presented in dry weight

**Red Font** indicates value higher than ERL

**Red Underlined Font** indicates value higher than ERM

ERL = Effects Range Low; ERM = Effects Range Median; J = concentrations greater than or equal to MDL but less than RL; kg = kilogram; mg = milligram; ND = Non Detect; NT = Not Tested; PAH = Polycyclic aromatic hydrocarbon;  
 PCB = Polychlorinated biphenyl; TPH = Total petroleum hydrocarbons; TRPH = Total recoverable petroleum hydrocarbons

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### **3.2.5 Pyrethroids**

The total detectable pyrethroids concentrations were measured at 4.5 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) and 2.2  $\mu\text{g}/\text{kg}$  in the sediment composite samples Composite A and Composite B, respectively. Of the 15 pyrethroids analyzed, permethrin-cis/trans was detected above the reporting limits in both the Composite A and Composite B samples. Befenthrin was detected at estimated levels in both Composite Samples A and B between the method detection limit (MDL) and reporting limit (RL). None of the remaining 13 pyrethroids were detected in either sample. The Composite A Bottom sample was tested for pyrethroids; none of the 15 pyrethroids were above the reporting limit, and only two were detected at estimated levels above the MDL (permethrin-cis/trans and fenvalerate/esfenvalerate).

### **3.2.6 Phenols**

No phenols were detected in either of the composited sediment samples. The Composite A Bottom sample was not tested for phenols.

### **3.2.7 Phthalates**

Three of the six phthalates analyzed were found at measurable levels ranging from 15  $\mu\text{g}/\text{kg}$  to 170  $\mu\text{g}/\text{kg}$  in the Composite A sample. Two phthalates, bis(2-ethylhexyl) phthalate and butyl benzyl phthalate, were detected above their respective reporting limits in the Composite B sample, at concentrations of 270  $\mu\text{g}/\text{kg}$  and 52  $\mu\text{g}/\text{kg}$ , respectively. The remaining phthalates analyzed were not detected. The Composite A Bottom sample was not tested for phthalates. Currently, there are no sediment quality guidelines for phthalates.

### **3.2.8 Polycyclic Aromatic Hydrocarbons**

No PAHs were measured at concentrations above their individual ERL or ERM values, including total detectable PAHs. Eleven PAHs were detected above the RLs in the Composite A sample, ranging from 15  $\mu\text{g}/\text{kg}$  to 220  $\mu\text{g}/\text{kg}$ . Twelve PAHs were detected above their RLs in the Composite B sample, ranging from 15  $\mu\text{g}/\text{kg}$  to 130  $\mu\text{g}/\text{kg}$ . The total detectable PAH concentration for the dredged material composite was 749  $\mu\text{g}/\text{kg}$  in the Composite A sample, and 657  $\mu\text{g}/\text{kg}$  in the Composite B sample. No other PAHs were above analytical detection limits. In the Composite A Bottom sample, most PAHs were not detected above the reporting limit, except for naphthalene, which had a result of 410  $\mu\text{g}/\text{kg}$ . Two other PAHs were detected above the RLs in the Composite A Bottom sample.

### **3.2.9 Total Petroleum Hydrocarbons**

No total petroleum hydrocarbons (TPH) were detected in the sediment Composite A sample. In the Composite B sample, testing detected C6–C44 TPH at a concentration of 24 mg/kg and detected the C37–C40 range fractions, but did not detect within the other range fractions. The Composite A Bottom sample was not tested for TPH.

### **3.2.10 Organotins**

The concentration measured of total organotins was 19.7 µg/kg in the Composite A sample, and 25 µg/kg in the Composite B sample. Dibutyltin and tributyltin had respective concentrations of 0.72 µg/kg and 19 µg/kg in the Composite A sample, and 14 µg/kg and 11 µg/kg in the Composite B sample. The remaining two organotins (monobutyltin and tetrabutyltin) were below detectable limits in both composite samples. The Composite A Bottom sample was not tested for organotins.

### **3.2.11 PCB Congeners**

PCB congener concentrations ranged from 4.3 µg/kg for PCB 153 to less than the detection limit of 0.69 µg/kg in the Composite A sample. The total detectable concentration of PCB congeners in Composite A was 38.4 µg/kg. This value exceeds the ERL value for Total Detectable PCBs, 22.7 µg/kg, but does not exceed the ERM (180 µg/kg). The PCB congener PCB 018 was the only PCB congener detected (at 0.86 µg/kg) above its RL in the Composite B sample. The Composite A Bottom sample showed no detectable PCB congeners.

## **3.3 Toxicity Test Results**

An iterative testing approach was used to determine the need for a full Tier III Green Book analysis. In addition to the bulk sediment chemical analyses conducted during the initial phase of testing, a SP toxicity test with amphipods was also conducted to determine whether to do further full Green Book Tier III testing. After reviewing the results of the chemical analyses and amphipod toxicity test, the Port decided to move ahead with full Green Book testing. The results are described below, and a full toxicity report by Nautilus is included in Appendix D.

### **3.3.1 Solid-Phase Toxicity Tests**

The 10-day SP test results are summarized in Table 3-3.

#### **3.3.1.1 Amphipod (*Eohaustorius estuaries*)**

The 10-day amphipod survival was determined to be 68 percent in the Composite A sample and 87 percent in the Composite B sample. Amphipod survival was 97 percent in the laboratory control sediment, 98 percent in the LA-2 Reference sediment, and 95 percent in the fine-grain control. The fine-grain control consisted of sediment collected in the Sail Bay portion of Mission Bay in San Diego. A fine-grain control is useful for determining whether fine-grain particles have negatively affected amphipod survival.

Multiple comparison tests indicated significantly lower survival rates in Composite A (68 percent) and Composite B (87 percent) when compared to the LA-2 Reference site (98 percent). However, the Composite B survival percentage is within 20 percent of the LA-2 Reference site survival percentage; therefore the significant reduction in mean survival is not considered ecologically significant.



Based upon the low levels of chemicals observed in the dredged materials and on the high amphipod survival results, the Port decided to proceed with full Tier III Green Book testing of the Composite A and B sediments. The results of these additional analyses are described below.

### 3.3.1.2 Polychaete (*Neanthes arenaceodentata*)

Worm survival in the 10-day SP test was 100 percent in the Composite A, Composite B, and LA-2 Reference samples, and 96 percent in the laboratory control sediment (SIO Control Sand).

**Table 3-3.  
 Solid-Phase Toxicity Results**

Site	<i>Eohaustorius estuaries</i> (Mean % Survival)	<i>Neanthes arenaceodentata</i> (Mean % Survival)
Laboratory Control (home)	97	(not applicable)
Laboratory Control (SIO Control Sand)	NA	96
Fine Grain Size Control	95	(not applicable)
LA-2 Reference	98	100
Composite A	<b>68*</b>	100
Composite B	<b>87*†</b>	100

Notes:

**Boldface\*** = Value indicates a statistically significant decrease from the Reference.

**Boldface\*†** = Value indicates a statistically significant decrease, but within 20 percent of the Reference.

### 3.3.2 Suspended Particulate-Phase Toxicity Tests

Results of the SPP tests are summarized in Table 3-4. Neither of the composite sediment elutriates were toxic to the inland silverside minnows or mysid shrimp. Mean survival of mysids ranged from 94 to 96 percent in laboratory controls and 86 to 92 percent in undiluted elutriates. Mean survival in both controls for the inland silverside test were 96 percent and 94 to 100 percent in undiluted elutriates.

A significant effect in mussel (*Mytilus galloprovincialis*) development was observed in the undiluted (100 percent) elutriate for Composite A when compared to the laboratory control. Mean normal development (percent normal alive) of surviving mussel embryos ranged from 87 to 92 percent in the laboratory controls. Mean percent normal alive was 1.4 in the undiluted elutriate for Composite A, a 98 percent effect from control. No effect was observed in the 10 or 50 percent concentrations for the Composite A elutriate, and the resulting median-effect level (EC<sub>50</sub>) was determined to be 75 percent. Composite B showed statistically significant effects on mussel embryos in both the 50 and 100 percent elutriate concentrations (11 and 8.2 percent effect, respectively). There was no significant effect observed in the 10 percent concentration, and the resulting EC<sub>50</sub> value for Composite B was greater than 100 percent. Note that Nautilus reported that the effects observed on mussel larvae development may have been related to elevated un-ionized ammonia levels in the elutriate samples. This is discussed further in Section 4.3.2.1 and in the toxicity testing report in Appendix D.

**Table 3-4.  
 Suspended Particulate-Phase Toxicity Results**

Site	Elutriate Concentration	Mussel (Mean % Normal/Alive)	Mysid (Mean % Survival)	Inland Silverside (Mean % Survival)
Laboratory Control – A	0%	87	96	96
Composite A	10%	87	90	98
	50%	85	96	100
	100%	<b>1.4*</b>	92	94
Laboratory Control – B	0%	92	94	96
Composite B	10%	91	94	100
	50%	<b>82*</b>	96	100
	100%	<b>88*</b>	86	100

Notes:

Data are mean percent survival at 96 hours (mysid and fish [inland silverside] tests) and mean percent normal development at 48 hours (bivalve [mussel] test).

**Boldface\*** = Values indicate a statistically significant decrease from the laboratory control.

### 3.3.3 Bioaccumulation-Phase Tests

#### 3.3.3.1 Survival

Results of the BP survival are summarized below in Table 3-5. Mean survival of clams in the laboratory control, LA-2 Reference sediment, Composite A, and Composite B sediments ranged between 87 and 90 percent. Mean survival did not differ significantly among test, Reference and control sediments. Mean survival of worms in the laboratory control and LA-2 Reference sediment was 100 and 98 percent, respectively, and between 90 and 96 percent for the study's composite sediments. No significant differences in polychaete survival among test and Reference sediments were observed. The survival test is used as a QA/QC measure to ensure that adequate clam and worm tissue is obtained for chemical tissue testing of the bioaccumulation. Further BP discussion is in Section 4.3.3.

**Table 3-5.  
 Bioaccumulation-Phase 28-Day Toxicity Results**

Site	<i>Macoma nasuta</i> (Mean % Survival)	<i>Nereis virens</i> (Mean % Survival)
Laboratory Control	87	100
LA-2 Reference Site	90	98
Composite A	88	96
Composite B	88	90

Notes:

Initial number of *Macoma* organisms per replicate = 35

Initial number of *Nereis* organisms per replicate = 10

### **3.3.3.2 Bioaccumulation Tissue Analysis**

After the 28-day exposure period, clam and worm tissues were analyzed for chemical concentrations in the Composite A and B sediments. A complete report from Calscience of the tissue chemistry results and a full table summary of individual replicate tissue chemistry is in Appendix E. Statistical comparisons between the mean values of test sediment exposures and the Reference sediment exposures were evaluated using all available replicate data. In cases where no analytes were detected, the RL was used to calculate the mean values. All results are reported in wet weight.

#### **3.3.3.2.1 Metal Bioaccumulation in Clam and Worm Tissues**

Results of the metal bioaccumulation analyses in clams and polychaete worm tissues are summarized in Tables 3-6 and 3-7. These results are the means and standard deviations of the five replicates analyzed for each test treatment (i.e., Reference, Composite A, and Composite B).

The clam bioaccumulation test indicated that two metals (copper and lead) were significantly greater in Composite A test tissues compared to that in the Reference tissues for *M. nasuta*. In tissues exposed to sediments from the Composite A sample, the average copper and lead concentrations were  $1.69 \pm 0.11$  mg/kg and  $0.31 \pm 0.03$  mg/kg, respectively. Composite B clam test tissues showed three metals (chromium, copper, and lead) in significantly greater amounts when compared to Reference tissues. The average chromium, copper, and lead concentrations in tissues exposed to sediments from the Composite B sample were  $0.48 \pm 0.33$  mg/kg,  $1.95 \pm 0.19$  mg/kg, and  $0.38 \pm 0.07$  mg/kg, respectively. In Reference sediments, the average concentrations of chromium, copper, and lead were  $0.184 \pm 0.03$  mg/kg,  $1.47 \pm 0.10$  mg/kg and  $0.15 \pm 0.01$  mg/kg, respectively.

Worm BP results for copper indicated that both Composite A and Composite B sediment samples contained significantly greater concentrations of copper in test tissues ( $1.39 \pm 0.08$  mg/kg and  $1.67 \pm 0.10$  mg/kg, respectively) compared to the Reference ( $1.28 \pm 0.03$  mg/kg).

**Table 3-6.**  
**Metal Bioaccumulation Results in Tissues – Composite A**

Compound Name	Units	Analytes Measured in Clam Tissue				Analytes Measured in Worm Tissue			
		LA-2 Reference		Composite A		LA-2 Reference		Composite A	
		Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD
Arsenic	mg/kg	2.42	0.23	2.50	0.20	2.23	0.15	2.09	0.15
Cadmium	mg/kg	ND	–	ND	–	ND	–	ND	–
Chromium	mg/kg	0.18	0.03	0.21	0.03	0.16	0.05	0.19	0.08
Copper	mg/kg	1.47	0.10	<b>1.69*</b>	0.11	1.28	0.03	<b>1.39*</b>	0.08
Lead	mg/kg	0.15	0.01	<b>0.31*</b>	0.03	ND	–	ND	–
Nickel	mg/kg	0.38	0.03	0.34	0.04	0.28	0.03	0.25	0.04
Selenium	mg/kg	0.26	0.02	0.22	0.02	0.27	0.05	0.25	0.03
Silver	mg/kg	ND	–	ND	–	ND	–	ND	–
Zinc	mg/kg	11.34	1.03	12.30	0.49	23.12	8.46	16.50	6.12
Mercury	mg/kg	ND	–	ND	–	ND	–	ND	–

Notes:

**Boldface\*** - significant t-test results when compared to the Reference ( $p \leq 0.05$ )

1 SD = standard deviation; mg/kg = milligrams per kilogram; ND = non-detect

**Table 3-7.**  
**Metal Bioaccumulation Results in Tissues – Composite B**

Compound Name	Units	Analytes Measured in Clam Tissue				Analytes Measured in Worm Tissue			
		LA-2 Reference		Composite B		LA-2 Reference		Composite B	
		Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD
Arsenic	mg/kg	2.42	0.23	2.62	0.35	2.23	0.15	2.38	0.19
Cadmium	mg/kg	ND	–	ND	–	ND	–	ND	–
Chromium	mg/kg	0.184	0.03	<b>0.48*</b>	0.33	0.16	0.05	0.44	0.38
Copper	mg/kg	1.47	0.10	<b>1.95*</b>	0.19	1.28	0.03	<b>1.67*</b>	0.10
Lead	mg/kg	0.15	0.01	<b>0.38*</b>	0.07	ND	–	ND	–
Nickel	mg/kg	0.38	0.03	0.53	0.23	0.28	0.03	0.41	0.26
Selenium	mg/kg	0.26	0.02	0.28	0.05	0.27	0.05	0.29	0.07
Silver	mg/kg	ND	–	ND	–	ND	–	ND	–
Zinc	mg/kg	11.34	1.03	12.6	1.11	23.12	8.46	22.76	7.81
Mercury	mg/kg	ND	–	ND	–	ND	–	ND	–

Notes:

**Boldface\*** = significant t-test results when compared to Reference ( $p \leq 0.05$ )

1 SD = standard deviation; ND = non-detect; mg/kg = milligrams per kilogram

### 3.3.3.2 Organics Bioaccumulation in Clam and Worm Tissues

Tables 3-8 and 3-9 summarize the concentrations of total PAHs, 4,4'-DDE, and total PCB congeners in clam and worm tissues exposed to test and Reference sediments for 28 days. The statistical comparisons indicated that concentrations of total PAHs in Composite A and Composite B clam tissues ( $559 \pm 139 \mu\text{g/kg}$  and  $135 \pm 24.0 \mu\text{g/kg}$ , respectively) were statistically significant in animals exposed to test sediments, compared to those exposed to Reference sediments. Total PCB congeners in both Composite A and Composite B clam tissues

( $10.0 \pm 1.76 \mu\text{g/kg}$  and  $14.5 \pm 3.40 \mu\text{g/kg}$ , respectively) were found to be statistically significant when compared to those exposed to Reference sediments.

Worm BP tissue results indicated that total PAHs in Composite A were statistically significant ( $167 \pm 77.5 \mu\text{g/kg}$ ) compared to Reference sediment exposed tissue (non-detect). The chlorinated pesticide 4,4'-DDE was found to be statistically significant in both Composite A ( $3.04 \pm 0.38 \mu\text{g/kg}$ ) and Composite B ( $3.52 \pm 0.78 \mu\text{g/kg}$ ) tissues compared to the LA-2 Reference worm tissue ( $1.63 \pm 0.30 \mu\text{g/kg}$ ). Total PCBs were found to be statistically significant in both Composite A ( $15.8 \pm 2.96 \mu\text{g/kg}$ ) and Composite B ( $18.1 \pm 5.12 \mu\text{g/kg}$ ) tissues compared to the LA-2 Reference worm tissue (non-detect).

**Table 3-8.**  
**Organics Bioaccumulation Results in Tissues – Composite A**

Compound Name	Units	Analytes Measured in Clam Tissue				Analytes Measured in Worm Tissue			
		LA-2 Reference		Composite A		LA-2 Reference		Composite A	
		Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD
4,4'-DDE	$\mu\text{g/kg}$	9.0	3.0	6.48	0.75	1.63	0.30	<b>3.04*</b>	0.38
Total PAHs	$\mu\text{g/kg}$	ND	–	<b>559*</b>	139	ND	–	<b>167*</b>	77.5
Total PCBs	$\mu\text{g/kg}$	ND	–	<b>10.0*</b>	1.76	ND	–	<b>15.8*</b>	2.96

Notes:

**Boldface\*** = significant t-test results when compared to Reference ( $p \leq 0.05$ )

1 SD = standard deviation;  $\mu\text{g/kg}$  = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; ND = non-detect; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

**Table 3-9.**  
**Organics Bioaccumulation Results in Tissues – Composite B**

Compound Name	Units	Analytes Measured in Clam Tissue				Analytes Measured in Worm Tissue			
		LA-2 Reference		Composite B		LA-2 Reference		Composite B	
		Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD
4,4'-DDE	$\mu\text{g/kg}$	9.0	3.0	11	0.71	1.63	0.30	<b>3.52*</b>	0.78
Total PAHs	$\mu\text{g/kg}$	ND	–	<b>135*</b>	24.0	ND	–	11	–
Total PCBs	$\mu\text{g/kg}$	ND	–	<b>14.5*</b>	3.40	ND	–	<b>18.1*</b>	5.12

Notes:

**Boldface\*** - significant t-test results when compared to Reference ( $p \leq 0.05$ )

1 SD = standard deviation;  $\mu\text{g/kg}$  = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

### 3.4 Data Validation

QA/QC data is presented in full detail in the original laboratory reports (in Appendices C, D, and E). This section summarizes the results of the QA/QC procedures used to ensure that the chemistry, toxicity, and tissue data reported are valid.

### **3.4.1 Sediment Data Validation**

#### **3.4.1.1 Laboratory Duplicates**

A laboratory duplicate was carried out for the Composite B sample for all analyses except dissolved sulfide. The precision between the two samples was acceptable by Calscience. Laboratory data are included in the full analytical chemistry report in Appendix C.

#### **3.4.1.2 Calibration**

Frequency and control criteria for initial and continuing calibration verifications were met. The method detection limits were met.

#### **3.4.1.3 Blanks**

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

#### **3.4.1.4 Laboratory Control Samples**

A laboratory control sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits.

#### **3.4.1.5 Surrogates**

Surrogate recoveries for all applicable tests and samples were within acceptable control limits with one exception. For PCB Congeners by USEPA 8270C SIM, the 2-fluorobiphenol recovery was low in the Composite A sample; the results were appropriately flagged.

#### **3.4.1.6 Matrix Spikes**

Matrix spiking was performed at the required frequencies for the sediment on both Project and non-Project samples. All matrix spike parameters outside the acceptable control limits are noted below for the Project composite samples only.

For the Composite A sample, chlorinated pesticides by USEPA 8081A, DDD, DDT, and methoxychlor were outside the control limits; because the LCS recoveries were in control, the results were released without further action. For the Composite B sample, four MS/MSD recoveries and/or RPDs were outside the control limits; because the LCS recoveries were in control, the results were released with no further action.

The zinc matrix spike concentration for the Composite A sample was above the established control limit. The results were flagged with the appropriate qualifiers and were released without further action. In the Composite B sample testing regimen, metals by USEPA 6020, the lead MS and MSD recoveries were outside the control limits. Because the LCS recoveries were in control, the results were released with no further action. The tributyltin MS recovery for the Composite B sample was outside the control limits; because the LCS recoveries were in control,

the results were released with no further action. For PCB congeners by USEPA 8270C SIM PCBs in the Composite B sample, several congeners had low recovery in the MSD. Because the LCS recoveries were in control, the results were released with no further action.

### **3.4.2 Toxicity Testing Data Validation**

All of the data presented have been thoroughly reviewed and are considered acceptable for reporting in accordance with internal QA/QC program and relevant protocols. All toxicity and bioaccumulation tests were initiated within sediment holding time requirements. Any deviations with respect to test conditions and acceptability criteria are summarized below. All deviations were determined to be minor, with no bearing on the data or their final interpretation.

#### **3.4.2.1 Reference Toxicant Tests**

Reference toxicant test results for SP and SPP tests are in Appendix D. All laboratory controls for Reference toxicant tests met test acceptability criteria. Additionally, median lethal and median-effect ( $LC_{50}/EC_{50}$ ) levels for Reference toxicant tests were within two standard deviations of Nautilus's internal control chart average for all species tested.

#### **3.4.2.2 Solid-Phase Toxicity Tests**

Laboratory control performance for both solid-phase tests met minimum test acceptability criteria. All other test acceptability criteria were met and water quality values were within acceptable ranges as defined by the test protocols for both species.

#### **3.4.2.3 Suspended Particulate-Phase Toxicity Tests**

Fish and mysid survival exceeded the 90 percent criterion in all laboratory controls. Mussel survival and development met both criteria, with greater than 70 percent survival and greater than 70 percent normal shell development of surviving embryos in laboratory controls. Water quality measurements were within specified ranges for the duration of the tests for all species.

#### **3.4.2.4 Bioaccumulation Tests**

Mean clam and worm survival in laboratory control sediment was 87 and 100 percent, respectively, meeting minimum tissue requirements for chemical analysis. Water quality parameters satisfied test protocol requirements and the data were considered valid without further qualification.

### **3.4.3 Tissue Testing Data Validation**

#### **3.4.3.1 Calibration**

Frequency and control criteria for initial and continuing calibration verifications were met. The method detection limits were met.

### **3.4.3.2 Blanks**

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

### **3.4.3.3 Laboratory Control Samples**

A LCS analysis was performed for each applicable test. All parameters were within established control limits with the following exception. The Acenaphthene recovery was outside of standard control limits. However, the recovery was within the ME limits, therefore the results are released with no further action.

### **3.4.3.4 Surrogates**

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

### **3.4.3.5 Matrix Spikes**

Matrix spiking was performed at the required frequencies for the project and non-project tissue samples. All matrix spike parameters outside the acceptable control limits were noted below.

For Metals by EPA 6020, in one QC batch, the zinc MSD recovery was above the control limits. In the second QC batch, the Copper and Silver MS/MSDs were outside the control limits and the zinc sample concentration was over four times the spike level so the recovery could not be determined. Since all LCS/LCSD recoveries were acceptable, the data is released.

For Mercury by EPA 7471A, the recoveries in one MS/MSD pair was low outside of acceptance limits. The other MS/MSD pair was within acceptance limits and the LCS/LCSD recoveries were within acceptance limits.

Several of the Chlorinated Pesticides (by EPA 8081A) matrix spike and/or matrix spike duplicate recoveries were outside of acceptance limits. Since the LCS/LCSD recoveries were acceptable, the data is released.

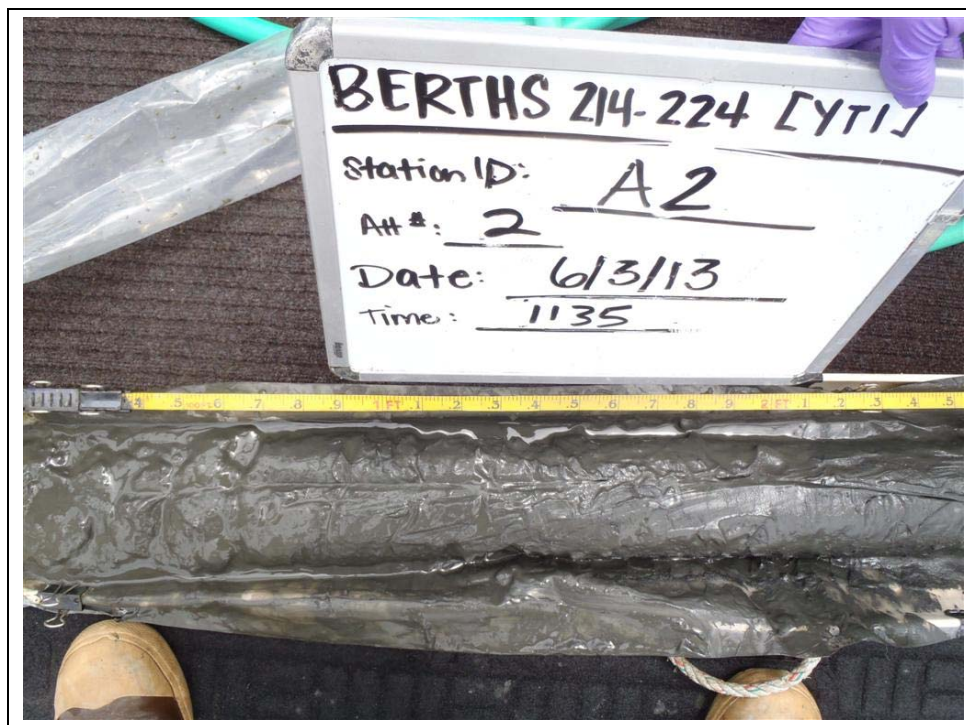


## 4.0 DISCUSSION

The purpose of this sediment characterization study was to evaluate the quality of sediment within the Project dredge footprint so as to assess the disposal suitability of the material for placement at the LA-2 ODMDS and/or at the Port's agency-approved CDF located at Berths 243–245.

### 4.1 Sediment Collection

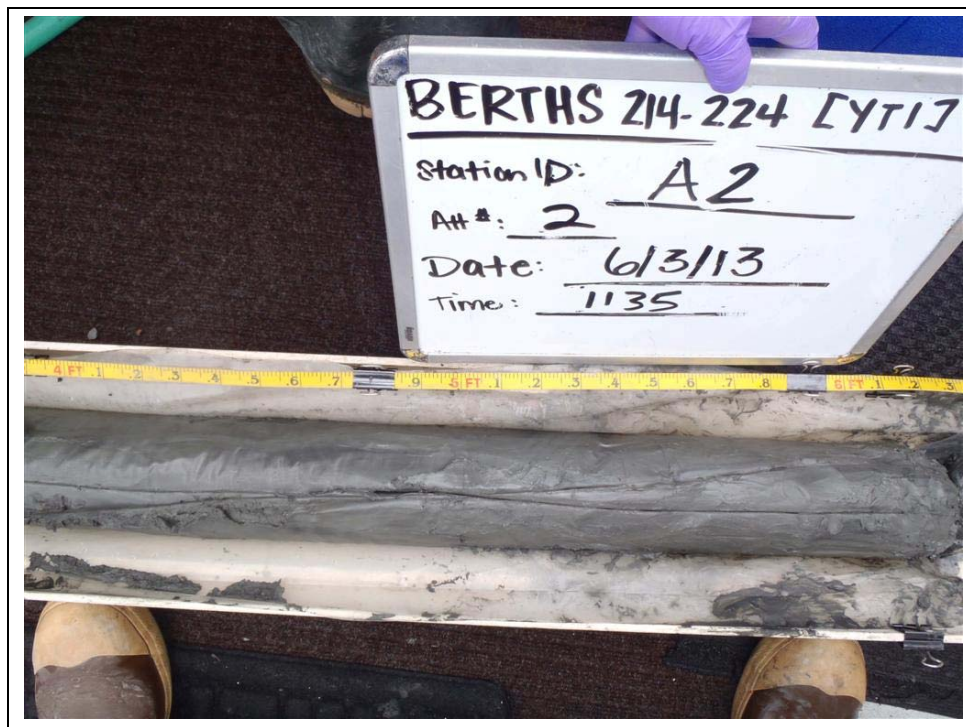
Individual core samples collected at the YTI Terminal contained two distinct sediment layers. The topmost layer consisted of unconsolidated silt; the lower layer consisted primarily of sticky, very compact, dry-textured, gray clay. In some locations, the proportion of clay in the recovered core was much greater than the unconsolidated silt layer. An example of a typical sediment core collected in Composite Area A is shown below in the photographs in Figures 4-1 through 4-3.



**Figure 4-1. Top Silty Material Beginning To Transition To Clay (0–2 ft below harbor bottom)**



**Figure 4-2. Transition from Silt to Clay Sediment  
(2–4 ft below harbor bottom)**



**Figure 4-3. Bottom of Core: Predominantly Clay Sediment  
(4–6 ft below harbor bottom)**

## 4.2 Sediment Chemistry

A total of ten vibracore samples, five from each dredge footprint, were collected and combined to create two composite samples for analysis. Overall, the results of the chemical analyses conducted on the Project composite sediment samples showed that the proposed dredged material is substantially free of chemical contamination. Slightly elevated (i.e., above ERL guideline values) levels of arsenic, copper, mercury, nickel, PCBs, and DDT were observed; however, all chemical levels were well below ERM guidelines. None of the chemical levels measured in this study were unusual, compared to what is normally observed in an industrial harbor.

At the November 2013 CSTF meeting, it was recommended that further testing be performed, using the Composite A Bottom samples, to determine the chemical composition of the clay material. Overall, the results of the supplementary chemical analysis indicated that the bottom clay layer was free of most chemicals and did not have any detectable PCB congeners, chlorinated pesticides, or pyrethroids. In addition, its metal levels were similar to those found in the Composite A and B samples, and the level of PAHs was reduced when compared to those of the Composite A and B samples. A memorandum summarizing the results of the Composite A Bottom results is included in Appendix G.

## 4.3 Toxicity Analysis

### 4.3.1 Solid-Phase Toxicity Tests

As stated previously, *Eohaustorius* survival in the SP tests was statistically reduced in both composite samples compared to Reference survival. Because the average amphipod survival percentage for Composite B (87 percent) was within the allowable 20 percent Reference survival (98 percent) window, the reduction observed in Composite B is not considered to be ecologically significant. The Composite A amphipod survival level (68 percent) is not within the allowable 20 percent Reference survival window.

Because the Composite A chemistry levels are relatively low, there does not appear to be a clear link between the measured chemistry and observed toxicity. When no clear link between these two measurements exists, the next step is to assess potential confounding factors. For solid-phase toxicity tests, the confounding factors typically assessed are: (1) effects due to particle size, (2) elevated levels of porewater un-ionized ammonia, (3) elevated levels of sulfides, and (4) heightened organism sensitivity. Nautilus did not report any excessive levels of ammonia or sulfides prior to initiating the toxicity tests, and organism sensitivity (as measured by conducting a Reference toxicant test) also fell within acceptable parameters, so these potential confounding factors can likely be eliminated.

Based upon the properties of the Composite A test sediments (consolidated clayey sediments with a high level of fine particles), it is possible that particle size may have played a role in the reduction in survival observed in the Composite A amphipod test. The Southern California Coastal Water Research Project (SCCWRP) notes in its Bight '08 Toxicology Laboratory Manual that “there is evidence that the amphipod *Eohaustorius* may be negatively affected by fine-grained sediments. The sensitivity seems to be seasonally influenced and somewhat unpredictable.” (SCCWRP 2008). DeWitt et al. 1989 reports, however, that in numerous testes conducted with *Eohaustorius*, the species “showed little sensitivity to sediment of different grain sizes: mean survival was 92 percent in sediments with  $\geq 80$  percent silt-clay content and 97 percent for coarser sediments.”

To assess the effects of grain size on individual batches of amphipods, the test toxicity laboratory performs concurrent control treatments using a broad range of grain-sized sediments. For this study, Nautilus conducted a fine-grain size control, using sediment collected from Sail Bay in Mission Bay, San Diego. The fine-grained size control contained 76 percent silt and 15 percent clay. Average amphipod survival for fine-grained size control was 95 percent. Based upon this observation, it appears unlikely that the effect observed in Composite A was solely the result of the fines content. However, the consolidated, dry-textured and clayey nature of the YTI Terminal sediments may have negatively influenced amphipod survival. Since such high percentages of hard, consolidated clay are not typical in dredged material, it is possible that the effects of grain size could not be quantified by the fine-grained control test, which was dominantly silt and contained 4.2 percent to 7.4 percent less clay than the test sediments.

### **4.3.2 Suspended Particulate-Phase Tests**

Neither of the sediment elutriates was toxic to the inland silverside minnows or mysid shrimp. However, a significant effect in mussel (*Mytilus galloprovincialis*) development was seen in the 100 percent elutriates for both Composite A and Composite B samples, and in the 50 percent elutriate for Composite B. As described below, the effects observed on normal development of mussel embryos in the elutriate concentrations may be related to elevated ammonia levels.

#### **4.3.2.1 Potential Confounding Factors: Ammonia**

Total and un-ionized ammonia concentrations are summarized in Appendix D, Tables 12 to 15. Un-ionized ammonia (the more toxic form of ammonia) values were calculated from total ammonia measurements. Ammonia concentrations were generally below toxic concentrations, with a few exceptions.

Total and un-ionized ammonia was near threshold levels for *Mytilus* in the Composite A SPP test, and approximately half that in Composite B. Thus, ammonia may have been a contributing factor in toxicity observed to mussel larvae (Appendix D, Table 14).

### **4.3.3 Bioaccumulation-Phase Tests**

Clam and worm tissues were exposed to the composite sediments from the proposed Project dredge footprint, as well as LA-2 Reference sediment and laboratory control sediment for a 28-day BP test. Tissues were analyzed for chemical constituents after the completion of this BP test. The tissue analysis results were evaluated in four ways:

1. Concentrations of chemical analytes detected in clams and worms exposed to test sediments were statistically compared to clams and worms exposed to LA-2 Reference sediment.
2. Metal and organic concentrations observed in the test tissue were compared to the U.S. Food and Drug Administration (FDA) Action Levels for chemicals in fish and shellfish.
3. Bioconcentration factors (BCFs) were calculated by dividing concentrations of chemicals in tissues divided by the concentration in sediment.
4. The chemicals that showed significant bioaccumulation potential were compared to values in the Environmental Residue Effects Database (ERED). The ERED contains toxic effects levels for a variety of test organisms and associated endpoints. Specific organisms (i.e., clams and worms) and such endpoints (i.e., survival, growth, and mortality) are similar to those used for Green Book testing and were used to evaluate any exceedances of documented effects levels in tissues.

The bioaccumulation tissue test results are summarized below. The full tissue chemistry report from Calscience and statistical test results are in Appendix E, and the full BP test results are in Appendix D.

#### **4.3.3.1 Bioaccumulation Statistical Comparisons**

Statistical comparisons using a student's t-test indicate that copper, lead, total PAHs, and total PCB congeners were statistically elevated in clam tissues exposed to Composite A sediments when compared to those exposed to the LA-2 Reference sediment. Test tissues for worms exposed to Composite A sediments were also statistically elevated with copper, total PAHs, total PCB congeners, and the chlorinated pesticide 4,4'-DDE when compared to those exposed to the LA-2 Reference sediment.

Tissues from clams exposed to Composite B sediments were statistically elevated for the trace metals chromium, copper, and lead, total PAHs, and total PCB congeners when compared to those exposed to LA-2 Reference sediment. Test worm tissues exposed to Composite B area sediments were significantly elevated for copper, total PCB congeners, and pesticide 4,4'-DDE. Tissues with concentrations of metals and organics that were significantly greater in test organisms compared to Reference specimens for both Composite Areas are listed in Tables 4-1 and 4-2. Full statistical summary tables are in Appendix E.

**Table 4-1.**  
**Test Tissues with Statistically Elevated Bioaccumulation of Trace Metals**

<b>c</b>	<b>Composite Area</b>	<b>Test Organism</b>	<b>Units (wet weight)</b>	<b>Average Reference Tissue Concentration</b>	<b>Average Test Tissue Concentration</b>	<b>Times Above Reference</b>
Copper	A	Clam	mg/kg	1.47	1.69	1.2
Lead	A	Clam	mg/kg	0.152	0.311	2.0
Copper	A	Worm	mg/kg	1.28	1.39	1.1
Chromium	B	Clam	mg/kg	0.184	0.481	2.6
Copper	B	Clam	mg/kg	1.47	1.95	1.3
Lead	B	Clam	mg/kg	0.152	0.378	2.5
Copper	B	Worm	mg/kg	1.28	1.67	1.3

Notes:  
 mg/kg = milligrams per kilogram

**Table 4-2.**  
**Test Tissues with Statistically Elevated Bioaccumulation of Pesticides and Organics**

<b>Analyte</b>	<b>Composite Area</b>	<b>Test Organism</b>	<b>Units (wet weight)</b>	<b>Average Reference Tissue Concentration</b>	<b>Average Test Tissue Concentration</b>	<b>Times Above Reference</b>
Total PAHs	A	Clam	µg/kg	ND (< 10)	559	55.9*
Total PCBs	A	Clam	µg/kg	ND (< 0.5)	10.0	20*
4,4'-DDE	A	Worm	µg/kg	1.63	3.04	1.9
Total PAHs	A	Worm	µg/kg	ND (< 10)	167	16.7*
Total PCBs	A	Worm	µg/kg	ND (< 0.5)	15.8	31.6*
Total PAHs	B	Clam	µg/kg	ND (< 10)	135	13.5*
Total PCBs	B	Clam	µg/kg	ND (< 0.5)	14.5	29*
4,4'-DDE	B	Worm	µg/kg	1.63	3.52	2.2
Total PCBs	B	Worm	µg/kg	ND (< 0.5)	18.1	36.2*

Notes:  
 \* Value is compared to a value less than the reporting limit.  
 µg/kg = micrograms per kilogram; < = less than; DDE = dichlorodiphenyldichloroethane; ND = non-detect; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

#### 4.3.3.2 Bioaccumulation Comparison with FDA Action Levels

Comparisons of mean metal, organic, and pesticide compound concentrations in clam and worm tissues to available FDA Action Levels of analytes that were deemed statistically significant are in Table 4-3, as well as in the statistical summary tables at the beginning of Appendix E. Although statistical significance was observed between test and Reference tissues, chemical concentrations in tissue samples exposed to Composite A and Composite B sediment are well below available FDA Action Levels. Based on this comparison, placement of the Project sediment at LA-2 ODMDS would not be expected to biomagnify any contaminants following disposal.

**Table 4-3.**  
**Bioaccumulation Tissue Chemistry Comparison with FDA Action Levels**

Composite Sample	Analyte	Tissue	Units	FDA Action Level	Average Concentration
Composite A	Copper	Clam	mg/kg	NA	1.69
	Lead		mg/kg	1.7	0.311
	Total PAHs		µg/kg	NA	559
	Total PCBs		µg/kg	2000	10
	Copper	Worm	mg/kg	NA	1.39
	Total PAHs		µg/kg	NA	167
	Total PCBs		µg/kg	2000	15.82
	4,4'-DDE		µg/kg	5000	3.04
Composite B	Chromium	Clam	mg/kg	13	0.481
	Copper		mg/kg	NA	1.95
	Lead		mg/kg	1.7	0.378
	Total PAHs		µg/kg	NA	135
	Total PCBs		µg/kg	2000	14.5
	Copper	Worm	mg/kg	NA	1.67
	Total PCBs		µg/kg	2000	18.1
	4,4'-DDE		µg/kg	5000	3.52

**Notes:**

Listed "average concentration" results are the average of 5 replicates.

Results are listed in wet weight.

FDA action level for lead, chromium, and 4,4'-DDE is from "U.S. FDA Action Levels for crustaceans and/or shellfish."

FDA action level for total PCBs is from "U.S. FDA Action Levels for All Fish."

µg/kg = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; FDA = Food and Drug Administration;

mg/kg = milligrams per kilogram; NA = no FDA action limit; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

### 4.3.3.3 Bioconcentration Factors

Bioaccumulation test results were evaluated to compare tissue loads with sediment loads by calculating the bioconcentration factor (BCF) of chemical analytes. Only chemical analytes with statistically elevated levels relative to the Reference sediment were considered. BCF values for applicable analytes detected in Composite A were mostly at or below 1.0, indicating they have very low bioavailability. The BCF value for worms exposed to the organic contaminant 4,4'-DDE in Composite A was 1.35, which still is considered very low bioavailability.

BCF values for applicable analytes detected in Composite B were mostly well below 1.0, with the exception of the BCF values for total PCBs. BCF values for Composite B were 25.4 and 31.7 for clams and worms, respectively, compared with BCF values for Composite A of 0.357 and 0.565 for clams and worms, respectively. Average test tissue total PCB congener concentrations (14.5 and 18.1 µg/kg for clams and worms respectively) for Composite B were similar to those from Composite A (10.0 and 15.8 µg/kg for clams and worms, respectively). BCFs for total PCBs in Composite B (25.4 and 31.7) were likely caused by the low total PCB chemical concentration (0.571 µg/kg) measured in the sediment, rather than elevated concentrations in test tissues. The BCF values are presented below in Tables 4-4 and 4-5.

According to the USEPA guidance, BCF values greater than 1000 of dredged material contaminants should be further evaluated for bioaccumulation potential. The BCF values for the analyzed analytes in both Composite A and Composite B sediment samples are considerably lower than the guidance values (Arnot and Gobas, 2006), indicating minimal bioaccumulation potential. Based on BCF values, the proposed dredged material from the Project site would not be restricted for disposal at the LA-2 ODMDS.

**Table 4-4.**  
**Bioaccumulation Factor (BCF) Values – Composite A**

Analyte	Test Organism	Units	Average Test Tissue Concentration (wet weight)	Composite A Sediment Concentration (wet weight)	BCF Composite A
Copper	Clam	mg/kg	1.69	43.8	0.0386
Lead	Clam	mg/kg	0.311	20.2	0.0154
Total PAHs	Clam	µg/kg	559	546	1.02
Total PCBs	Clam	µg/kg	10.0	28.0	0.357
Copper	Worm	mg/kg	1.39	43.8	0.0320
Total PAHs	Worm	µg/kg	166	546	0.305
Total PCBs	Worm	µg/kg	15.8	28.0	0.565
4,4'-DDE	Worm	µg/kg	3.04	2.26	1.35

Notes:

µg/kg = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; mg/kg = milligrams per kilogram; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl



**Table 4-5.**  
**Bioaccumulation Factor (BCF) Values – Composite B**

Analyte	Test Organism	Units	Average Test Tissue Concentration (wet weight)	Composite B Sediment Concentration (wet weight)	BCF Composite B
Chromium	Clam	mg/kg	0.481	21.8	0.0221
Copper	Clam	mg/kg	1.95	36.2	0.0539
Lead	Clam	mg/kg	0.378	17.1	0.0221
Total PAHs	Clam	µg/kg	135	436	0.310
Total PCBs	Clam	µg/kg	14.5	0.571	25.4
Copper	Worm	mg/kg	1.67	36.2	0.0461
Total PCBs	Worm	µg/kg	18.1	0.571	31.7
4,4'-DDE	Worm	µg/kg	3.52	7.97	0.442

Notes:

µg/kg = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; mg/kg = milligrams per kilogram; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

#### 4.3.3.4 Environmental Residue Effects Database Comparison

To further evaluate the potential ecological effects of the concentrations of chromium, copper, lead, PAHs, PCBs, and 4,4'-DDE observed in clam and worm tissues as a result of exposure to the proposed Project dredged material sediment, the ERED was queried (USACE/EPA 2009). The database lists the following instructions and cautions to ensure proper use when comparing the results of dredged material characterization tissue data.

1. *The USACE/USEPA Environmental Residue-Effects Database (ERED) was developed to reduce the level of uncertainty associated with interpreting bioaccumulation data for the purpose of making regulatory decisions regarding dredged material. Use of the ERED will improve the decision-making process by providing the basis for making quantitative determinations regarding the likelihood for effects.*
2. *The ERED contains residue-effects information on many environmental contaminants of potential concern. Although the database is the result of an extensive literature search of known residue-effects data, the search was not exhaustive.*
3. *When using the database for regulatory purposes, such as dredged material evaluations, consideration must be given to the nature of the biological effect associated with a particular residue level. The database contains information on a broad range of biological effects caused by the presence of a particular contaminant in the tissue of an organism, from the induction of particular enzymes or enzyme systems to whole-organism effects on survival, growth, or reproduction. A stronger inferential link exists between whole-organism toxicological effects (e.g., reduced survival) and ecological impacts on populations, communities, and ecosystems (i.e., effects the Marine Protection, Research and Sanctuaries Act and the Clean Water Act specifically state should be avoided). Cellular/subcellular responses are most appropriately used as biomarkers of exposure; they are biological indicators that the organism has been*

*exposed to some type of stress. The causal relationship between the induction of such biomarkers and higher order effects such as whole-organism survival, growth, reproduction, or ecological impacts is unknown in most cases.*

- 4. Evaluating the environmental consequences of contaminant bioaccumulation is a complex technical and regulatory problem (Bridges et al. 1996). In part, this complexity results from the fact that bioaccumulation is a measurable phenomenon, rather than an effect. Merely identifying the presence of a chemical substance in the tissues of an organism, for example, following a bioaccumulation test is not sufficient information to conclude that the chemical will produce an adverse effect. All chemical substances have the potential to produce adverse effects (i.e., toxicity), including such diverse compounds as aspirin, zinc, and dioxin. The likelihood that a chemical substance in the tissues of an organism will produce an adverse effect is a function of the physical and chemical properties of the substance, the concentration of the chemical in the tissues of the organism, and the length of time the organism is exposed to the compound. Because environmental contaminants vary so widely in their potential to produce toxicity, contaminant-specific information must be used to reach a determination regarding the potential for a bioaccumulated substance to produce adverse effects.*

Based upon the instructions listed above, criteria were established for queries of the YTI Berths 214–220 tissue data using the ERED. The criteria are as follows: (1) the actual test species or an appropriate surrogate species was used; (2) the whole body was the analysis unit; (3) the chemical of concern in test tissues and the database matched exactly; (4) an appropriate study endpoint (e.g., survival or growth) was selected; and (5) the toxicity or effects measurements were appropriate (e.g., no observed effect dose [NOED] or lowest observed effect dose [LOED]).

The following sections summarize the comparison made between Composite A and Composite B clam and worm bioaccumulation results for chromium, copper, lead, individual PAHs, individual PCB congeners, and 4,4'-DDE; appropriate study results are in the ERED. Table 4-6 provides a more detailed list of the relevant information extracted from the database about bioaccumulation of chromium, copper, lead, individual PAHs, and individual PCB congeners in clam tissue, and bioaccumulation of copper, individual PAHs, individual PCB congeners, and 4,4'-DDE in worm tissue.

### **Chromium**

- The average concentration of chromium in clam tissues exposed to Composite B sediment was 0.481 mg/kg. The chromium concentration in clam tissues exposed to Reference sediment was 0.184 mg/kg. The chromium concentration of clams exposed to Composite B sediment was 2.7 times that of the concentration of clams exposed to the Reference sediment.

- There are no cited studies related to survival found in the ERED for chromium bioaccumulation in relevant species (e.g. clams or worms). There is, however, an ERED study report from 1982 that identified a whole body reproduction LOED of 8.28 mg/kg conducted using *Neanthes arenaceodentata*. The average Composite B clam tissue level for chromium (0.481 mg/kg) is well below the LOED level (8.28 mg/kg) cited in the ERED.

## Copper

- The average copper concentration in clam tissue exposed to Composite A and Composite B sediments were 1.69 and 1.95 mg/kg, respectively. The average copper concentration in clam tissues exposed to Reference sediment was 1.47 mg/kg. As shown in Table 4-1, the average copper level in clams exposed to Composite A and B area sediments were 1.2 and 1.3 times that of the average Reference level, respectively.
- There are no specific studies in the ERED for the clam species used in this study (*Macoma nasuta*) for copper bioaccumulation; however there is a study using a similar species (*Macoma balthica*). According to the study, the whole body survival NOED for *Macoma balthica* is a tissue residue level of 5.0 mg/kg. The average Composite A (1.69 mg/kg) and Composite B (1.95 mg/kg) clam tissue levels are below the NOED level (5.0 mg/kg) cited in the ERED.
- The average copper concentration in worm tissues exposed to Composite A and Composite B sediments were 1.39 and 1.67 mg/kg, respectively. The copper concentration in worm tissue exposed to Reference sediment was 1.28 mg/kg. The average copper level in worms exposed to Composite A and Composite sediments B were 1.1 and 1.3 times that of the average Reference level, respectively.
- There are no specific studies in the database for the worm species used in this study (*Nereis virens*) for copper bioaccumulation; however, several other polychaete worm studies are available. These worm studies report whole body mortality NOEDs ranging from 6.42 to 95.5 mg/kg copper. The average Composite A worm tissue level (1.39 mg/kg) and the average Composite B worm tissue level (1.67 mg/kg) are below the cited NOED levels.

## Lead

- The average lead concentrations in clam tissues exposed to Composite A and Composite B sediments were 0.311 and 0.378 mg/kg, respectively. The lead concentration in clam tissue exposed to Reference sediment was 0.152 mg/kg. As shown in Table 4-1, the average lead concentrations in clams exposed to Project dredge material were 2.0 and 2.5 times that of the average Reference level for Composites A and B, respectively.

- There are no specific studies in the database for the clam species used in this study (*Macoma nasuta*) for lead bioaccumulation. The most similar species to *Macoma nasuta* located in the ERED is the Eastern Oyster (*Crassostrea virginica*). According to the ERED, a lead study using Eastern Oysters resulted in a NOED for lead of 2.28, 2.28, and 2.60 mg/kg for growth, mortality, and reproduction, respectively. The average Composite A clam tissue level (0.311 mg/kg) and the average Composite B clam tissue level (0.378 mg/kg) are well below the NOED levels previously stated.

#### **Pesticide 4,4'-DDE**

- There are no appropriate studies (species or endpoints) listed in the ERED for the pesticide 4,4'-DDE.

#### **PAHs**

- The PAH comparison was conducted by identifying individual PAHs that were found at detectable levels in clam and worm tissues, then querying the database for these specific PAHs.
- There are no appropriate studies (appropriate species and/or endpoints) listed in the ERED for the following individual PAHs: benzo(e)pyrene and benzo(k)fluoranthene.
- The average concentration of benzo(a)anthracene in clam tissues exposed to Composite A sediment was 15.4 µg/kg. Clam tissues exposed to Reference sediment were found to be non-detect (ND<10 µg/kg) for benzo(a)anthracene.
- An ERED study report on benzo(a)anthracene identifies a whole body survival NOED of 600 µg/kg in a 1997 study conducted using zebra mussels. The average Composite A clam tissue level (15.4 µg/kg) is well below the NOED level (600 µg/kg) cited in the ERED study.
- The average concentrations of benzo(a)pyrene in Composite A and Composite B clam tissues were 38.0 and 24.4 µg/kg, respectively. The clam tissues exposed to Reference sediment were non-detect (ND<10 µg/kg) for benzo(a)pyrene.
- The database contains a 1999 benzo(a)pyrene study using the Quahog clam (*Mercenaria mercenaria*) that found whole body mortality NOED of 2.21 µg/kg. While the average Composite A (38.0 µg/kg) and Composite B (24.4 µg/kg) clam tissue levels are above the NOED level (2.21 µg/kg) cited in the ERED, no effects on mortality were observed at 1.0 µg/kg during the study; the study does not indicate the exposure route.
- The average concentrations of benzo(b)fluoranthene in clam tissues exposed to sediment from Composite A and Composite B were 53.2 and 38.2 µg/kg, respectively. The clam tissues exposed to Reference sediment were non-detect (ND<10 µg/kg) for benzo(b)fluoranthene.

- The database contains a 1999 benzo(b)fluoranthene study using the amphipod species *Rhepoxynius abronius* that found whole body mortality lethal dose (LD) levels ranging from 860 to 1,720 µg/kg. The average Composite A (53.2 µg/kg) and Composite B (38.2 µg/kg) clam tissue levels are well below the LD levels (860 to 1,720 µg/kg) cited in the ERED.
- The average concentration of chrysene in clam tissues exposed to Composite A sediment was 24.6 µg/kg. The clam tissues exposed to Reference sediment was non-detect (ND<10 µg/kg) for chrysene.
- The database contains a 1999 chrysene study using the amphipod species *Rhepoxynius abronius* that found whole body mortality LD levels ranging from 1,280 to 3,150 µg/kg. The average Composite A (24.6 µg/kg) clam tissue level is well below the LD levels (1,280 to 3,150 µg/kg) cited in the ERED.
- The average concentration of fluoranthene in tissues exposed to Composite A sediment were 89.2 µg/kg in clam tissue and 44.0 µg/kg in worm tissue. The clam and worm tissues exposed to Reference sediment were both non-detect (ND<10 µg/kg) for fluoranthene.
- An ERED study report on fluoranthene identified a whole body survival NOED of 1290 µg/kg from a 1997 study conducted using *Dreissena polymorpha* (zebra mussels). The average Composite A clam tissue level (89.2 µg/kg) and the average Composite A worm tissue level (44.0 µg/kg) are well below the NOED level (1290 µg/kg) cited in the ERED.
- The average concentrations of pyrene in tissues exposed to Composite A sediment were 246 µg/kg for clam tissue and 87.6 µg/kg for worm tissue. The average concentration of pyrene in clam tissue exposed to Composite B sediment was 16.0 µg/kg. The clam and worm tissues exposed to Reference sediment were both non-detect (ND<10 µg/kg) for pyrene.
- An ERED study report on pyrene identified a whole body survival NOED of 1,080 µg/kg from a 1997 study conducted using zebra mussels. The average Composite A clam tissue level (246 µg/kg) and the average Composite A worm tissue level (87.6 µg/kg) are well below the NOED level (1,080 µg/kg) cited in the ERED. The average Composite B clam tissue level (16.0 µg/kg) was also well below the NOED level (1080 µg/kg) cited in the ERED.

### PCB Congeners

- PCB comparison was conducted by identifying individual PCBs that were found at detectable levels in clam and worm tissues, then querying the database for the specific PCBs.
- There are no appropriate studies (appropriate species and/or endpoints) listed in the ERED for the following individual PCBs: PCB 28, 49, 60, 66, 70, 95, 99, 101, 110, 118, 149, 151, 153, 158, 180, and 187.

- The average concentration of PCB 52 in clam tissues exposed to Composite A sediment was 0.82 µg/kg. The average concentration of PCB 52 in worm tissues exposed to Composite A sediment was 1.74 µg/kg, and 1.07 µg/kg for Composite B sediment. The clam and worm tissues exposed to Reference sediment were both non-detect (ND<0.5 µg/kg) for PCB 52.
- An ERED study report on PCB 52 identified a whole body survival NOED of 54,000 µg/kg from a 1990 study conducted using freshwater amphipod *Hyalella azteca*. The average Composite A clam (0.82 µg/kg) and worm (1.74 µg/kg) tissue levels were well below the NOED level (54,000 µg/kg) cited in the ERED. Furthermore, the average Composite B worm tissue level (1.07 µg/kg) was well below the NOED level (54,000 µg/kg) cited in the ERED.
- The average concentration of PCB 138/158 in tissues exposed to Composite B sediment was 1.50 µg/kg in clams, as well as 1.36 and 1.88 µg/kg in worms exposed to Composite A and Composite B sediment, respectively. The clam and worm tissues exposed to Reference sediment were both non-detect (ND<1.0 µg/kg) for PCB 138/152.
- An ERED study report of PCB 138 found digestive tract biochemical effects NOED of 1,580 µg/kg, conducted using the Mediterranean mussel (*Mytilus galloprovincialis*). The average Composite B clam tissue level (1.50 µg/kg) is well below the NOED level (1,580 µg/kg) cited in the ERED. Furthermore, the average Composite A worm (1.36 µg/kg) and Composite B worm (1.88 µg/kg) tissue levels were also well below the NOED level (1,580 µg/kg) cited in the ERED.

In summary, a comparison of the tissue chemistry results of the Project dredge sediment characterization study with published study data contained in the ERED show that the levels of chemicals in clam and worm tissues exposed to the proposed dredge sediments are well below any expected effects levels.

**Table 4-6.**  
**Environmental Residue Effects Database (ERED) Comparison**

Analyte	Test Species	Units (wet wt.)	RL	Reference Mean Tissue Concentration <sup>1</sup>	Test Area Mean Tissue Concentration <sup>1</sup>	p-value	Test Area Mean: Reference Mean Ratio <sup>2</sup>	Comparison to Relevant Environmental Residue-Effects Database Values
<b>Metals</b>								
Chromium	Clam	mg/kg	0.02	0.184	Composite B - 0.481	Composite B - 0.04	Composite B - 2.61	An ERED study report identified a whole body LOED reproduction of 8.28 mg/kg from a 1982 study conducted using <i>Neanthes arenaceodentata</i> (Oshida, PS, LS Word; <i>Mar Environ Res</i> 07:167-174).
Copper	Clam	mg/kg	0.1	1.47	Composite A - 1.69, Composite B - 1.95	Composite A - 0.006, Composite B - 0.0005	Composite A - 1.15, Composite B - 1.33	There are no relevant effects in the ERED database for <i>Macoma nasuta</i> . However, the whole body NOED for <i>Macoma balthica</i> according to one study was determined to be 5 mg/kg for survival (Absil, MCP, M Berntssen, LJA Gerringa; <i>Aquat Toxicol</i> 34:13-29).
Copper	Worm	mg/kg	0.1	1.28	Composite A - 1.39, Composite B - 1.67	Composite A - 0.010, Composite B - 0.00001	Composite A - 1.09, Composite B - 1.30	Several polychaete worm studies are contained in the database; however, none were conducted using <i>Nereis virens</i> (i.e. the worm species used in this study). The worm studies contained in the ERED report whole body mortality NOEDs that range from 6.422 to 95.5 mg/kg copper ([McLusky, DS, CNK Phillips; <i>Estuarine Coast Mar Sci</i> 3:103-108] [Milanovich, FP, R Spies, MS Guram, EE Sykes; <i>Estuarine Coast Mar Sci</i> 4:585-588] [King CK, MC Dowse, SL Simpson, DF Jolley; <i>Arch Environ Contam Toxicol</i> 47:314-323]).
Lead	Clam	mg/kg	0.1	0.152	Composite A - 0.311, Composite B - 0.378	< 0.00001	Composite A - 2.05, Composite B - 2.49	There are no relevant effects in the ERED database for <i>Macoma nasuta</i> . However, the whole body NOED for bivalve (the Eastern Oyster <i>Crassostrea virginica</i> ) according to a 1979 study was determined to be 2.28, 2.28, and 2.26 mg/kg for growth, mortality, and reproduction, respectively (Zarogian, G.E., G. Morrison, and J.F. Heltshe; <i>Mar Biol</i> 52:189-196).
<b>PAHs<sup>3</sup></b>								
Benzo (a) Anthracene	Clam	µg/kg	10	ND	Composite A - 15.4	Composite A - 0.004	Composite A - 1.54	An ERED study report on benzo(a)anthracene identified a whole body survival NOED of 600 µg/kg from a 1997 study conducted using <i>Dreissena polymorpha</i> (Roper, J, D.S. Cherry, J. W. Simmers, and H. E. Tatem; <i>Environmental Monitoring and Assessments</i> ).
Benzo (a) Pyrene	Clam	µg/kg	10	ND	Composite A - 38.0, Composite B - 24.4	Composite A - 0.00002, Composite B - 0.00002	Composite A - 3.80, Composite B - 2.44	The database contains a 1999 benzo(a)pyrene study using the Quahog clam ( <i>Mercenaria mercenaria</i> ) that found whole body mortality NOED of 2.21 µg/kg (Anderson, R.S., C.S. Giam, L.E. Ray and M.R. Tripp; <i>Aquat Toxicol</i> 01:187-195)
Benzo (b) Fluoranthene	Clam	µg/kg	10	ND	Composite A - 53.2, Composite B - 38.2	Composite A - 0.00001, Composite B - < 0.00001	Composite A - 5.32, Composite B - 3.82	The database contains a 1999 benzo(b)fluoranthene study using the amphipod species <i>Rhepoxynius abronius</i> that found whole body mortality LD levels that range from 860 to 1,720 µg/kg (Boese, BL, RJ Ozertich, JO Lamberson, RC Swartz, FA Cole, J Pelletier, J Jones; <i>Arch Environ Contam Toxicol</i> 36: 270-280).

**Table 4-6.**  
**Environmental Residue Effects Database (ERED) Comparison (Cont.)**

Analyte	Test Species	Units (wet wt.)	RL	Reference Mean Tissue Concentration <sup>1</sup>	Test Area Mean Tissue Concentration <sup>1</sup>	p-value	Test Area Mean: Reference Mean Ratio <sup>2</sup>	Comparison to Relevant Environmental Residue-Effects Database Values
Chrysene	Clam	µg/kg	10	ND	Composite A - 24.6	Composite A - 0.0003	Composite A - 2.46	The database contains a 1999 chrysene study using the amphipod species <i>Rhepoxynius abronius</i> that found whole body mortality LD levels that range from 1,280 to 3,150 µg/kg. The database also contains a 1997 study using zebra mussels that found whole body NOED to be 930 µg/kg for survival. ([Boese BL, RJ Ozertich, JO Lamberson, RC Swartz, FA Cole, J Pelletier, J Jones; <i>Arch Environ Contam Toxicol</i> 36: 270-280], [Roper, J, D.S. Cherry, J. W. Simmers, and H. E. Tatem; <i>Environmental Monitoring and Assessments</i> ]).
Fluoranthene	Clam	µg/kg	10	ND	Composite A - 89.2	Composite A - 0.0001	Composite A - 8.96	An ERED study report on fluoranthene identified a whole body survival NOED of 1290 µg/kg from a 1997 study conducted using <i>Dreissena polymorpha</i> (Roper, J, D.S. Cherry, J. W. Simmers, and H. E. Tatem; <i>Environmental Monitoring and Assessments</i> ).
Fluoranthene	Worm	µg/kg	10	ND	Composite A - 44.0	Composite A - 0.004	Composite A - 4.40	An ERED study report on fluoranthene identified a whole body survival NOED of 1290 µg/kg from a 1997 study conducted using <i>Dreissena polymorpha</i> (Roper, J, D.S. Cherry, J. W. Simmers, and H. E. Tatem; <i>Environmental Monitoring and Assessments</i> ).
Pyrene	Clam	µg/kg	10	ND	Composite A - 246, Composite B - 16.0	Composite A - 0.00001, Composite B - 0.00008	Composite A - 24.6, Composite B - 1.60	An ERED study report on pyrene identified a whole body survival NOED of 1080 µg/kg from a 1997 study conducted using <i>Dreissena polymorpha</i> (Roper, J, D.S. Cherry, J. W. Simmers, and H. E. Tatem; <i>Environmental Monitoring and Assessments</i> ).
Pyrene	Worm	µg/kg	10	ND	Composite A - 87.6	Composite A - 0.0007	Composite A - 8.76	An ERED study report on pyrene identified a whole body survival NOED of 1080 µg/kg from a 1997 study conducted using <i>Dreissena polymorpha</i> (Roper, J, D.S. Cherry, J. W. Simmers, and H. E. Tatem; <i>Environmental Monitoring and Assessments</i> ).
<b>PCBs<sup>3</sup></b>								
PCB 52	Clam	µg/kg	0.5	ND	Composite A - 0.82	Composite A - 0.0008	Composite A - 1.64	An ERED study report on PCB 52 identified a whole body survival NOED of 54,000 µg/kg from a 1990 study conducted using freshwater amphipod <i>Hyalella azteca</i> (Borgmann, U., N.P. Norwood, and K.M. Ralph; <i>Arch Environ Contam Toxicol</i> 19:558-564).
PCB 52	Worm	µg/kg	0.5	ND	Composite A - 1.74, Composite B - 1.07	Composite A - < 0.00001, Composite B - 0.001	Composite A - 3.48, Composite B - 2.14	An ERED study report on PCB 52 identified a whole body survival NOED of 54,000 µg/kg from a 1990 study conducted using freshwater amphipod <i>Hyalella azteca</i> (Borgmann, U., N.P. Norwood, and K.M. Ralph; <i>Arch Environ Contam Toxicol</i> 19:558-564).



**Table 4-6.**  
**Environmental Residue Effects Database (ERED) Comparison (Cont.)**

Analyte	Test Species	Units (wet wt.)	RL	Reference Mean Tissue Concentration <sup>1</sup>	Test Area Mean Tissue Concentration <sup>1</sup>	p-value	Test Area Mean: Reference Mean Ratio <sup>2</sup>	Comparison to Relevant Environmental Residue-Effects Database Values
PCB 138/158	Clam	µg/kg	1	ND	Composite B - 1.50	Composite B - 0.002	Composite B - 1.50	An ERED study report of PCB 138 found digestive tract biochemical effects NOED of 1580 µg/kg, conducted using <i>Mytilus galloprovincialis</i> (Livingston DR, C Nasci, M Sole, L Da Ros, SCM O'Hara, LD Peters, V Fossato, AN Wootton, PS Goldfarb; Aquat Toxicol 38:205-224)
PCB 138/158	Worm	µg/kg	1	ND	Composite A - 1.36, Composite B - 1.88	Composite A - 0.004, Composite B - 0.0006	Composite A - 1.36, Composite B - 1.88	An ERED study report of PCB 138 found digestive tract biochemical effects NOED of 1580 µg/kg, conducted using <i>Mytilus galloprovincialis</i> (Livingston DR, C Nasci, M Sole, L Da Ros, SCM O'Hara, LD Peters, V Fossato, AN Wootton, PS Goldfarb; Aquat Toxicol 38:205-224)

Notes:

<sup>1</sup> All concentrations are wet weight values

<sup>2</sup> The reporting limit (RL) is used as the concentrations for the ND values

<sup>3</sup> No applicable ERED studies were available for the following statistically significant analytes: 4,4'-DDE, benzo (e) pyrene, benzo (k) fluoranthene, PCBs 28, 49, 60, 66, 70, 95, 99, 101, 110, 118, 149, 151, 153, 158, 180, and 187.

µg/kg = micrograms per kilogram; < = less than; mg/kg = milligrams per kilogram; ND = non-detect; LD = lethal dose; NOED = no observed effect dose; LOED = lowest observed effect dose

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## 5.0 CONCLUSIONS

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This study characterizes the sediment within the footprint of the proposed Berths 212–224 YTI Container Terminal Improvements Project.

The study results indicate that most of the dredged material complies with the requirements for ocean disposal limiting permissible concentration suitability, as outlined in Title 40 *Code of Federal Regulations* (CFR) Parts 220–228 for chemistry, toxicity, and bioaccumulation, and is therefore recommended to be suitable for placement at the LA-2 ODMDS. This suitable dredged material includes the native material beneath the unconsolidated top 2 feet of sediment in the Composite A area and all of the Composite B area. The remaining portion of the dredged material (the top 2 feet of sediment within the Composite A footprint) is recommended for placement within the Berth 243–245 CDF.

These overall conclusions were agreed upon by the regulatory agencies at the conclusion of the January 2014 CSTF meeting (Appendix G).

This conclusion is supported by the following findings:

- All collection and analysis QA/QC measures for physical, chemical, and biological testing were found to be acceptable and the data presented in this report are considered valid.
- Sediment chemistry levels were relatively low. There were only a few minor exceedances of ERL guideline levels, and all chemical levels were well below ERM levels. The chemical test results and the type of material observed at the bottom of the cores (e.g. predominantly stiff clay) precluded the need to test the Z-layer material.
- The Composite A Bottom sample was tested for PAHs, PCB congeners, chlorinated pesticides, metals, and pyrethroids, as requested by the EPA. The chemicals were detected at considerably reduced levels, compared to the original Composite A test results. The Composite A Bottom sample was entirely free of PCB congeners, chlorinated pesticides (including DDT and its derivatives), and pyrethroid pesticides above the reporting limit. The only reported pyrethroid in the original Composite A sample, permethrin-cis/trans, was not detected above the reporting limit of 1.4 µg/kg in the Composite A Bottom sample. Metal concentrations were similar to or less than levels detected in the original Composite A sample. Naphthalene was the only PAH seen above the ERL guideline value in the Composite A Bottom sample; however, it was not detected in any of the earlier tested sediments. Naphthalene is commonly found in many industrialized sediments and its detection in the Composite A Bottom sample may have been just a random chance detection involving a small abnormality portion of sediment in the of otherwise uniform clay. .
- For the most part, the toxicity tests conducted on the two site composites showed no statistically or ecologically significant effects. Specifically, no statistically and/or ecologically significant toxicity was observed in the solid-phase amphipod (Composite B) or worm tests. There were no effects observed in the suspended particulate-phase fish and mysid shrimp tests. Amphipod survival was reduced in the Composite A exposure,

but there is no clear link between sediment chemistry and toxicity. Confounding factors (e.g., sediment physical characteristics) may have contributed to the reduction in amphipod survival observed in the Composite A solid-phase test. The toxicity testing laboratory reported that the effects observed in the bivalve larvae test are likely due to elevated levels of un-ionized ammonia in the samples.

The bioaccumulation-phase clam and worm tissue chemistry levels observed in this study were well below FDA action levels and the levels of concern reported in the Environmental Residue Effects Database (ERED). In addition, biological concentration factor values were low. These results indicate that the bioaccumulation potential of the proposed YTI Terminal dredged material is low and well within acceptable limits.

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Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



## **APPENDIX A**

### **CORE LOGS**

Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 08:55

**Latitude:** 33°45.5420  
**Longitude:** -118°15.5004  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 46.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks	
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Less consolidated to 1.1'	
0.5						Minor black streaks, possibly due to shells to 1.1'	
1.0		Silty Sand			Shell at 1.1'		
1.5		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	Core super dense/dry below 1.5'	
2.0							
2.5							Material rolls easily
3.0							
3.5							
4.0							
4.5							
5.0							

**Water Depth (ft):** 49.2      **Target Penetration (ft):** 9.3  
**Tide (ft):** +3.0      **Actual Penetration (ft):** 9.1  
**Recovered Core Length (ft):** 8.7

**Log of Station ID:** A1-Attempt 1

**Additional Notes:** Bottom is hard clay plug.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013

**Latitude:** 33°45.5420  
**Longitude:** -118°15.5004  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 46.2

**Time:** 08:55

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks					
5.0		Clay with Silt	Dark Greenish-gray	5GY 4/1	None						
5.5											
6.0											
6.5											
7.0											
7.5											
8.0											
8.5											
9.0											
9.5											
10.0											
											Z-layer from 8.4' to 8.7'
											Refusal at 55.3' MLLW

**Water Depth (ft):** 49.2      **Target Penetration (ft):** 9.3  
**Tide (ft):** +3.0      **Actual Penetration (ft):** 9.1  
**Recovered Core Length (ft):** 8.7

**Log of Station ID:** A1-Attempt 1

**Additional Notes:** Bottom is hard clay plug.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 10:01

**Latitude:** 33°45.5395  
**Longitude:** -118°15.5024  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 48.6

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Minor black streaking, less dense
0.5		Clay with minor Silt	Dark Greenish-gray	5GY 4/1		Consolidated & density increase below 1.0'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 50.8      **Target Penetration (ft):** 6.9  
**Tide (ft):** +2.2      **Actual Penetration (ft):** 8.0  
**Recovered Core Length (ft):** 3.3

**Log of Station ID:** A1-Attempt 2

**Additional Notes:** Long ~1.5' core "fell-out" of barrel upon retrieval. Core was watery at surface.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 10:40

**Latitude:** 33°45.5070  
**Longitude:** -118°15.5309  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks	
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Minor black streaking Less consolidated	
0.5						Shell hash from 0.6' to 0.8'	
1.0							
1.2			Fine grained Sand with Silt				More consolidated at 1.2'
1.5							Shell hash from 1.6' to 1.9'
2.0							(A) collected from 1.2' to 3.4' A2-A
2.5							
3.0							
3.4			Clay with Silt	Dark Greenish-gray	5GY 4/1		Very dense & consolidated at 3.4'
3.5							(A) collected from 3.4' to 7.5' A2-B
4.0							
4.5							
5.0							

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 8.4  
**Tide (ft):** +1.9      **Actual Penetration (ft):** 8.0  
**Recovered Core Length (ft):** 7.5

**Log of Station ID:** A2-Attempt 1

**Additional Notes:** Did not penetrate z-later, additional (A) collected due to apparent change in lithology.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 10:40

**Latitude:** 33°45.5070  
**Longitude:** -118°15.5309  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks						
5.0		Clay with Silt	Dark Greenish-gray	5GY 4/1	None							
5.5												
6.0												
6.5												
7.0												
7.5												
8.0												
8.5												
9.0												
9.5												
10.0												
												Refusal at 55.1' MLLW

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 8.4  
**Tide (ft):** +1.9      **Actual Penetration (ft):** 8.0  
**Recovered Core Length (ft):** 7.5

**Log of Station ID:** A2-Attempt 1

**Additional Notes:** Did not penetrate z-later, additional (A) collected due to apparent change in lithology.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 11:35

**Latitude:** 33°45.5130  
**Longitude:** -118°15.5393  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 46.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Top is less consolidated Shell hash to 1.0' (minor)
0.5						
1.0		Silty Sand				
1.0		Sandy Silt	Dark Greenish-gray	5GY 4/1		Consolidation & density increases at 1.9'
1.5						
2.0		Clay with Silt				
2.5						
3.0						Some minor white shells in clay from 3.5' to 4.0'
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 9.0  
**Tide (ft):** +1.5      **Actual Penetration (ft):** 7.5  
**Recovered Core Length (ft):** 6.5

**Log of Station ID:** A2-Attempt 2

**Additional Notes:** No z-layer collected.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013

**Latitude:** 33°45.5130  
**Longitude:** -118°15.5393  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 46.5

**Time:** 11:35

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Refusal at 53.0' MLLW

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 9.0  
**Tide (ft):** +1.5      **Actual Penetration (ft):** 7.5  
**Recovered Core Length (ft):** 6.5

**Log of Station ID:** A2-Attempt 2

**Additional Notes:** No z-layer collected.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 12:12

**Latitude:** 33°45.4718  
**Longitude:** -118°15.5737  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.7

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	Dense with shells
0.5		Silty Sand	Very Dark Greenish-gray	5GY 3/1		Lots of shell hash
1.0		Silty Sand				0.3' gravel piece from 2.5' to 2.8' No shell hash
1.5		Silty Sand				Lots of shell hash
2.0		Fine grained Sand with Silt				(A) collected from 3.7' to 4.3' A3-A
2.5						0.2' jagged edge gravel; minor shells at 4.0'
3.0						Refusal at 55.5' MLLW
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 7.8  
**Tide (ft):** +1.3      **Actual Penetration (ft):** 7.8  
**Recovered Core Length (ft):** 4.3

**Log of Station ID:** A3-Attempt 1

**Additional Notes:** Sleeve tore due to rocks in core, possible z-layer material was mixed into core material & unable to be separated from remainder of core.



**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 13:40

**Latitude:** 33°45.4660  
**Longitude:** -118°15.5720  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 49.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Unconsolidated
0.25		Clay with Silt			Slight Organic Odor	Lots of shell hash below 0.5'
0.5		Sandy Silt				
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						Z-layer from 2.8' to 3.2'
3.5						Refusal at 55.4' MLLW
4.0						
4.5						
5.0						

**Water Depth (ft):** 51.5      **Target Penetration (ft):** 5.7  
**Tide (ft):** +1.7      **Actual Penetration (ft):** 5.6  
**Recovered Core Length (ft):** 3.2

**Log of Station ID:** A3-Attempt 2

**Additional Notes:** Z-layer collected from 2.8' to 3.2' (A), rest added to z-layer composite.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013 **Time:** 14:22

**Latitude:** 33°45.4532  
**Longitude:** -118°15.5983  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Very minor shell hash
0.5		Clay with Silt	Dark Greenish-gray	5GY 4/1		Core is much more consolidated & dense to end at 0.5'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.9      **Target Penetration (ft):** 7.7  
**Tide (ft):** +2.1      **Actual Penetration (ft):** 7.3  
**Recovered Core Length (ft):** 6.7

**Log of Station ID:** A4-Attempt 1

**Additional Notes:** No Z-layer, core tube bent upon retrieval cut open barrel to retrieve core because liner was compressed during penetration.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/3/2013

**Latitude:** 33°45.4532  
**Longitude:** -118°15.5983  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.8

**Time:** 14:22

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						Refusal at 55.1' MLLW

**Water Depth (ft):** 49.9      **Target Penetration (ft):** 7.7  
**Tide (ft):** +2.1      **Actual Penetration (ft):** 7.3  
**Recovered Core Length (ft):** 6.7

**Log of Station ID:** A4-Attempt 1

**Additional Notes:** No Z-layer, core tube bent upon retrieval cut open barrel to retrieve core because liner was compressed during penetration.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/4/2013 **Time:** 08:19

**Latitude:** 33°45.3992  
**Longitude:** -118°15.6336  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks				
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	Slight Organic Odor	Black streaking, shell hash from 0.6' to 0.9'  Shell hash at 1.2'  Black streaking from 1.6' to 1.9'  Consolidated & very dense at 1.8'				
0.5										
1.0										
1.5										
2.0							Clay with Silt	Dark Greenish-gray	5GY 4/1	None
2.5										
3.0										
3.5										
4.0										
4.5										
5.0										

**Water Depth (ft):** 50.6      **Target Penetration (ft):** 8.4  
**Tide (ft):** +3.5      **Actual Penetration (ft):** 7.8  
**Recovered Core Length (ft):** 7.8

**Log of Station ID:** A5-Attempt 1

**Additional Notes:** No Z-layer; (A) collected from 0.0' to 1.8' A5-A, (A) collected from 1.8' to 7.8' A5-B.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/4/2013

**Latitude:** 33°45.3992  
**Longitude:** -118°15.6336  
**Project Depth (ft MLLW):** 55.5  
**Mudline Elevation (ft MLLW):** 47.1

**Time:** 08:19

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks						
5.0		Clay with Silt	Dark Greenish-gray	5GY 4/1	None							
5.5												
6.0												
6.5												
7.0												
7.5												
8.0												
8.5												
9.0												
9.5												
10.0												
												Refusal at 54.9' MLLW

**Water Depth (ft):** 50.6      **Target Penetration (ft):** 8.4  
**Tide (ft):** +3.5      **Actual Penetration (ft):** 7.8  
**Recovered Core Length (ft):** 7.8

**Log of Station ID:** A5-Attempt 1

**Additional Notes:** No Z-layer; (A) collected from 0.0' to 1.8' A5-A, (A) collected from 1.8' to 7.8' A5-B.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 07:48

**Latitude:** 33°45.3313  
**Longitude:** -118°15.6955  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Shell hash at top of core Slightly unconsolidated to 0.5'
0.5		Fine grained Sand with Clay	Dark Greenish-gray	10Y 4/1		More consolidated, dense & sitcky; sand is dry below 0.5'
1.5						Porportion of clay increases with depth at 1.5'
2.5		Clay with Sand				Z-layer from 2.5' to 3.0'
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.4      **Target Penetration (ft):** 3.3  
**Tide (ft):** +2.2      **Actual Penetration (ft):** 3.3  
**Recovered Core Length (ft):** 3.0

**Log of Station ID:** B1-Attempt 1

**Additional Notes:** Z-layer & sample jars collected.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/6/2013 **Time:** 08:00

**Latitude:** 33°45.3313  
**Longitude:** -118°15.6955  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Shell hash at top of core Unconsolidated to 0.7'
0.5		Fine grained Sand with Clay				Consolidation & proportion of clay increases with depth; sand is dry
1.0						Very dense & consolidated Z-layer from 2.0' to 2.2'
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						




**Water Depth (ft):** 48.7      **Target Penetration (ft):** 3.3  
**Tide (ft):** +2.5      **Actual Penetration (ft):** 3.3  
**Recovered Core Length (ft):** 2.2

**Log of Station ID:** B1-Attempt 2

**Additional Notes:** Z-layer bag added to composite.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 08:24

**Latitude:** 33°45.3357  
**Longitude:** -118°15.6929  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Sand is consolidated & dry  Z-layer from 2.1' to 2.6'
0.5			Fine grained Sand	Dark Greenish-gray	10Y 4/1	
2.0			Fine grained Sand with Clay			
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.2      **Target Penetration (ft):** 3.1  
**Tide (ft):** +2.8      **Actual Penetration (ft):** 3.1  
**Recovered Core Length (ft):** 2.6

**Log of Station ID:** B1-Attempt 3

**Additional Notes:** Z-layer added to sample composite, separate bag.



**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 08:41

**Latitude:** 33°45.3360  
**Longitude:** -118°15.6942  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Slightly unconsolidated with shell hash at surface
0.5		Fine grained Sand	Dark Greenish-gray	10Y 4/1		More consolidated, dry at 0.8'
1.0		Fine grained Sand with Clay				Stickier, rolls easier, Z-layer from 2.8' to 3.3'
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.4      **Target Penetration (ft):** 3.1  
**Tide (ft):** +3.0      **Actual Penetration (ft):** 3.3  
**Recovered Core Length (ft):** 3.3

**Log of Station ID:** B1-Attempt 4

**Additional Notes:** Z-layer sample added to composite, seperate bag.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 09:05

**Latitude:** 33°45.3303  
**Longitude:** -118°15.7008  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.6

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Shell hash at surface
0.5		Fine grained Sand	Dark Greenish-gray	10Y 3/1		Dark streak at 0.5' Less consolidated at 0.5'
1.0						More consolidated, dry at 1.0'
1.5		Fine grained Sand with Clay				Clay increases with depth at 1.5'
2.0						Z-layer from 2.0' to 2.5'
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						


**Water Depth (ft):** 49.8      **Target Penetration (ft):** 2.9  
**Tide (ft):** +3.2      **Actual Penetration (ft):** 2.9  
**Recovered Core Length (ft):** 2.5

**Log of Station ID:** B1-Attempt 5

**Additional Notes:** Z-layer added to bag for composite.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/6/2013      **Time:** 14:39

**Latitude:** 33°45.2934  
**Longitude:** -118°15.7408  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 48.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Fine grained Sand	Very Dark Greenish-gray	5GY 4/1	None	Very clean looking & homogenous
0.5						
1.0						Z-layer from 1.0' to 1.5'
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						


**Water Depth (ft):** 50.0      **Target Penetration (ft):** 1.4  
**Tide (ft):** +1.9      **Actual Penetration (ft):** 1.8  
**Recovered Core Length (ft):** 1.5

**Log of Station ID:** B2-Attempt 1

**Additional Notes:**

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/6/2013 **Time:** 14:56

**Latitude:** Not Recorded  
**Longitude:** Not Recorded  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 47.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	Very clean & homogeneous
0.5						
1.0						
1.5						
2.0						Z-layer from 2.0' to 2.3'
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 2.5  
**Tide (ft):** +2.0      **Actual Penetration (ft):** 3.0  
**Recovered Core Length (ft):** 2.3

**Log of Station ID:** B2-Attempt 2

**Additional Notes:** No plug; samples collected from Attempt 2. From 2.5' to 3.0' lost upon retrieval from core catcher.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/6/2013 **Time:** 15:19

**Latitude:** Not Recorded  
**Longitude:** Not Recorded  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 47.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks	
0.0		Silt	Greenish-black	10Y 2.5/1	None	(A) B2-A from 0.0' to 1.2'	
0.5							
1.0							
1.2			Fine grained Sand	Very Dark Greenish-gray	5GY 3/1		Very clean & homogeneous
1.5							
2.0							
2.5							
3.0							
3.5							
4.0							
4.5							
5.0							


**Water Depth (ft):** 49.0      **Target Penetration (ft):** 2.5  
**Tide (ft):** +2.0      **Actual Penetration (ft):** 3.0  
**Recovered Core Length (ft):** 2.0

**Log of Station ID:** B2-Attempt 3

**Additional Notes:** Z-layer bag added to composite, (A) collected from 0.0' to 1.2' B2-A.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/6/2013      **Time:** 15:30

**Latitude:** Not Recorded  
**Longitude:** Not Recorded  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 47.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	Homogeneous & clean
0.5						Dark streak at 0.2'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						


**Water Depth (ft):** 49.0      **Target Penetration (ft):** 2.5  
**Tide (ft):** +2.0      **Actual Penetration (ft):** 3.0  
**Recovered Core Length (ft):** 1.5

**Log of Station ID:** B2-Attempt 4

**Additional Notes:** Z-layer added for composite bag.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/6/2013      **Time:** 15:46

**Latitude:** 33°45.2960  
**Longitude:** -118°15.7436  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 47.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	One shell at top Core very homogenous & cleaner
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 2.5  
**Tide (ft):** +2.0      **Actual Penetration (ft):** 3.0  
**Recovered Core Length (ft):** 2.0

**Log of Station ID:** B2-Attempt 5

**Additional Notes:** Plug lost, no Z-layer.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013

**Latitude:** 33°45.2643  
**Longitude:** -118°15.7706  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 44.5

**Time:** 10:08

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Minor shell hash, large chunk at surface
0.1						
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 5.0  
**Tide (ft):** +3.5      **Actual Penetration (ft):** 5.0  
**Recovered Core Length (ft):** 1.5

**Log of Station ID:** B3-Attempt 1

**Additional Notes:** No Z-layer collected, likely we are pushing plug.



**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 10:40

**Latitude:** 33°45.2669  
**Longitude:** -118°15.7684  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 44.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	Slight Organic Odor	With shell hash
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 5.0  
**Tide (ft):** +3.5      **Actual Penetration (ft):** 4.0  
**Recovered Core Length (ft):** 1.0

**Log of Station ID:** B3-Attempt 2

**Additional Notes:** Core penetration got very hard at 2.5', probably on concrete, lots of unconsolidated silts on top of concrete. Likely blowing out sediments & having poor recovery.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 10:55

**Latitude:** 33°45.2679  
**Longitude:** -118°15.7677  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 44.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks	
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Lots of shell hash to 2.2'	
0.5							
1.0							
1.5							
2.0							
2.2			Clay with Silt	Dark Greenish-gray	10Y 4/1		Very consolidated & dense/sticky
2.5							
3.0							
3.5							
4.0							
4.5							Z-layer from 4.5' to 5.0'
5.0							

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 5.0  
**Tide (ft):** +3.5      **Actual Penetration (ft):** 5.0  
**Recovered Core Length (ft):** 5.0

**Log of Station ID:** B3-Attempt 3

**Additional Notes:** B3-A from 2.2' to 5.0' (bottom)/clay, 1x8oz jar. Z-layer jar collected from Attempt 3. No jar collected from top because seds similar to Attempt 1.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 11:40

**Latitude:** 33°45.2699  
**Longitude:** -118°15.7663  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 44.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	With shell hash
0.5			Clay with Silt	Dark Greenish-gray	10Y 4/1	Minor shells at 1.4' Very consolidated, dense, sticky at 1.4'  Z-layer from 2.3' to 2.6'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 4.7  
**Tide (ft):** +3.2      **Actual Penetration (ft):** 4.7  
**Recovered Core Length (ft):** 2.6

**Log of Station ID:** B3-Attempt 4

**Additional Notes:** Z-layer added to composite; separate baggie.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013

**Latitude:** Not Recorded  
**Longitude:** Not Recorded  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 44.8

**Time:** 11:52

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Large chunk of shell hash at 0.3'
0.5		Clay with Silt	Dark Greenish-gray	10Y4/1		Dense consolidated, sticky at 1.0'
1.0	Z-layer from 1.7' to 2.0'					
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 4.7  
**Tide (ft):** +3.2      **Actual Penetration (ft):** 4.7  
**Recovered Core Length (ft):** 2.0

**Log of Station ID:** B3-Attempt 5

**Additional Notes:** Z-layer sampled, added to composite, separate baggie.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 13:02

**Latitude:** 33°45.2384  
**Longitude:** -118°15.8026  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 45.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	With shell hash
0.5		Fine grained Sand				Sand looks clean & dry
1.0						Refusal at 49.0' MLLW
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						


**Water Depth (ft):** 47.5      **Target Penetration (ft):** 4.5  
**Tide (ft):** +2.5      **Actual Penetration (ft):** 4.0  
**Recovered Core Length (ft):** 2.0

**Log of Station ID:** B4-Attempt 1

**Additional Notes:** No Z-layer.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013      **Time:** 13:15

**Latitude:** 33°45.2379  
**Longitude:** -118°15.8024  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 45.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	Shell hash at top of core Granite gravel piece in core catcher, riprap liner
0.5						
1.0						
1.5						Refusal at 48.0' MLLW
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 47.5      **Target Penetration (ft):** 4.5  
**Tide (ft):** +2.5      **Actual Penetration (ft):** 3.0  
**Recovered Core Length (ft):** 1.3

**Log of Station ID:** B4-Attempt 2

**Additional Notes:**

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013

**Latitude:** 33°45.2380  
**Longitude:** -118°15.8018  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 45.0

**Time:** 13:33

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Shell hash on top
0.5		Fine grained Sand				Sand in catcher was dry/clean
1.0						
1.5						
2.0						Refusal at 48.5' MLLW
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						



**Water Depth (ft):** 47.3      **Target Penetration (ft):** 4.5  
**Tide (ft):** +2.3      **Actual Penetration (ft):** 3.5  
**Recovered Core Length (ft):** 1.8

**Log of Station ID:** B4-Attempt 3

**Additional Notes:**

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 13:55

**Latitude:** 33°45.2411  
**Longitude:** -118°15.7990  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	10Y 3/1	None	Shell hash at top
0.5			Fine grained Sand	Dark Greenish-gray	5GY 3/1	
1.0						Sand appears dry at 2.0'
1.5						Z-layer from 2.2' to 2.7'
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 2.7  
**Tide (ft):** +2.2      **Actual Penetration (ft):** 2.7  
**Recovered Core Length (ft):** 2.7

**Log of Station ID:** B4-Attempt 4

**Additional Notes:** Z-layer collected. Subsamples B4-A from 0.0' to 1.6', B4-B from 1.6' to 2.7'.



**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 14:14

**Latitude:** 33°45.2420  
**Longitude:** -118°15.7985  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 46.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	10Y 3/1	None	Shell hash to 1.3', then becomes minor
0.5		Fine grained Sand	Dark Greenish-gray	5GY 3/1		
1.0						Sand on bottom very clean
1.5						Z-layer from 1.5' to 2.0'
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

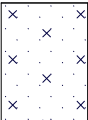

**Water Depth (ft):** 49.0      **Target Penetration (ft):** 2.7  
**Tide (ft):** +2.1      **Actual Penetration (ft):** 2.7  
**Recovered Core Length (ft):** 2.0

**Log of Station ID:** B4-Attempt 5

**Additional Notes:** Z-layer collected, added to separate bag for composite.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 14:56

**Latitude:** 33°45.1932  
**Longitude:** -118°15.8529  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 45.9

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	
0.5		Fine grained Sand	Olive	5Y 4/3		
1.0						Sand looks very clean, dry, consolidated/native
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 3.6  
**Tide (ft):** +2.1      **Actual Penetration (ft):** 3.6  
**Recovered Core Length (ft):** 1.3

**Log of Station ID:** B5-Attempt 1

**Additional Notes:** No Z-layer collected, lost plug.

**Project Number:** 1015101929  
**Project Manager:** Barry Snyder  
**Logged and Sampled By:** KG/TH  
**Sample Type:** Vibracore  
**Date:** 6/7/2013 **Time:** 15:15

**Latitude:** 33°45.1926  
**Longitude:** -118°15.8533  
**Project Depth (ft MLLW):** 49.5  
**Mudline Elevation (ft MLLW):** 45.9

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Shell hash to 0.7'
0.5		Fine grained Sand				Black streak at 0.5'
1.0				Olive	5Y 4/3	
1.5						Sand looks very clean, dry, possible native or fill material
2.0						Refusal at 48.1'
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

**Water Depth (ft):** 48.0      **Target Penetration (ft):** 3.6  
**Tide (ft):** +2.1      **Actual Penetration (ft):** 2.5  
**Recovered Core Length (ft):** 1.8

**Log of Station ID:** B5-Attempt 2

**Additional Notes:** No Z-layer, hit refusal.



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Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



## **APPENDIX B**

### **CORE PHOTOGRAPHS**

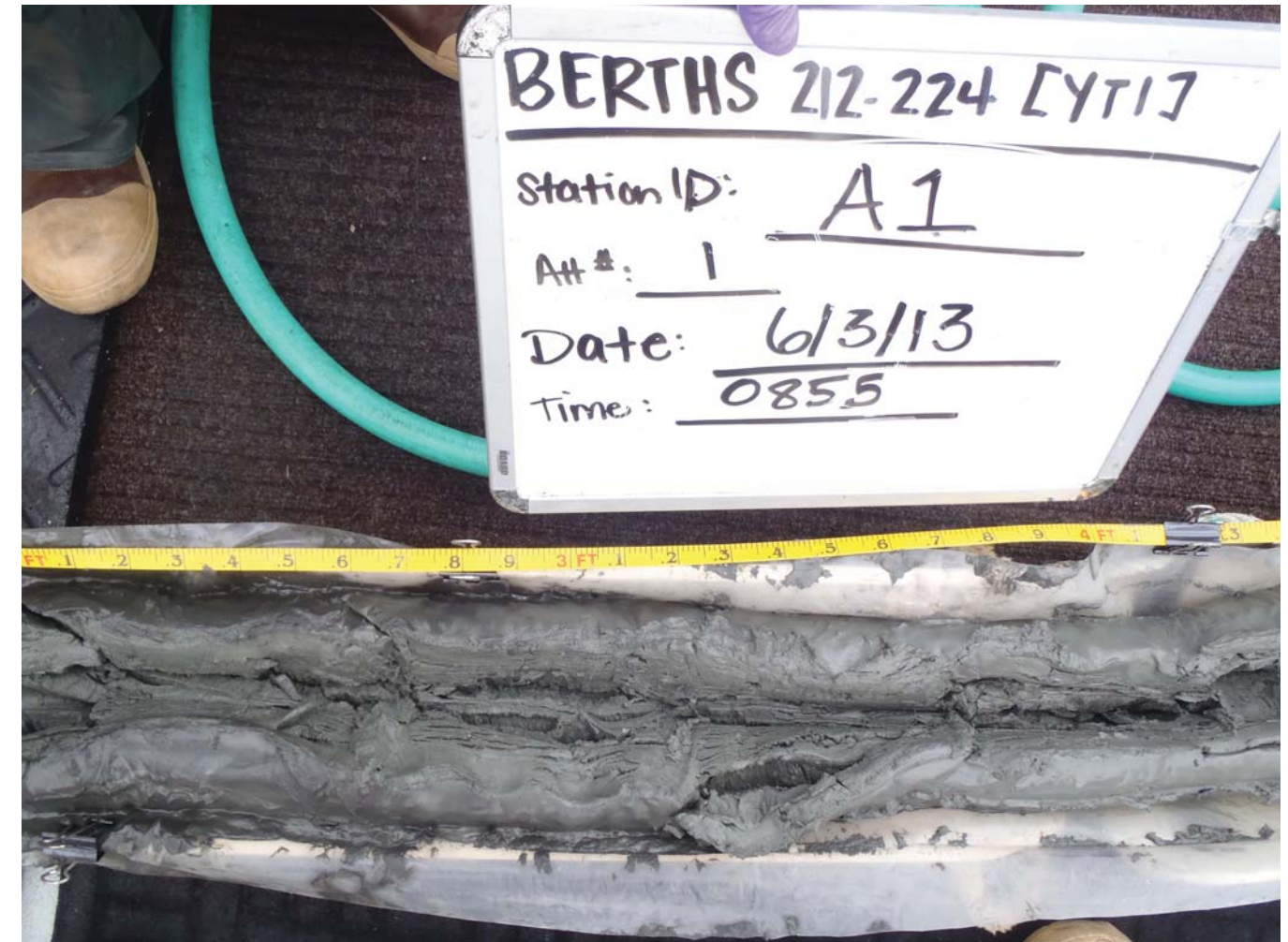
Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 1  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/03/2013 0855



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 1  
Core Length: 2.0 - 4.0 ft.  
Sample Date & Time: 06/03/2013 0855



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 1  
Core Length: 4.0 - 6.0 ft.  
Sample Date & Time: 06/03/2013 0855

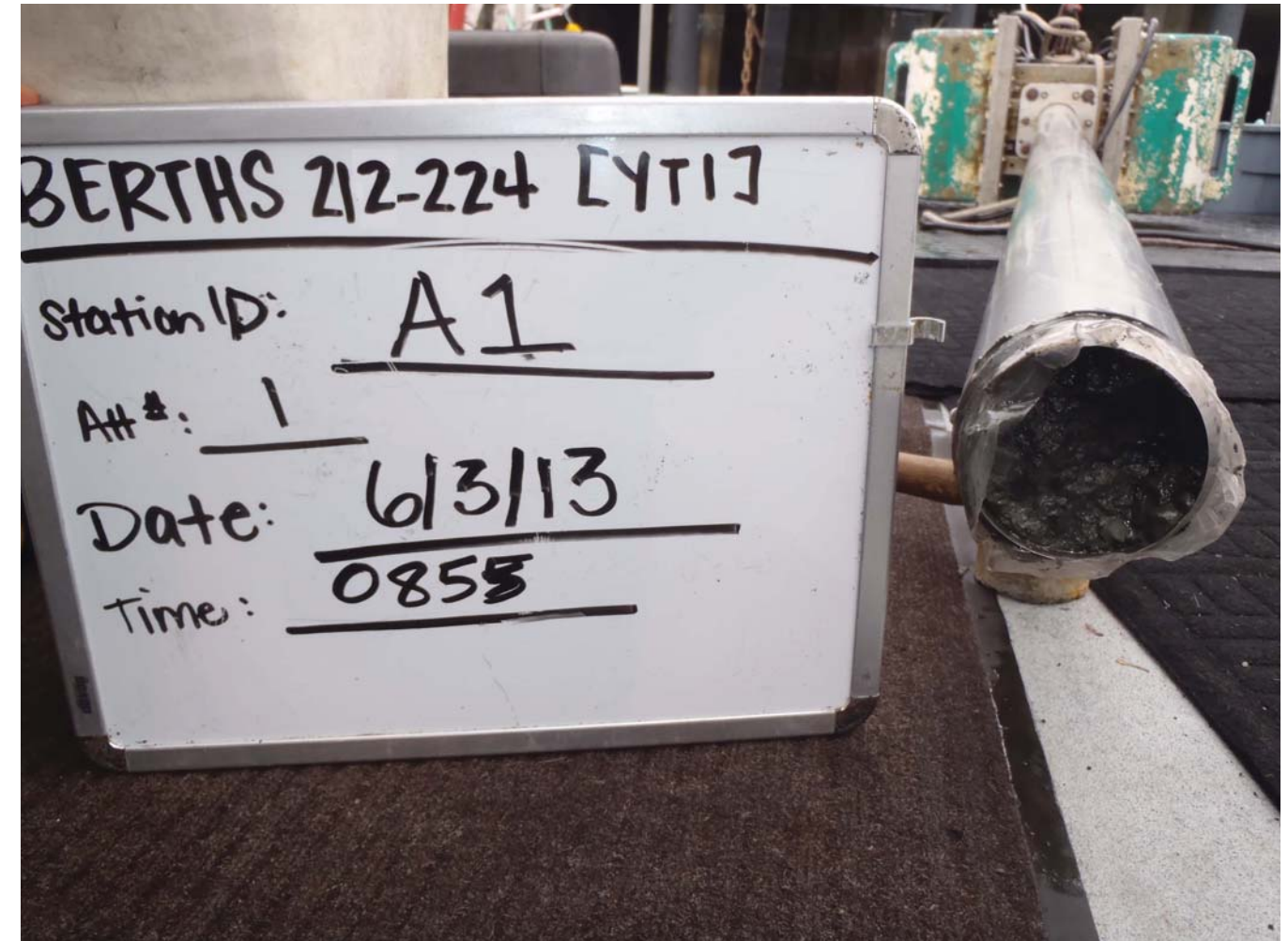


Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 1  
Core Length: 6.0 - 8.0 ft.  
Sample Date & Time: 06/03/2013 0855

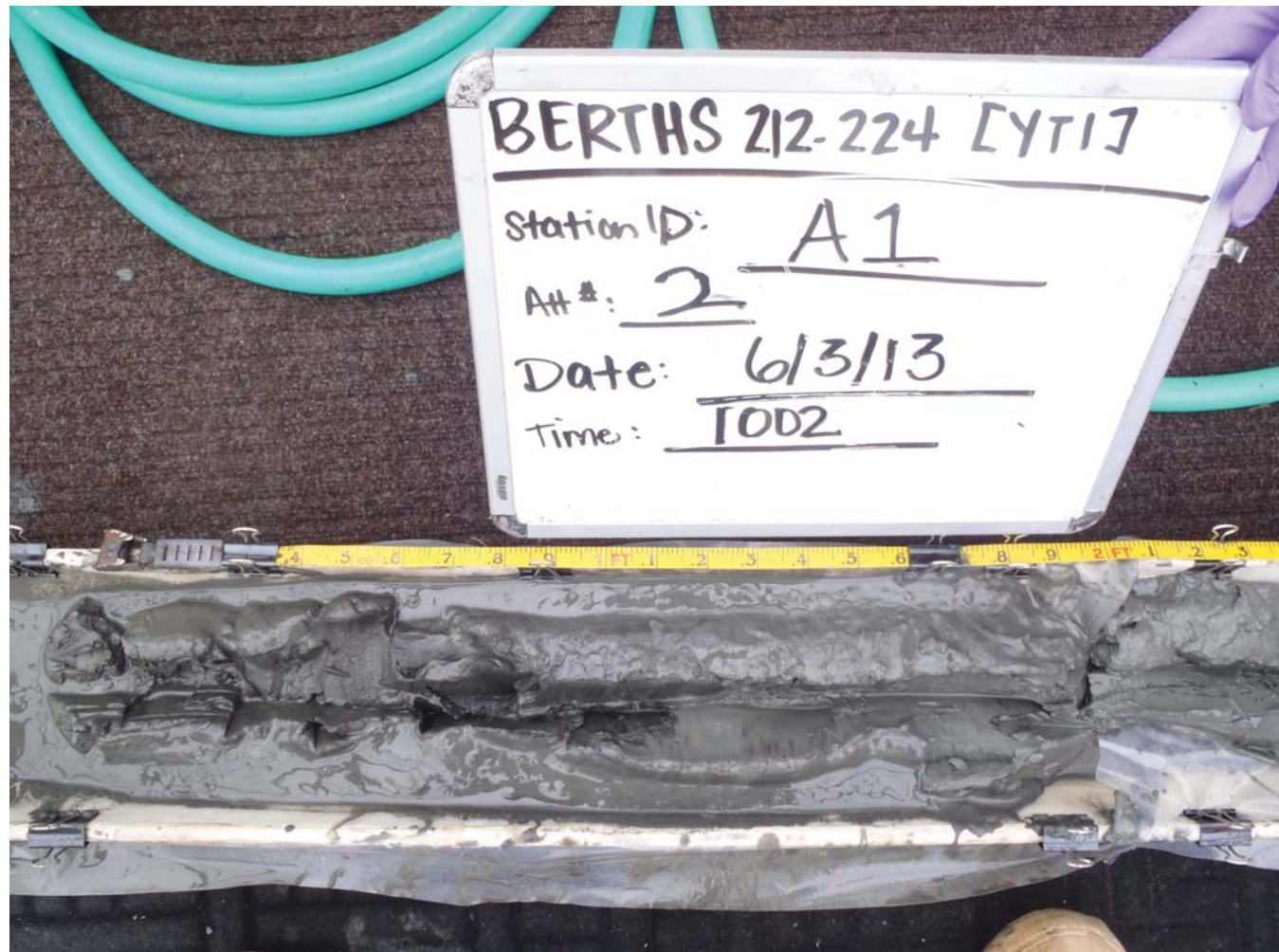




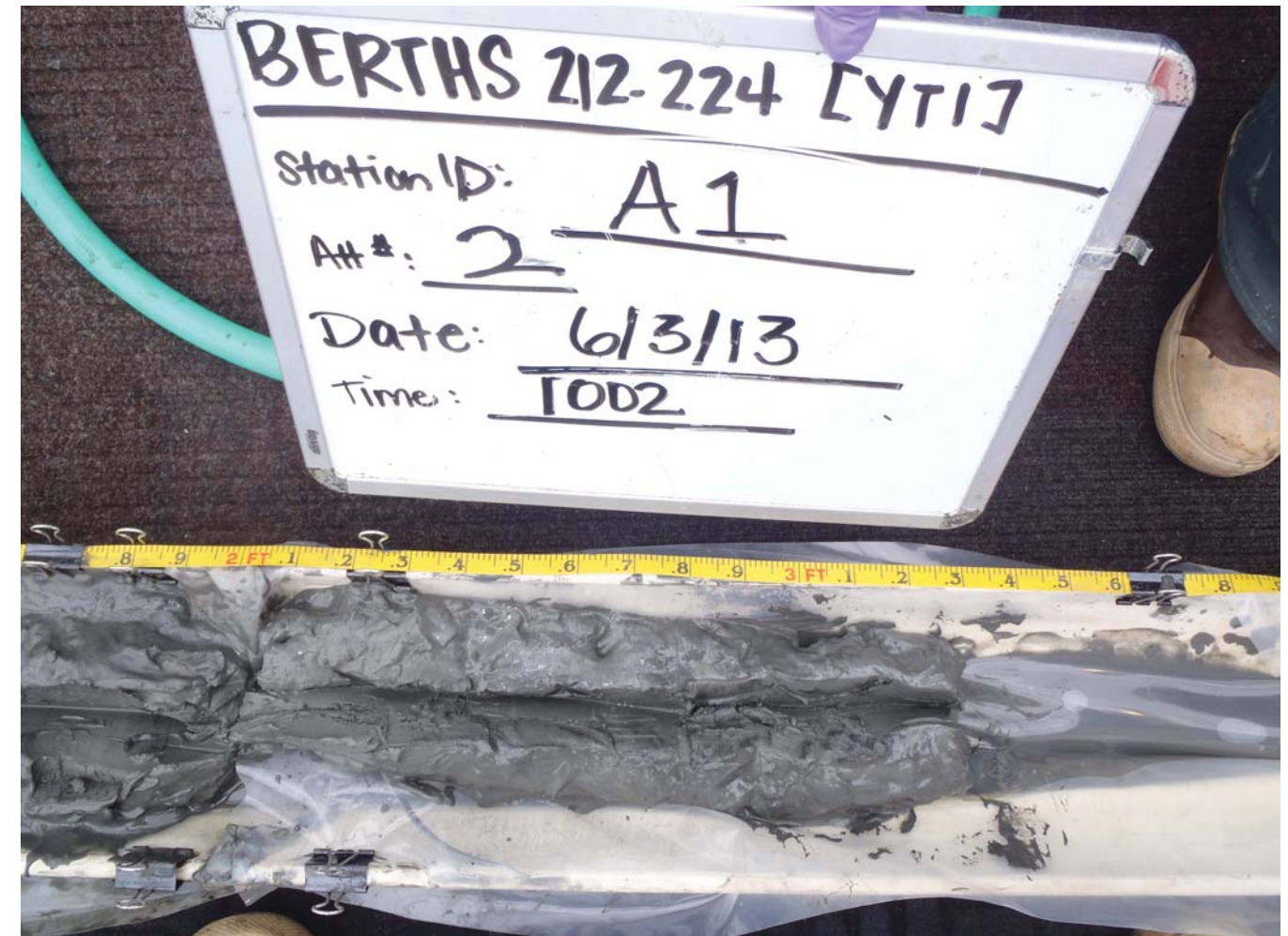
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 1  
Core Length: 6.5 - 8.7 ft.  
Sample Date & Time: 06/03/2013 0855



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/03/2013 0855



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 2  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/03/2013 1002



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A1  
Attempt #: 2  
Core Length: 2.0 - 3.3 ft.  
Sample Date & Time: 06/03/2013 1002



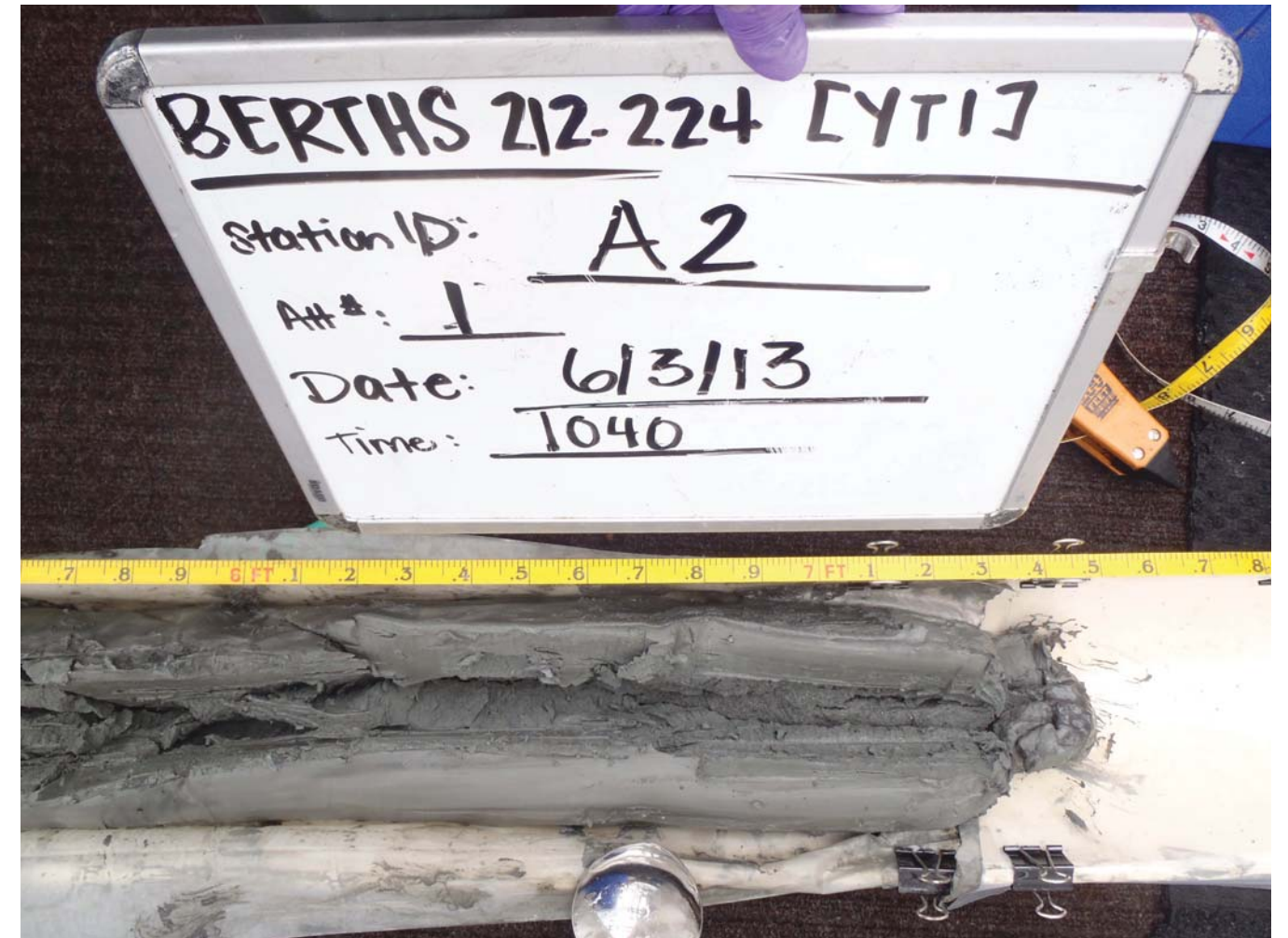
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 1  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/03/2013 1040



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 1  
Core Length: 2.0 - 4.0 ft.  
Sample Date & Time: 06/03/2013 1040



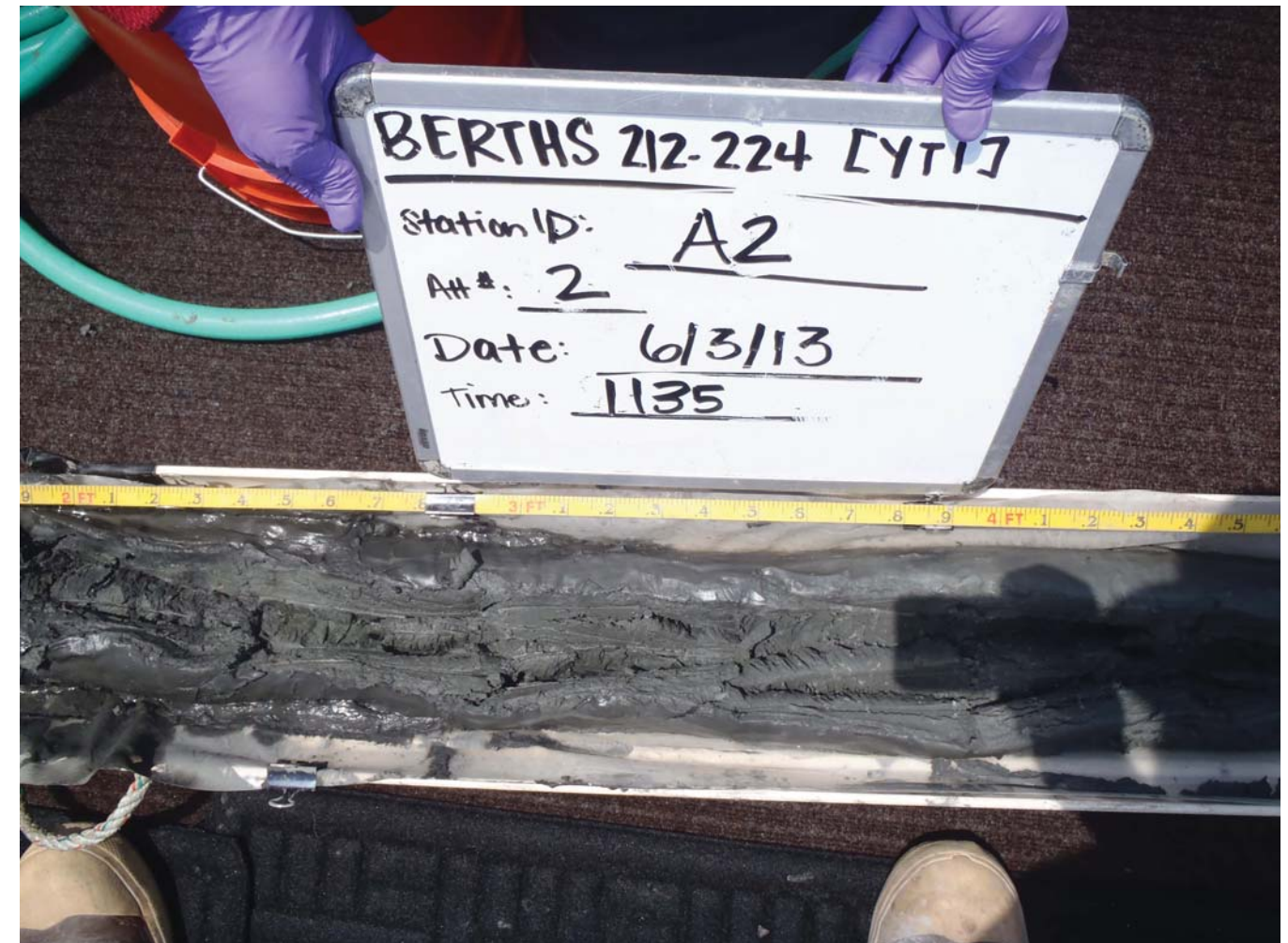
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 1  
Core Length: 4.0 - 6.0 ft.  
Sample Date & Time: 06/03/2013 1040



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 1  
Core Length: 6.0 - 7.5 ft.  
Sample Date & Time: 06/03/2013 1040



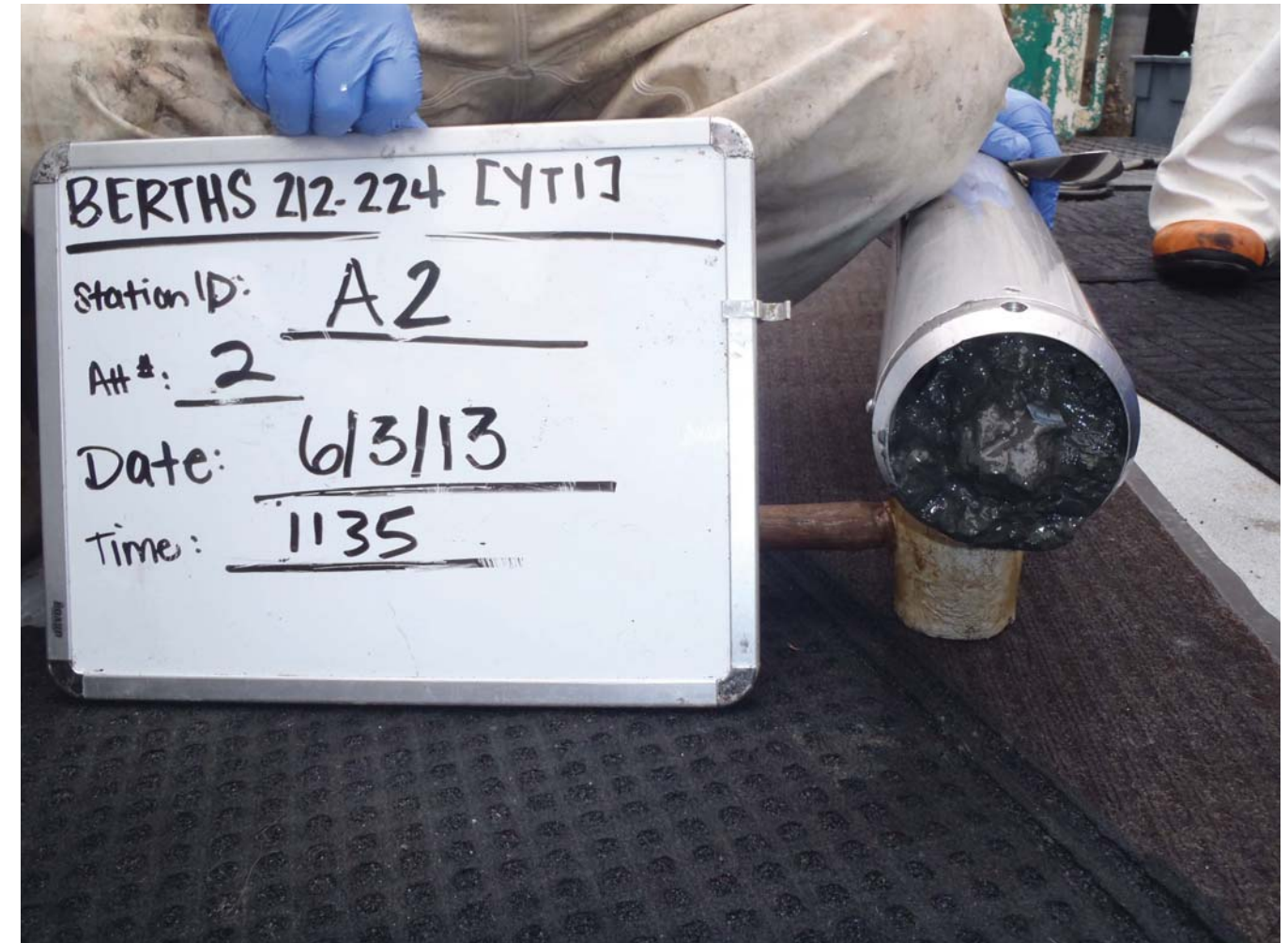
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 2  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/03/2013 1135



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 2  
Core Length: 2.0 - 4.0 ft.  
Sample Date & Time: 06/03/2013 1135



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 2  
Core Length: 4.0 - 6.5 ft.  
Sample Date & Time: 06/03/2013 1135



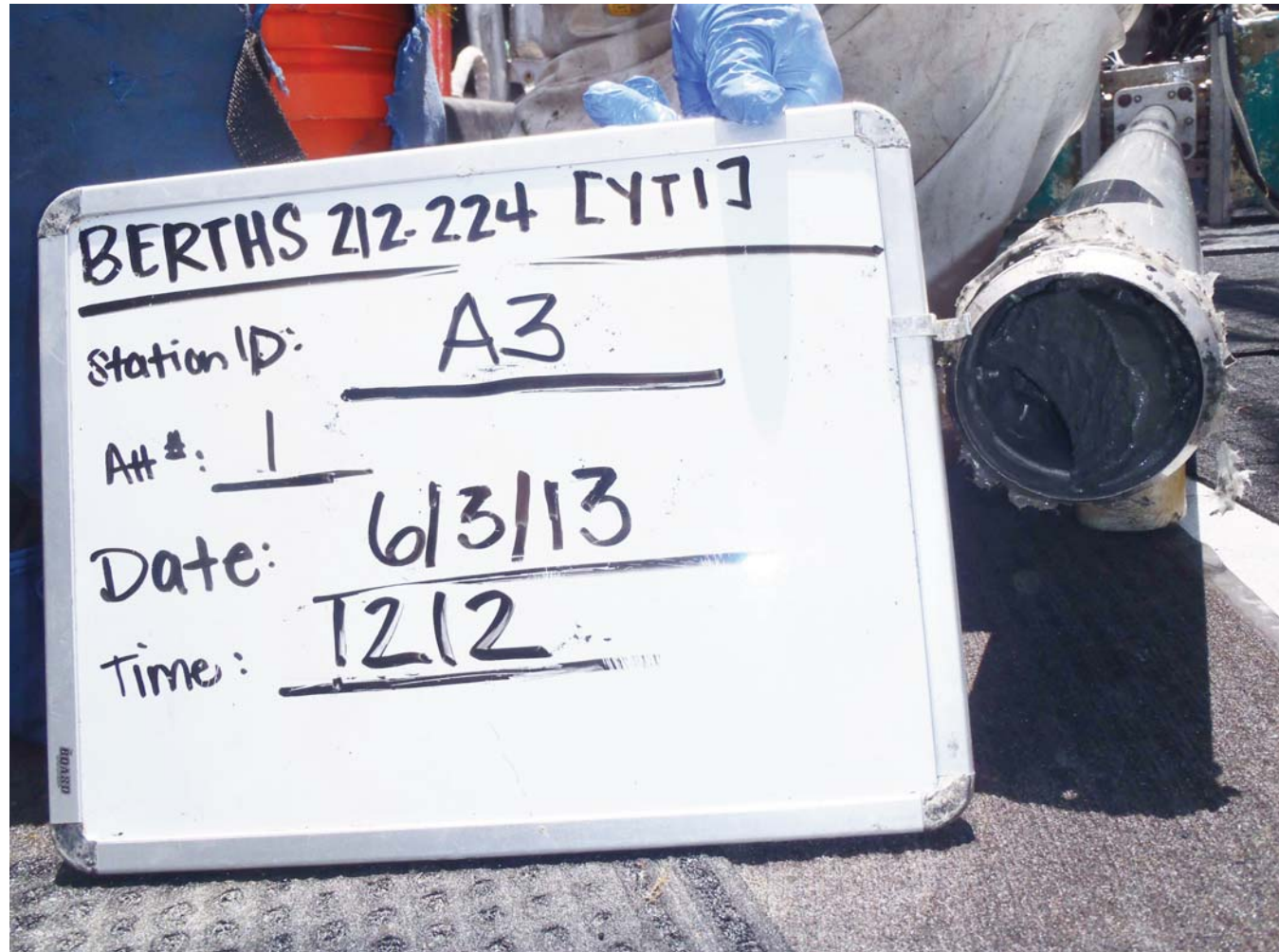
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A2  
Attempt #: 2  
Core Length: Plug  
Sample Date & Time: 06/03/2013 1135



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A3  
Attempt #: 1  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/03/2013 1212



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A3  
Attempt #: 1  
Core Length: 2.0 - 4.3 ft.  
Sample Date & Time: 06/03/2013 1212



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A3  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/03/2013 1212



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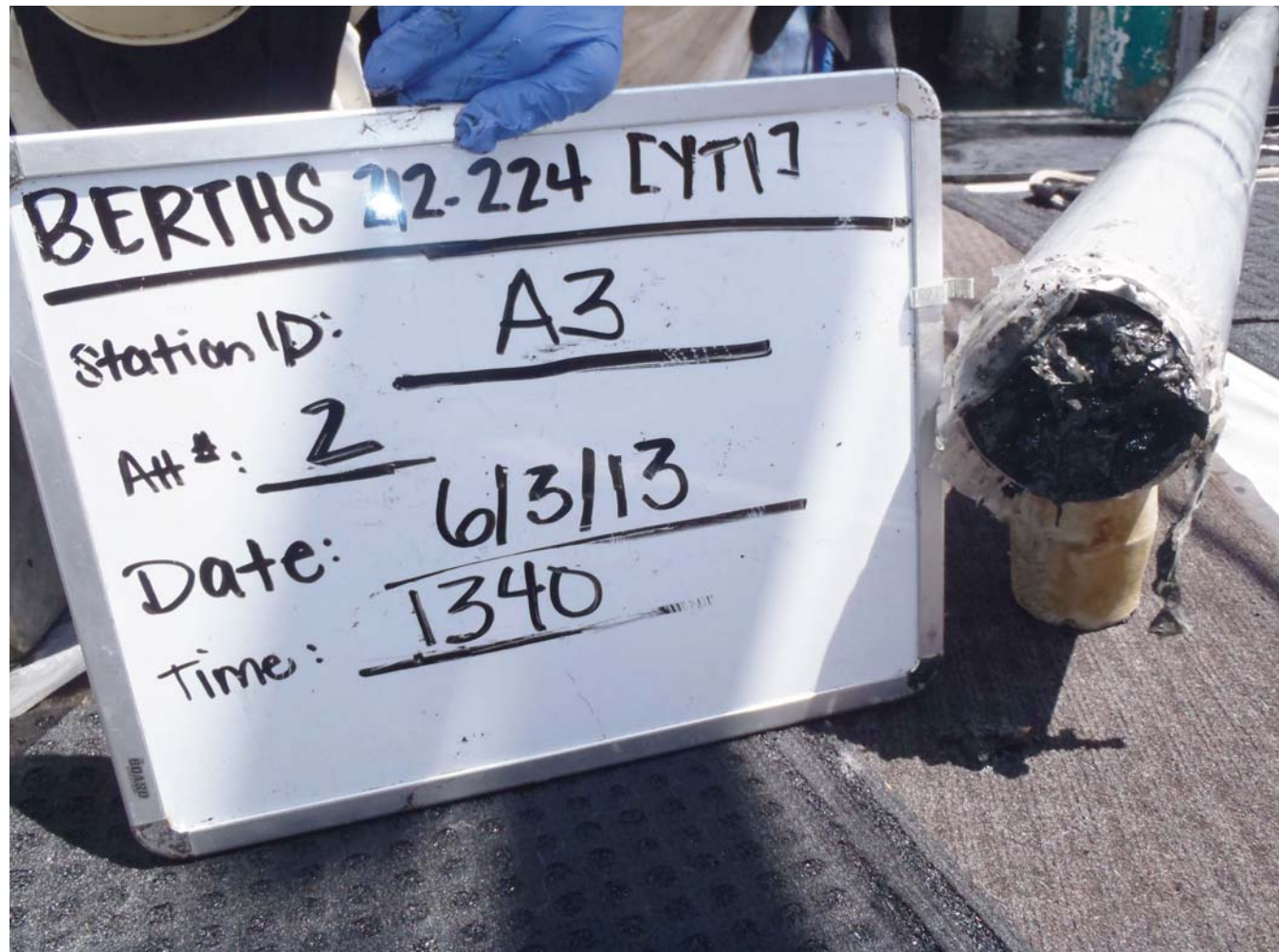
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: A3  
 Attempt #: 2  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/03/2013 1340



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: A3  
 Attempt #: 2  
 Core Length: 1.0 - 3.2 ft.  
 Sample Date & Time: 06/03/2013 1340



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Location: POLA Berths 212 - 224 (YTI Terminal)

Sample ID: A3

Attempt #: 2

Core Length: Plug

Sample Date & Time: 06/03/2013 1340



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Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: A4  
 Attempt #: 1  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/03/2013 1422



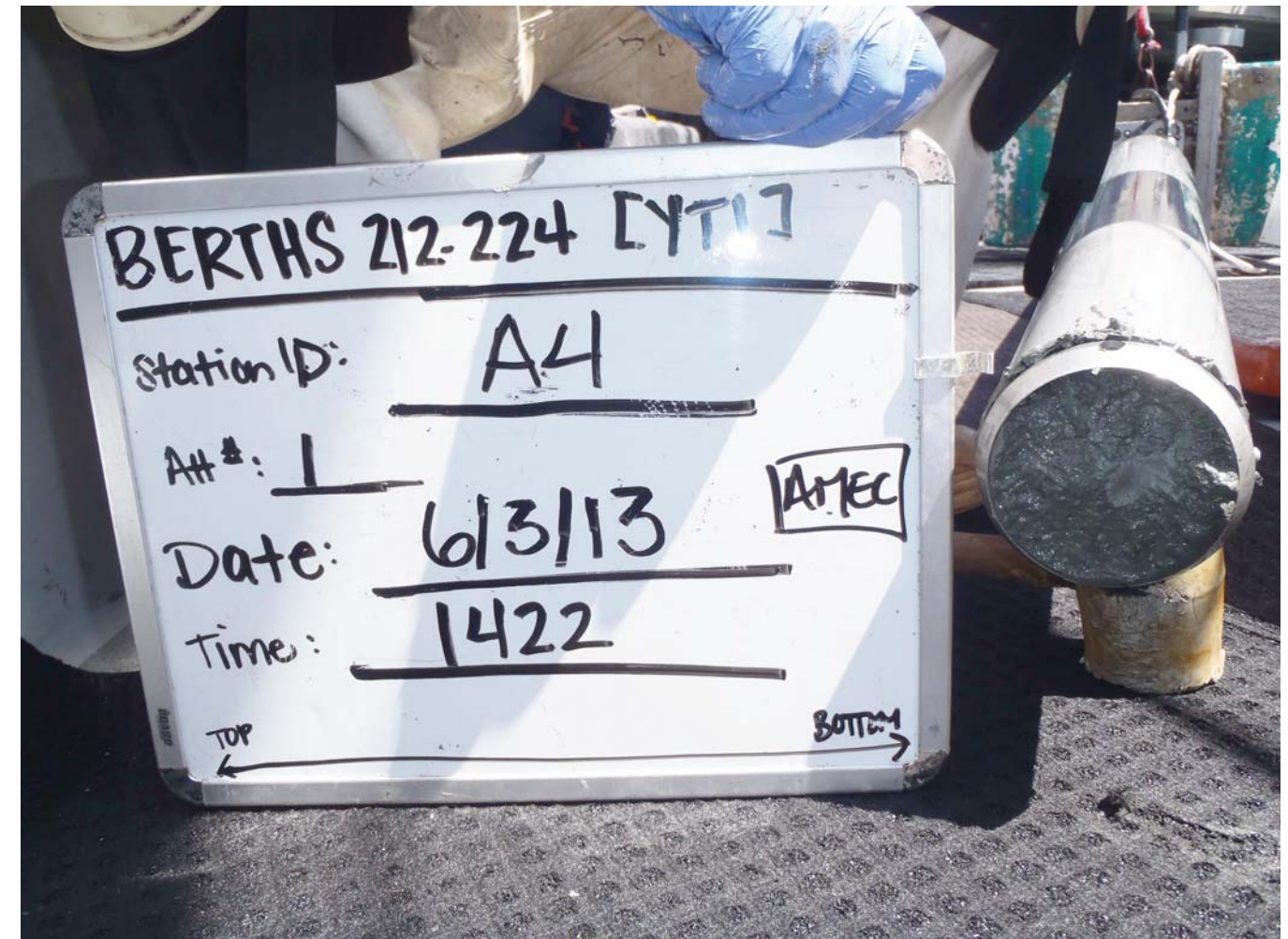
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: A4  
 Attempt #: 1  
 Core Length: 2.0 - 4.0 ft.  
 Sample Date & Time: 06/03/2013 1422



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Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A4  
Attempt #: 1  
Core Length: 5.0 - 6.7 ft.  
Sample Date & Time: 06/03/2013 1422



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A4  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/03/2013 1422



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A5  
Attempt #: 1  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/04/2013 0819



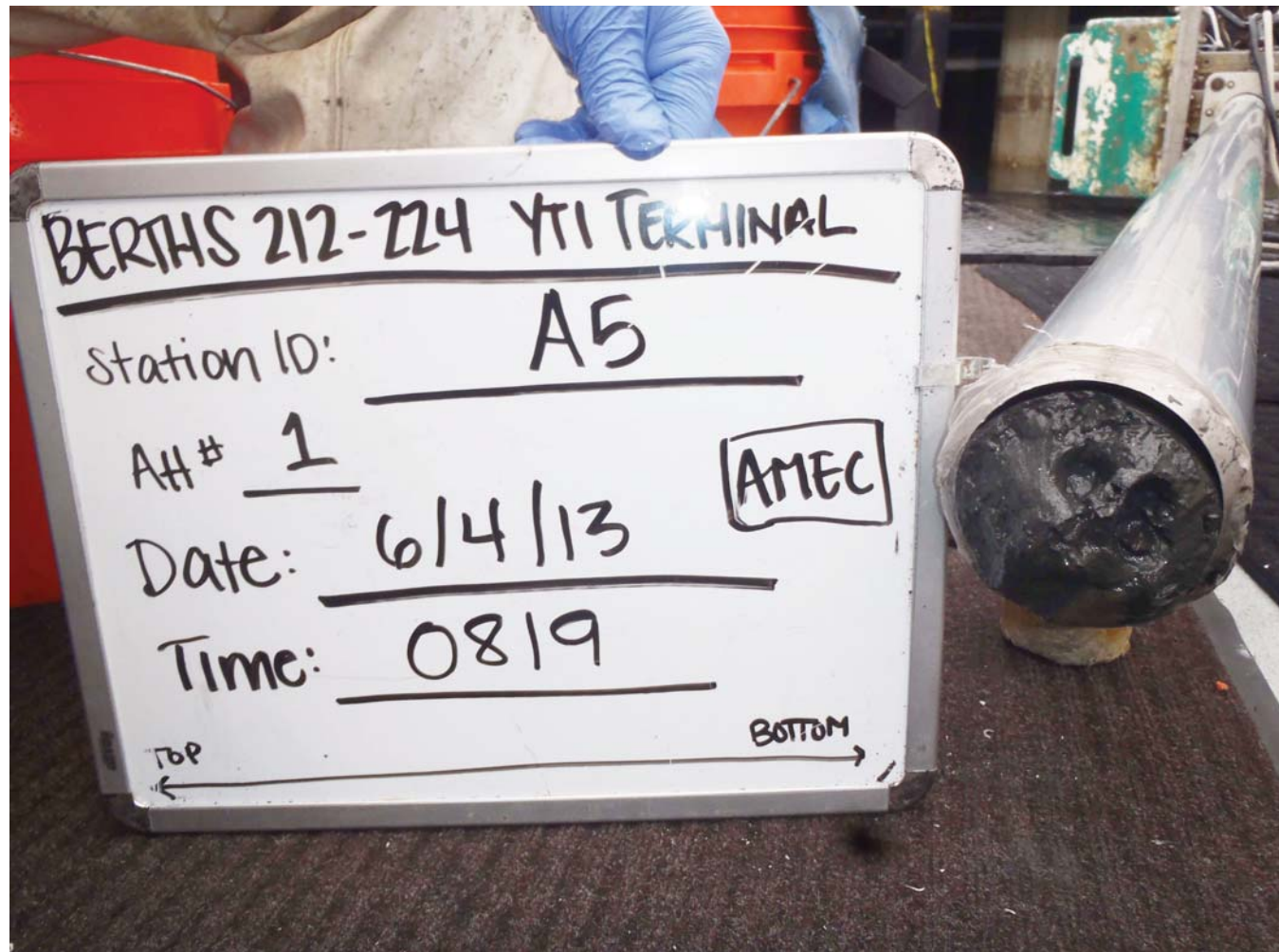
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A5  
Attempt #: 1  
Core Length: 2.0 - 4.0 ft.  
Sample Date & Time: 06/04/2013 0819



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: A5  
 Attempt #: 1  
 Core Length: 4.0 - 6.0 ft.  
 Sample Date & Time: 06/04/2013 0819



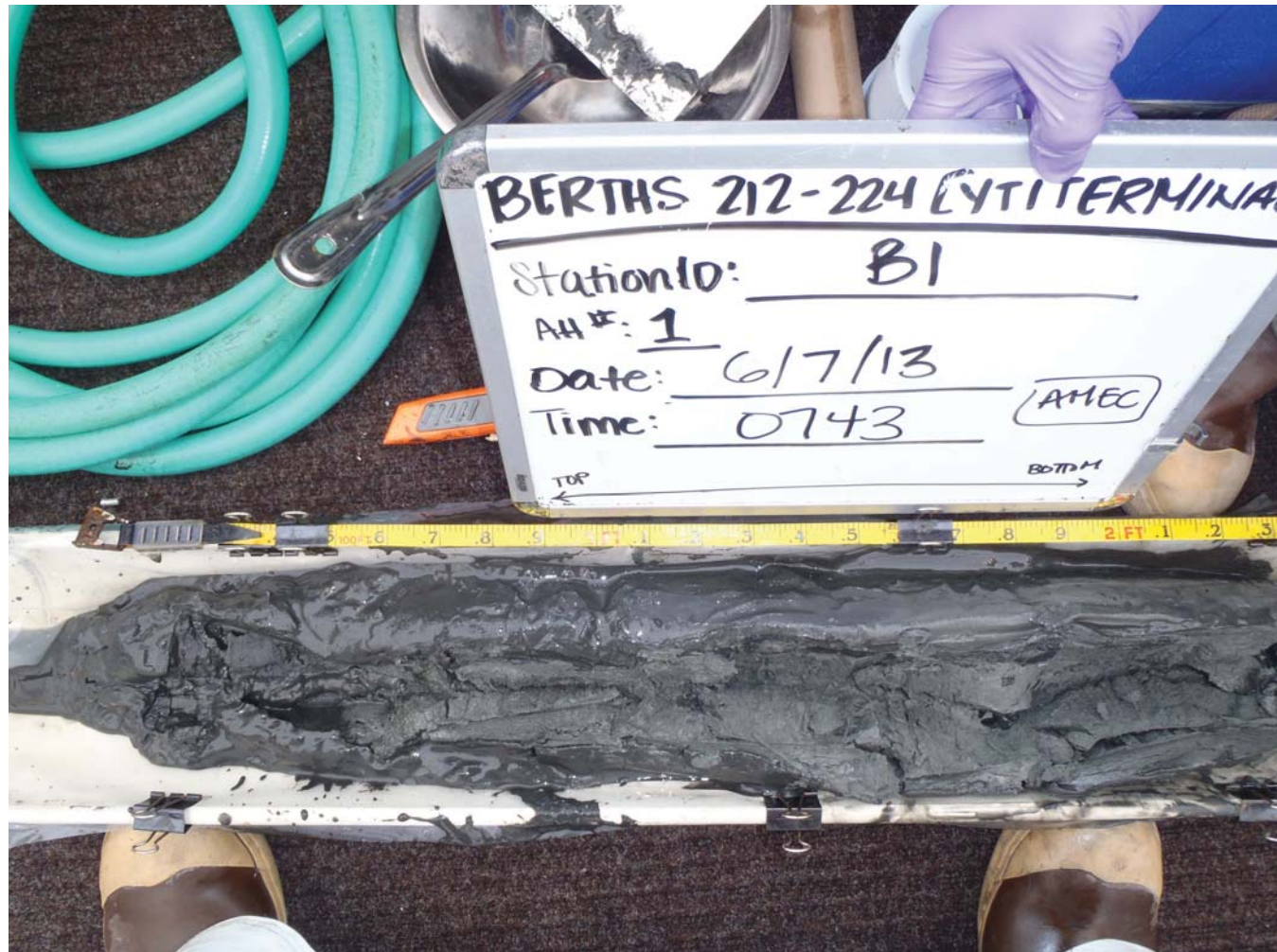
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: A5  
 Attempt #: 1  
 Core Length: 6.0 - 7.8 ft.  
 Sample Date & Time: 06/04/2013 0819



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: A5  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/04/2013 0819



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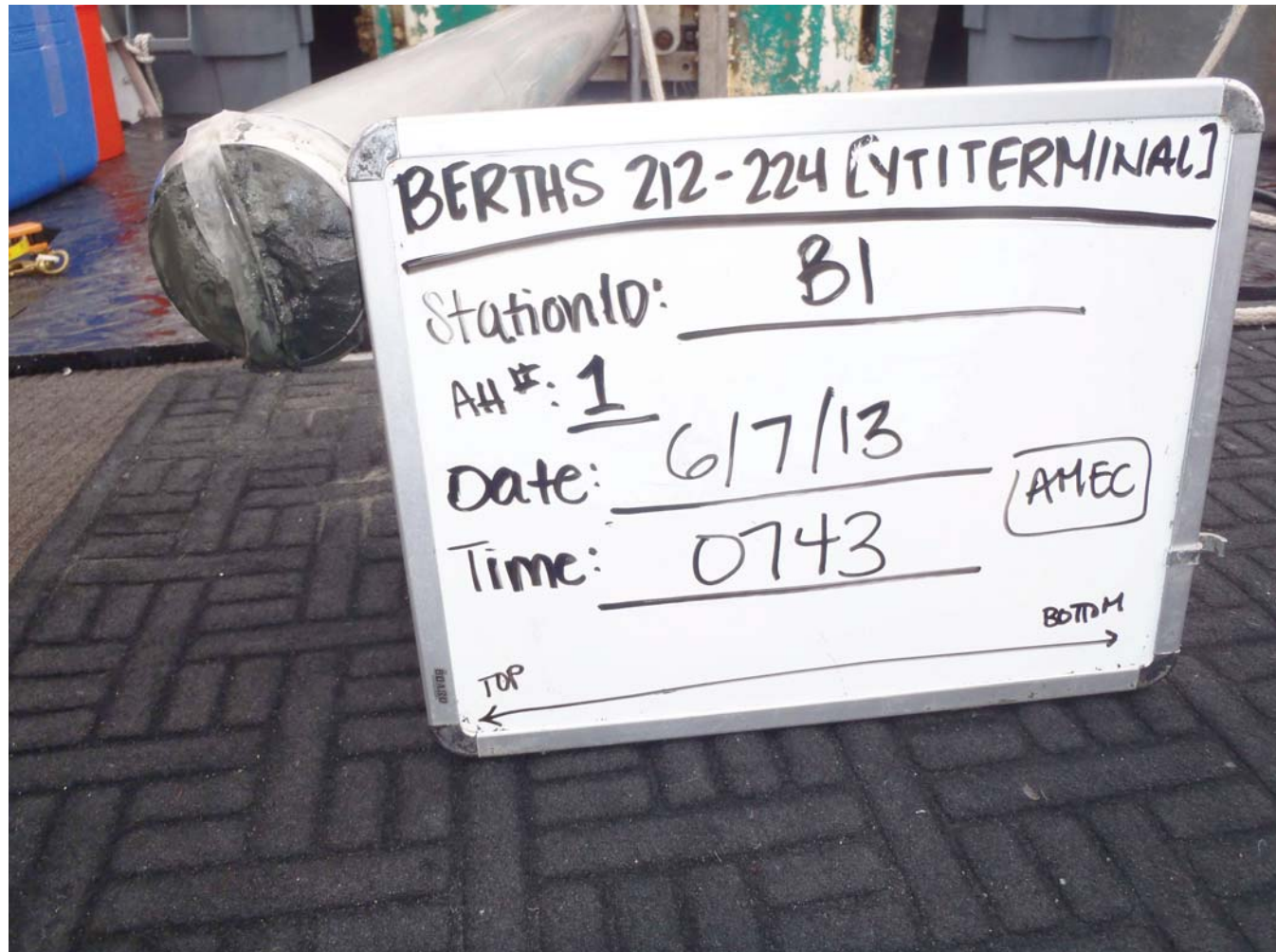


Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 1  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/07/2013 0743



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 1  
 Core Length: 1.0 - 3.0 ft.  
 Sample Date & Time: 06/07/2013 0743





Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B1  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/07/2013 0743



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Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 2  
 Core Length: 0 - 2.2 ft.  
 Sample Date & Time: 06/07/2013 0800



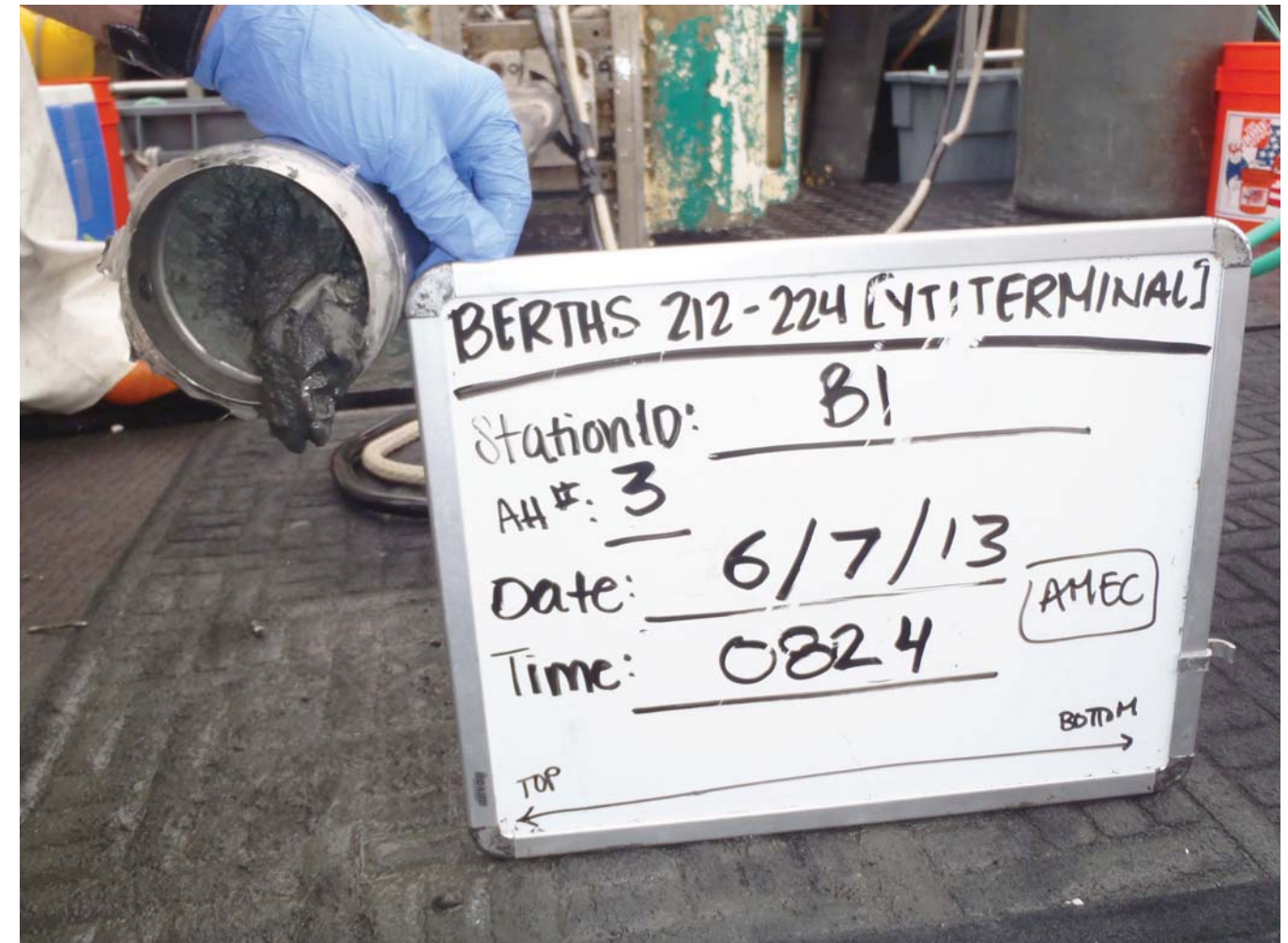
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 2  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 0800



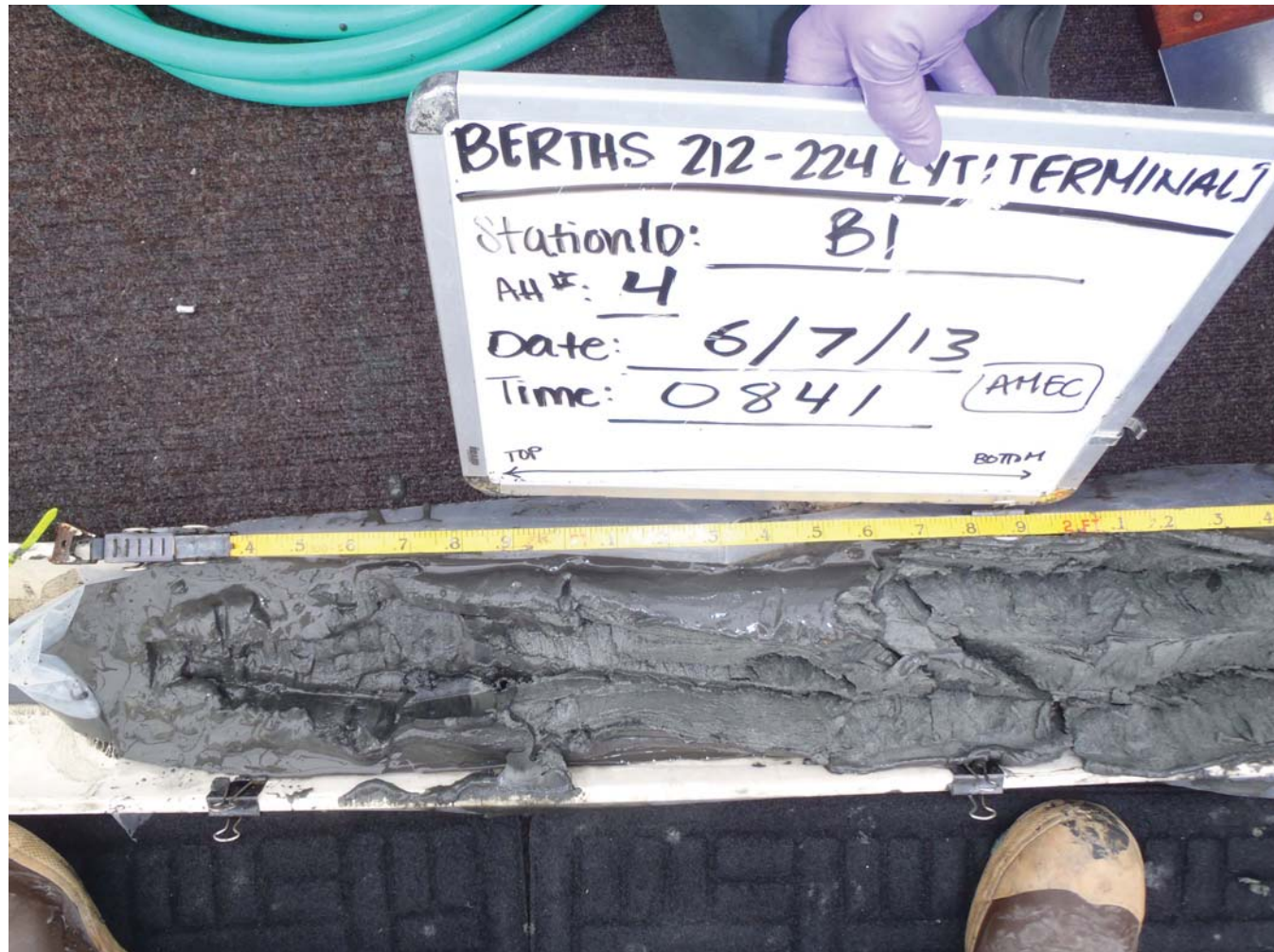
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Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 3  
 Core Length: 0 - 2.6 ft.  
 Sample Date & Time: 06/07/2013 0824



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 3  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 0824



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B1  
Attempt #: 4  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/07/2013 0841



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B1  
Attempt #: 4  
Core Length: 1.0 - 3.3 ft.  
Sample Date & Time: 06/07/2013 0841



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Location: POLA Berths 212 - 224 (YTI Terminal)

Sample ID: B1

Attempt #: 4

Core Length: Plug

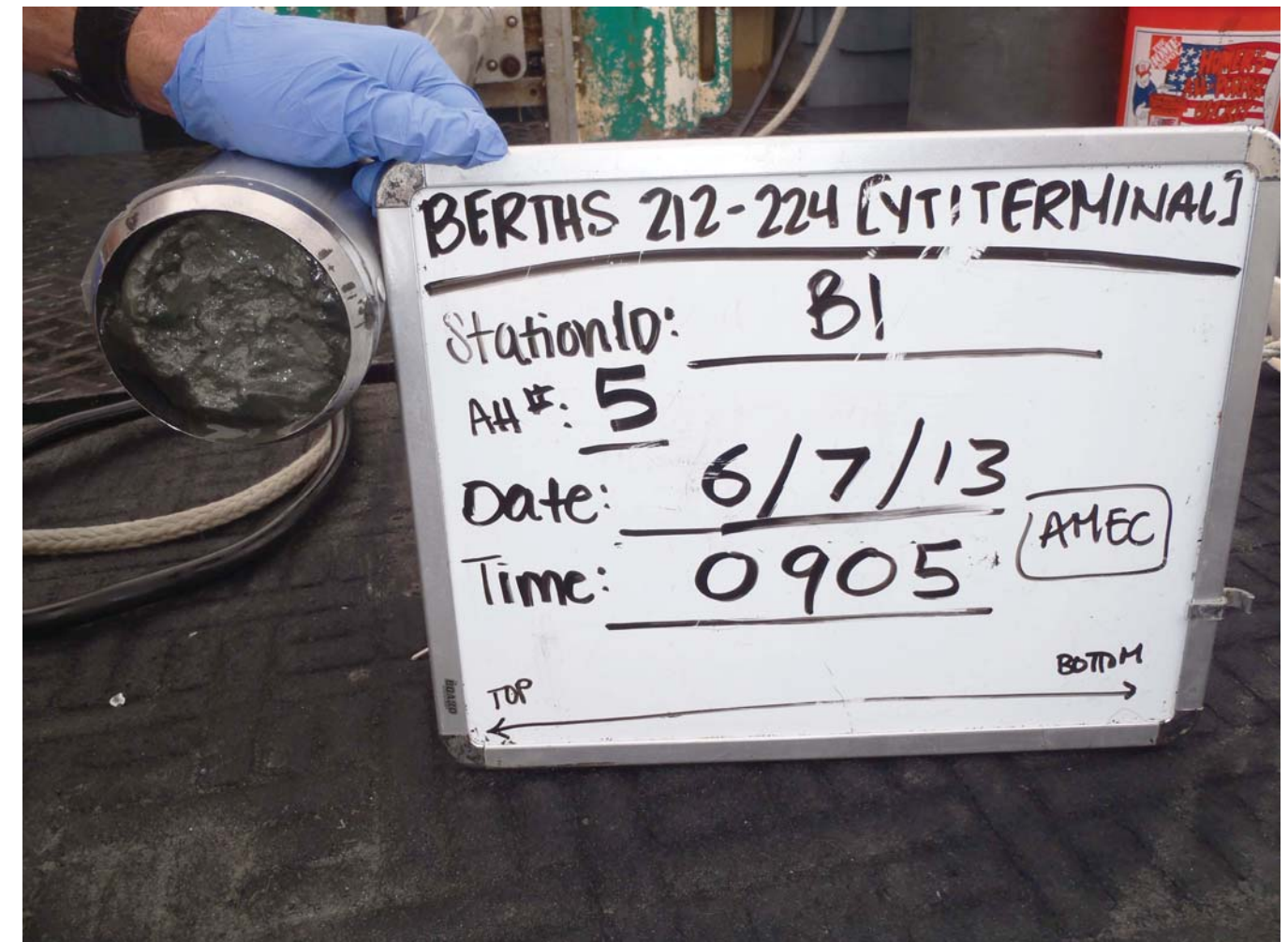
Sample Date & Time: 06/07/2013 0841



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Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 5  
 Core Length: 0 - 2.5 ft.  
 Sample Date & Time: 06/07/2013 0905



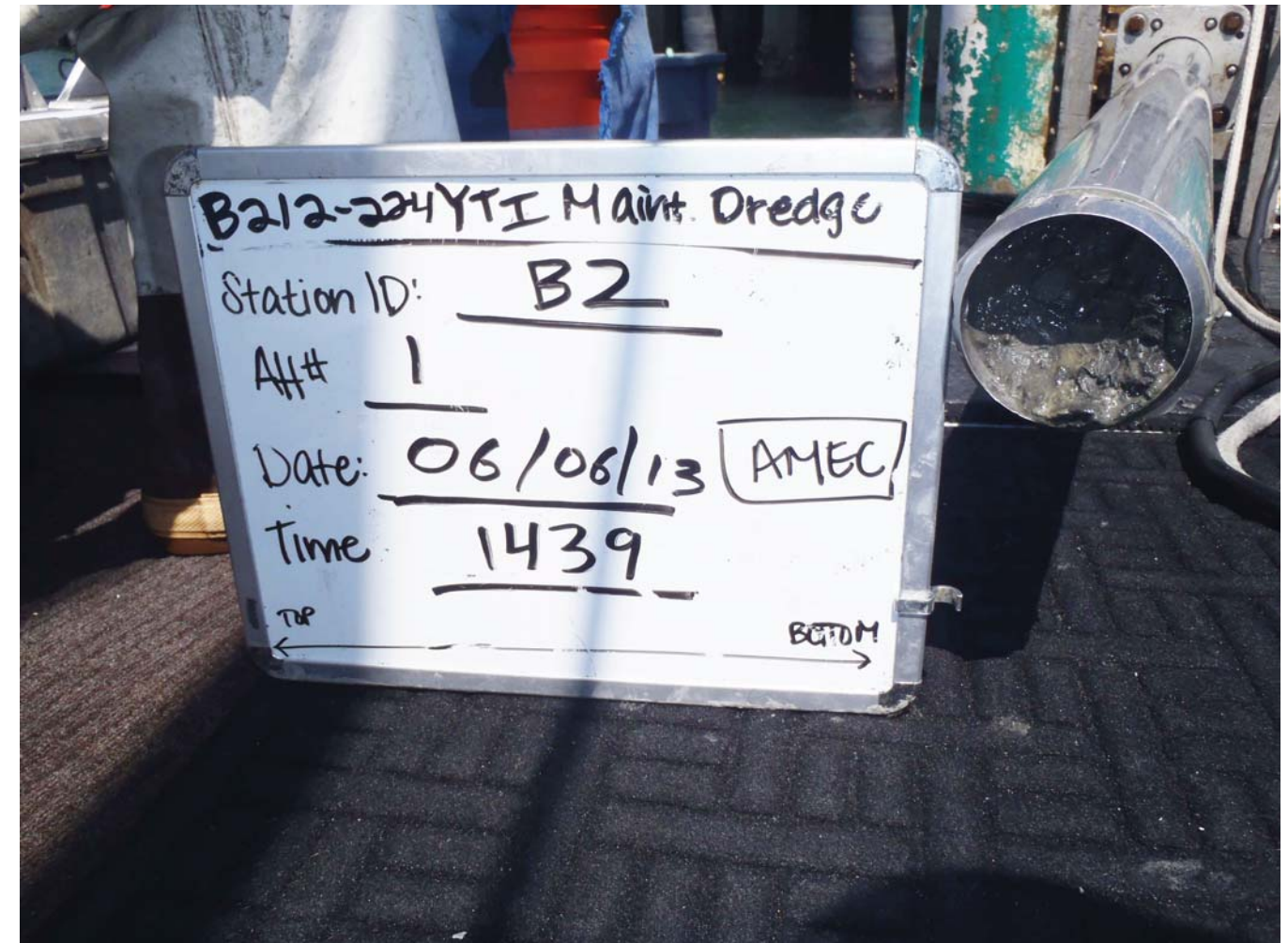
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B1  
 Attempt #: 5  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 0905



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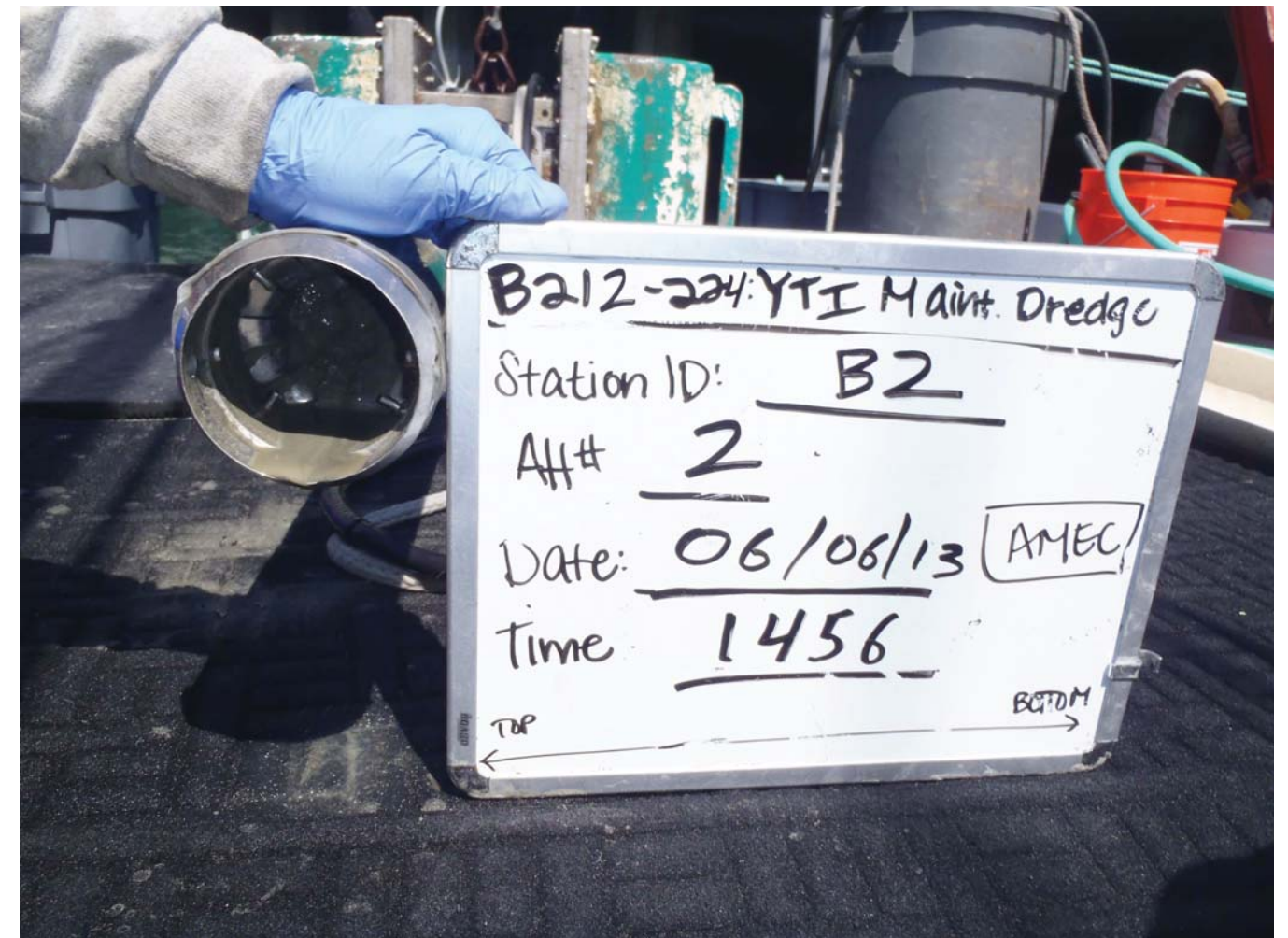
Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B2  
Attempt #: 1  
Core Length: 0 - 1.5 ft.  
Sample Date & Time: 06/06/2013 1439



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B2  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/06/2013 1439



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 2  
 Core Length: 0 - 2.3 ft.  
 Sample Date & Time: 06/06/2013 1439

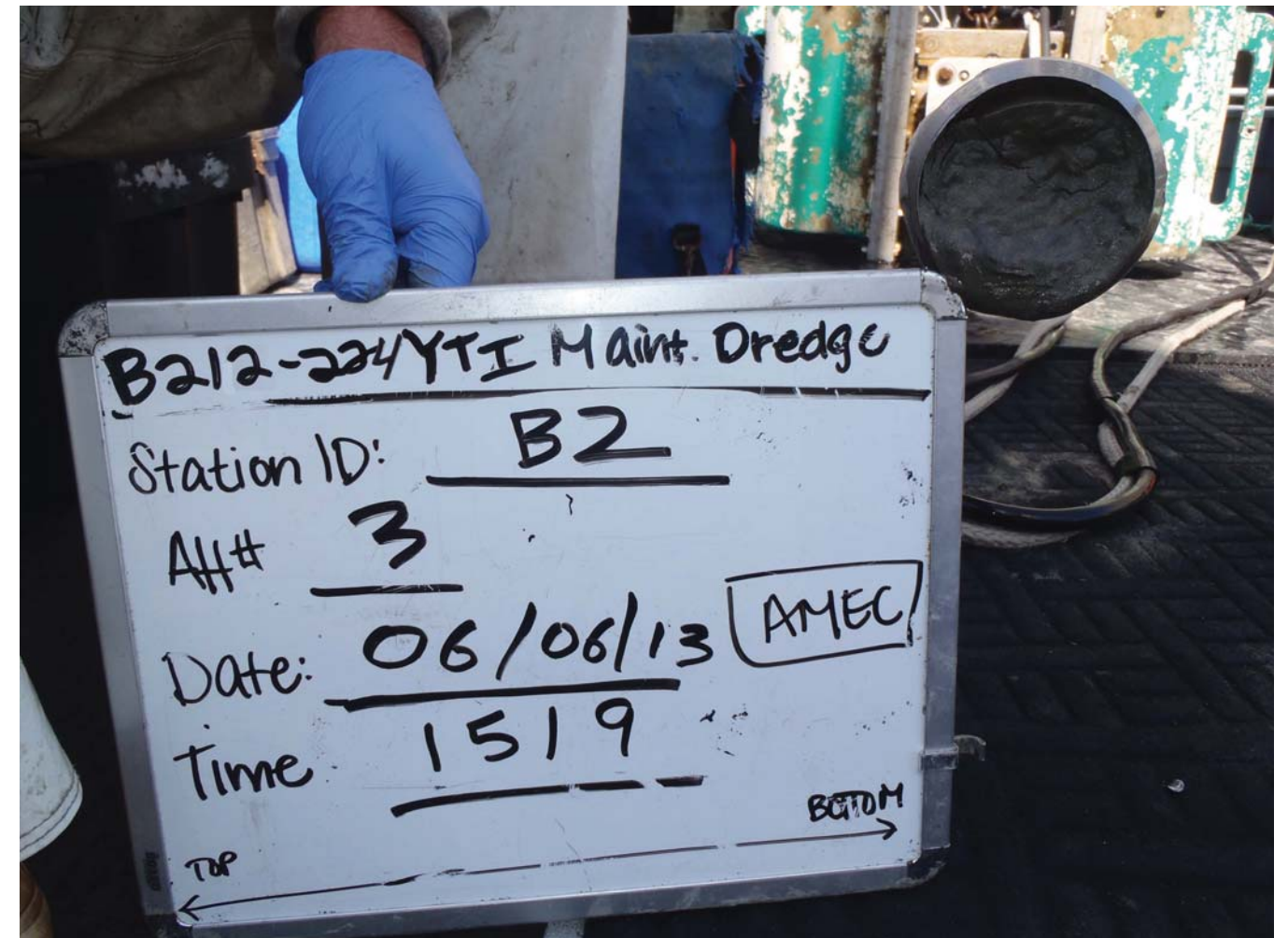


Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 2  
 Core Length: Plug  
 Sample Date & Time: 06/06/2013 1456





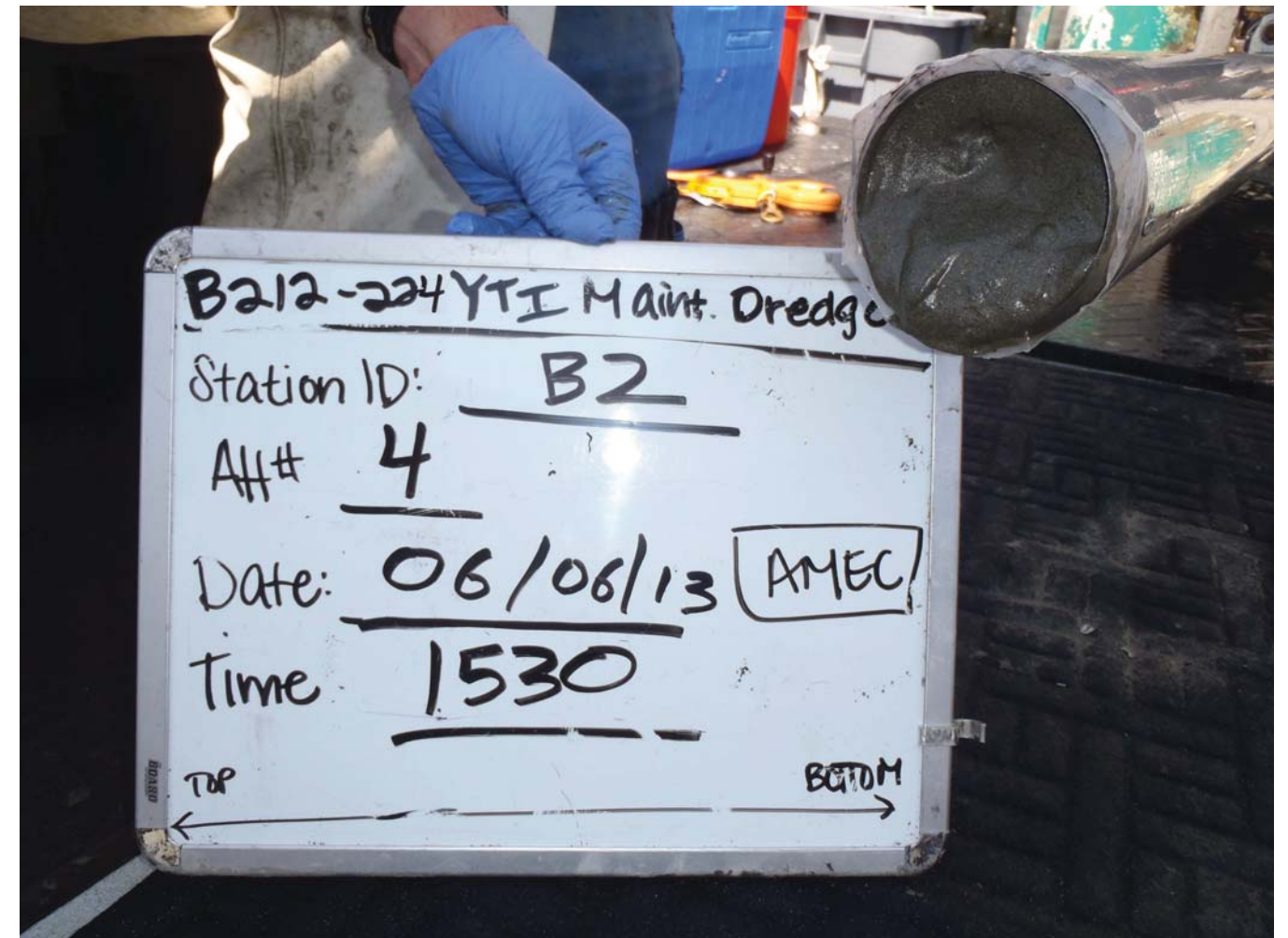
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 3  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/06/2013 1519



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 3  
 Core Length: Plug  
 Sample Date & Time: 06/06/2013 1519



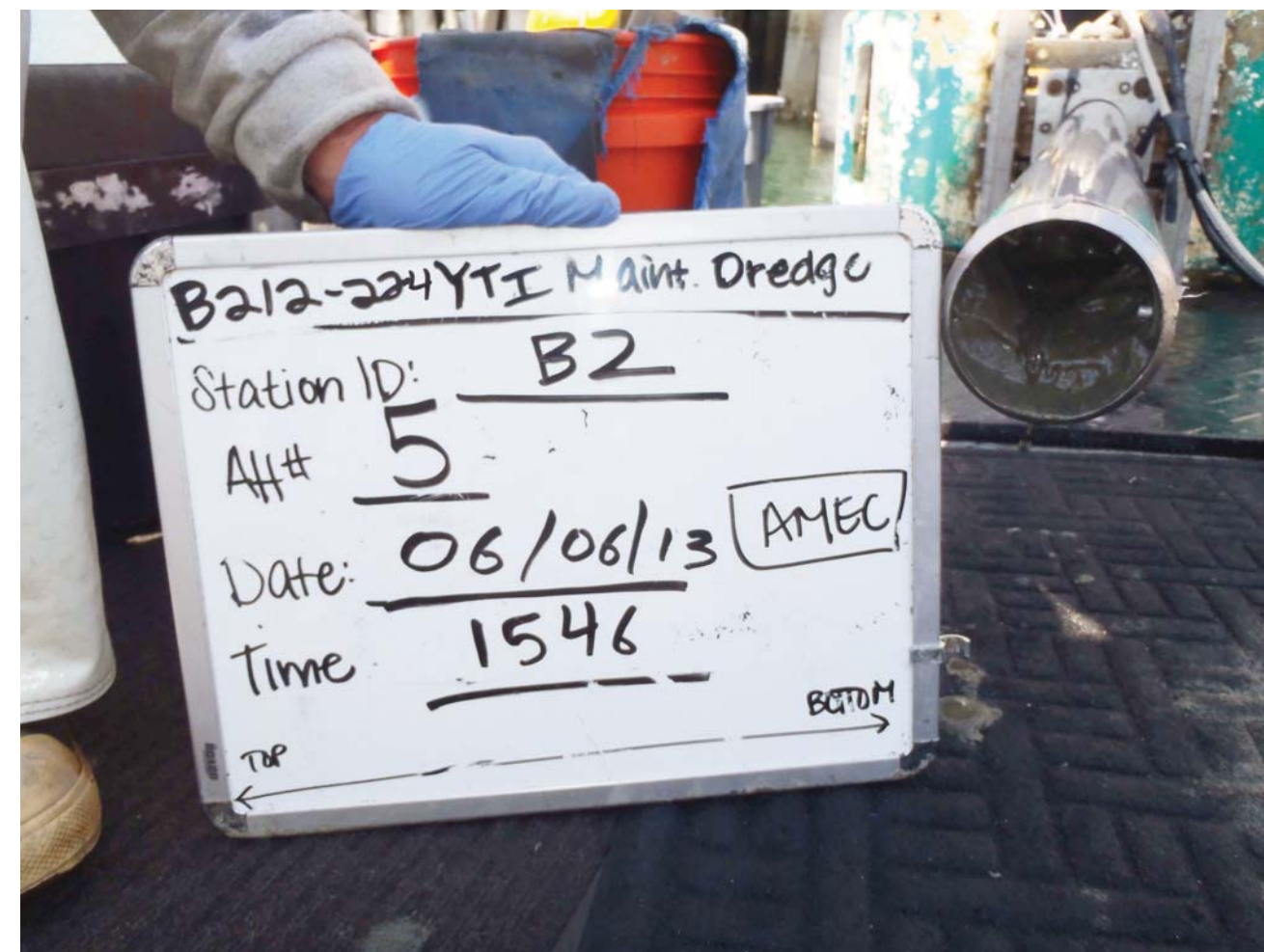
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 4  
 Core Length: 0 - 1.5 ft.  
 Sample Date & Time: 06/06/2013 1530



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 4  
 Core Length: Plug  
 Sample Date & Time: 06/06/2013 1530



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 5  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/06/2013 1546



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B2  
 Attempt #: 5  
 Core Length: Plug  
 Sample Date & Time: 06/06/2013 1546



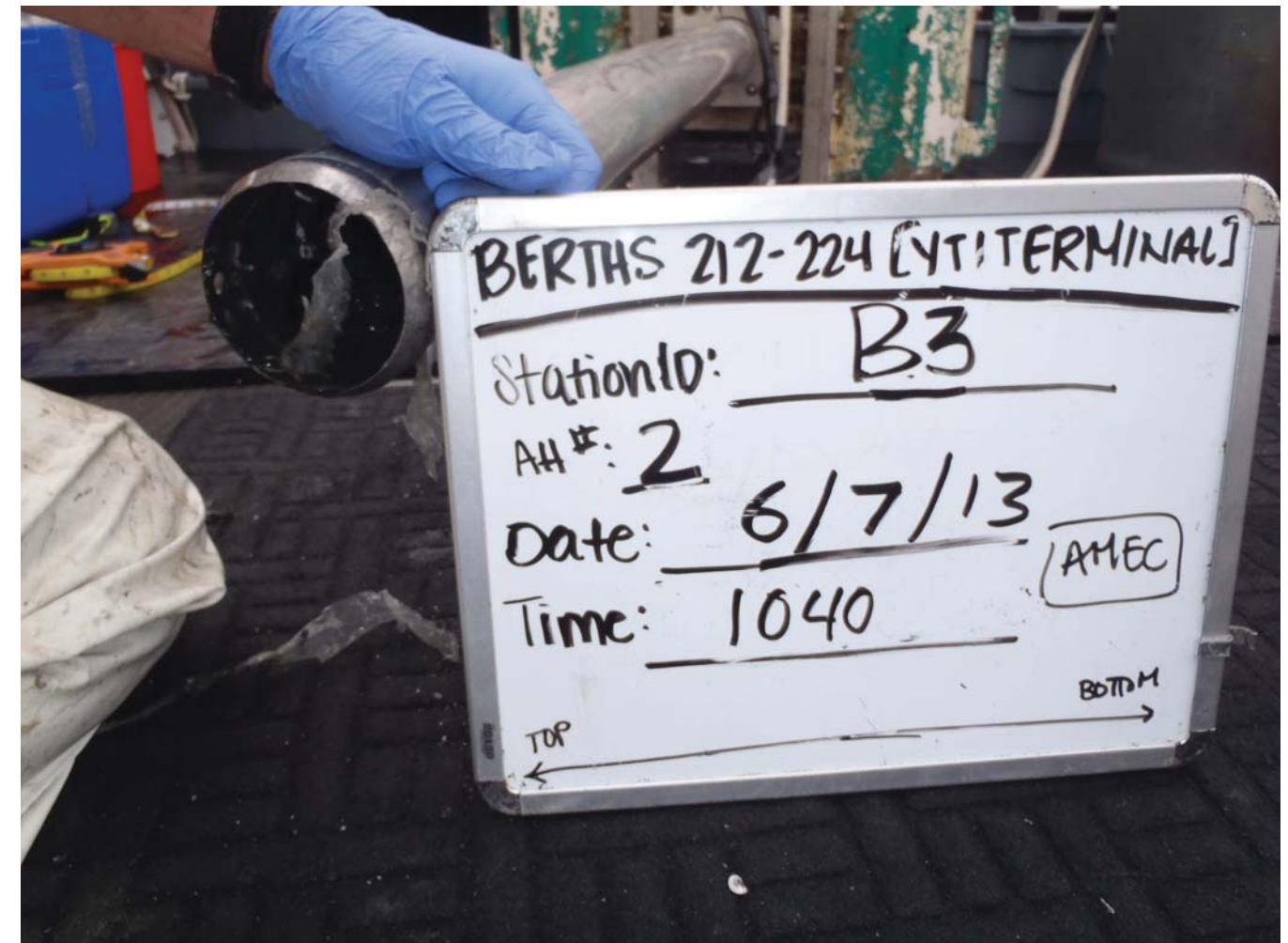
Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 1  
 Core Length: 0 - 1.5 ft.  
 Sample Date & Time: 06/07/2013 1008



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 1  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 1008



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 2  
 Core Length: 0 - 1.0 ft.  
 Sample Date & Time: 06/07/2013 1040



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 2  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 1040



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Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 3  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/07/2013 1055



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 3  
 Core Length: 2.0 - 4.0 ft.  
 Sample Date & Time: 06/07/2013 1055



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 AMEC Project No. 1015101929  
 June 2013



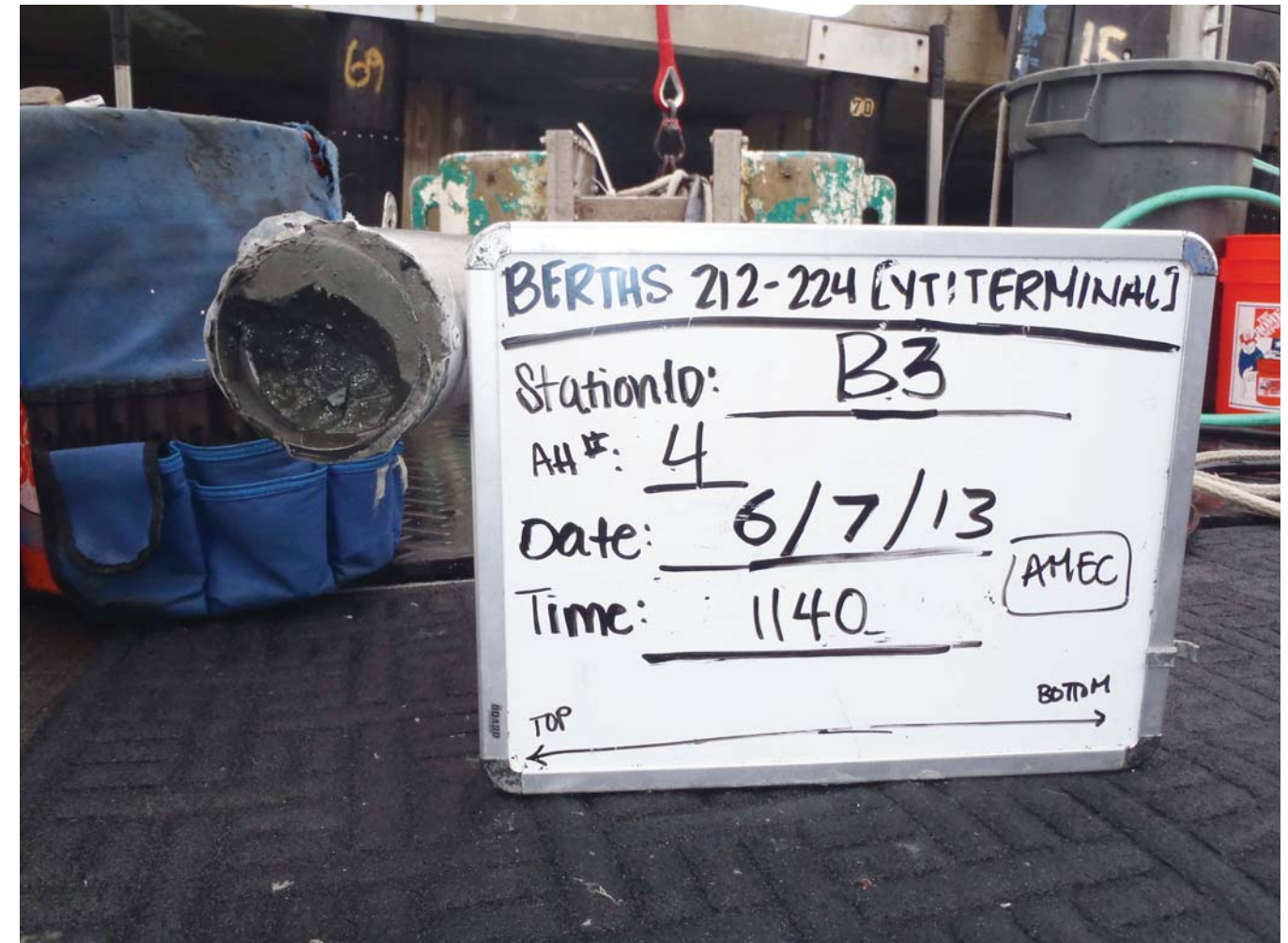
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Sample ID: B3  
Attempt #: 3  
Core Length: 3.0 - 5.0 ft.  
Sample Date & Time: 06/07/2013 1055



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B3  
Attempt #: 3  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1055



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 4  
 Core Length: 0 - 2.6 ft.  
 Sample Date & Time: 06/07/2013 1140



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B3  
 Attempt #: 4  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 1140

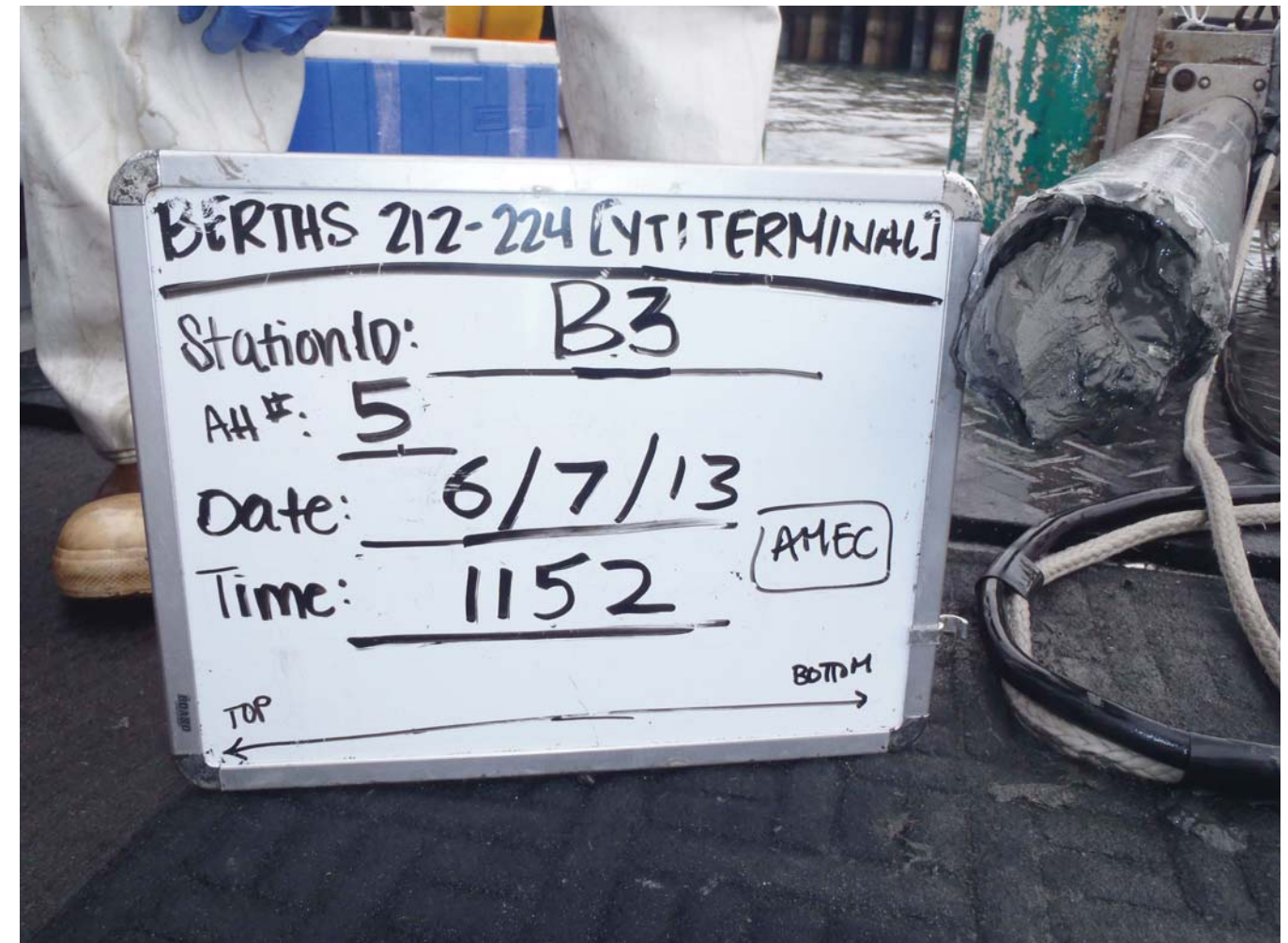


Port of Los Angeles  
 Berths 212 - 224 (YTI) Container Terminal  
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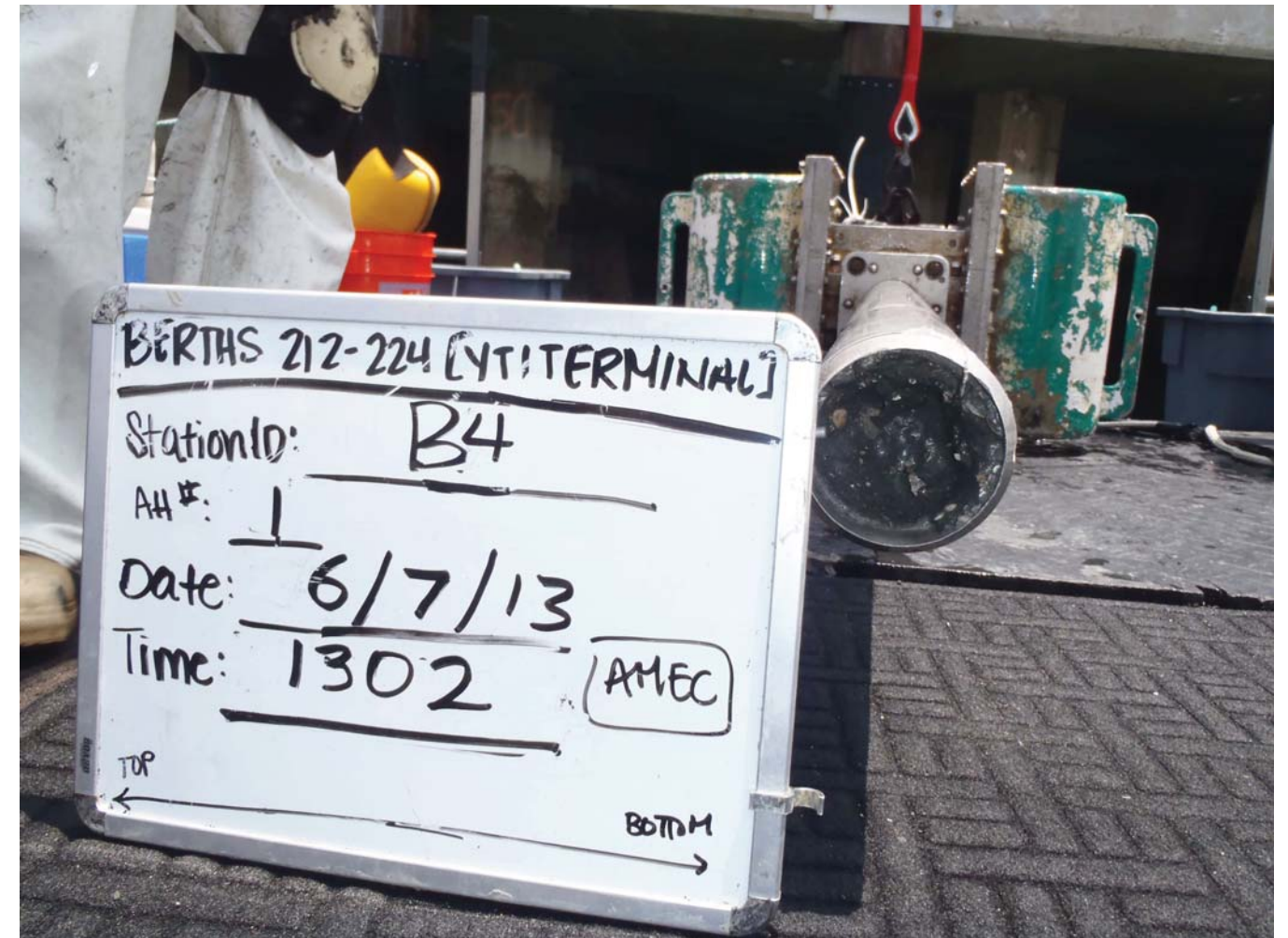
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Sample ID: B3  
Attempt #: 5  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/07/2013 1152



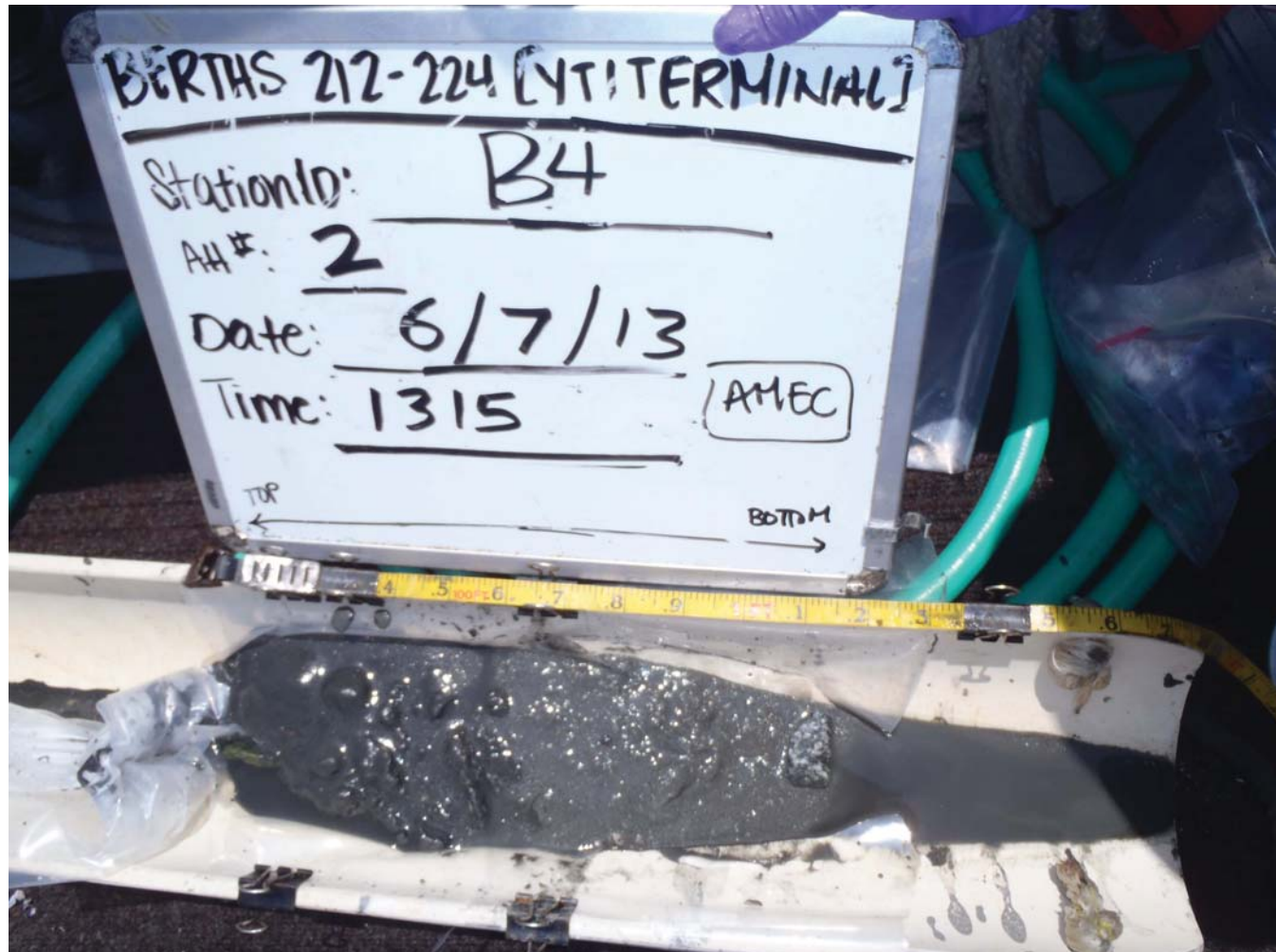
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Sample ID: B3  
Attempt #: 5  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1152



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B4  
Attempt #: 1  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/07/2013 1302



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B4  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1302



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B4  
Attempt #: 2  
Core Length: 0 - 1.3 ft.  
Sample Date & Time: 06/07/2013 1315



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B4  
Attempt #: 2  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1315



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B4  
 Attempt #: 3  
 Core Length: 0 - 1.8 ft.  
 Sample Date & Time: 06/07/2013 1333



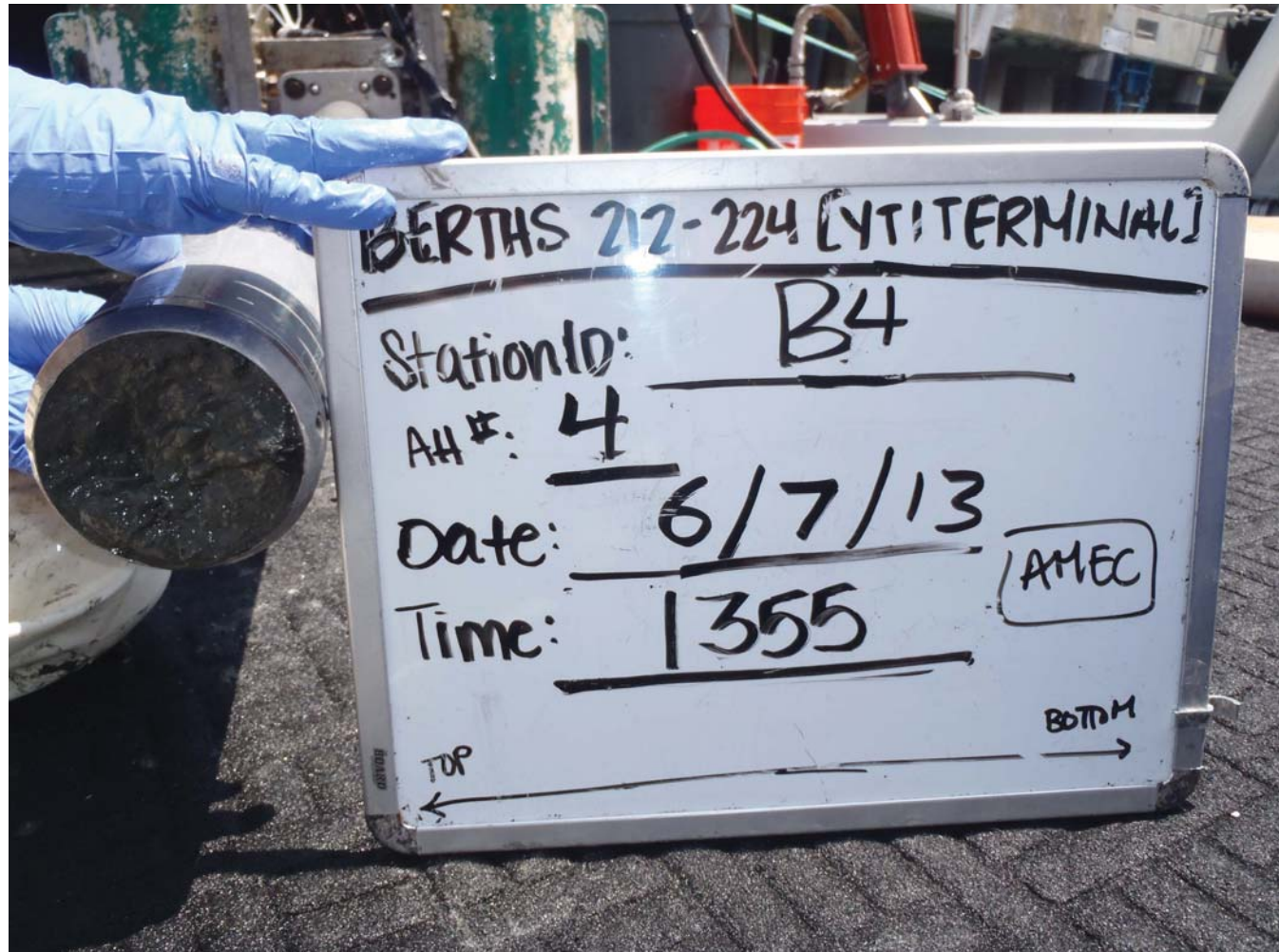
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 Sample ID: B4  
 Attempt #: 3  
 Core Length: Plug  
 Sample Date & Time: 06/07/2013 1333



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B4  
 Attempt #: 4  
 Core Length: 0 - 2.0 ft.  
 Sample Date & Time: 06/07/2013 1355



Location: POLA Berths 212 - 224 (YTI Terminal)  
 Sample ID: B4  
 Attempt #: 4  
 Core Length: 1.0 - 2.7 ft.  
 Sample Date & Time: 06/07/2013 1355



Location: POLA Berths 212 - 224 (YTI Terminal)

Sample ID: B4

Attempt #: 4

Core Length: Plug

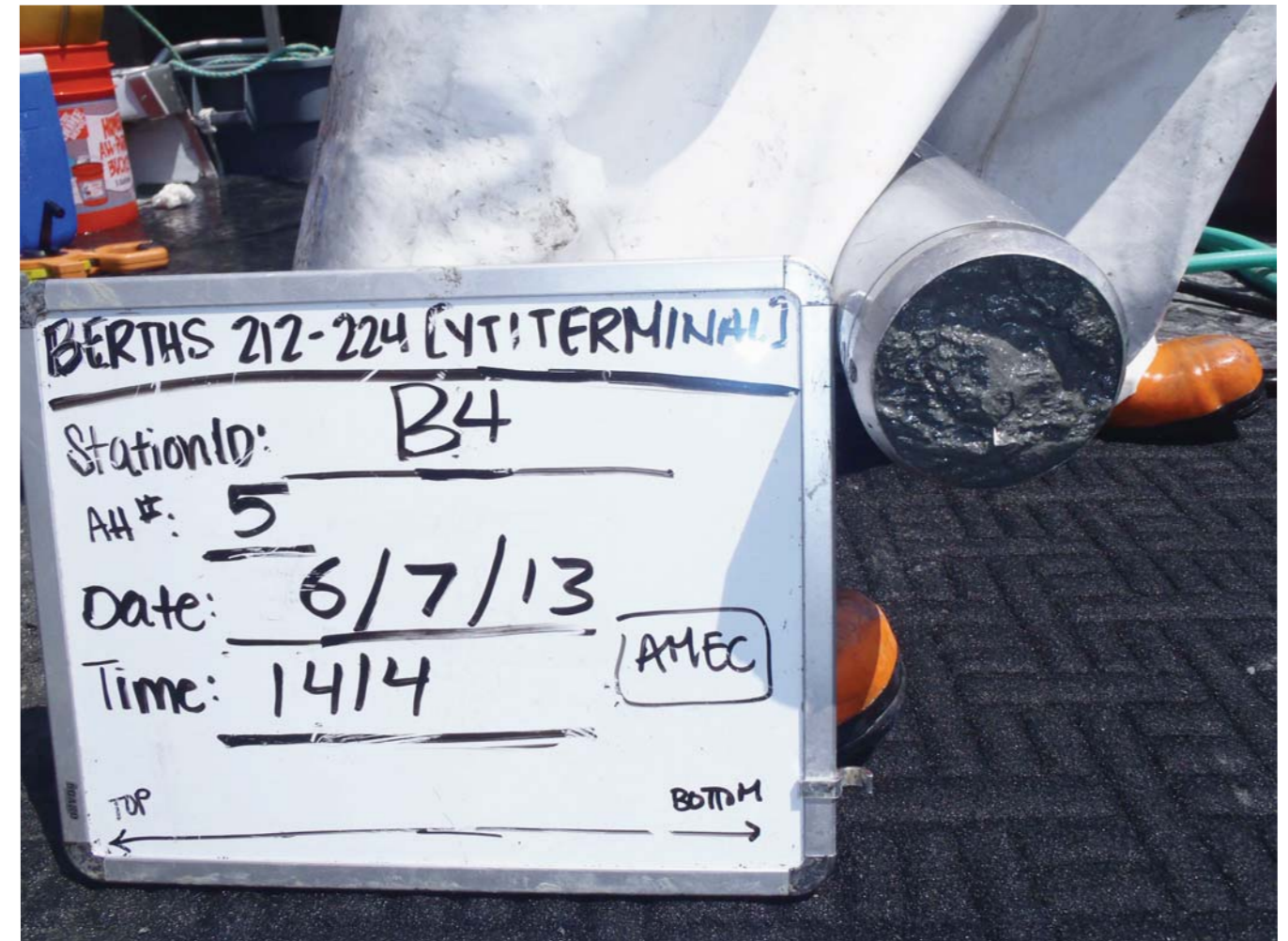
Sample Date & Time: 06/07/2013 1355



Port of Los Angeles  
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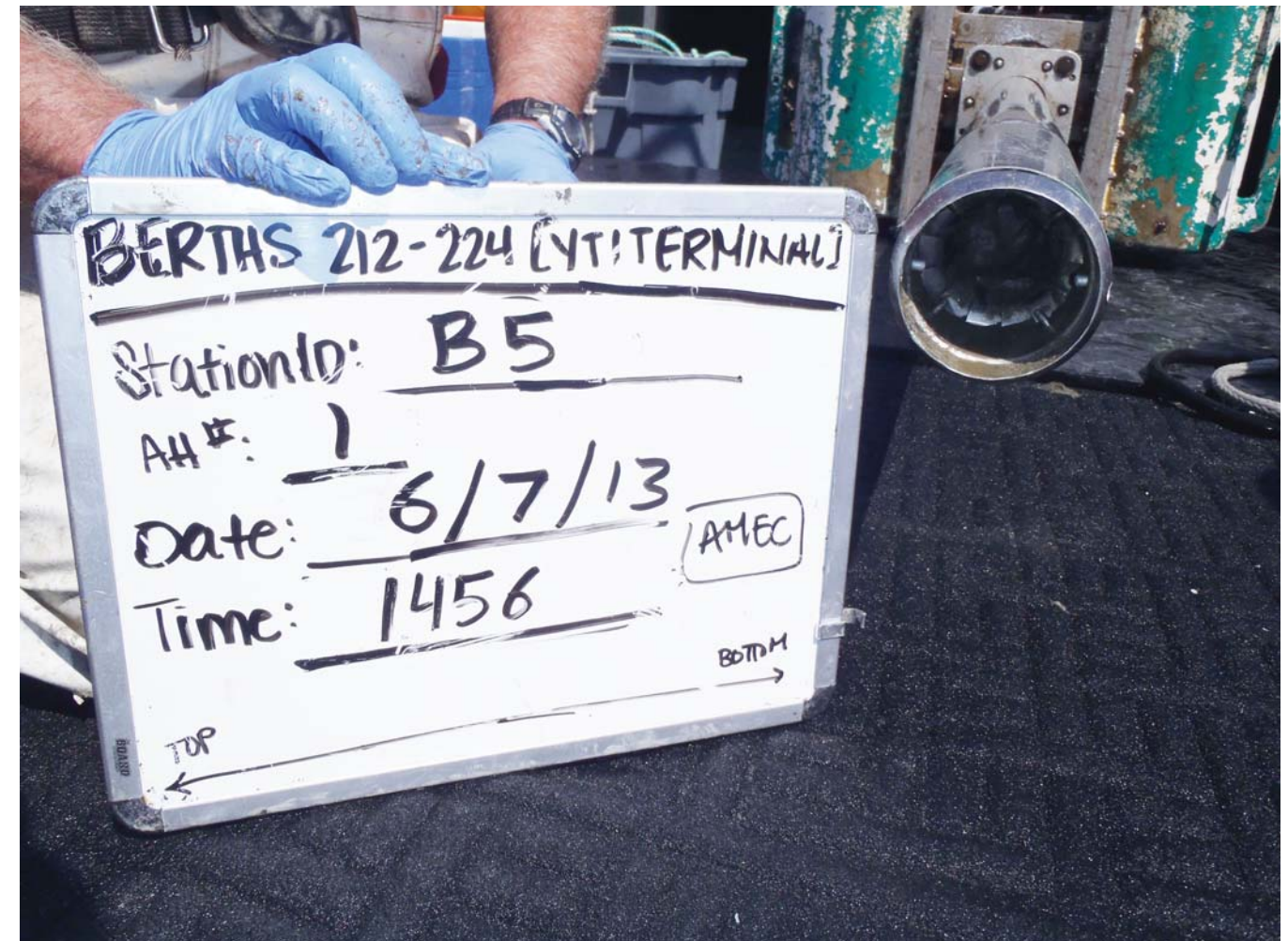
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Sample ID: B4  
Attempt #: 5  
Core Length: 0 - 2.0 ft.  
Sample Date & Time: 06/07/2013 1414



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B4  
Attempt #: 5  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1414



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B5  
Attempt #: 1  
Core Length: 0 - 1.3 ft.  
Sample Date & Time: 06/07/2013 1456



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B5  
Attempt #: 1  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1456





Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B5  
Attempt #: 2  
Core Length: 0 - 1.8 ft.  
Sample Date & Time: 06/07/2013 1515



Location: POLA Berths 212 - 224 (YTI Terminal)  
Sample ID: B5  
Attempt #: 2  
Core Length: Plug  
Sample Date & Time: 06/07/2013 1515



Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



## **APPENDIX C**

### **SEDIMENT CHEMISTRY**

Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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**Table C-1: YTI Sediment Chemistry Summary**

Draft Port of Los Angeles Maintenance Dredging Project - Berths 217-224 (YTI)								
Analytical Method	Compound Name	Type	ERL	ERM	Units	Reference	Composite A	Composite B
SM 2540 B (M)	Solids, Total	General Chemistry	-	-	%	71.1	72.9	66.4
EPA 9060A	Total Organic Carbon	General Chemistry	-	-	%	0.77	0.71	0.87
SM 4500-NH3 B/C (M)	Total Ammonia	General Chemistry	-	-	mg/kg	3.2	7.7	2.1
EPA 376.2M	Total Sulfides	General Chemistry	-	-	mg/kg	0.7	41	3.3
EPA 376.2M	Soluble Sulfides	General Chemistry	-	-	mg/kg	ND < 0.1	ND < 0.10	ND < 0.10
EPA 6020	Arsenic	Metals	8.2	70	mg/kg	2.86	8.77	8.44
EPA 6020	Cadmium	Metals	1.2	9.6	mg/kg	0.195	0.471	0.423
EPA 6020	Chromium	Metals	81	370	mg/kg	21.3	35.2	32.9
EPA 6020	Copper	Metals	34	270	mg/kg	10.4	60.1	54.5
EPA 6020	Lead	Metals	46.7	218	mg/kg	5.37	27.7	25.7
EPA 7471A	Mercury	Metals	0.15	0.71	mg/kg	ND < 0.0282	0.217	0.171
EPA 6020	Nickel	Metals	20.9	51.6	mg/kg	10.9	27.3	22.4
EPA 6020	Selenium	Metals	-	-	mg/kg	0.322	0.237	0.415
EPA 6020	Silver	Metals	1.0	3.7	mg/kg	0.176	0.183	0.219
EPA 6020	Zinc	Metals	150	410	mg/kg	46.5	112	112
EPA 8015B(M)	C6		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C7		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C8		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C9-C10		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C11-C12		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C13-C14		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C15-C16		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C17-C18		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C19-C20		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C21-C22		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C23-C24		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C25-C28		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C29-C32		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C33-C36		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C37-C40		-	-	mg/kg	ND < 7	ND < 6.9	11
EPA 8015B(M)	C41-C44		-	-	mg/kg	ND < 7	ND < 6.9	ND < 7.5
EPA 8015B(M)	C6-C44 Total TPH		-	-	mg/kg	ND < 7	ND < 6.9	24
EPA 418.1M	TRPH		-	-	mg/kg	18	65	38
EPA 8270C SIM	Naphthalene	PAH	160	2100	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270C SIM	Acenaphthylene	PAH	44	640	µg/kg	ND < 14	15	15
EPA 8270C SIM	Acenaphthene	PAH	16	500	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270C SIM	Fluorene	PAH	19	540	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270C SIM	Phenanthrene	PAH	240	1500	µg/kg	ND < 14	17	16
EPA 8270C SIM	Fluoranthene	PAH	600	5100	µg/kg	ND < 14	70	27
EPA 8270C SIM	Pyrene	PAH	665	2600	µg/kg	ND < 14	220	52
EPA 8270C SIM	Benzo (a) Anthracene	PAH	261	1600	µg/kg	ND < 14	27	26
EPA 8270C SIM	Chrysene	PAH	384	2800	µg/kg	ND < 14	48	46
EPA 8270C SIM	Benzo (k) Fluoranthene	PAH	-	-	µg/kg	ND < 14	82	100
EPA 8270C SIM	Benzo (b) Fluoranthene	PAH	-	-	µg/kg	ND < 14	100	130
EPA 8270C SIM	Benzo (a) Pyrene	PAH	430	1600	µg/kg	ND < 14	80	100
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	PAH	-	-	µg/kg	ND < 14	42	61
EPA 8270C SIM	Dibenzo (a,h) Anthracene	PAH	63.4	260	µg/kg	ND < 14	ND < 14	16
EPA 8270C SIM	Benzo (g,h,i) Perylene	PAH	-	-	µg/kg	ND < 14	48	68
	Total Detectable PAHs	PAH	4022	44792	µg/kg	ND	749	657
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	3.1
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	2.0	20	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	2.2	27	µg/kg	2.6	3.1	12
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	1	7	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Total Detectable DDTs	Chlorinated Pesticides	1.58	46.1	µg/kg	2.6	3.1	15.1
EPA 8081A	Aldrin	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Beta-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Chlordane	Chlorinated Pesticides	0.5	6.0	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8081A	Delta-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Dieldrin	Chlorinated Pesticides	0.02	8.0	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan I	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan II	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5

Analytical Method	Compound Name	Type	ERL	ERM	Units	Reference	Composite A	Composite B
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor epoxide	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Toxaphene	Chlorinated Pesticides	-	-	µg/kg	ND < 28	ND < 27	ND < 30
EPA 8270C SIM PCB Congeners	PCB018	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	0.86
EPA 8270C SIM PCB Congeners	PCB028	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB037	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB044	PCB Congeners	-	-	µg/kg	ND < 0.70	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB049	PCB Congeners	-	-	µg/kg	ND < 0.70	2.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB052	PCB Congeners	-	-	µg/kg	ND < 0.70	2.4	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB066	PCB Congeners	-	-	µg/kg	ND < 0.70	0.85	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB070	PCB Congeners	-	-	µg/kg	ND < 0.70	0.82	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB074	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB077	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB081	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB087	PCB Congeners	-	-	µg/kg	ND < 0.70	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB099	PCB Congeners	-	-	µg/kg	ND < 0.70	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB101	PCB Congeners	-	-	µg/kg	ND < 0.70	2.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB105	PCB Congeners	-	-	µg/kg	ND < 0.70	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB110	PCB Congeners	-	-	µg/kg	ND < 0.70	1.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB114	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB118	PCB Congeners	-	-	µg/kg	ND < 0.70	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB119	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB123	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB126	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB128	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB138/158	PCB Congeners	-	-	µg/kg	ND < 1.4	3.2	ND < 1.5
EPA 8270C SIM PCB Congeners	PCB149	PCB Congeners	-	-	µg/kg	ND < 0.70	4.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB151	PCB Congeners	-	-	µg/kg	ND < 0.70	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB153	PCB Congeners	-	-	µg/kg	ND < 0.70	4.3	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB156	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB157	PCB Congeners	-	-	µg/kg	ND < 0.70	0.91	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB167	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB168	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB169	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB170	PCB Congeners	-	-	µg/kg	ND < 0.70	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB177	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB180	PCB Congeners	-	-	µg/kg	ND < 0.70	3.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB183	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB187	PCB Congeners	-	-	µg/kg	ND < 0.70	2.0	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB189	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB194	PCB Congeners	-	-	µg/kg	ND < 0.70	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB201	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB206	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
	Total Detectable PCBs	PCB Congeners	22.7	180	µg/kg	ND	38.44	0.86
EPA 8270D (M)/TQ/EI	Allethrin (Bioallethrin)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	-	-	µg/kg	ND < 0.70	0.41 J	0.22 J
EPA 8270D (M)/TQ/EI	Cyfluthrin-beta (Baythroid)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cyhalothrin-Lambda	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Deltamethrin (Decamethrin)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Esfenvalerate	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenprothrin (Danitol)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenvalerate (Sanmarton)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Permethrin - Cis/Trans	Pyrethroids	-	-	µg/kg	ND < 1.4	4.5	2.2
EPA 8270D (M)/TQ/EI	Sumithrin (Phenothrin)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tralomethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.69	ND < 0.75

Analytical Method	Compound Name	Type	ERL	ERM	Units	Reference	Composite A	Composite B
Organotins By Krone et al.	Dibutyltin	Organotins	-	-	µg/kg	ND < 4.2	0.72	14
Organotins By Krone et al.	Monobutyltin	Organotins	-	-	µg/kg	ND < 4.2	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tetrabutyltin	Organotins	-	-	µg/kg	ND < 4.2	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tributyltin	Organotins	-	-	µg/kg	ND < 4.2	19	11
EPA 8270 SIM	2,4,5-Trichlorophenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	2,4,6-Trichlorophenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dichlorophenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dimethylphenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dinitrophenol	Phenols	-	-	µg/kg	ND < 700	ND < 690	ND < 750
EPA 8270 SIM	2-Chlorophenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	2-Methylphenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	2-Nitrophenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	3/4-Methylphenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	4,6-Dinitro-2-Methylphenol	Phenols	-	-	µg/kg	ND < 700	ND < 690	ND < 750
EPA 8270 SIM	4-Chloro-3-Methylphenol	Phenols	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	4-Nitrophenol	Phenols	-	-	µg/kg	ND < 700	ND < 690	ND < 750
EPA 8270 SIM	Pentachlorophenol	Phenols	-	-	µg/kg	ND < 700	ND < 690	ND < 750
EPA 8270 SIM	Phenol	Phenols	-	-	µg/kg	33	ND < 14	ND < 15
EPA 8270 SIM	Bis(2-Ethylhexyl) Phthalate	Phthalates	-	-	µg/kg	14	170	270
EPA 8270 SIM	Butyl Benzyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	47	52
EPA 8270 SIM	Diethyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	ND < 14	ND < 15
EPA 8270 SIM	Dimethyl Phthalate	Phthalates	-	-	µg/kg	210	ND < 14	ND < 15
EPA 8270 SIM	Di-n-Butyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	15	ND < 15
EPA 8270 SIM	Di-n-Octyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	ND < 14	ND < 15

mg - milligram

kg - kilogram

J - concentrations greater than or equal to MDL but less than RL

ND - Non Detect

PAH - Polycyclic aromatic hydrocarbon

PCB - Polychlorinated biphenyl

TPH - Total petroleum hydrocarbons

TRPH - Total recoverable petroleum hydrocarbons

ERL - Effects Range Low

ERM - Effects Range Median

Results are presented in dry weight

**Red Font** indicates value higher than ERL

**Red Underlined Font** indicates value higher than ERM



# CALSCIENCE

WORK ORDER NUMBER: 13-06-0316

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

## Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** POLA\_YTI\_B214-220

**Attention:** Tyler Huff  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Approved for release on 06/20/2013 by:  
Danielle Gonsman  
Project Manager

ResultLink ▶

Email your PM ▶



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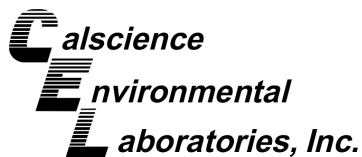


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Work Order Number: 13-06-0316

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## CASE NARRATIVE

**CalScience Work Order No.: 13-06-0316**  
**Project ID: POLA YTI- BERTH 214-220**

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

### ***Sample Condition on Receipt***

One sediment sample was received for this project on June 5, 2013. 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 sample upon receipt at the laboratory was 1.5°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

### ***Tests Performed***

Sediment:

Total Solids by SM 2540B  
Ammonia by SM 4500-NH3-B/C (M)  
Grain Size by ASTM D4464  
Dissolved and Total Sulfide by EPA 376.2M  
TRPH by EPA 418.1M  
TPH C6-C44 by EPA 8015B (M)  
Total Organic Carbon by EPA 9060A  
Trace Metals by EPA 6020/7471  
Chlorinated Pesticides by EPA 8081A  
PCB Congeners by EPA 8270C SIM  
PAHs, Phenols and Phthalates by EPA 8270C SIM  
Pyrethroids by EPA 8270D (M)/TQ/EI  
Organotins by Krone et al.

### ***Data Summary***

The sediment sample was homogenized prior to analysis.

#### Holding times

All holding times were met.

### Blanks

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

### Reporting Limits

The Method Detection Limits were met.

### Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits.

### Matrix Spikes

Matrix spiking was performed at the required frequencies for the sediment on the project sample. All matrix spike parameters outside the acceptable control limits were noted below.

The Tetrabutyltin MS and MSD recoveries were outside the control limits. The results have been flagged with the appropriate qualifiers.

### Surrogates

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

### Acronyms

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

**Work Order Narrative**

Work Order: 13-06-0316

Page 1 of 1

**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 06/05/13. They were assigned to Work Order 13-06-0316.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with an immediate holding time (HT  $\leq$  15 minutes --40CFR-136.3 Table II footnote 4), is considered a "field" test and reported samples results are not flagged unless the analysis is performed beyond 24 hours of the time of collection.

**Quality Control:**

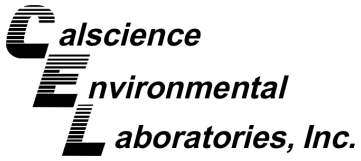
All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.



## Sample Summary

---

Client: AMEC Environment & Infrastructure	Work Order: 13-06-0316
9210 Sky Park Court, Suite 200	Project Name: POLA_YTI_B214-220
San Diego, CA 92123-4302	PO Number:
	Date Received: 06/05/13

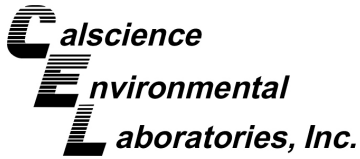
Attn: Tyler Huff

---

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
Reference	13-06-0316-1	06/02/13 10:30	4	Soil



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## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: Extraction  
 Method: EPA 418.1M  
 Units: mg/kg

Project: POLA\_YTI\_B214-220

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Reference</b>	<b>13-06-0316-1-A</b>	<b>06/02/13 10:30</b>	<b>Soil</b>	<b>IR 2</b>	<b>06/12/13</b>	<b>06/12/13 12:00</b>	<b>130612L01</b>

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

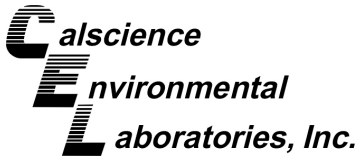
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
TRPH	18	14	1	

Method Blank	099-07-015-1928	N/A	Soil	IR 2	06/12/13	06/12/13 12:00	130612L01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
TRPH	ND	10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)  
 Units: mg/kg

Project: POLA\_YTI\_B214-220

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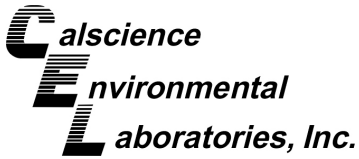
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Reference	13-06-0316-1-B	06/02/13 10:30	Soil	GC 45	06/06/13	06/07/13 08:24	130606B02

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
C6	ND	7.0	1	
C7	ND	7.0	1	
C8	ND	7.0	1	
C9-C10	ND	7.0	1	
C11-C12	ND	7.0	1	
C13-C14	ND	7.0	1	
C15-C16	ND	7.0	1	
C17-C18	ND	7.0	1	
C19-C20	ND	7.0	1	
C21-C22	ND	7.0	1	
C23-C24	ND	7.0	1	
C25-C28	ND	7.0	1	
C29-C32	ND	7.0	1	
C33-C36	ND	7.0	1	
C37-C40	ND	7.0	1	
C41-C44	ND	7.0	1	
C6-C44 Total	ND	7.0	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
n-Octacosane	78	61-145		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3550B  
Method: EPA 8015B (M)  
Units: mg/kg

Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-490-352	N/A	Soil	GC 45	06/06/13	06/07/13 07:12	130606B02

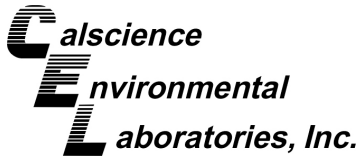
Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	76	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Reference	13-06-0316-1-E	06/02/13 10:30	Soil	GCTQ 1	06/11/13	06/12/13 18:22	130611L01

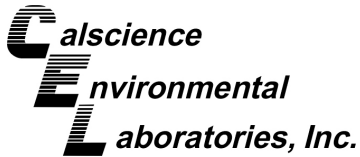
Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.70	0.36	1	
Bifenthrin	ND	0.70	0.13	1	
Cyfluthrin	ND	0.70	0.12	1	
Cypermethrin	ND	0.70	0.097	1	
Deltamethrin/Tralomethrin	ND	0.70	0.29	1	
Fenpropathrin	ND	0.70	0.051	1	
Fenvalerate/Esfenvalerate	ND	0.70	0.050	1	
Fluvalinate	ND	0.70	0.081	1	
Permethrin (cis/trans)	ND	1.4	0.16	1	
Phenothrin	ND	0.70	0.097	1	
Resmethrin/Bioresmethrin	ND	0.70	0.13	1	
Tetramethrin	ND	0.70	0.053	1	
lambda-Cyhalothrin	ND	0.70	0.061	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
trans-Permethrin(C13)	66	25-200			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA\_YTI\_B214-220

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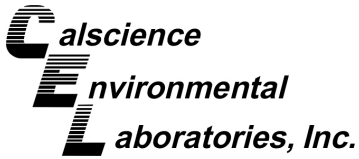
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-403-33	N/A	Sediment	GCTQ 1	06/11/13	06/12/13 17:46	130611L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.50	0.26	1	
Bifenthrin	ND	0.50	0.094	1	
Cyfluthrin	ND	0.50	0.085	1	
Cypermethrin	ND	0.50	0.069	1	
Deltamethrin/Tralomethrin	ND	0.50	0.21	1	
Fenpropathrin	ND	0.50	0.036	1	
Fenvalerate/Esfenvalerate	ND	0.50	0.036	1	
Fluvalinate	ND	0.50	0.057	1	
Permethrin (cis/trans)	ND	1.0	0.11	1	
Phenothrin	ND	0.50	0.069	1	
Resmethrin/Bioresmethrin	ND	0.50	0.092	1	
Tetramethrin	ND	0.50	0.038	1	
lambda-Cyhalothrin	ND	0.50	0.044	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	65	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Reference	13-06-0316-1-E	06/02/13 10:30	Soil	ICP/MS 03	06/06/13	06/07/13 14:16	130606L03E

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.86	0.141	1	
Cadmium	0.195	0.141	1	
Chromium	21.3	0.141	1	
Copper	10.4	0.141	1	
Lead	5.37	0.141	1	
Nickel	10.9	0.141	1	
Selenium	0.322	0.141	1	
Silver	0.176	0.141	1	
Zinc	46.5	1.41	1	

Method Blank	099-15-254-112	N/A	Soil	ICP/MS 03	06/06/13	06/06/13 16:57	130606L03E
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Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.100	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A  
 Units: mg/kg

Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Reference</b>	<b>13-06-0316-1-E</b>	<b>06/02/13 10:30</b>	<b>Soil</b>	<b>Mercury</b>	<b>06/07/13</b>	<b>06/07/13 12:56</b>	<b>130607L01E</b>

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

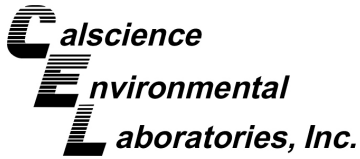
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0282	1	

Method Blank	099-12-452-381	N/A	Soil	Mercury	06/07/13	06/07/13 12:52	130607L01E
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0200	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: ASTM D4464 (M)  
 Units: %

Project: POLA\_YTI\_B214-220

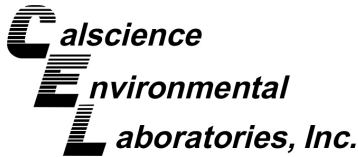
Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Reference</b>	<b>13-06-0316-1-C</b>	<b>06/02/13 10:30</b>	<b>Soil</b>	<b>LPSA 1</b>	<b>N/A</b>	<b>06/09/13 16:39</b>	

<u>Parameter</u>	<u>Result</u>	<u>Qualifiers</u>
Clay (less than 0.00391mm)	7.24	
Silt (0.00391 to 0.0625mm)	31.59	
Total Silt and Clay (0 to 0.0625mm)	38.82	
Very Fine Sand (0.0625 to 0.125mm)	44.58	
Fine Sand (0.125 to 0.25mm)	16.59	
Medium Sand (0.25 to 0.5mm)	0.010	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA\_YTI\_B214-220

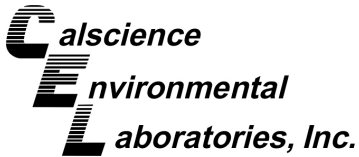
Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Reference	13-06-0316-1-E	06/02/13 10:30	Soil	GC 51	06/06/13	06/07/13 14:26	130606L07

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

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.4	1	
Alpha-BHC	ND	1.4	1	
Beta-BHC	ND	1.4	1	
Delta-BHC	ND	1.4	1	
Gamma-BHC	ND	1.4	1	
Chlordane	ND	14	1	
Dieldrin	ND	1.4	1	
Trans-nonachlor	ND	1.4	1	
2,4'-DDD	ND	1.4	1	
2,4'-DDE	ND	1.4	1	
2,4'-DDT	ND	1.4	1	
4,4'-DDD	ND	1.4	1	
4,4'-DDE	2.6	1.4	1	
4,4'-DDT	ND	1.4	1	
Endosulfan I	ND	1.4	1	
Endosulfan II	ND	1.4	1	
Endosulfan Sulfate	ND	1.4	1	
Endrin	ND	1.4	1	
Endrin Aldehyde	ND	1.4	1	
Endrin Ketone	ND	1.4	1	
Heptachlor	ND	1.4	1	
Heptachlor Epoxide	ND	1.4	1	
Methoxychlor	ND	1.4	1	
Toxaphene	ND	28	1	
Alpha Chlordane	ND	1.4	1	
Gamma Chlordane	ND	1.4	1	
Cis-nonachlor	ND	1.4	1	
Oxychlordane	ND	1.4	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	86	50-130		
Decachlorobiphenyl	82	50-130		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA\_YTI\_B214-220

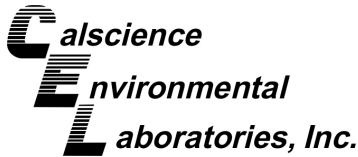
Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-858-203	N/A	Soil	GC 51	06/06/13	06/07/13 13:00	130606L07

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	105	50-130	
Decachlorobiphenyl	105	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA\_YTI\_B214-220

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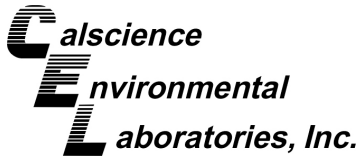
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Reference	13-06-0316-1-E	06/02/13 10:30	Soil	GC/MS MM	06/06/13	06/07/13 13:20	130606L10

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

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	14	1	
2,4,5-Trichlorophenol	ND	14	1	
2,4,6-Trichlorophenol	ND	14	1	
2,4-Dichlorophenol	ND	14	1	
2,4-Dimethylphenol	ND	14	1	
2,4-Dinitrophenol	ND	700	1	
2-Chlorophenol	ND	14	1	
2-Methylnaphthalene	ND	14	1	
2-Methylphenol	ND	14	1	
2-Nitrophenol	ND	14	1	
3/4-Methylphenol	ND	14	1	
4,6-Dinitro-2-Methylphenol	ND	700	1	
4-Chloro-3-Methylphenol	ND	14	1	
4-Nitrophenol	ND	700	1	
Acenaphthene	ND	14	1	
Acenaphthylene	ND	14	1	
Anthracene	ND	14	1	
Benzo (a) Anthracene	ND	14	1	
Benzo (a) Pyrene	ND	14	1	
Benzo (b) Fluoranthene	ND	14	1	
Benzo (g,h,i) Perylene	ND	14	1	
Benzo (k) Fluoranthene	ND	14	1	
Bis(2-Ethylhexyl) Phthalate	14	14	1	
Butyl Benzyl Phthalate	ND	14	1	
Chrysene	ND	14	1	
Di-n-Butyl Phthalate	ND	14	1	
Di-n-Octyl Phthalate	ND	14	1	
Dibenz (a,h) Anthracene	ND	14	1	
Diethyl Phthalate	ND	14	1	
Dimethyl Phthalate	210	14	1	
Fluoranthene	ND	14	1	
Fluorene	ND	14	1	
Indeno (1,2,3-c,d) Pyrene	ND	14	1	
N-Nitrosodimethylamine	ND	14	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA\_YTI\_B214-220

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Naphthalene	ND	14	1	
Pentachlorophenol	ND	700	1	
Phenanthrene	ND	14	1	
Phenol	33	14	1	
Pyrene	ND	14	1	
1,6,7-Trimethylnaphthalene	ND	14	1	
2,3,4,6-Tetrachlorophenol	ND	14	1	
2,6-Dichlorophenol	ND	14	1	
Benzoic Acid	ND	140	1	
DCPA	ND	14	1	
Dibenzothiophene	ND	14	1	
Perthane	ND	14	1	
1-Methylphenanthrene	ND	14	1	
Benzo (e) Pyrene	ND	14	1	
Perylene	ND	14	1	
Biphenyl	ND	14	1	
2,6-Dimethylnaphthalene	ND	14	1	
Isophorone	ND	140	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,6-Tribromophenol	95	32-143		
2-Fluorobiphenyl	63	14-146		
2-Fluorophenol	75	15-138		
Nitrobenzene-d5	60	18-162		
p-Terphenyl-d14	90	34-148		
Phenol-d6	87	17-141		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

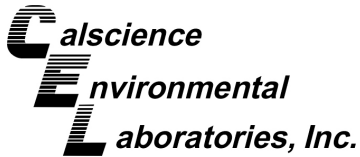
Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-256-35	N/A	Soil	GC/MS MM	06/06/13	06/07/13 12:29	130606L10

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

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA\_YTI\_B214-220

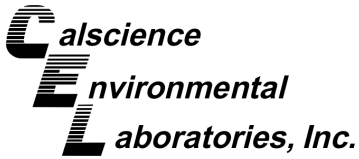
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	ND	500	1	
Phenanthrene	ND	10	1	
Phenol	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
2,3,4,6-Tetrachlorophenol	ND	10	1	
2,6-Dichlorophenol	ND	10	1	
Benzoic Acid	ND	100	1	
DCPA	ND	10	1	
Dibenzothiophene	ND	10	1	
Perthane	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Perylene	ND	10	1	
Biphenyl	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Isophorone	ND	100	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	76	32-143	
2-Fluorobiphenyl	68	14-146	
2-Fluorophenol	72	15-138	
Nitrobenzene-d5	64	18-162	
p-Terphenyl-d14	77	34-148	
Phenol-d6	81	17-141	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: POLA\_YTI\_B214-220

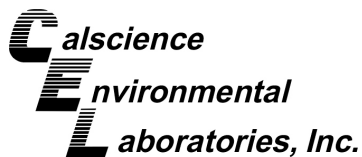
Page 1 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Reference	13-06-0316-1-E	06/02/13 10:30	Soil	GC/MS HHH	06/06/13	06/07/13 19:55	130606L09

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

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.70	1	
PCB028	ND	0.70	1	
PCB037	ND	0.70	1	
PCB044	ND	0.70	1	
PCB049	ND	0.70	1	
PCB052	ND	0.70	1	
PCB066	ND	0.70	1	
PCB070	ND	0.70	1	
PCB074	ND	0.70	1	
PCB077	ND	0.70	1	
PCB081	ND	0.70	1	
PCB087	ND	0.70	1	
PCB099	ND	0.70	1	
PCB101	ND	0.70	1	
PCB105	ND	0.70	1	
PCB110	ND	0.70	1	
PCB114	ND	0.70	1	
PCB118	ND	0.70	1	
PCB119	ND	0.70	1	
PCB123	ND	0.70	1	
PCB126	ND	0.70	1	
PCB128	ND	0.70	1	
PCB138/158	ND	1.4	1	
PCB149	ND	0.70	1	
PCB151	ND	0.70	1	
PCB153	ND	0.70	1	
PCB156	ND	0.70	1	
PCB157	ND	0.70	1	
PCB167	ND	0.70	1	
PCB168	ND	0.70	1	
PCB169	ND	0.70	1	
PCB170	ND	0.70	1	
PCB177	ND	0.70	1	
PCB180	ND	0.70	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

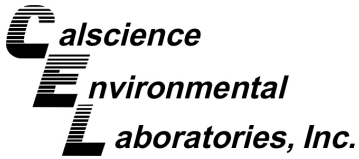
Project: POLA\_YTI\_B214-220

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.70	1	
PCB187	ND	0.70	1	
PCB189	ND	0.70	1	
PCB194	ND	0.70	1	
PCB201	ND	0.70	1	
PCB206	ND	0.70	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	121	50-125		
p-Terphenyl-d14	111	50-125		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

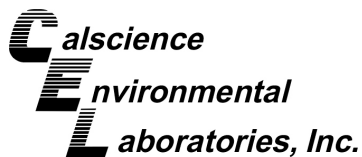
Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-341-103	N/A	Soil	GC/MS HHH	06/06/13	06/07/13 16:42	130606L09

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

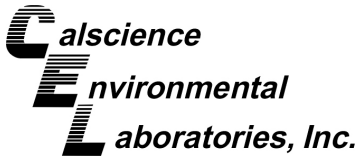
Project: POLA\_YTI\_B214-220

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB201	ND	0.50	1	
PCB206	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	82	50-125		
p-Terphenyl-d14	91	50-125		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3550B (M)  
Method: Organotins by Krone et al.  
Units: ug/kg

Project: POLA\_YTI\_B214-220

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Reference</b>	<b>13-06-0316-1-E</b>	<b>06/02/13 10:30</b>	<b>Soil</b>	<b>GC/MS JJJ</b>	<b>06/06/13</b>	<b>06/12/13 13:40</b>	<b>130606L23</b>

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	ND	4.2	1	
Monobutyltin	ND	4.2	1	
Tetrabutyltin	ND	4.2	1	
Tributyltin	ND	4.2	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	80	48-126	

<b>Method Blank</b>	<b>099-07-016-1030</b>	<b>N/A</b>	<b>Soil</b>	<b>GC/MS JJJ</b>	<b>06/06/13</b>	<b>06/07/13 17:55</b>	<b>130606L23</b>
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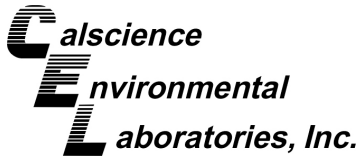
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1	
Tetrabutyltin	ND	3.0	1	
Tributyltin	ND	3.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	84	48-126	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302  
 Project: POLA\_YTI\_B214-220

Date Received: 06/05/13  
 Work Order: 13-06-0316

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
<b>Reference</b>	<b>13-06-0316-1</b>	<b>06/02/13 10:30</b>	<b>Soil</b>

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

<u>Parameter</u>	<u>Results</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>	<u>Units</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>	<u>Method</u>
Sulfide, Total (9)	0.70	0.14	0.2		mg/kg	06/06/13	06/06/13	EPA 376.2M
Sulfide, Dissolved	ND	0.10	0.2		mg/kg	06/05/13	06/05/13	EPA 376.2M
Carbon, Total Organic (9)	0.77	0.070	1		%	06/11/13	06/12/13	EPA 9060A
Solids, Total	71.1	0.100	1		%	06/06/13	06/06/13	SM 2540 B (M)
Ammonia (as N) (9)	3.2	0.28	1		mg/kg	06/12/13	06/12/13	SM 4500-NH3 B/C (M)

<u>Method Blank</u>	<u>N/A</u>						<u>Soil</u>	
<u>Parameter</u>	<u>Results</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>	<u>Units</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>	<u>Method</u>
Sulfide, Total	ND	0.10	0.2		mg/kg	06/06/13	06/06/13	EPA 376.2M
Sulfide, Dissolved	ND	0.10	0.2		mg/kg	06/05/13	06/05/13	EPA 376.2M
Carbon, Total Organic	ND	0.050	1		%	06/11/13	06/12/13	EPA 9060A
Solids, Total	ND	0.100	1		%	06/06/13	06/06/13	SM 2540 B (M)
Ammonia (as N)	ND	0.20	1		mg/kg	06/12/13	06/12/13	SM 4500-NH3 B/C (M)



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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: EPA 9060A

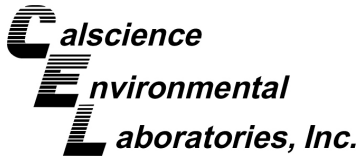
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
Reference	Soil		TOC 5		06/11/13	06/12/13 12:36	D0611TOCS2			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.5500	3.000	3.350	93	3.420	96	75-125	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: Extraction  
 Method: EPA 418.1M

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>13-06-0714-1</b>	<b>Sediment</b>	<b>IR 2</b>	<b>06/12/13</b>	<b>06/12/13 12:00</b>	<b>130612S01</b>					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TRPH	47.61	100.0	140.8	93	142.6	95	55-135	1	0-30	



## Quality Control - Spike/Spike Duplicate

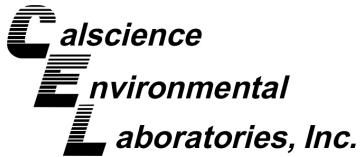
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>Reference</b>	<b>Soil</b>		<b>GC 45</b>	<b>06/06/13</b>	<b>06/07/13 07:48</b>	<b>130606S02</b>				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Diesel	ND	400.0	401.0	100	398.0	100	64-130	1	0-15	



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

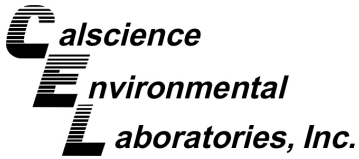
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
Reference	Soil	GCTQ 1	06/11/13	06/12/13 18:59	130611S01					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.689	34	1.695	34	25-200	0	0-30	
Bifenthrin	ND	5.000	2.866	57	2.786	56	25-200	3	0-30	
Cyfluthrin	ND	5.000	1.834	37	2.034	41	25-200	10	0-30	
Cypermethrin	ND	5.000	1.668	33	1.872	37	25-200	12	0-30	
Deltamethrin/Tralomethrin	ND	5.000	2.655	53	2.836	57	25-200	7	0-30	
Fenpropathrin	ND	5.000	2.861	57	2.872	57	25-200	0	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	3.443	34	3.833	38	25-200	11	0-30	
Fluvalinate	ND	5.000	1.805	36	2.068	41	25-200	14	0-30	
Permethrin (cis/trans)	ND	5.000	3.717	74	4.067	81	25-200	9	0-30	
Phenothrin	ND	5.000	4.332	87	4.289	86	25-200	1	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.190	84	4.059	81	25-200	3	0-30	
Tetramethrin	ND	5.000	4.012	80	3.985	80	25-200	1	0-30	
lambda-Cyhalothrin	ND	5.000	1.487	30	1.655	33	25-200	11	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3050B  
Method: EPA 6020

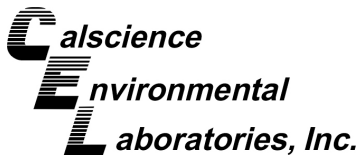
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
Reference	Soil		ICP/MS 03		06/06/13	06/06/13 17:06	130606S03			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	2.035	25.00	27.40	101	27.44	102	80-120	0	0-20	
Cadmium	0.1388	25.00	26.06	104	26.12	104	80-120	0	0-20	
Chromium	15.12	25.00	39.49	97	40.38	101	80-120	2	0-20	
Copper	7.364	25.00	34.29	108	33.78	106	80-120	2	0-20	
Lead	3.817	25.00	29.80	104	30.03	105	80-120	1	0-20	
Nickel	7.717	25.00	33.64	104	33.57	103	80-120	0	0-20	
Selenium	0.2289	25.00	26.38	105	27.07	107	80-120	3	0-20	
Silver	0.1249	12.50	13.45	107	13.35	106	80-120	1	0-20	
Zinc	33.07	25.00	61.56	114	63.00	120	80-120	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



**Quality Control - Spike/Spike Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

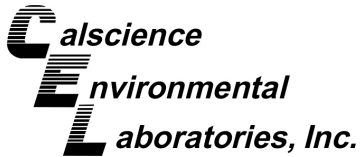
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>Reference</b>	<b>Soil</b>	<b>Mercury</b>	<b>06/07/13</b>	<b>06/07/13 13:03</b>	<b>130607S01</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.8350	0.8865	106	0.8988	108	76-136	1	0-16	



RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8081A

Project: POLA\_YTI\_B214-220

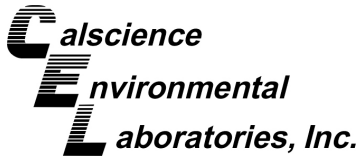
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Quality Control Sample ID	Matrix		Instrument		Date Prepared		Date Analyzed		MS/MSD Batch Number	
Reference	Soil		GC 51		06/06/13		06/07/13 14:55		130606S07A	
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	3.251	65	3.438	69	50-135	6	0-25	
Alpha-BHC	ND	5.000	5.616	112	6.303	126	50-135	12	0-25	
Beta-BHC	ND	5.000	4.823	96	6.075	122	50-135	23	0-25	
Delta-BHC	ND	5.000	3.667	73	4.381	88	50-135	18	0-25	
Gamma-BHC	ND	5.000	4.310	86	4.899	98	50-135	13	0-25	
Dieldrin	ND	5.000	3.752	75	4.161	83	50-135	10	0-25	
4,4'-DDD	ND	5.000	4.038	81	4.500	90	50-135	11	0-25	
4,4'-DDE	1.826	5.000	5.372	71	6.098	85	50-135	13	0-25	
4,4'-DDT	ND	5.000	3.499	70	2.729	55	50-135	25	0-25	
Endosulfan I	ND	5.000	3.192	64	3.568	71	50-135	11	0-25	
Endosulfan II	ND	5.000	3.589	72	4.118	82	50-135	14	0-25	
Endosulfan Sulfate	ND	5.000	3.742	75	4.220	84	50-135	12	0-25	
Endrin	ND	5.000	4.097	82	4.434	89	50-135	8	0-25	
Endrin Aldehyde	ND	5.000	3.325	67	3.729	75	50-135	11	0-25	
Endrin Ketone	ND	5.000	3.955	79	4.184	84	50-135	6	0-25	
Heptachlor	ND	5.000	4.140	83	4.272	85	50-135	3	0-25	
Heptachlor Epoxide	ND	5.000	3.786	76	4.233	85	50-135	11	0-25	
Methoxychlor	ND	5.000	3.799	76	2.991	60	50-135	24	0-25	
Alpha Chlordane	ND	5.000	4.068	81	4.226	85	50-135	4	0-25	
Gamma Chlordane	ND	5.000	5.180	104	5.994	120	50-135	15	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM

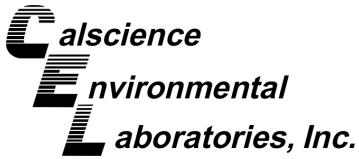
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
Reference	Soil		GC/MS MM		06/06/13	06/07/13 13:46	130606S10A			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	ND	1000	887.2	89	892.6	89	40-160	1	0-20	
2,4-Dichlorophenol	ND	1000	774.8	77	742.5	74	40-160	4	0-20	
2-Methylphenol	ND	1000	797.0	80	795.3	80	40-160	0	0-20	
2-Nitrophenol	ND	1000	785.4	79	751.0	75	40-160	4	0-20	
4-Chloro-3-Methylphenol	ND	1000	877.9	88	833.3	83	40-160	5	0-20	
Acenaphthene	ND	1000	735.6	74	747.4	75	40-106	2	0-20	
Benzo (a) Pyrene	ND	1000	969.4	97	957.1	96	17-163	1	0-20	
Chrysene	ND	1000	866.0	87	857.3	86	17-168	1	0-20	
Di-n-Butyl Phthalate	ND	1000	804.3	80	799.4	80	40-160	1	0-20	
Dimethyl Phthalate	147.9	1000	975.4	83	975.3	83	40-160	0	0-20	
Fluoranthene	ND	1000	832.0	83	817.8	82	26-137	2	0-20	
Fluorene	ND	1000	792.9	79	798.2	80	59-121	1	0-20	
N-Nitrosodimethylamine	ND	1000	563.9	56	558.7	56	40-160	1	0-20	
Naphthalene	ND	1000	697.2	70	653.8	65	21-133	6	0-20	
Phenanthrene	ND	1000	802.7	80	789.8	79	54-120	2	0-20	
Phenol	23.16	1000	649.3	63	663.1	64	40-160	2	0-20	
Pyrene	ND	1000	858.4	86	849.4	85	6-156	1	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



**Quality Control - Spike/Spike Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners

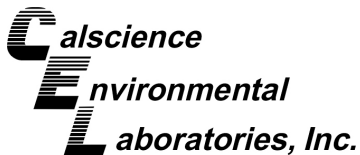
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
Reference	Soil		GC/MS HHH		06/06/13	06/11/13 21:29	130606S09A			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	ND	25.00	18.68	75	16.45	66	50-125	13	0-30	
PCB028	ND	25.00	21.04	84	18.49	74	50-125	13	0-30	
PCB044	ND	25.00	21.10	84	18.47	74	50-125	13	0-30	
PCB052	ND	25.00	20.58	82	17.74	71	50-125	15	0-30	
PCB066	ND	25.00	22.46	90	19.57	78	50-125	14	0-30	
PCB077	ND	25.00	22.56	90	19.52	78	50-125	14	0-30	
PCB101	ND	25.00	22.03	88	19.10	76	50-125	14	0-30	
PCB105	ND	25.00	22.59	90	19.41	78	50-125	15	0-30	
PCB118	ND	25.00	22.94	92	19.85	79	50-125	14	0-30	
PCB126	ND	25.00	21.01	84	18.14	73	50-125	15	0-30	
PCB128	ND	25.00	21.93	88	19.03	76	50-125	14	0-30	
PCB153	ND	25.00	21.30	85	18.24	73	50-125	16	0-30	
PCB170	ND	25.00	26.20	105	22.09	88	50-125	17	0-30	
PCB180	ND	25.00	22.42	90	19.27	77	50-125	15	0-30	
PCB187	ND	25.00	21.62	86	18.59	74	50-125	15	0-30	
PCB206	ND	25.00	28.31	113	23.87	95	50-125	17	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3550B (M)  
 Method: Organotins by Krone et al.

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
Reference	Soil		GC/MS JJJ	06/06/13	06/12/13 14:09	130606S23A				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	ND	100.0	46.28	46	52.45	52	79-175	12	0-31	3
Tributyltin	ND	100.0	116.1	116	112.3	112	69-135	3	0-29	



RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - PDS/PDSD

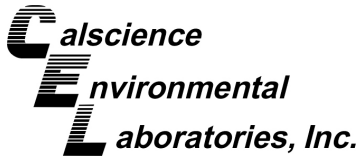
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>Reference</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>06/06/13 00:00</b>	<b>06/06/13 17:12</b>	<b>130606S03</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	2.035	25.00	28.11	104	75-125	
Cadmium	0.1388	25.00	25.07	100	75-125	
Chromium	15.12	25.00	39.54	98	75-125	
Copper	7.364	25.00	34.56	109	75-125	
Lead	3.817	25.00	29.60	103	75-125	
Nickel	7.717	25.00	33.66	104	75-125	
Selenium	0.2289	25.00	25.94	103	75-125	
Silver	0.1249	12.50	10.74	85	75-125	
Zinc	33.07	25.00	63.41	121	75-125	



## Quality Control - Sample Duplicate

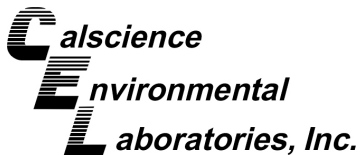
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: EPA 376.2M

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>Reference</b>	<b>Soil</b>	<b>N/A</b>	<b>06/06/13 00:00</b>	<b>06/06/13 12:30</b>	<b>D0606SD1</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Total	0.5000	0.5000	0	0-25	



Quality Control - Sample Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: EPA 376.2M

Project: POLA\_YTI\_B214-220

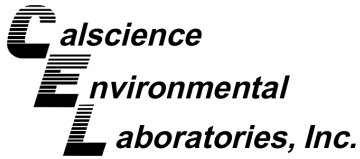
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>Reference</b>	<b>Soil</b>	<b>N/A</b>	<b>06/05/13 00:00</b>	<b>06/05/13 20:10</b>	<b>D0605DSD2</b>

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Dissolved	ND	ND	N/A	0-25	



RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Sample Duplicate

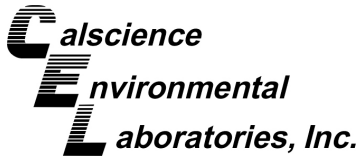
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>Reference</b>	<b>Soil</b>	<b>N/A</b>	<b>06/06/13 00:00</b>	<b>06/06/13 18:30</b>	<b>D0606TSD3</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	71.10	71.30	0	0-10	



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

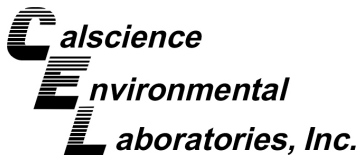
Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: EPA 9060A

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID		Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
<b>099-06-013-872</b>		<b>Soil</b>		<b>TOC 5</b>	<b>06/11/13</b>	<b>06/12/13 12:05</b>	<b>D0611TOCL1</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Carbon, Total Organic	0.6000	0.5254	88	0.5668	94	80-120	8	0-20	





Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: N/A  
 Method: SM 4500-NH3 B/C (M)

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
<b>099-12-816-60</b>	<b>Soil</b>	<b>BUR05</b>	<b>06/12/13</b>	<b>06/12/13 13:45</b>	<b>D0612NH3L1</b>				
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Ammonia (as N)	10.00	8.960	90	8.680	87	80-120	3	0-20	

Return to Contents 

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

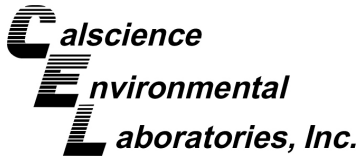
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: Extraction  
 Method: EPA 418.1M

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-07-015-1928</b>	<b>Soil</b>	<b>IR 2</b>	<b>06/12/13 12:00</b>	<b>130612L01</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
TRPH	100.0	94.86	95	70-130	



## Quality Control - LCS

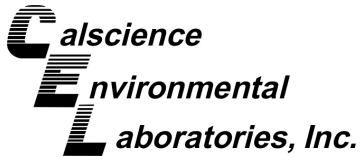
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-15-490-352</b>	<b>Soil</b>	<b>GC 45</b>	<b>06/07/13 07:30</b>	<b>130606B02</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
TPH as Diesel	400.0	415.1	104	75-123	



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-403-33</b>	<b>Sediment</b>	<b>GCTQ 1</b>	<b>06/12/13 17:09</b>	<b>130611L01</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Allethrin	5.000	4.177	84	25-200	0-229	
Bifenthrin	5.000	3.866	77	25-200	0-229	
Cyfluthrin	5.000	3.305	66	25-200	0-229	
Cypermethrin	5.000	3.352	67	25-200	0-229	
Deltamethrin/Tralomethrin	5.000	3.670	73	25-200	0-229	
Fenpropathrin	5.000	3.686	74	25-200	0-229	
Fenvalerate/Esfenvalerate	10.00	6.106	61	25-200	0-229	
Fluvalinate	5.000	3.784	76	25-200	0-229	
Permethrin (cis/trans)	5.000	3.826	77	25-200	0-229	
Phenothrin	5.000	4.621	92	25-200	0-229	
Resmethrin/Bioresmethrin	5.000	4.709	94	25-200	0-229	
Tetramethrin	5.000	3.533	71	25-200	0-229	
lambda-Cyhalothrin	5.000	3.243	65	25-200	0-229	

Total number of LCS compounds: 13

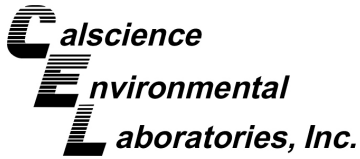
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3050B  
 Method: EPA 6020

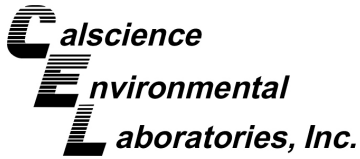
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-15-254-112</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>06/06/13 17:03</b>	<b>130606L03E</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	24.75	99	80-120	
Cadmium	25.00	24.56	98	80-120	
Chromium	25.00	24.95	100	80-120	
Copper	25.00	26.62	106	80-120	
Lead	25.00	25.25	101	80-120	
Nickel	25.00	25.85	103	80-120	
Selenium	25.00	24.25	97	80-120	
Silver	12.50	10.51	84	80-120	
Zinc	25.00	27.25	109	80-120	

  
Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

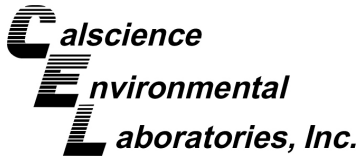
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-12-452-381</b>	<b>Soil</b>	<b>Mercury</b>	<b>06/07/13 12:54</b>	<b>130607L01E</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.8366	100	82-124	



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8081A

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-12-858-203</b>	<b>Soil</b>	<b>GC 51</b>	<b>06/07/13 13:14</b>	<b>130606L07</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	5.000	3.408	68	50-135	36-149	
Alpha-BHC	5.000	3.192	64	50-135	36-149	
Beta-BHC	5.000	2.987	60	50-135	36-149	
Delta-BHC	5.000	2.644	53	50-135	36-149	
Gamma-BHC	5.000	3.179	64	50-135	36-149	
Dieldrin	5.000	3.204	64	50-135	36-149	
4,4'-DDD	5.000	3.357	67	50-135	36-149	
4,4'-DDE	5.000	3.355	67	50-135	36-149	
4,4'-DDT	5.000	3.390	68	50-135	36-149	
Endosulfan I	5.000	3.336	67	50-135	36-149	
Endosulfan II	5.000	3.336	67	50-135	36-149	
Endosulfan Sulfate	5.000	3.223	64	50-135	36-149	
Endrin	5.000	3.664	73	50-135	36-149	
Endrin Aldehyde	5.000	2.749	55	50-135	36-149	
Endrin Ketone	5.000	3.412	68	50-135	36-149	
Heptachlor	5.000	3.330	67	50-135	36-149	
Heptachlor Epoxide	5.000	3.166	63	50-135	36-149	
Methoxychlor	5.000	3.516	70	50-135	36-149	
Alpha Chlordane	5.000	3.214	64	50-135	36-149	
Gamma Chlordane	5.000	3.231	65	50-135	36-149	

Total number of LCS compounds: 20

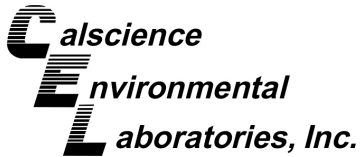
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-256-35</b>	<b>Soil</b>	<b>GC/MS MM</b>	<b>06/07/13 12:54</b>	<b>130606L10</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
2,4,6-Trichlorophenol	1000	614.2	61	40-160	20-180	
2,4-Dichlorophenol	1000	599.4	60	40-160	20-180	
2-Methylphenol	1000	614.7	61	40-160	20-180	
2-Nitrophenol	1000	605.2	61	40-160	20-180	
4-Chloro-3-Methylphenol	1000	571.3	57	40-160	20-180	
Acenaphthene	1000	725.7	73	48-108	38-118	
Benzo (a) Pyrene	1000	955.4	96	17-163	0-187	
Chrysene	1000	813.7	81	17-168	0-193	
Di-n-Butyl Phthalate	1000	852.0	85	40-160	20-180	
Dimethyl Phthalate	1000	580.4	58	40-160	20-180	
Fluoranthene	1000	793.7	79	26-137	8-156	
Fluorene	1000	756.7	76	59-121	49-131	
N-Nitrosodimethylamine	1000	616.2	62	40-160	20-180	
Naphthalene	1000	698.5	70	21-133	2-152	
Phenanthrene	1000	764.6	76	54-120	43-131	
Phenol	1000	482.1	48	40-160	20-180	
Pyrene	1000	806.8	81	28-106	15-119	

Total number of LCS compounds: 17

Total number of ME compounds: 0

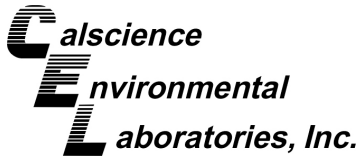
Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/05/13  
Work Order: 13-06-0316  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

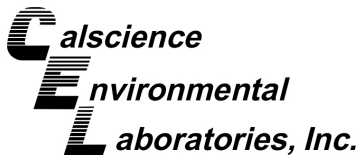
Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-341-103</b>	<b>Soil</b>	<b>GC/MS HHH</b>	<b>06/07/13 16:11</b>	<b>130606L09</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
PCB018	25.00	18.33	73	50-125	38-138	
PCB028	25.00	18.81	75	50-125	38-138	
PCB044	25.00	18.82	75	50-125	38-138	
PCB052	25.00	17.72	71	50-125	38-138	
PCB066	25.00	18.01	72	50-125	38-138	
PCB077	25.00	18.83	75	50-125	38-138	
PCB101	25.00	18.37	73	50-125	38-138	
PCB105	25.00	17.03	68	50-125	38-138	
PCB118	25.00	19.39	78	50-125	38-138	
PCB126	25.00	15.63	63	50-125	38-138	
PCB128	25.00	16.38	66	50-125	38-138	
PCB153	25.00	16.51	66	50-125	38-138	
PCB170	25.00	16.56	66	50-125	38-138	
PCB180	25.00	16.53	66	50-125	38-138	
PCB187	25.00	15.19	61	50-125	38-138	
PCB206	25.00	16.98	68	50-125	38-138	

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

RPD: Relative Percent Difference. CL: Control Limits



Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/05/13  
 Work Order: 13-06-0316  
 Preparation: EPA 3550B (M)  
 Method: Organotins by Krone et al.

Project: POLA\_YTI\_B214-220

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-07-016-1030</b>	<b>Soil</b>	<b>GC/MS JJJ</b>	<b>06/10/13 12:32</b>	<b>130606L23</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Tetrabutyltin	100.0	100.0	100	79-151	
Tributyltin	100.0	101.5	102	51-129	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

## Glossary of Terms and Qualifiers

Work Order: 13-06-0316

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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.
BV	Sample received 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.
	For any analysis identified as a "field" test with a holding time (HT) $\leq$ 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

**CHAIN OF CUSTODY RECORD**

7440 LINCOLN WAY  
 GARDEN GROVE, CA 92841-1432  
 TEL: (714) 895-5494 · FAX: (714) 894-7501



LABORATORY CLIENT: **AMEC Earth & Environmental**  
 ADDRESS: **9210 Sky Park Court, Suite 200**  
 CITY: **San Diego, CA 92123**  
 TEL: **858-449-2334** E-MAIL: **tyler.huff@amec.com**  
 TURNAROUND TIME:  
 SAME DAY  24 HR  48HR  72 HR  10 DAYS  
 SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY):  
 RWQCB REPORTING  ARCHIVE SAMPLES UNTIL / /  
 SPECIAL INSTRUCTIONS:

**REQUESTED ANALYSIS**

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	TIME	MAT. RIX	NO. OF CONT.	COMMENTS

CLIENT PROJECT NAME / NUMBER: **POLA\_YTL\_B214-220**  
 PROJECT CONTACT: **Tyler Huff**  
 P.O. NO.:  
 Temp Blank: **13-06-0316**

**Test sediment according to attached table.  
 Danielle Gonsman is PM  
 - Report all applicable totals.  
 - Report results in dry weight**

Received by: (Signature) **[Signature]** Date: **6/5/13** Time: **10:30**  
 Requested by: (Signature) **[Signature]** Date: **06/05/13** Time: **16:37**  
 Released by: (Signature) **[Signature]** Date: **06/05/13** Time: **1930**

Final Sampling and Analysis Plan  
 Berths 212-224 [YTI] Container Terminal Improvements Project  
 Port of Los Angeles  
 AMEC Project No. 1015101929  
 April 2013

**Table 4-2.  
 Chemical Analyses for Elutriate, Sediment and Tissue Samples**

Analyte	Analysis Method	Elutriate Target Detection Limits <sup>a, b</sup>	Sediment Target Detection Limits <sup>a, b</sup>	Tissue Target Detection Limits <sup>a, b</sup>
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M <sup>c</sup>	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 - D <sup>c</sup>	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	N/A	N/A	0.1 %
TRPH	418.1M <sup>d</sup>	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B <sup>d</sup>	N/A	5.0 mg/kg	N/A
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	0.1 µg/L	1.0 - 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	N/A	20 - 100 µg/kg	N/A
Pyrethroids	GC/MS/MS <sup>i</sup>	N/A	0.5 - 1.0 µg/kg	N/A
Phthalates	8270C SIM <sup>d</sup>	N/A	10 µg/kg	N/A
Organotins	Rice/Krone <sup>h</sup>	3.0 ng/L	3.0 µg/kg	N/A

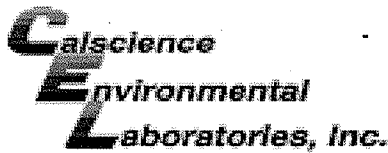
Notes: *grain size ASTM D464*

<sup>a</sup> Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.  
<sup>b</sup> Reporting limits provided by CalScience Environmental Laboratories, Inc.  
<sup>c</sup> Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.  
<sup>d</sup> USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.  
<sup>e</sup> 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.  
<sup>f</sup> Includes aldrin, α-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.  
<sup>g</sup> 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)  
<sup>h</sup> Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)  
<sup>i</sup> NOAA 1993  
 Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lambda, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin, Sumithrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)      PAH - polycyclic aromatic hydrocarbon  
 µg/L - micrograms per liter      PCB - polychlorinated biphenyl  
 mg/kg - milligrams per kilogram (parts per million)      SM - Standard Methods  
 mg/L - milligrams per liter      SOP - standard operating procedure  
 ng/L - nanograms per liter      TPH - total petroleum hydrocarbons  
 N/A - not applicable      TRPH - total recoverable petroleum hydrocarbons

\*pyrethroids are highlighted because there was a change from the SAP. All analytes on this table should be measured. Page 4-5





WORK ORDER #: 13-06-0316

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/05/13

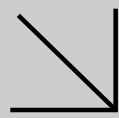
TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C - 6.0 °C, not frozen except sediment/tissue)
Temperature 1.7 °C - 0.2 °C (CF) = 1.5 °C
Blank [checked] Sample [ ]
Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).
Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.
Received at ambient temperature, placed on ice for transport by Courier.
Ambient Temperature: Air [ ] Filter [ ]
Initial: [Signature]

CUSTODY SEALS INTACT:
Cooler [ ] No (Not Intact) [ ] Not Present [checked] N/A [ ] Initial: [Signature]
Sample [ ] No (Not Intact) [ ] Not Present [checked] Initial: [Signature]

SAMPLE CONDITION:
Chain-Of-Custody (COC) document(s) received with samples [checked] Yes No N/A
COC document(s) received complete [checked] Yes No N/A
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 [checked] Yes No N/A
Sample container label(s) consistent with COC [checked] Yes No N/A
Sample container(s) intact and good condition [checked] Yes No N/A
Proper containers and sufficient volume for analyses requested [checked] Yes No N/A
Analyses received within holding time [checked] Yes No N/A
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours [ ] Yes No N/A
Proper preservation noted on COC or sample container [ ] Yes No N/A
Unpreserved vials received for Volatiles analysis [ ]
Volatile analysis container(s) free of headspace [ ] Yes No N/A
Tedlar bag(s) free of condensation [ ] Yes No N/A

CONTAINER TYPE:
Solid: 4ozCGJ [ ] 8ozCGJ [checked] 16ozCGJ [checked] Sleeve ( ) [ ] EnCores [ ] TerraCores [ ] Z [checked]
Water: VOA [ ] VOA h [ ] VOA na2 [ ] 125AGB [ ] 125AGBh [ ] 125AGBp [ ] 1AGB [ ] 1AGBna2 [ ] 1AGBs [ ]
500AGB [ ] 500AGJ [ ] 500AGJs [ ] 250AGB [ ] 250CGB [ ] 250CGBs [ ] 1PB [ ] 1PBna [ ] 500PB [ ]
250PB [ ] 250PBn [ ] 125PB [ ] 125PBzna [ ] 100PJ [ ] 100PJna2 [ ]
Air: Tedlar [ ] Canister [ ] Other: [ ] Trip Blank Lot#: [ ] Labeled/Checked by: [Signature]
Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: [Signature]
Preservative: h: HCL n: HNO3 na2:Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 u: Ultra-pure zna: ZnAc2+NaOH f: Filtered Scanned by: [Signature]

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# CALSCIENCE

## WORK ORDER NUMBER: 13-06-0713

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** POLA Berths 217-224 (YTI) Container Terminal

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

Approved for release on 06/20/2013 by:  
Danielle Gonsman  
Project Manager

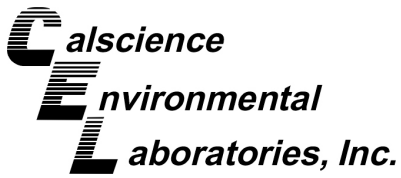
ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.





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Client Project Name: POLA Berths 217-224 (YTI) Container Terminal  
Work Order Number: 13-06-0713

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3	Client Sample Data. . . . .	5
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4	Particle Size Graphs. . . . .	6
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6	Chain of Custody/Sample Receipt Form. . . . .	9



**Work Order Narrative**

Work Order: 13-06-0713

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**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 06/11/13. They were assigned to Work Order 13-06-0713.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with an immediate holding time (HT  $\leq$  15 minutes --40CFR-136.3 Table II footnote 4), is considered a "field" test and reported samples results are not flagged unless the analysis is performed beyond 24 hours of the time of collection.

**Quality Control:**

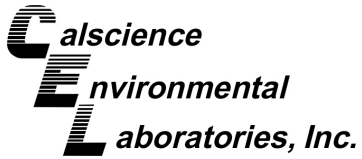
All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.



## Sample Summary

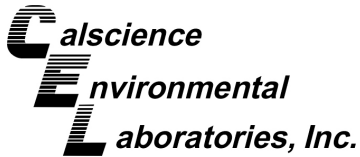
---

Client: AMEC Environment & Infrastructure	Work Order: 13-06-0713
9210 Sky Park Court, Suite 200	Project Name: POLA Berths 217-224 (YTI) Container Terminal
San Diego, CA 92123-4302	PO Number:
	Date Received: 06/11/13

Attn: Barry Snyder

---

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
Sail Bay Fine Grain Size Control	13-06-0713-1	06/11/13 14:15	1	Sediment
EOH Home Sediment	13-06-0713-2	06/11/13 14:15	1	Sediment



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0713  
Preparation: N/A  
Method: ASTM D4464 (M)  
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Sail Bay Fine Grain Size Control</b>	<b>13-06-0713-1-A</b>	<b>06/11/13 14:15</b>	<b>Sediment</b>	<b>LPSA 1</b>	<b>N/A</b>	<b>06/12/13 12:02</b>	

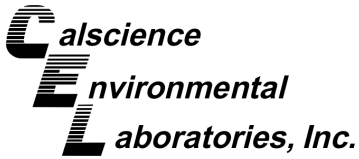
<u>Parameter</u>	<u>Result</u>	<u>Qualifiers</u>
Clay (less than 0.00391mm)	15.45	
Silt (0.00391 to 0.0625mm)	76.18	
Total Silt and Clay (0 to 0.0625mm)	91.63	
Very Fine Sand (0.0625 to 0.125mm)	8.24	
Fine Sand (0.125 to 0.25mm)	0.13	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>EOH Home Sediment</b>	<b>13-06-0713-2-A</b>	<b>06/11/13 14:15</b>	<b>Sediment</b>	<b>LPSA 1</b>	<b>N/A</b>	<b>06/12/13 12:10</b>	

<u>Parameter</u>	<u>Result</u>	<u>Qualifiers</u>
Clay (less than 0.00391mm)	1.08	
Silt (0.00391 to 0.0625mm)	3.08	
Total Silt and Clay (0 to 0.0625mm)	4.17	
Very Fine Sand (0.0625 to 0.125mm)	3.21	
Fine Sand (0.125 to 0.25mm)	35.81	
Medium Sand (0.25 to 0.5mm)	54.42	
Coarse Sand (0.5 to 1mm)	2.34	
Very Coarse Sand (1 to 2mm)	0.050	
Gravel (greater than 2mm)	ND	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

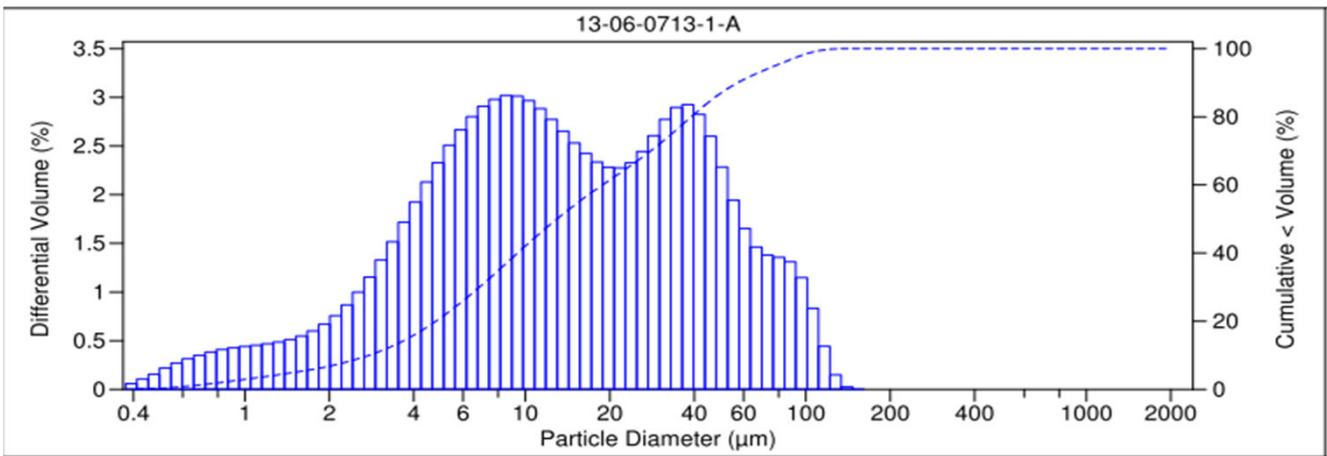
Date Sampled: 6/11/2013  
 Date Received: 6/11/2013  
 Work Order No: 13-06-0713  
 Date Analyzed: 6/12/2013  
 Method: ASTM D4464M

Project: POLA Berths 217-224 (YTI) Container Terminal

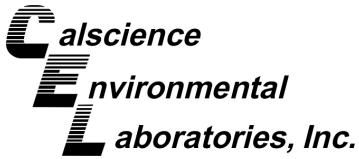
Page 1 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
Sail Bay Fine Grain Size Control		Silt	0.023

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	0.13	8.24	76.18	15.45	91.63



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## PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

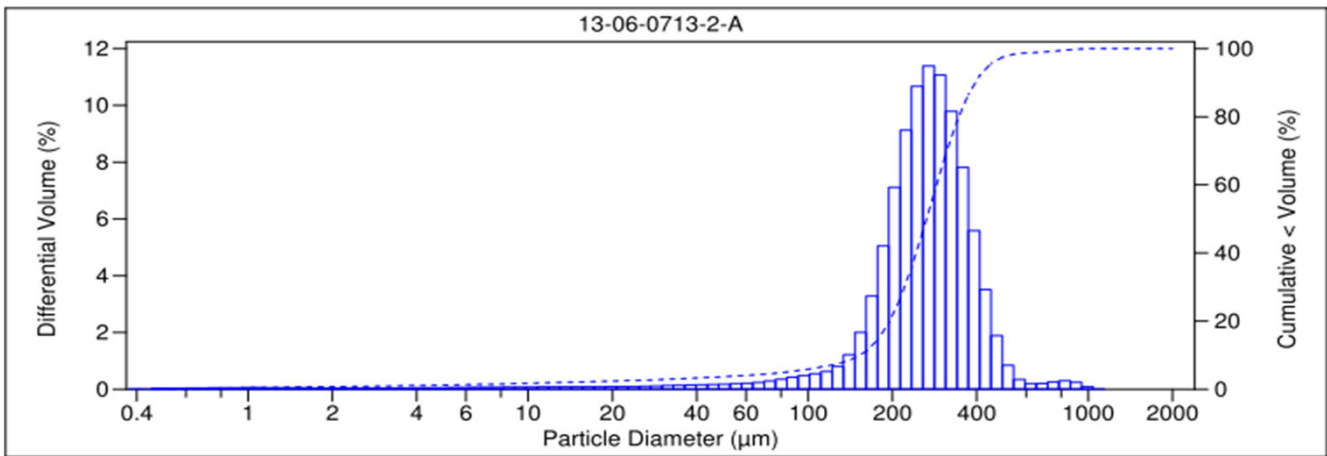
Date Sampled: 6/11/2013  
 Date Received: 6/11/2013  
 Work Order No: 13-06-0713  
 Date Analyzed: 6/12/2013  
 Method: ASTM D4464M

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 2 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
EOH Home Sediment		Medium Sand	0.271

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.05	2.34	54.42	35.81	3.21	3.08	1.08	4.17



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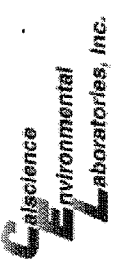
## Glossary of Terms and Qualifiers

Work Order: 13-06-0713

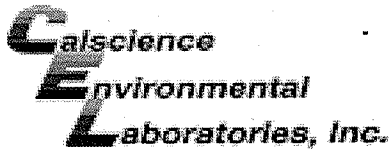
Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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.
BV	Sample received 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.
	For any analysis identified as a "field" test with a holding time (HT) $\leq$ 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

7440 LINCOLN WAY  
 GARDEN GROVE, CA 92841-1432  
 TEL: (714) 895-5494 . FAX: (714) 894-7501



LABORATORY CLIENT: <b>AMEC</b>		CLIENT PROJECT NAME / NUMBER: <b>Berths 217-224 (YTI) Container Terminal</b>		P.O. NO.: <b>1015101929</b>	
ADDRESS: <b>9210 Sky Park Ct # 200</b>		PROJECT CONTACT: <b>Barry Snyder/Tyler Huff</b>		QUOTE NO.:	
CITY: <b>San Diego, CA 92123</b>		SAMPLER(S): (SIGNATURE) <i>[Signature]</i>		LAB USE ONLY <b>13-06-0713</b>	
TEL: <b>858-449-2334</b>		E-MAIL: <b>tyler.huff@amec.com</b>			
TURNAROUND TIME: <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48HR <input checked="" type="checkbox"/> 72 HR <input type="checkbox"/> 5 DAYS <input type="checkbox"/> 10 DAYS		SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): <input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL / /		<b>REQUESTED ANALYSIS</b>	
SPECIAL INSTRUCTIONS: Danielle Gonsman is PM Green Book Testing Please see attached Sheet for Analysis. Please report all applicable totals (i.e. PCBs, PAHs, etc.)					
LAB USE ONLY		Please list tests required			
SAMPLE ID		LOCATION/ DESCRIPTION			
DATE		SAMPLING TIME			
Matrix		#Cont			
Composite Area A		Port of Los Angeles			
Composite Area A-Z		Port of Los Angeles			
Composite Area B		Port of Los Angeles			
Composite Area B-Z		Port of Los Angeles			
Reference		Port of Los Angeles			
1		Sail Bay Fine Grain Size Control			
2		E0H Home Sediment			
Relinquished by: (Signature) <b>Tyler Huff (AMEC)</b>		Received by: (Signature) <i>[Signature]</i>		Date: 06/11/13 Time: 1420	
Relinquished by: (Signature)		Received by: (Signature)		Date: 06/11/13 Time: 1945	
Relinquished by: (Signature)		Received by: (Signature)		Date: Time:	



WORK ORDER #: 13-06-0713

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: ANEC

DATE: 06 / 11 / 13

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

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °C [X] 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: [Signature]

CUSTODY SEALS INTACT:

[ ] Cooler [ ] \_\_\_\_\_ [ ] No (Not Intact) [X] Not Present [ ] N/A

Initial: [Signature]

[ ] Sample [ ] \_\_\_\_\_ [ ] No (Not Intact) [X] Not Present

Initial: [Signature]

SAMPLE CONDITION:

Table with columns: Yes, No, N/A. Rows include 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, 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, Volatile analysis container(s) free of headspace, Tedlar bag(s) free of condensation.

CONTAINER TYPE:

Solid: [ ] 4ozCGJ [ ] 8ozCGJ [ ] 16ozCGJ [ ] Sleeve (\_\_\_\_) [ ] EnCores® [ ] TerraCores® [X] Z

Water: [ ] VOA [ ] VOA<sub>h</sub> [ ] VOA<sub>na2</sub> [ ] 125AGB [ ] 125AGB<sub>h</sub> [ ] 125AGB<sub>p</sub> [ ] 1AGB [ ] 1AGB<sub>na2</sub> [ ] 1AGB<sub>s</sub>

[ ] 500AGB [ ] 500AGJ [ ] 500AGJ<sub>s</sub> [ ] 250AGB [ ] 250CGB [ ] 250CGB<sub>s</sub> [ ] 1PB [ ] 1PB<sub>na</sub> [ ] 500PB

[ ] 250PB [ ] 250PB<sub>n</sub> [ ] 125PB [ ] 125PB<sub>znna</sub> [ ] 100PJ [ ] 100PJ<sub>na2</sub> [ ] \_\_\_\_\_ [ ] \_\_\_\_\_ [ ] \_\_\_\_\_

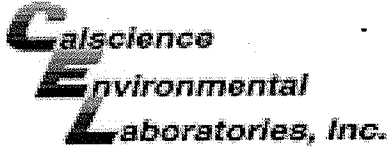
Air: [ ] Tedlar® [ ] Canister Other: [ ] \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: [Signature]

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

Preservative: h: HCL n: HNO3 na2: Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 u: Ultra-pure znna: ZnAc2+NaOH f: Filtered Scanned by: [Signature]

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WORK ORDER #: 13-06-0713

# SAMPLE ANOMALY FORM

**SAMPLES - CONTAINERS & LABELS:**

**Comments:**

- Sample(s) NOT RECEIVED but listed on COC
- Sample(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: \_\_\_\_\_

(-1) collection date per label is 6/10/13

(-2) collection date per label is 6/5/13

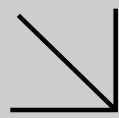
**HEADSPACE – Containers with Bubble > 6mm or ¼ inch:**

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: JD 06/11/13





# CALSCIENCE

## WORK ORDER NUMBER: 13-06-0714

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** POLA Berths 217-224 (YTI) Container Terminal

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

Approved for release on 06/25/2013 by:  
Danielle Gonsman  
Project Manager

ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



Client Project Name: POLA Berths 217-224 (YTI) Container Terminal  
Work Order Number: 13-06-0714

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## CASE NARRATIVE

**CalScience Work Order No.: 13-06-0714**  
**Project ID: Berths 217-224 (YTI) Container Terminal**

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 sediment sample was received for this project on June 11, 2013. 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 sample upon receipt at the laboratory was 1.4°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

### ***Tests Performed***

Sediment:

Total Solids by SM 2540B  
Ammonia by SM 4500-NH3-B/C (M)  
Grain Size by ASTM D4464  
Dissolved and Total Sulfide by EPA 376.2M  
TRPH by EPA 418.1M  
TPH C6-C44 by EPA 8015B (M)  
Total Organic Carbon by EPA 9060A  
Trace Metals by EPA 6020/7471  
Chlorinated Pesticides by EPA 8081A  
PCB Congeners by EPA 8270C SIM  
PAHs, Phenols and Phthalates by EPA 8270C SIM  
Pyrethroids by EPA 8270D (M)/TQ/EI  
Organotins by Krone et al.

### ***Data Summary***

The sediment sample was homogenized prior to analysis.

#### Holding times

All holding times were met.

### Blanks

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

### Reporting Limits

The Method Detection Limits were met.

### Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits.

### Matrix Spikes

Matrix spiking was performed at the required frequencies for the sediment on the project and non-project samples. All project sample matrix spike parameters outside the acceptable control limits were noted below.

For Chlorinated Pesticides by EPA 8081A DDD, DDT, and methoxychlor were out the control limits. Since the LCS recoveries were in control the results are released with no further action.

The Zinc matrix spike concentration was above the established control limit. The results have been flagged with the appropriate qualifiers and are released with no further action.

### Surrogates

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

For PCB Congeners by EPA 8270C SIM, the 2-fluorobiphenyl recovery was low in sample YTI COMP A. The results have been appropriately flagged.

### Acronyms

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

**Work Order Narrative**

Work Order: 13-06-0714

Page 1 of 1

**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 06/11/13. They were assigned to Work Order 13-06-0714.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with an immediate holding time (HT  $\leq$  15 minutes --40CFR-136.3 Table II footnote 4), is considered a "field" test and reported samples results are not flagged unless the analysis is performed beyond 24 hours of the time of collection.

**Quality Control:**

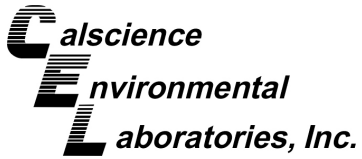
All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.



## Sample Summary

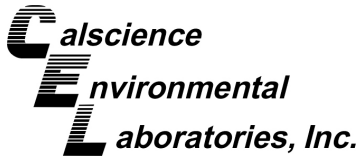
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Client: AMEC Environment & Infrastructure	Work Order: 13-06-0714
9210 Sky Park Court, Suite 200	Project Name: POLA Berths 217-224 (YTI) Container Terminal
San Diego, CA 92123-4302	PO Number: 1015101929
	Date Received: 06/11/13

Attn: Barry Snyder

---

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
YTI COMPA	13-06-0714-1	06/11/13 09:00	4	Sediment



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 376.2M  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-A	06/11/13 09:00	Sediment	N/A	06/17/13	06/17/13 14:45	D0617SL1

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	41	1.4	2	

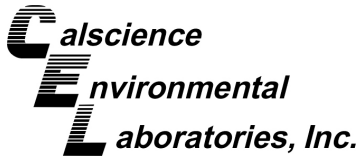
Method Blank	099-05-001-4676	N/A	Soil	N/A	06/17/13	06/17/13 14:45	D0617SL1
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	ND	0.10	0.2	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 376.2M  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-B	06/11/13 09:00	Sediment	N/A	06/11/13	06/11/13 20:15	D0611DSL2

Parameter	Result	RL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-05-001-4677	N/A	Soil	N/A	06/11/13	06/11/13 20:15	D0611DSL2

Parameter	Result	RL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.2	



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 9060A  
 Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-A	06/11/13 09:00	Sediment	TOC 5	06/17/13	06/17/13 18:28	D0617TOCL1

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

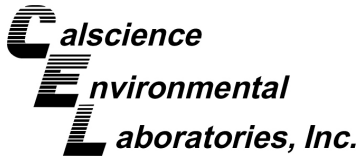
Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	0.71	0.069	1	

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-06-013-876	N/A	Soil	TOC 5	06/17/13	06/17/13 18:28	D0617TOCL1

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	ND	0.050	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: SM 2540 B (M)  
 Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-D	06/11/13 09:00	Sediment	N/A	06/13/13	06/13/13 19:00	D0613TSB1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Solids, Total	72.9	0.100	1	

Method Blank	099-05-019-2238	N/A	Soil	N/A	06/13/13	06/13/13 19:00	D0613TSB1
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Solids, Total	ND	0.100	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: SM 4500-NH3 B/C (M)  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-B	06/11/13 09:00	Sediment	BUR05	06/19/13	06/19/13 14:00	D0619NH3L1

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

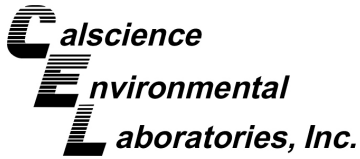
Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	7.7	0.27	1	

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-816-61	N/A	Soil	BUR05	06/19/13	06/19/13 14:00	D0619NH3L1

Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	ND	0.20	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: Extraction  
Method: EPA 418.1M  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-A	06/11/13 09:00	Sediment	IR 2	06/12/13	06/12/13 12:00	130612L01

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

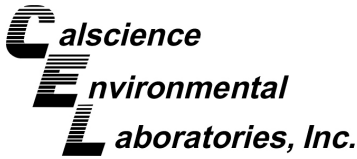
Parameter	Result	RL	DF	Qualifiers
TRPH	65	14	1	

Method Blank	099-07-015-1928	N/A	Soil	IR 2	06/12/13	06/12/13 12:00	130612L01
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Parameter	Result	RL	DF	Qualifiers
TRPH	ND	10	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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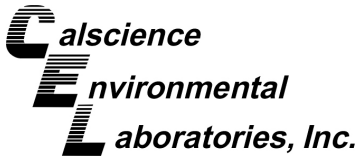
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-D	06/11/13 09:00	Sediment	GC 45	06/12/13	06/12/13 15:20	130612B03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
C6	ND	6.9	1	
C7	ND	6.9	1	
C8	ND	6.9	1	
C9-C10	ND	6.9	1	
C11-C12	ND	6.9	1	
C13-C14	ND	6.9	1	
C15-C16	ND	6.9	1	
C17-C18	ND	6.9	1	
C19-C20	ND	6.9	1	
C21-C22	ND	6.9	1	
C23-C24	ND	6.9	1	
C25-C28	ND	6.9	1	
C29-C32	ND	6.9	1	
C33-C36	ND	6.9	1	
C37-C40	ND	6.9	1	
C41-C44	ND	6.9	1	
C6-C44 Total	ND	6.9	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
n-Octacosane	80	61-145		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

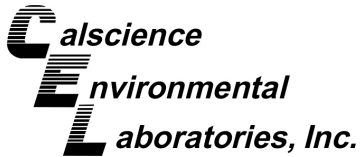
Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-490-359	N/A	Soil	GC 45	06/12/13	06/12/13 14:09	130612B03

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
n-Octacosane	80	61-145		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-E	06/11/13 09:00	Sediment	GCTQ 1	06/13/13	06/17/13 23:02	130613L01

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

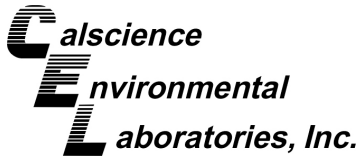
- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.69	0.35	1	
Bifenthrin	0.41	0.69	0.13	1	J
Cyfluthrin	ND	0.69	0.12	1	
Cypermethrin	ND	0.69	0.094	1	
Deltamethrin/Tralomethrin	ND	0.69	0.29	1	
Fenpropathrin	ND	0.69	0.050	1	
Fenvalerate/Esfenvalerate	ND	0.69	0.049	1	
Fluvalinate	ND	0.69	0.079	1	
Permethrin (cis/trans)	4.5	1.4	0.15	1	
Phenothrin	ND	0.69	0.094	1	
Resmethrin/Bioresmethrin	ND	0.69	0.13	1	
Tetramethrin	ND	0.69	0.052	1	
lambda-Cyhalothrin	ND	0.69	0.060	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
trans-Permethrin(C13)	98	25-200			

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-403-34	N/A	Sediment	GCTQ 1	06/13/13	06/17/13 22:25	130613L01

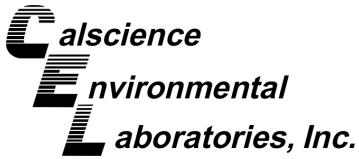
Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.50	0.26	1	
Bifenthrin	ND	0.50	0.094	1	
Cyfluthrin	ND	0.50	0.085	1	
Cypermethrin	ND	0.50	0.069	1	
Deltamethrin/Tralomethrin	ND	0.50	0.21	1	
Fenpropathrin	ND	0.50	0.036	1	
Fenvalerate/Esfenvalerate	ND	0.50	0.036	1	
Fluvalinate	ND	0.50	0.057	1	
Permethrin (cis/trans)	ND	1.0	0.11	1	
Phenothrin	ND	0.50	0.069	1	
Resmethrin/Bioresmethrin	ND	0.50	0.092	1	
Tetramethrin	ND	0.50	0.038	1	
lambda-Cyhalothrin	ND	0.50	0.044	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	82	25-200	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-E	06/11/13 09:00	Sediment	ICP/MS 03	06/12/13	06/12/13 13:37	130612L01E

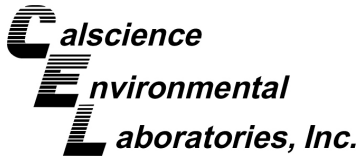
Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	8.77	0.137	1	
Cadmium	0.471	0.137	1	
Chromium	35.2	0.137	1	
Copper	60.1	0.137	1	
Lead	27.7	0.137	1	
Nickel	27.3	0.137	1	
Selenium	0.237	0.137	1	
Silver	0.183	0.137	1	
Zinc	112	1.37	1	

Method Blank	099-15-254-116	N/A	Soil	ICP/MS 03	06/12/13	06/12/13 13:03	130612L01E
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Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.100	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-E	06/11/13 09:00	Sediment	Mercury	06/12/13	06/12/13 13:22	130612L05E

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.217	0.0275	1	

Method Blank	099-12-452-383	N/A	Soil	Mercury	06/12/13	06/12/13 13:13	130612L05E
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0200	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: ASTM D4464 (M)  
 Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

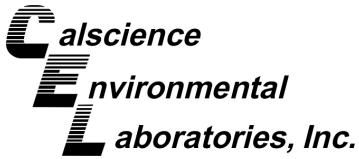
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-C	06/11/13 09:00	Sediment	LPSA 1	N/A	06/12/13 12:21	

Parameter	Result	Qualifiers
Clay (less than 0.00391mm)	22.89	
Silt (0.00391 to 0.0625mm)	74.20	
Total Silt and Clay (0 to 0.0625mm)	97.09	
Very Fine Sand (0.0625 to 0.125mm)	2.91	
Fine Sand (0.125 to 0.25mm)	ND	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

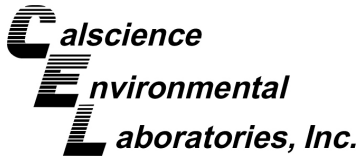
Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-E	06/11/13 09:00	Sediment	GC 51	06/12/13	06/14/13 14:09	130612L06

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

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.4	1	
Alpha-BHC	ND	1.4	1	
Beta-BHC	ND	1.4	1	
Delta-BHC	ND	1.4	1	
Gamma-BHC	ND	1.4	1	
Chlordane	ND	14	1	
Dieldrin	ND	1.4	1	
Trans-nonachlor	ND	1.4	1	
2,4'-DDD	ND	1.4	1	
2,4'-DDE	ND	1.4	1	
2,4'-DDT	ND	1.4	1	
4,4'-DDD	ND	1.4	1	
4,4'-DDE	3.1	1.4	1	
4,4'-DDT	ND	1.4	1	
Endosulfan I	ND	1.4	1	
Endosulfan II	ND	1.4	1	
Endosulfan Sulfate	ND	1.4	1	
Endrin	ND	1.4	1	
Endrin Aldehyde	ND	1.4	1	
Endrin Ketone	ND	1.4	1	
Heptachlor	ND	1.4	1	
Heptachlor Epoxide	ND	1.4	1	
Methoxychlor	ND	1.4	1	
Toxaphene	ND	27	1	
Alpha Chlordane	ND	1.4	1	
Gamma Chlordane	ND	1.4	1	
Cis-nonachlor	ND	1.4	1	
Oxychlordane	ND	1.4	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	90	50-130		
Decachlorobiphenyl	98	50-130		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

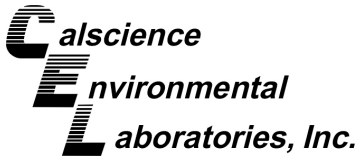
Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-858-206	N/A	Soil	GC 51	06/12/13	06/17/13 14:41	130612L06

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	95	50-130	
Decachlorobiphenyl	92	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

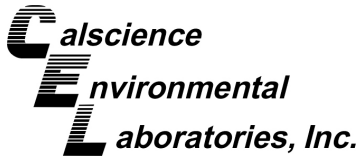
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-E	06/11/13 09:00	Sediment	GC/MS MM	06/17/13	06/18/13 19:36	130617L12

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

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	14	1	
2,4,5-Trichlorophenol	ND	14	1	
2,4,6-Trichlorophenol	ND	14	1	
2,4-Dichlorophenol	ND	14	1	
2,4-Dimethylphenol	ND	14	1	
2,4-Dinitrophenol	ND	690	1	
2-Chlorophenol	ND	14	1	
2-Methylnaphthalene	ND	14	1	
2-Methylphenol	ND	14	1	
2-Nitrophenol	ND	14	1	
3/4-Methylphenol	ND	14	1	
4,6-Dinitro-2-Methylphenol	ND	690	1	
4-Chloro-3-Methylphenol	ND	14	1	
4-Nitrophenol	ND	690	1	
Acenaphthene	ND	14	1	
Acenaphthylene	15	14	1	
Anthracene	29	14	1	
Benzo (a) Anthracene	27	14	1	
Benzo (a) Pyrene	80	14	1	
Benzo (b) Fluoranthene	100	14	1	
Benzo (g,h,i) Perylene	48	14	1	
Benzo (k) Fluoranthene	82	14	1	
Bis(2-Ethylhexyl) Phthalate	170	14	1	
Butyl Benzyl Phthalate	47	14	1	
Chrysene	48	14	1	
Di-n-Butyl Phthalate	15	14	1	
Di-n-Octyl Phthalate	ND	14	1	
Dibenz (a,h) Anthracene	ND	14	1	
Diethyl Phthalate	ND	14	1	
Dimethyl Phthalate	ND	14	1	
Fluoranthene	70	14	1	
Fluorene	ND	14	1	
Indeno (1,2,3-c,d) Pyrene	42	14	1	
Naphthalene	ND	14	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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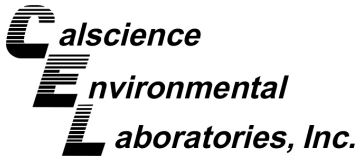
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	ND	690	1	
Phenanthrene	17	14	1	
Phenol	ND	14	1	
Pyrene	220	14	1	
1,6,7-Trimethylnaphthalene	ND	14	1	
2,3,4,6-Tetrachlorophenol	ND	14	1	
2,6-Dichlorophenol	ND	14	1	
Dibenzothiophene	ND	14	1	
1-Methylphenanthrene	ND	14	1	
Benzo (e) Pyrene	83	14	1	
Perylene	37	14	1	
Biphenyl	ND	14	1	
2,6-Dimethylnaphthalene	ND	14	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	72	32-143	
2-Fluorobiphenyl	63	14-146	
2-Fluorophenol	50	15-138	
Nitrobenzene-d5	56	18-162	
p-Terphenyl-d14	71	34-148	
Phenol-d6	63	17-141	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-256-36	N/A	Soil	GC/MS MM	06/17/13	06/18/13 19:10	130617L12

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

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM  
 Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

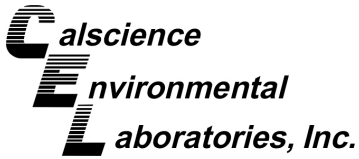
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Phenanthrene	ND	10	1	
Phenol	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
2,3,4,6-Tetrachlorophenol	ND	10	1	
2,6-Dichlorophenol	ND	10	1	
Dibenzothiophene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Perylene	ND	10	1	
Biphenyl	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	72	32-143	
2-Fluorobiphenyl	79	14-146	
2-Fluorophenol	83	15-138	
Nitrobenzene-d5	76	18-162	
p-Terphenyl-d14	84	34-148	
Phenol-d6	83	17-141	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

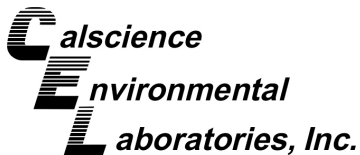
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-A	06/11/13 09:00	Sediment	GC/MS HHH	06/17/13	06/19/13 20:24	130617L13

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

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.69	1	
PCB028	ND	0.69	1	
PCB037	ND	0.69	1	
PCB044	1.2	0.69	1	
PCB049	2.9	0.69	1	
PCB052	2.4	0.69	1	
PCB066	0.85	0.69	1	
PCB070	0.82	0.69	1	
PCB074	ND	0.69	1	
PCB077	ND	0.69	1	
PCB081	ND	0.69	1	
PCB087	1.1	0.69	1	
PCB099	1.2	0.69	1	
PCB101	2.1	0.69	1	
PCB105	0.78	0.69	1	
PCB110	1.9	0.69	1	
PCB114	ND	0.69	1	
PCB118	1.8	0.69	1	
PCB119	ND	0.69	1	
PCB123	ND	0.69	1	
PCB126	ND	0.69	1	
PCB128	ND	0.69	1	
PCB138/158	3.2	1.4	1	
PCB149	4.1	0.69	1	
PCB151	1.1	0.69	1	
PCB153	4.3	0.69	1	
PCB156	ND	0.69	1	
PCB157	0.91	0.69	1	
PCB167	ND	0.69	1	
PCB168	ND	0.69	1	
PCB169	ND	0.69	1	
PCB170	1.8	0.69	1	
PCB177	ND	0.69	1	
PCB180	3.2	0.69	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

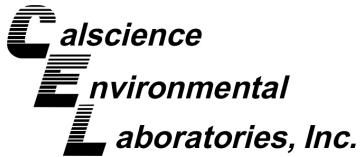
Project: POLA Berths 217-224 (YTI) Container Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.69	1	
PCB187	2.0	0.69	1	
PCB189	ND	0.69	1	
PCB194	0.78	0.69	1	
PCB201	ND	0.69	1	
PCB206	ND	0.69	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	42	50-125	1,2,6	
p-Terphenyl-d14	96	50-125		

Return to Contents 

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

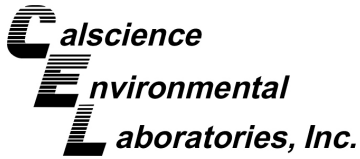
Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-341-105	N/A	Soil	GC/MS HHH	06/17/13	06/19/13 16:41	130617L13

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

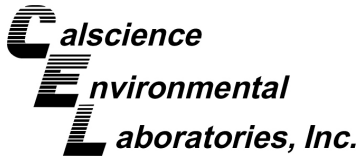
Project: POLA Berths 217-224 (YTI) Container Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB201	ND	0.50	1	
PCB206	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	50	50-125		
p-Terphenyl-d14	74	50-125		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3550B (M)  
Method: Organotins by Krone et al.  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	13-06-0714-1-E	06/11/13 09:00	Sediment	GC/MS JJJ	06/12/13	06/14/13 12:40	130612L04

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	7.2	4.1	1	
Monobutyltin	ND	4.1	1	
Tetrabutyltin	ND	4.1	1	
Tributyltin	19	4.1	1	

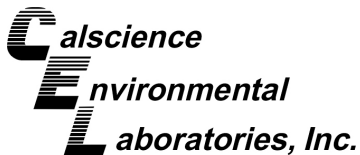
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	81	48-126	

Method Blank	099-07-016-1032	N/A	Soil	GC/MS JJJ	06/12/13	06/14/13 10:40	130612L04
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1	
Tetrabutyltin	ND	3.0	1	
Tributyltin	ND	3.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	66	48-126	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## PARTICLE SIZE SUMMARY

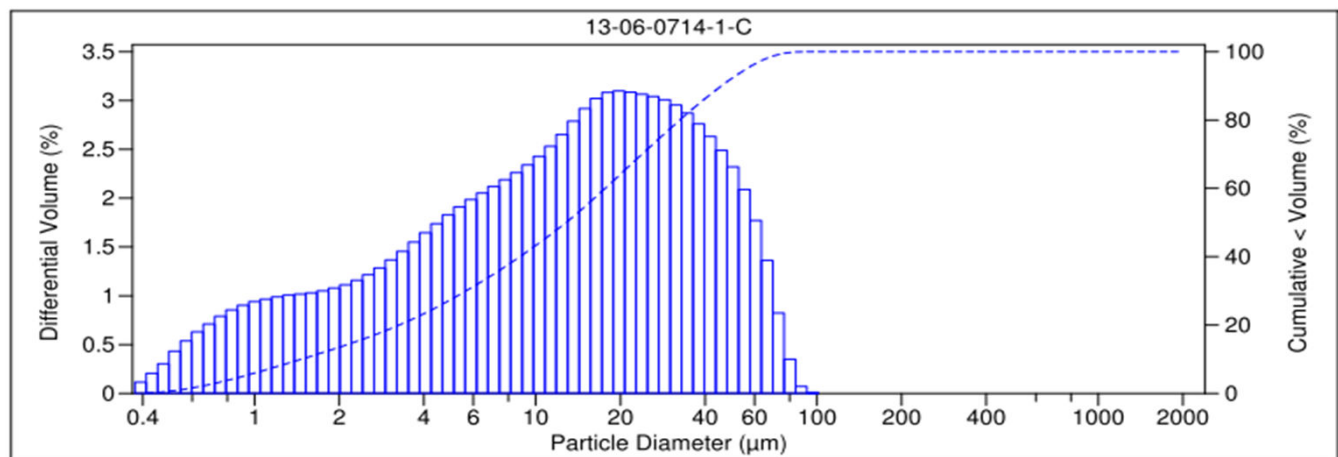
(ASTM D422 / D4464M)

AMEC Environment & Infrastructure 9210 Sky Park Court, Suite 200 San Diego, CA 92123-4302	Date Sampled: 6/11/2013 Date Received: 6/11/2013 Work Order No: 13-06-0714 Date Analyzed: 6/12/2013 Method: ASTM D4464M
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Project: POLA Berths 217-224 (YTI) Container Terminal Page 1 of 1

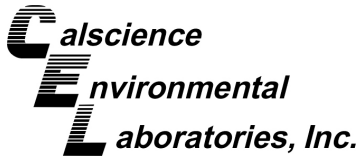
Sample ID	Depth ft	Description	Mean Grain Size mm
YTI COMP A		Silt	0.019

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	0.00	2.91	74.20	22.89	97.09



Return to Contents





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 1 of 10

Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>13-06-0526-1</b>	<b>Sediment</b>		<b>TOC 5</b>	<b>06/17/13</b>	<b>06/17/13 18:28</b>	<b>D0617TOCS1</b>				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Carbon, Total Organic	0.1700	3.000	3.360	106	3.400	108	75-125	1	0-25	

Return to Contents 

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

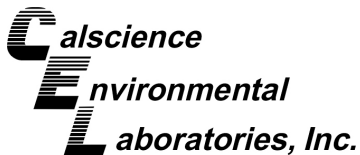
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: Extraction  
 Method: EPA 418.1M

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>YTI COMPA</b>	<b>Sediment</b>		<b>IR 2</b>	<b>06/12/13</b>	<b>06/12/13 12:00</b>	<b>130612S01</b>				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TRPH	47.61	100.0	140.8	93	142.6	95	55-135	1	0-30	



**Quality Control - Spike/Spike Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)

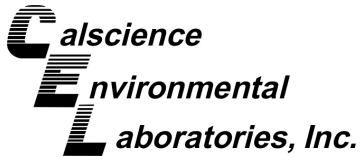
Project: POLA Berths 217-224 (YTI) Container Terminal

Page 3 of 10

Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>YTI COMPA</b>	<b>Sediment</b>		<b>GC 45</b>	<b>06/12/13</b>	<b>06/12/13 14:44</b>	<b>130612S03</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	11.22	400.0	364.9	88	376.4	91	64-130	3	0-15	



RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

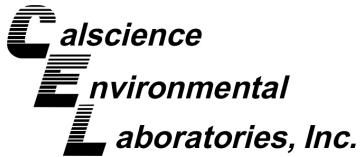
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>YTI COMPA</b>	<b>Sediment</b>	<b>GCTQ 1</b>	<b>06/13/13</b>	<b>06/18/13 02:05</b>	<b>130613S01</b>					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.801	36	2.050	41	25-200	13	0-30	
Bifenthrin	ND	5.000	3.142	63	3.422	68	25-200	9	0-30	
Cyfluthrin	ND	5.000	1.828	37	2.197	44	25-200	18	0-30	
Cypermethrin	ND	5.000	1.659	33	1.967	39	25-200	17	0-30	
Deltamethrin/Tralomethrin	ND	5.000	2.381	48	2.763	55	25-200	15	0-30	
Fenpropathrin	ND	5.000	2.961	59	3.006	60	25-200	2	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	3.912	39	4.777	48	25-200	20	0-30	
Fluvalinate	ND	5.000	1.709	34	2.218	44	25-200	26	0-30	
Permethrin (cis/trans)	3.251	5.000	8.042	96	8.269	100	25-200	3	0-30	
Phenothrin	ND	5.000	6.554	131	6.613	132	25-200	1	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.612	92	5.264	105	25-200	13	0-30	
Tetramethrin	ND	5.000	4.514	90	4.959	99	25-200	9	0-30	
lambda-Cyhalothrin	ND	5.000	2.236	45	2.579	52	25-200	14	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3050B  
Method: EPA 6020

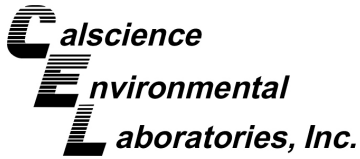
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>YTI COMPA</b>	<b>Sediment</b>		<b>ICP/MS 03</b>	<b>06/12/13</b>	<b>06/12/13 13:12</b>	<b>130612S01</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	6.397	25.00	32.31	104	30.28	96	80-120	6	0-20	
Cadmium	0.3433	25.00	26.25	104	26.23	104	80-120	0	0-20	
Chromium	25.70	25.00	48.73	92	48.97	93	80-120	0	0-20	
Copper	43.80	25.00	69.07	101	65.70	88	80-120	5	0-20	
Lead	20.19	25.00	47.41	109	45.84	103	80-120	3	0-20	
Nickel	19.90	25.00	44.82	100	43.32	94	80-120	3	0-20	
Selenium	0.1725	25.00	25.00	99	24.20	96	80-120	3	0-20	
Silver	0.1332	12.50	12.99	103	12.63	100	80-120	3	0-20	
Zinc	81.97	25.00	113.7	127	109.7	111	80-120	4	0-20	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

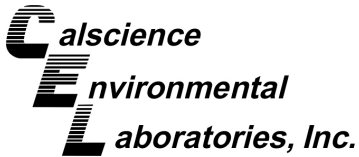
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>YTI COMPA</b>	<b>Sediment</b>	<b>Mercury</b>	<b>06/12/13</b>	<b>06/12/13 13:24</b>	<b>130612S05</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.1584	0.8350	0.9514	95	0.9984	101	76-136	5	0-16	



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8081A

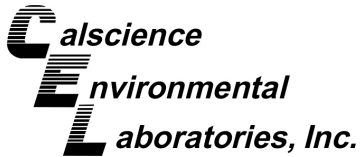
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>YTI COMPA</b>	<b>Sediment</b>	<b>GC 51</b>	<b>06/12/13</b>	<b>06/14/13 17:24</b>	<b>130612S06A</b>					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	3.776	76	4.361	87	50-135	14	0-25	
Alpha-BHC	ND	5.000	3.862	77	4.520	90	50-135	16	0-25	
Beta-BHC	ND	5.000	3.703	74	3.641	73	50-135	2	0-25	
Delta-BHC	ND	5.000	2.929	59	3.389	68	50-135	15	0-25	
Gamma-BHC	ND	5.000	3.794	76	4.402	88	50-135	15	0-25	
Dieldrin	ND	5.000	3.955	79	4.566	91	50-135	14	0-25	
4,4'-DDD	ND	5.000	6.318	126	7.256	145	50-135	14	0-25	3
4,4'-DDE	2.294	5.000	6.765	89	7.736	109	50-135	13	0-25	
4,4'-DDT	ND	5.000	2.259	45	2.271	45	50-135	1	0-25	3
Endosulfan I	ND	5.000	3.583	72	4.155	83	50-135	15	0-25	
Endosulfan II	ND	5.000	3.681	74	4.212	84	50-135	13	0-25	
Endosulfan Sulfate	ND	5.000	3.775	76	4.241	85	50-135	12	0-25	
Endrin	ND	5.000	4.472	89	5.038	101	50-135	12	0-25	
Endrin Aldehyde	ND	5.000	4.016	80	4.446	89	50-135	10	0-25	
Endrin Ketone	ND	5.000	3.219	64	3.377	68	50-135	5	0-25	
Heptachlor	ND	5.000	3.475	70	3.777	76	50-135	8	0-25	
Heptachlor Epoxide	ND	5.000	4.046	81	4.784	96	50-135	17	0-25	
Methoxychlor	ND	5.000	2.213	44	2.133	43	50-135	4	0-25	3
Alpha Chlordane	ND	5.000	4.000	80	4.567	91	50-135	13	0-25	
Gamma Chlordane	ND	5.000	3.958	79	4.502	90	50-135	13	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

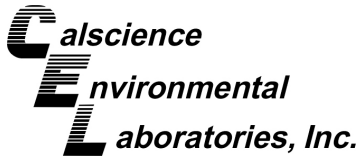
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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>YTI COMPA</b>	<b>Sediment</b>		<b>GC/MS MM</b>		<b>06/17/13</b>	<b>06/18/13 20:02</b>	<b>130617S12</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	ND	1000	693.0	69	747.3	75	40-160	8	0-20	
2,4-Dichlorophenol	ND	1000	625.0	63	688.1	69	40-160	10	0-20	
2-Methylphenol	ND	1000	725.6	73	799.3	80	40-160	10	0-20	
2-Nitrophenol	ND	1000	670.3	67	739.9	74	40-160	10	0-20	
4-Chloro-3-Methylphenol	ND	1000	664.0	66	737.5	74	40-160	10	0-20	
Acenaphthene	ND	1000	699.5	70	766.7	77	40-106	9	0-20	
Benzo (a) Pyrene	58.46	1000	909.8	85	970.9	91	17-163	7	0-20	
Chrysene	35.05	1000	807.8	77	893.2	86	17-168	10	0-20	
Di-n-Butyl Phthalate	10.59	1000	593.3	58	638.8	63	40-160	7	0-20	
Dimethyl Phthalate	ND	1000	684.1	68	750.5	75	40-160	9	0-20	
Fluoranthene	51.31	1000	710.0	66	779.1	73	26-137	9	0-20	
Fluorene	ND	1000	715.0	72	798.6	80	59-121	11	0-20	
N-Nitrosodimethylamine	ND	1000	501.9	50	571.3	57	40-160	13	0-20	
Naphthalene	ND	1000	688.7	69	727.7	73	21-133	6	0-20	
Phenanthrene	12.20	1000	734.7	72	797.8	79	54-120	8	0-20	
Phenol	ND	1000	530.2	53	575.6	58	40-160	8	0-20	
Pyrene	157.2	1000	958.8	80	1016	86	6-156	6	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>YTI COMPA</b>	<b>Sediment</b>		<b>GC/MS HHH</b>		<b>06/17/13</b>	<b>06/20/13 15:41</b>	<b>130617S13</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	25.00	18.17	73	18.25	73	50-125	0	0-30	
PCB018	ND	25.00	22.46	90	22.98	92	50-125	2	0-30	
PCB028	ND	25.00	23.30	93	23.24	93	50-125	0	0-30	
PCB044	0.8708	25.00	22.22	85	22.86	88	50-125	3	0-30	
PCB052	1.769	25.00	22.19	82	22.43	83	50-125	1	0-30	
PCB066	0.6181	25.00	24.93	97	25.41	99	50-125	2	0-30	
PCB077	ND	25.00	23.27	93	23.47	94	50-125	1	0-30	
PCB101	1.525	25.00	23.28	87	23.94	90	50-125	3	0-30	
PCB105	0.5683	25.00	24.16	94	24.63	96	50-125	2	0-30	
PCB118	1.340	25.00	28.58	109	28.81	110	50-125	1	0-30	
PCB126	ND	25.00	22.83	91	22.56	90	50-125	1	0-30	
PCB128	ND	25.00	22.97	92	23.09	92	50-125	1	0-30	
PCB153	3.100	25.00	23.60	82	24.06	84	50-125	2	0-30	
PCB170	1.326	25.00	19.96	75	19.84	74	50-125	1	0-30	
PCB180	2.333	25.00	24.69	89	24.59	89	50-125	0	0-30	
PCB187	1.491	25.00	23.18	87	23.35	87	50-125	1	0-30	
PCB195	ND	25.00	18.48	74	18.65	75	50-125	1	0-30	
PCB206	ND	25.00	19.95	80	20.12	80	50-125	1	0-30	
PCB209	0.6832	25.00	20.48	79	20.65	80	50-125	1	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3550B (M)  
 Method: Organotins by Krone et al.

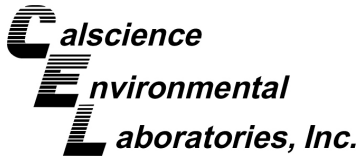
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0715-2</b>	<b>Sediment</b>		<b>GC/MS JJJ</b>		<b>06/12/13</b>	<b>06/14/13 14:10</b>	<b>130612S04</b>			
Parameter	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Tetrabutyltin	ND	100.0	83.38	83	90.79	91	79-175	9	0-31	
Tributyltin	20.64	100.0	83.02	62	94.35	74	69-135	13	0-29	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - PDS/PDSD

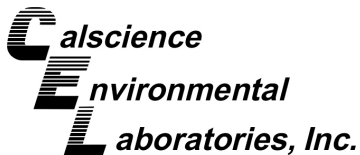
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>YTI COMPA</b>	<b>Sediment</b>	<b>ICP/MS 03</b>	<b>06/12/13 00:00</b>	<b>06/12/13 13:19</b>	<b>130612S01</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	6.397	25.00	31.95	102	75-125	
Cadmium	0.3433	25.00	26.37	104	75-125	
Chromium	25.70	25.00	49.28	94	75-125	
Copper	43.80	25.00	69.37	102	75-125	
Lead	20.19	25.00	46.51	105	75-125	
Nickel	19.90	25.00	44.52	98	75-125	
Selenium	0.1725	25.00	26.56	106	75-125	
Silver	0.1332	12.50	10.84	86	75-125	
Zinc	81.97	25.00	109.5	110	75-125	



**Quality Control - Sample Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 376.2M

Project: POLA Berths 217-224 (YTI) Container Terminal

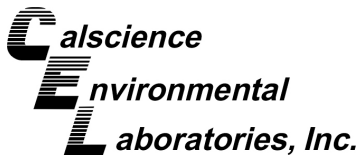
Page 1 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13-06-0715-2</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/17/13 00:00</b>	<b>06/17/13 14:45</b>	<b>D0617SD1</b>

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Total	7.500	7.200	4	0-25	

Return to Contents 

RPD: Relative Percent Difference. CL: Control Limits



**Quality Control - Sample Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 376.2M

Project: POLA Berths 217-224 (YTI) Container Terminal

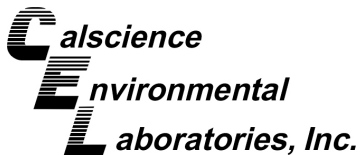
Page 2 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13-06-0715-2</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/11/13 00:00</b>	<b>06/11/13 20:15</b>	<b>D0611DSD2</b>

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Dissolved	ND	ND	N/A	0-25	



RPD: Relative Percent Difference. CL: Control Limits



**Quality Control - Sample Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

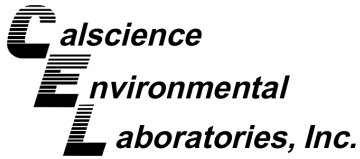
Page 3 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>YTI COMPA</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/13/13 00:00</b>	<b>06/13/13 19:00</b>	<b>D0613TSD1</b>

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	72.90	71.70	2	0-10	

Return to Contents 

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

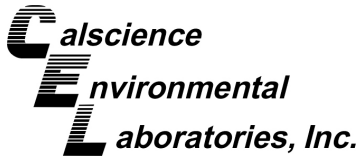
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-06-013-876</b>	<b>Soil</b>		<b>TOC 5</b>	<b>06/17/13</b>	<b>06/17/13 18:28</b>	<b>D0617TOCL1</b>			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Carbon, Total Organic	0.6000	0.6454	108	0.6268	104	80-120	3	0-20	



## Quality Control - LCS/LCSD

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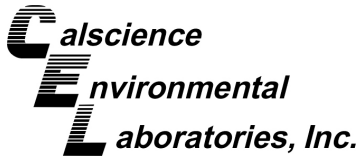
Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: N/A  
 Method: SM 4500-NH3 B/C (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-12-816-61</b>	<b>Soil</b>		<b>BUR05</b>	<b>06/19/13</b>	<b>06/19/13 14:00</b>	<b>D0619NH3L1</b>			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Ammonia (as N)	5.000	4.340	87	4.270	85	80-120	2	0-20	





## Quality Control - LCS

AMEC Environment & Infrastructure  
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 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: Extraction  
 Method: EPA 418.1M

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-07-015-1928</b>	<b>Soil</b>	<b>IR 2</b>	<b>06/12/13 12:00</b>	<b>130612L01</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
TRPH	100.0	94.86	95	70-130	



## Quality Control - LCS

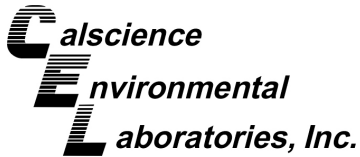
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-15-490-359</b>	<b>Soil</b>	<b>GC 45</b>	<b>06/12/13 14:28</b>	<b>130612B03</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
TPH as Diesel	400.0	359.7	90	75-123	



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-403-34</b>	<b>Sediment</b>	<b>GCTQ 1</b>	<b>06/17/13 21:49</b>	<b>130613L01</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Allethrin	5.000	2.443	49	25-200	0-229	
Bifenthrin	5.000	3.868	77	25-200	0-229	
Cyfluthrin	5.000	2.431	49	25-200	0-229	
Cypermethrin	5.000	2.309	46	25-200	0-229	
Deltamethrin/Tralomethrin	5.000	2.593	52	25-200	0-229	
Fenpropathrin	5.000	2.823	56	25-200	0-229	
Fenvalerate/Esfenvalerate	10.00	4.307	43	25-200	0-229	
Fluvalinate	5.000	2.334	47	25-200	0-229	
Permethrin (cis/trans)	5.000	3.977	80	25-200	0-229	
Phenothrin	5.000	4.836	97	25-200	0-229	
Resmethrin/Bioresmethrin	5.000	4.560	91	25-200	0-229	
Tetramethrin	5.000	3.101	62	25-200	0-229	
lambda-Cyhalothrin	5.000	1.978	40	25-200	0-229	

Total number of LCS compounds: 13

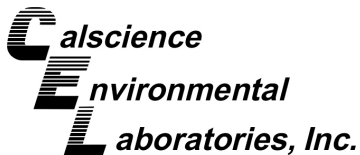
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3050B  
 Method: EPA 6020

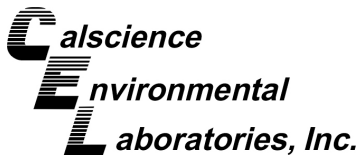
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-15-254-116</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>06/14/13 11:41</b>	<b>130612L01E</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.82	103	80-120	
Cadmium	25.00	26.39	106	80-120	
Chromium	25.00	24.89	100	80-120	
Copper	25.00	27.39	110	80-120	
Lead	25.00	26.30	105	80-120	
Nickel	25.00	26.30	105	80-120	
Selenium	25.00	25.74	103	80-120	
Silver	12.50	10.82	87	80-120	
Zinc	25.00	28.07	112	80-120	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: POLA Berths 217-224 (YTI) Container Terminal

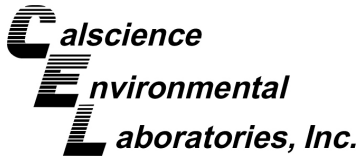
Page 7 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
<b>099-12-452-383</b>	<b>Soil</b>	<b>Mercury</b>	<b>06/12/13 13:15</b>	<b>130612L05E</b>

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.8128	97	82-124	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8081A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-12-858-206</b>	<b>Soil</b>	<b>GC 51</b>	<b>06/14/13 10:48</b>	<b>130612L06</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	5.000	4.696	94	50-135	36-149	
Alpha-BHC	5.000	4.757	95	50-135	36-149	
Beta-BHC	5.000	4.549	91	50-135	36-149	
Delta-BHC	5.000	3.682	74	50-135	36-149	
Gamma-BHC	5.000	4.656	93	50-135	36-149	
Dieldrin	5.000	4.896	98	50-135	36-149	
4,4'-DDD	5.000	4.507	90	50-135	36-149	
4,4'-DDE	5.000	4.338	87	50-135	36-149	
4,4'-DDT	5.000	4.818	96	50-135	36-149	
Endosulfan I	5.000	5.422	108	50-135	36-149	
Endosulfan II	5.000	4.827	97	50-135	36-149	
Endosulfan Sulfate	5.000	4.706	94	50-135	36-149	
Endrin	5.000	4.626	93	50-135	36-149	
Endrin Aldehyde	5.000	5.179	104	50-135	36-149	
Endrin Ketone	5.000	5.280	106	50-135	36-149	
Heptachlor	5.000	4.954	99	50-135	36-149	
Heptachlor Epoxide	5.000	4.554	91	50-135	36-149	
Methoxychlor	5.000	4.869	97	50-135	36-149	
Alpha Chlordane	5.000	4.849	97	50-135	36-149	
Gamma Chlordane	5.000	4.794	96	50-135	36-149	

Total number of LCS compounds: 20

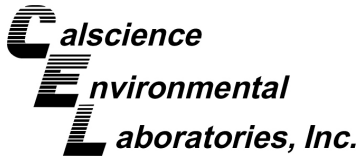
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-256-36</b>	<b>Soil</b>	<b>GC/MS MM</b>	<b>06/18/13 17:28</b>	<b>130617L12</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
2,4,6-Trichlorophenol	1000	522.4	52	40-160	20-180	
2,4-Dichlorophenol	1000	488.3	49	40-160	20-180	
2-Methylphenol	1000	495.2	50	40-160	20-180	
2-Nitrophenol	1000	493.3	49	40-160	20-180	
4-Chloro-3-Methylphenol	1000	481.2	48	40-160	20-180	
Acenaphthene	1000	576.5	58	48-108	38-118	
Benzo (a) Pyrene	1000	732.7	73	17-163	0-187	
Chrysene	1000	657.9	66	17-168	0-193	
Di-n-Butyl Phthalate	1000	676.0	68	40-160	20-180	
Dimethyl Phthalate	1000	498.6	50	40-160	20-180	
Fluoranthene	1000	639.4	64	26-137	8-156	
Fluorene	1000	621.6	62	59-121	49-131	
N-Nitrosodimethylamine	1000	425.3	43	40-160	20-180	
Naphthalene	1000	515.8	52	21-133	2-152	
Phenanthrene	1000	606.8	61	54-120	43-131	
Phenol	1000	399.6	40	40-160	20-180	
Pyrene	1000	674.8	67	28-106	15-119	

Total number of LCS compounds: 17

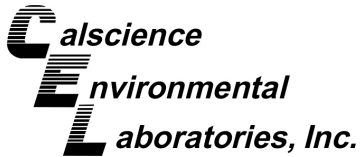
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/11/13  
Work Order: 13-06-0714  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-341-105</b>	<b>Soil</b>	<b>GC/MS HHH</b>	<b>06/19/13 17:37</b>	<b>130617L13</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
PCB008	25.00	21.62	86	50-125	38-138	
PCB018	25.00	24.45	98	50-125	38-138	
PCB028	25.00	26.24	105	50-125	38-138	
PCB044	25.00	25.48	102	50-125	38-138	
PCB052	25.00	24.02	96	50-125	38-138	
PCB066	25.00	27.89	112	50-125	38-138	
PCB077	25.00	27.16	109	50-125	38-138	
PCB101	25.00	26.27	105	50-125	38-138	
PCB105	25.00	26.00	104	50-125	38-138	
PCB118	25.00	28.80	115	50-125	38-138	
PCB126	25.00	24.46	98	50-125	38-138	
PCB128	25.00	24.30	97	50-125	38-138	
PCB153	25.00	24.92	100	50-125	38-138	
PCB170	25.00	23.41	94	50-125	38-138	
PCB180	25.00	25.18	101	50-125	38-138	
PCB187	25.00	24.28	97	50-125	38-138	
PCB195	25.00	21.40	86	50-125	38-138	
PCB206	25.00	24.91	100	50-125	38-138	
PCB209	25.00	20.53	82	50-125	38-138	

Total number of LCS compounds: 19

Total number of ME compounds: 0

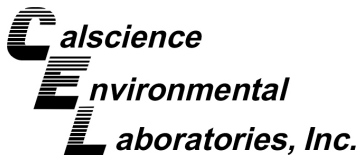
Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/11/13  
 Work Order: 13-06-0714  
 Preparation: EPA 3550B (M)  
 Method: Organotins by Krone et al.

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-07-016-1032</b>	<b>Soil</b>	<b>GC/MS JJJ</b>	<b>06/14/13 11:10</b>	<b>130612L04</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Tetrabutyltin	100.0	88.80	89	79-151	
Tributyltin	100.0	90.42	90	51-129	

Return to Contents 

RPD: Relative Percent Difference. CL: Control Limits

## Glossary of Terms and Qualifiers

Work Order: 13-06-0714

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<u>Qualifiers</u>	<u>Definition</u>
*	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.
BV	Sample received 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.
	For any analysis identified as a "field" test with a holding time (HT) $\leq$ 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

**CHAIN OF CUSTODY RECORD**  
 DATE: 6/11/2013  
 PAGE: 1 OF 2

7440 LINCOLN WAY  
 GARDEN GROVE, CA 92841-1432  
 TEL: (714) 895-5494 . FAX: (714) 894-7501

**AMEC**  
**Environmental Laboratories, Inc.**

LABORATORY CLIENT:  
**AMEC**  
 ADDRESS:  
**9210 Sky Park Ct # 200**  
 CITY:  
**San Diego, CA 92123**  
 TEL:  
**858-449-2334**  
 E-MAIL:  
**tyler.huff@amec.com**

CLIENT PROJECT NAME / NUMBER:  
**Berths 217-224 (YTI) Container Terminal**  
 P.O. NO.:  
**1015101929**  
 PROJECT CONTACT:  
**Barry Snyder/Tyler Huff**  
 QUOTE NO.:  
 SAMPLER(S): (SIGNATURE)  
  
 LAB USE ONLY  
**13-06-0714**

TURNAROUND TIME  
 SAME DAY  24 HR  48HR  72 HR  5 DAYS  10 DAYS  
 SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)  
 RWQCB REPORTING  ARCHIVE SAMPLES UNTIL / /




REQUESTED ANALYSIS

SPECIAL INSTRUCTIONS  
 Danielle Gonsman is PM  
 Green Book Testing  
 Please see attached Sheet for Analysis.  
 Please report all applicable totals (i.e. PCBs, PAHs, etc.)

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	DATE	TIME	Matrix	#Cont	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins
	Composite Area A	Port of Los Angeles	6/13		sediment	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Composite Area A-Z	Port of Los Angeles	6/13		sediment	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Composite Area B	Port of Los Angeles	6/13		sediment	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Composite Area B-Z	Port of Los Angeles	6/13		sediment	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Reference	Port of Los Angeles	6/13		sediment	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	YTI COMP A	PORT OF LA	6/13	0900	sed	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Please list tests required

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	DATE	TIME	Matrix	#Cont	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins
	YTI COMP A	PORT OF LA	6/13	0900	sed	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Relinquished by: (Signature)  
**Tyler Huff (AMEC)**  
 Received by: (Signature)  
  
 Relinquished by: (Signature)  
  
 Received by: (Signature)  


Date: 06/11/13 Time: 1420  
 Date: 06/11/13 Time: 1945  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Table 4-2.**  
**Chemical Analyses for Elutriate, Sediment and Tissue Samples**

Analyte	Analysis Method	Elutriate Target Detection Limits <sup>a, b</sup>	Sediment Target Detection Limits <sup>a, b</sup>	Tissue Target Detection Limits <sup>a, b</sup>
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M <sup>c</sup>	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D <sup>c</sup>	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	N/A	N/A	0.1 %
TRPH	418.1M <sup>d</sup>	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B <sup>d</sup>	N/A	5.0 mg/kg	N/A
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS <sup>j</sup>	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM <sup>d</sup>	N/A	10 µg/kg	N/A
Organotins	Rice/Krone <sup>h</sup>	3.0 ng/L	3.0 µg/kg	N/A

## Notes:

<sup>a</sup> Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

<sup>b</sup> Reporting limits provided by Calscience Environmental Laboratories, Inc.

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

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

<sup>e</sup> 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.

<sup>f</sup> Includes aldrin,  $\alpha$ -benzene hexachloride (BHC),  $\beta$ -BHC,  $\gamma$ -BHC (lindane),  $\delta$ -BHC, chlordane, 2,4 and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4 and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4 and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

<sup>g</sup> 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)

<sup>h</sup> Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

<sup>i</sup> NOAA 1993

<sup>j</sup> Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lambda, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluralinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)

µg/L - micrograms per liter

mg/kg - milligrams per kilogram (parts per million)

mg/L - milligrams per liter

ng/L - nanograms per liter

N/A - not applicable

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

SM - Standard Methods

SOP - standard operating procedure

TPH - total petroleum hydrocarbons

TRPH - total recoverable petroleum hydrocarbons

WORK ORDER #: **13-06-0714**

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/11/13

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

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °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: VB

**CUSTODY SEALS INTACT:**

- Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A
- Sample  \_\_\_\_\_  No (Not Intact)  Not Present

Initial: VB

Initial: JD

**SAMPLE CONDITION:**

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

**CONTAINER TYPE:**

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_)  EnCores®  TerraCores®  3

Water:  VOA  VOAh  VOAna<sub>2</sub>  125AGB  125AGBh  125AGBp  1AGB  1AGBna<sub>2</sub>  1AGBs  
 500AGB  500AGJ  500AGJs  250AGB  250CGB  250CGBs  1PB  1PBna  500PB  
 250PB  250PBn  125PB  125PBz<sub>2</sub>na  100PJ  100PJna<sub>2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Air:  Tedlar®  Canister Other:  \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: JD

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

Preservative: h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure z<sub>2</sub>na: ZnAc<sub>2</sub>+NaOH f: Filtered Scanned by: h.c

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# CALSCIENCE

## WORK ORDER NUMBER: 13-06-0832

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** POLA Berths 217-224 (YTI) Container Terminal

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

Approved for release on 06/26/2013 by:  
Danielle Gonsman  
Project Manager

ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



Client Project Name: POLA Berths 217-224 (YTI) Container Terminal  
Work Order Number: 13-06-0832

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## CASE NARRATIVE

**CalScience Work Order No.: 13-06-0832**  
**Project ID: POLA Berths 217-224 (YTI) Container Terminal**

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 sediment sample was received for this project on June 12, 2013. The sample was transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.5°C. The sample was logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

### ***Tests Performed***

Total Solids by SM 2540B  
Ammonia by SM 4500-NH3-B/C (M)  
Grain Size by ASTM D4464  
Dissolved and Total Sulfide by EPA 376.2M  
TRPH by EPA 418.1M  
TPH C6-C44 by EPA 8015B (M)  
Total Organic Carbon by EPA 9060A  
Trace Metals by EPA 6020/7471  
Chlorinated Pesticides by EPA 8081A  
PCB Congeners by EPA 8270C SIM  
PAHs, Phenols and Phthalates by EPA 8270C SIM  
Pyrethroids by EPA 8270D (M)/TQ/EI  
Organotins by Krone et al.

### ***Data Summary***

The sediment sample was homogenized prior to analysis.

#### Holding times

All holding times were met.

#### Blanks

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



### Reporting Limits

The Method Detection Limits were met.

### Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits.

### Matrix Spikes

Matrix spiking was performed at the required frequencies for the sediment on project and non-project samples. All matrix spike parameters outside the acceptable control limits were noted below.

For Metals by EPA 6020, the lead MS and MSD recoveries were outside the control limits. Since the LCS recoveries were in control the results are released with no further action.

For Chlorinated Pesticides by EPA 8081A four MS/MSD recoveries and/or RPDs were outside the control limits. Since the LCS recoveries were in control the results are released with no further action.

The Tributyltin MS recovery was outside the control limits. Since the LCS recoveries were in control the results are released with no further action.

For PCB Congeners by EPA 8270C SIM PCBs several congeners had low recovery in the MSD. Since the LCS recoveries were in control the results are released with no further action.

### Surrogates

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

### Laboratory Duplicate

A lab duplicate was performed for YTI Comp B for all analyses except Dissolved Sulfide. The precision between the two samples was acceptable.

### Acronyms

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

**Work Order Narrative**

Work Order: 13-06-0832

Page 1 of 1

**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 06/12/13. They were assigned to Work Order 13-06-0832.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with an immediate holding time (HT  $\leq$  15 minutes --40CFR-136.3 Table II footnote 4), is considered a "field" test and reported samples results are not flagged unless the analysis is performed beyond 24 hours of the time of collection.

**Quality Control:**

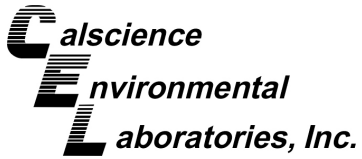
All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.



## Sample Summary

Client: AMEC Environment & Infrastructure	Work Order: 13-06-0832
9210 Sky Park Court, Suite 200	Project Name: POLA Berths 217-224 (YTI) Container Terminal
San Diego, CA 92123-4302	PO Number: 1015101930
	Date Received: 06/12/13
Attn: Barry Snyder	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
YTI Comp B	13-06-0832-1	06/11/13 15:00	4	Sediment
YTI Comp B Lab Dup	13-06-0832-2	06/11/13 00:00	4	Sediment



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: N/A  
Method: EPA 376.2M  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-A	06/11/13 15:00	Sediment	N/A	06/17/13	06/17/13 14:45	D0617SL1

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

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	3.3	0.15	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-A	06/11/13 00:00	Sediment	N/A	06/17/13	06/17/13 14:45	D0617SL1

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

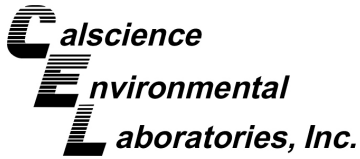
Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	3.0	0.15	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-05-001-4676	N/A	Soil	N/A	06/17/13	06/17/13 14:45	D0617SL1

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	ND	0.10	0.2	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: EPA 376.2M  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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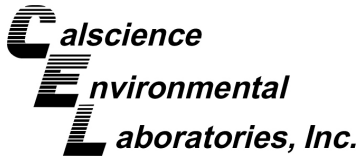
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>YTI Comp B</b>	<b>13-06-0832-1-D</b>	<b>06/11/13 15:00</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/12/13</b>	<b>06/12/13 20:40</b>	<b>D0612DSL3</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Dissolved	ND	0.10	0.2	

<b>Method Blank</b>	<b>099-05-001-4681</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>06/12/13</b>	<b>06/12/13 20:40</b>	<b>D0612DSL3</b>
---------------------	------------------------	------------	-------------	------------	-----------------	---------------------------	------------------

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Dissolved	ND	0.10	0.2	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: N/A  
Method: EPA 9060A  
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-A	06/11/13 15:00	Sediment	TOC 5	06/17/13	06/17/13 18:28	D0617TOCL1

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

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	0.87	0.075	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-A	06/11/13 00:00	Sediment	TOC 5	06/17/13	06/17/13 18:28	D0617TOCL1

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

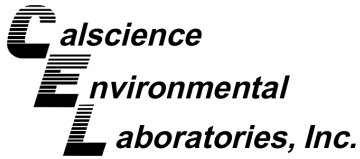
Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	0.91	0.075	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-06-013-876	N/A	Soil	TOC 5	06/17/13	06/17/13 18:28	D0617TOCL1

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	ND	0.050	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

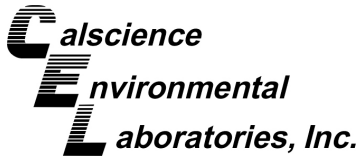
Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>YTI Comp B</b>	<b>13-06-0832-1-D</b>	<b>06/11/13 15:00</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/13/13</b>	<b>06/13/13 19:00</b>	<b>D0613TSB1</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Solids, Total		66.4		0.100		1	
<b>YTI Comp B Lab Dup</b>	<b>13-06-0832-2-D</b>	<b>06/11/13 00:00</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/13/13</b>	<b>06/13/13 19:00</b>	<b>D0613TSB1</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Solids, Total		66.8		0.100		1	
<b>Method Blank</b>	<b>099-05-019-2238</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>06/13/13</b>	<b>06/13/13 19:00</b>	<b>D0613TSB1</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Solids, Total		ND		0.100		1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: N/A  
Method: SM 4500-NH3 B/C (M)  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-A	06/11/13 15:00	Sediment	BUR05	06/19/13	06/19/13 14:00	D0619NH3L1

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	2.1	0.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-A	06/11/13 00:00	Sediment	BUR05	06/19/13	06/19/13 14:00	D0619NH3L1

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	2.3	0.30	1	

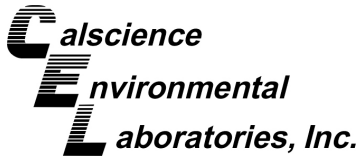
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-816-62	N/A	Soil	BUR05	06/19/13	06/19/13 14:00	D0619NH3L1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	ND	0.20	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: Extraction  
Method: EPA 418.1M  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	IR 2	06/14/13	06/14/13 18:00	130614L01

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

Parameter	Result	RL	DF	Qualifiers
TRPH	38	15	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	IR 2	06/14/13	06/14/13 18:00	130614L01

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

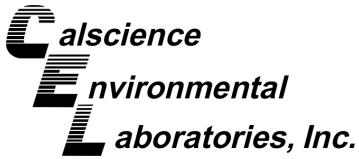
Parameter	Result	RL	DF	Qualifiers
TRPH	34	15	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-07-015-1927	N/A	Soil	IR 2	06/14/13	06/14/13 18:00	130614L01

Parameter	Result	RL	DF	Qualifiers
TRPH	ND	2.0	0.2	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3550B  
Method: EPA 8015B (M)  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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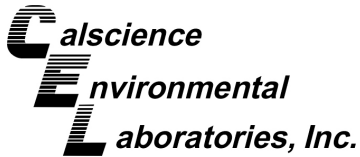
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-B	06/11/13 15:00	Sediment	GC 47	06/14/13	06/14/13 19:48	120614B02

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
C6	ND	7.5	1	
C7	ND	7.5	1	
C8	ND	7.5	1	
C9-C10	ND	7.5	1	
C11-C12	ND	7.5	1	
C13-C14	ND	7.5	1	
C15-C16	ND	7.5	1	
C17-C18	ND	7.5	1	
C19-C20	ND	7.5	1	
C21-C22	ND	7.5	1	
C23-C24	ND	7.5	1	
C25-C28	ND	7.5	1	
C29-C32	ND	7.5	1	
C33-C36	ND	7.5	1	
C37-C40	11	7.5	1	
C41-C44	ND	7.5	1	
C6-C44 Total	24	7.5	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
n-Octacosane	99	61-145		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3550B  
Method: EPA 8015B (M)  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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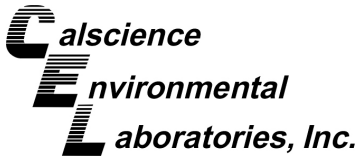
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-B	06/11/13 00:00	Sediment	GC 47	06/14/13	06/14/13 20:04	120614B02

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
C6	ND	7.5	1	
C7	ND	7.5	1	
C8	ND	7.5	1	
C9-C10	ND	7.5	1	
C11-C12	ND	7.5	1	
C13-C14	ND	7.5	1	
C15-C16	ND	7.5	1	
C17-C18	ND	7.5	1	
C19-C20	ND	7.5	1	
C21-C22	ND	7.5	1	
C23-C24	ND	7.5	1	
C25-C28	ND	7.5	1	
C29-C32	ND	7.5	1	
C33-C36	ND	7.5	1	
C37-C40	9.6	7.5	1	
C41-C44	ND	7.5	1	
C6-C44 Total	25	7.5	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
n-Octacosane	99	61-145		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)  
 Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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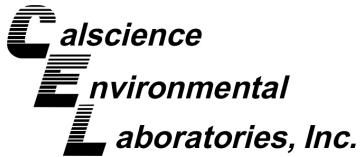
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-490-364	N/A	Soil	GC 47	06/14/13	06/14/13 17:27	120614B02

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	GCTQ 1	06/13/13	06/18/13 00:52	130613L01

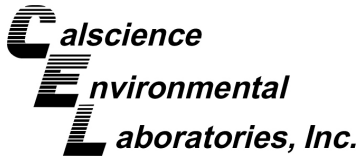
Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.75	0.39	1	
Bifenthrin	0.22	0.75	0.14	1	J
Cyfluthrin	ND	0.75	0.13	1	
Cypermethrin	ND	0.75	0.10	1	
Deltamethrin/Tralomethrin	ND	0.75	0.31	1	
Fenpropathrin	ND	0.75	0.055	1	
Fenvalerate/Esfenvalerate	ND	0.75	0.054	1	
Fluvalinate	ND	0.75	0.086	1	
Permethrin (cis/trans)	2.2	1.5	0.17	1	
Phenothrin	ND	0.75	0.10	1	
Resmethrin/Bioresmethrin	ND	0.75	0.14	1	
Tetramethrin	ND	0.75	0.057	1	
lambda-Cyhalothrin	ND	0.75	0.066	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
trans-Permethrin(C13)	81	25-200			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	GCTQ 1	06/13/13	06/18/13 01:29	130613L01

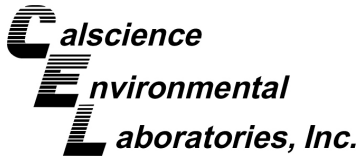
Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.75	0.38	1	
Bifenthrin	0.29	0.75	0.14	1	J
Cyfluthrin	ND	0.75	0.13	1	
Cypermethrin	ND	0.75	0.10	1	
Deltamethrin/Tralomethrin	ND	0.75	0.31	1	
Fenpropathrin	ND	0.75	0.054	1	
Fenvalerate/Esfenvalerate	ND	0.75	0.053	1	
Fluvalinate	ND	0.75	0.086	1	
Permethrin (cis/trans)	2.2	1.5	0.17	1	
Phenothrin	ND	0.75	0.10	1	
Resmethrin/Bioresmethrin	ND	0.75	0.14	1	
Tetramethrin	ND	0.75	0.057	1	
lambda-Cyhalothrin	ND	0.75	0.065	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
trans-Permethrin(C13)	108	25-200			

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-403-34	N/A	Sediment	GCTQ 1	06/13/13	06/17/13 22:25	130613L01

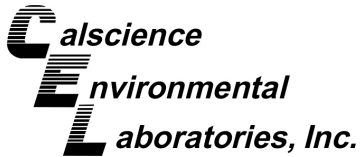
Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.50	0.26	1	
Bifenthrin	ND	0.50	0.094	1	
Cyfluthrin	ND	0.50	0.085	1	
Cypermethrin	ND	0.50	0.069	1	
Deltamethrin/Tralomethrin	ND	0.50	0.21	1	
Fenpropathrin	ND	0.50	0.036	1	
Fenvalerate/Esfenvalerate	ND	0.50	0.036	1	
Fluvalinate	ND	0.50	0.057	1	
Permethrin (cis/trans)	ND	1.0	0.11	1	
Phenothrin	ND	0.50	0.069	1	
Resmethrin/Bioresmethrin	ND	0.50	0.092	1	
Tetramethrin	ND	0.50	0.038	1	
lambda-Cyhalothrin	ND	0.50	0.044	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	82	25-200	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	ICP/MS 03	06/13/13	06/13/13 21:03	130613L01E

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

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	8.44	0.151	0.131	1	
Cadmium	0.423	0.151	0.0862	1	
Chromium	32.9	0.151	0.0935	1	
Copper	54.5	0.151	0.0631	1	
Lead	25.7	0.151	0.0992	1	
Nickel	22.4	0.151	0.0762	1	
Selenium	0.415	0.151	0.110	1	
Silver	0.219	0.151	0.0471	1	
Zinc	112	1.51	1.20	1	

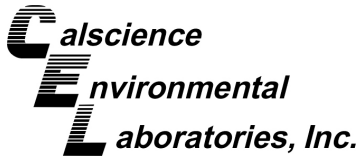
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	ICP/MS 03	06/13/13	06/13/13 21:06	130613L01E
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Comment(s): - Results are reported on a dry weight basis.  
- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	8.44	0.150	0.131	1	
Cadmium	0.376	0.150	0.0857	1	
Chromium	32.6	0.150	0.0929	1	
Copper	54.6	0.150	0.0627	1	
Lead	25.6	0.150	0.0987	1	
Nickel	23.2	0.150	0.0758	1	
Selenium	0.293	0.150	0.109	1	
Silver	0.178	0.150	0.0469	1	
Zinc	114	1.50	1.19	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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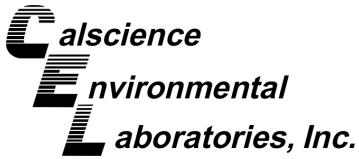
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-254-117	N/A	Soil	ICP/MS 03	06/13/13	06/14/13 17:31	130613L01E

Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	ND	0.100	0.0873	1	
Cadmium	ND	0.100	0.0572	1	
Chromium	ND	0.100	0.0621	1	
Copper	ND	0.100	0.0419	1	
Lead	ND	0.100	0.0659	1	
Nickel	ND	0.100	0.0506	1	
Selenium	ND	0.100	0.0731	1	
Silver	ND	0.100	0.0313	1	
Zinc	ND	1.00	0.795	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	Mercury	06/13/13	06/13/13 14:30	130313L01E

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

Parameter	Result	RL	DF	Qualifiers
Mercury	0.171	0.0302	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	Mercury	06/13/13	06/13/13 14:32	130313L01E

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

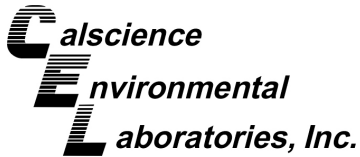
Parameter	Result	RL	DF	Qualifiers
Mercury	0.180	0.0300	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-452-384	N/A	Soil	Mercury	06/13/13	06/13/13 10:44	130313L01E

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0200	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: N/A  
Method: ASTM D4464 (M)  
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>YTI Comp B</b>	<b>13-06-0832-1-D</b>	<b>06/11/13 15:00</b>	<b>Sediment</b>	<b>LPSA 1</b>	<b>N/A</b>	<b>06/20/13 10:53</b>	

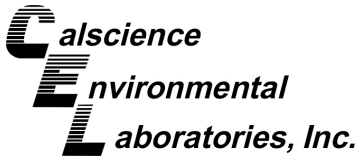
<u>Parameter</u>	<u>Result</u>	<u>Qualifiers</u>
Clay (less than 0.00391mm)	19.66	
Silt (0.00391 to 0.0625mm)	60.82	
Total Silt and Clay (0 to 0.0625mm)	80.48	
Very Fine Sand (0.0625 to 0.125mm)	18.21	
Fine Sand (0.125 to 0.25mm)	1.31	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>YTI Comp B Lab Dup</b>	<b>13-06-0832-2-D</b>	<b>06/11/13 00:00</b>	<b>Sediment</b>	<b>LPSA 1</b>	<b>N/A</b>	<b>06/20/13 11:20</b>	

<u>Parameter</u>	<u>Result</u>	<u>Qualifiers</u>
Clay (less than 0.00391mm)	18.28	
Silt (0.00391 to 0.0625mm)	57.16	
Total Silt and Clay (0 to 0.0625mm)	75.45	
Very Fine Sand (0.0625 to 0.125mm)	22.59	
Fine Sand (0.125 to 0.25mm)	1.97	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

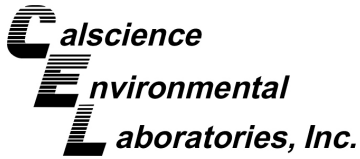
Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	GC 44	06/17/13	06/19/13 13:23	130617L14

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

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.5	1	
Alpha-BHC	ND	1.5	1	
Beta-BHC	ND	1.5	1	
Delta-BHC	ND	1.5	1	
Gamma-BHC	ND	1.5	1	
Chlordane	ND	15	1	
Dieldrin	ND	1.5	1	
Trans-nonachlor	ND	1.5	1	
2,4'-DDD	ND	1.5	1	
2,4'-DDE	3.1	1.5	1	
2,4'-DDT	ND	1.5	1	
4,4'-DDD	ND	1.5	1	
4,4'-DDT	ND	1.5	1	
Endosulfan I	ND	1.5	1	
Endosulfan II	ND	1.5	1	
Endosulfan Sulfate	ND	1.5	1	
Endrin	ND	1.5	1	
Endrin Aldehyde	ND	1.5	1	
Endrin Ketone	ND	1.5	1	
Heptachlor	ND	1.5	1	
Heptachlor Epoxide	ND	1.5	1	
Methoxychlor	ND	1.5	1	
Toxaphene	ND	30	1	
Alpha Chlordane	ND	1.5	1	
Gamma Chlordane	ND	1.5	1	
Cis-nonachlor	ND	1.5	1	
Oxychlordane	ND	1.5	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	79	50-130		
Decachlorobiphenyl	83	50-130		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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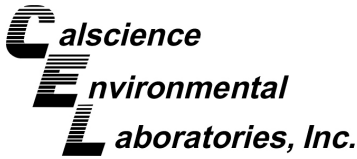
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	GC 44	06/17/13	06/19/13 14:20	130617L14

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	12	3.0	2	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	71	50-130		
Decachlorobiphenyl	78	50-130		

Return to Contents

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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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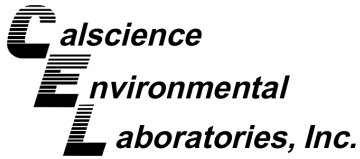
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	GC 44	06/17/13	06/19/13 13:37	130617L14

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

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.5	1	
Alpha-BHC	ND	1.5	1	
Beta-BHC	ND	1.5	1	
Delta-BHC	ND	1.5	1	
Gamma-BHC	ND	1.5	1	
Chlordane	ND	15	1	
Dieldrin	ND	1.5	1	
Trans-nonachlor	ND	1.5	1	
2,4'-DDD	ND	1.5	1	
2,4'-DDE	3.0	1.5	1	
2,4'-DDT	ND	1.5	1	
4,4'-DDD	ND	1.5	1	
4,4'-DDT	ND	1.5	1	
Endosulfan I	ND	1.5	1	
Endosulfan II	ND	1.5	1	
Endosulfan Sulfate	ND	1.5	1	
Endrin	ND	1.5	1	
Endrin Aldehyde	ND	1.5	1	
Endrin Ketone	ND	1.5	1	
Heptachlor	ND	1.5	1	
Heptachlor Epoxide	ND	1.5	1	
Methoxychlor	ND	1.5	1	
Toxaphene	ND	30	1	
Alpha Chlordane	ND	1.5	1	
Gamma Chlordane	ND	1.5	1	
Cis-nonachlor	ND	1.5	1	
Oxychlordane	ND	1.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	82	50-130	
Decachlorobiphenyl	87	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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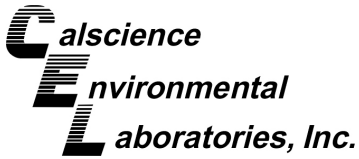
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	GC 44	06/17/13	06/19/13 14:34	130617L14

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	13	3.0	2	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	67	50-130		
Decachlorobiphenyl	84	50-130		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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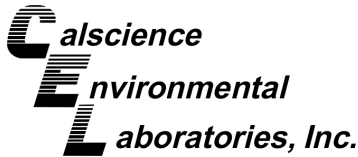
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-858-208	N/A	Soil	GC 44	06/17/13	06/19/13 13:08	130617L14

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	99	50-130	
Decachlorobiphenyl	97	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

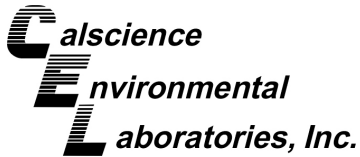
Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-D	06/11/13 15:00	Sediment	GC/MS MM	06/17/13	06/18/13 20:53	130617L12

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

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	15	1	
2,4,5-Trichlorophenol	ND	15	1	
2,4,6-Trichlorophenol	ND	15	1	
2,4-Dichlorophenol	ND	15	1	
2,4-Dimethylphenol	ND	15	1	
2,4-Dinitrophenol	ND	750	1	
2-Chlorophenol	ND	15	1	
2-Methylnaphthalene	ND	15	1	
2-Methylphenol	ND	15	1	
2-Nitrophenol	ND	15	1	
3/4-Methylphenol	ND	15	1	
4,6-Dinitro-2-Methylphenol	ND	750	1	
4-Chloro-3-Methylphenol	ND	15	1	
4-Nitrophenol	ND	750	1	
Acenaphthene	ND	15	1	
Acenaphthylene	15	15	1	
Anthracene	31	15	1	
Benzo (a) Anthracene	26	15	1	
Benzo (a) Pyrene	100	15	1	
Benzo (b) Fluoranthene	130	15	1	
Benzo (g,h,i) Perylene	68	15	1	
Benzo (k) Fluoranthene	100	15	1	
Bis(2-Ethylhexyl) Phthalate	270	15	1	
Butyl Benzyl Phthalate	52	15	1	
Chrysene	46	15	1	
Di-n-Butyl Phthalate	ND	15	1	
Di-n-Octyl Phthalate	ND	15	1	
Dibenz (a,h) Anthracene	16	15	1	
Diethyl Phthalate	ND	15	1	
Dimethyl Phthalate	ND	15	1	
Fluoranthene	27	15	1	
Fluorene	ND	15	1	
Indeno (1,2,3-c,d) Pyrene	61	15	1	
Naphthalene	ND	15	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM  
 Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

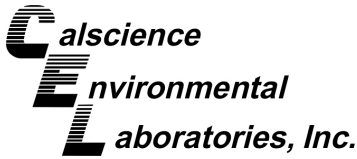
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	ND	750	1	
Phenanthrene	16	15	1	
Phenol	ND	15	1	
Pyrene	52	15	1	
1,6,7-Trimethylnaphthalene	ND	15	1	
2,3,4,6-Tetrachlorophenol	ND	15	1	
2,6-Dichlorophenol	ND	15	1	
Dibenzothiophene	ND	15	1	
1-Methylphenanthrene	ND	15	1	
Benzo (e) Pyrene	92	15	1	
Perylene	46	15	1	
Biphenyl	ND	15	1	
2,6-Dimethylnaphthalene	20	15	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	66	32-143	
2-Fluorobiphenyl	51	14-146	
2-Fluorophenol	38	15-138	
Nitrobenzene-d5	43	18-162	
p-Terphenyl-d14	63	34-148	
Phenol-d6	47	17-141	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	GC/MS MM	06/17/13	06/18/13 21:19	130617L12

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

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	15	1	
2,4,5-Trichlorophenol	ND	15	1	
2,4,6-Trichlorophenol	ND	15	1	
2,4-Dichlorophenol	ND	15	1	
2,4-Dimethylphenol	ND	15	1	
2,4-Dinitrophenol	ND	750	1	
2-Chlorophenol	ND	15	1	
2-Methylnaphthalene	ND	15	1	
2-Methylphenol	ND	15	1	
2-Nitrophenol	ND	15	1	
3/4-Methylphenol	ND	15	1	
4,6-Dinitro-2-Methylphenol	ND	750	1	
4-Chloro-3-Methylphenol	ND	15	1	
4-Nitrophenol	ND	750	1	
Acenaphthene	ND	15	1	
Acenaphthylene	17	15	1	
Anthracene	36	15	1	
Benzo (a) Anthracene	31	15	1	
Benzo (a) Pyrene	120	15	1	
Benzo (b) Fluoranthene	150	15	1	
Benzo (g,h,i) Perylene	77	15	1	
Benzo (k) Fluoranthene	130	15	1	
Bis(2-Ethylhexyl) Phthalate	300	15	1	
Butyl Benzyl Phthalate	42	15	1	
Chrysene	55	15	1	
Di-n-Butyl Phthalate	ND	15	1	
Di-n-Octyl Phthalate	ND	15	1	
Dibenz (a,h) Anthracene	17	15	1	
Diethyl Phthalate	ND	15	1	
Dimethyl Phthalate	ND	15	1	
Fluoranthene	32	15	1	
Fluorene	ND	15	1	
Indeno (1,2,3-c,d) Pyrene	66	15	1	
Naphthalene	ND	15	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

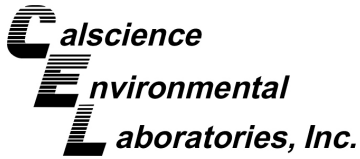
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	ND	750	1	
Phenanthrene	19	15	1	
Phenol	ND	15	1	
Pyrene	58	15	1	
1,6,7-Trimethylnaphthalene	ND	15	1	
2,3,4,6-Tetrachlorophenol	ND	15	1	
2,6-Dichlorophenol	ND	15	1	
Dibenzothiophene	ND	15	1	
1-Methylphenanthrene	ND	15	1	
Benzo (e) Pyrene	110	15	1	
Perylene	49	15	1	
Biphenyl	ND	15	1	
2,6-Dimethylnaphthalene	26	15	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	85	32-143	
2-Fluorobiphenyl	68	14-146	
2-Fluorophenol	57	15-138	
Nitrobenzene-d5	59	18-162	
p-Terphenyl-d14	79	34-148	
Phenol-d6	66	17-141	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

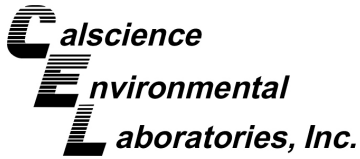
Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-256-36	N/A	Soil	GC/MS MM	06/17/13	06/18/13 19:10	130617L12

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

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

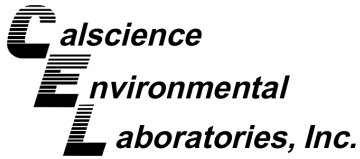
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Phenanthrene	ND	10	1	
Phenol	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
2,3,4,6-Tetrachlorophenol	ND	10	1	
2,6-Dichlorophenol	ND	10	1	
Dibenzothiophene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Perylene	ND	10	1	
Biphenyl	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	72	32-143	
2-Fluorobiphenyl	79	14-146	
2-Fluorophenol	83	15-138	
Nitrobenzene-d5	76	18-162	
p-Terphenyl-d14	84	34-148	
Phenol-d6	83	17-141	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

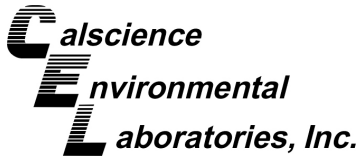
Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	13-06-0832-1-A	06/11/13 15:00	Sediment	GC/MS HHH	06/13/13	06/18/13 02:47	130613L04

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

Parameter	Result	RL	DF	Qualifiers
PCB018	0.86	0.75	1	
PCB028	ND	0.75	1	
PCB037	ND	0.75	1	
PCB044	ND	0.75	1	
PCB049	ND	0.75	1	
PCB052	ND	0.75	1	
PCB066	ND	0.75	1	
PCB070	ND	0.75	1	
PCB074	ND	0.75	1	
PCB077	ND	0.75	1	
PCB081	ND	0.75	1	
PCB087	ND	0.75	1	
PCB099	ND	0.75	1	
PCB101	ND	0.75	1	
PCB105	ND	0.75	1	
PCB110	ND	0.75	1	
PCB114	ND	0.75	1	
PCB118	ND	0.75	1	
PCB119	ND	0.75	1	
PCB123	ND	0.75	1	
PCB126	ND	0.75	1	
PCB128	ND	0.75	1	
PCB138/158	ND	1.5	1	
PCB149	ND	0.75	1	
PCB151	ND	0.75	1	
PCB153	ND	0.75	1	
PCB156	ND	0.75	1	
PCB157	ND	0.75	1	
PCB167	ND	0.75	1	
PCB168	ND	0.75	1	
PCB169	ND	0.75	1	
PCB170	ND	0.75	1	
PCB177	ND	0.75	1	
PCB180	ND	0.75	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

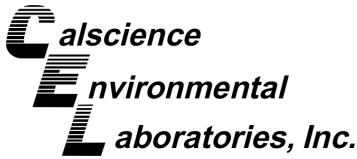
Page 2 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.75	1	
PCB187	ND	0.75	1	
PCB189	ND	0.75	1	
PCB194	ND	0.75	1	
PCB201	ND	0.75	1	
PCB206	ND	0.75	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	59	50-125		
p-Terphenyl-d14	50	50-125		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	13-06-0832-2-A	06/11/13 00:00	Sediment	GC/MS HHH	06/13/13	06/18/13 18:24	130613L04

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

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.75	1	
PCB028	ND	0.75	1	
PCB037	ND	0.75	1	
PCB044	ND	0.75	1	
PCB049	ND	0.75	1	
PCB052	ND	0.75	1	
PCB066	ND	0.75	1	
PCB070	ND	0.75	1	
PCB074	ND	0.75	1	
PCB077	ND	0.75	1	
PCB081	ND	0.75	1	
PCB087	ND	0.75	1	
PCB099	ND	0.75	1	
PCB101	ND	0.75	1	
PCB105	ND	0.75	1	
PCB110	ND	0.75	1	
PCB114	ND	0.75	1	
PCB118	ND	0.75	1	
PCB119	ND	0.75	1	
PCB123	ND	0.75	1	
PCB126	ND	0.75	1	
PCB128	ND	0.75	1	
PCB138/158	ND	1.5	1	
PCB149	ND	0.75	1	
PCB151	ND	0.75	1	
PCB153	ND	0.75	1	
PCB156	ND	0.75	1	
PCB157	ND	0.75	1	
PCB167	ND	0.75	1	
PCB168	ND	0.75	1	
PCB169	ND	0.75	1	
PCB170	ND	0.75	1	
PCB177	ND	0.75	1	
PCB180	ND	0.75	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

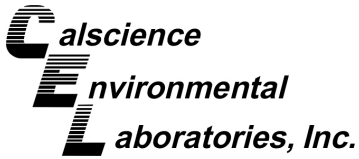
Project: POLA Berths 217-224 (YTI) Container Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.75	1	
PCB187	ND	0.75	1	
PCB189	ND	0.75	1	
PCB194	ND	0.75	1	
PCB201	ND	0.75	1	
PCB206	ND	0.75	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	99	50-125		
p-Terphenyl-d14	102	50-125		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-341-104	N/A	Soil	GC/MS HHH	06/13/13	06/17/13 19:51	130613L04

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3545  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

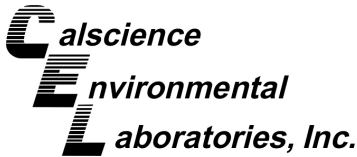
Project: POLA Berths 217-224 (YTI) Container Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB201	ND	0.50	1	
PCB206	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	69	50-125		
p-Terphenyl-d14	94	50-125		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3550B (M)  
Method: Organotins by Krone et al.  
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>YTI Comp B</b>	<b>13-06-0832-1-D</b>	<b>06/11/13 15:00</b>	<b>Sediment</b>	<b>GC/MS JJJ</b>	<b>06/12/13</b>	<b>06/14/13 11:40</b>	<b>130612L04</b>

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	14	4.5	1	
Monobutyltin	ND	4.5	1	
Tetrabutyltin	ND	4.5	1	
Tributyltin	11	4.5	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	75	48-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>YTI Comp B Lab Dup</b>	<b>13-06-0832-2-D</b>	<b>06/11/13 00:00</b>	<b>Sediment</b>	<b>GC/MS JJJ</b>	<b>06/12/13</b>	<b>06/14/13 12:10</b>	<b>130612L04</b>

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	13	4.5	1	
Monobutyltin	ND	4.5	1	
Tetrabutyltin	ND	4.5	1	
Tributyltin	11	4.5	1	

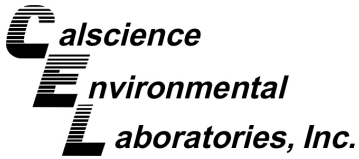
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	67	48-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-07-016-1032</b>	<b>N/A</b>	<b>Soil</b>	<b>GC/MS JJJ</b>	<b>06/12/13</b>	<b>06/14/13 10:40</b>	<b>130612L04</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Dibutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1	
Tetrabutyltin	ND	3.0	1	
Tributyltin	ND	3.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Tripentyltin	66	48-126	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

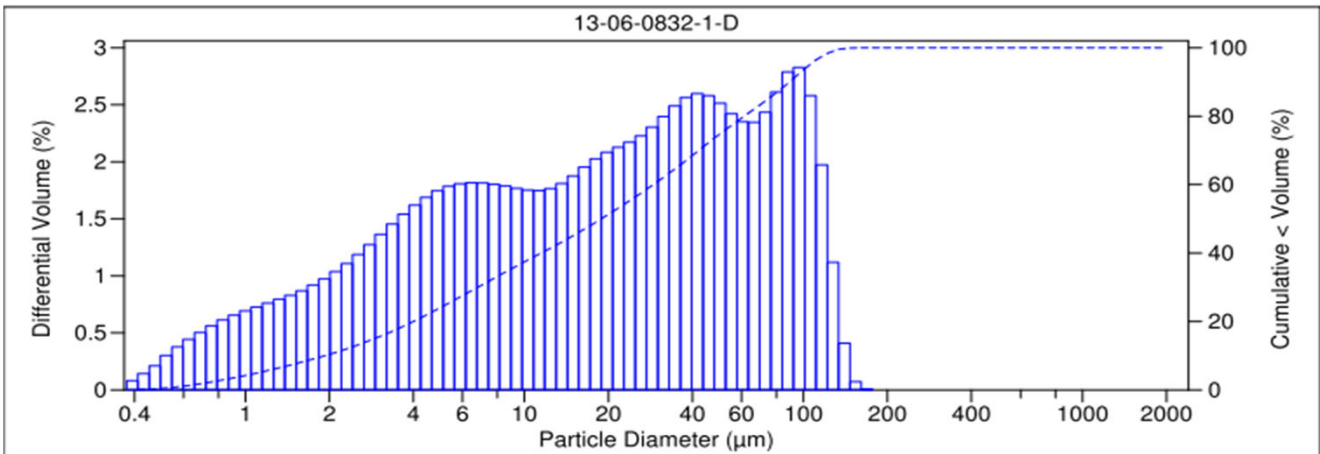
Date Sampled: 6/11/2013  
 Date Received: 6/12/2013  
 Work Order No: 13-06-0832  
 Date Analyzed: 6/20/2013  
 Method: ASTM D4464M

Project: Berths 163-164

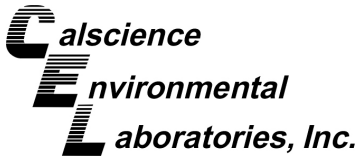
Page 1 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
YTI Comp B		Silt	0.033

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	1.31	18.21	60.82	19.66	80.48



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## PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

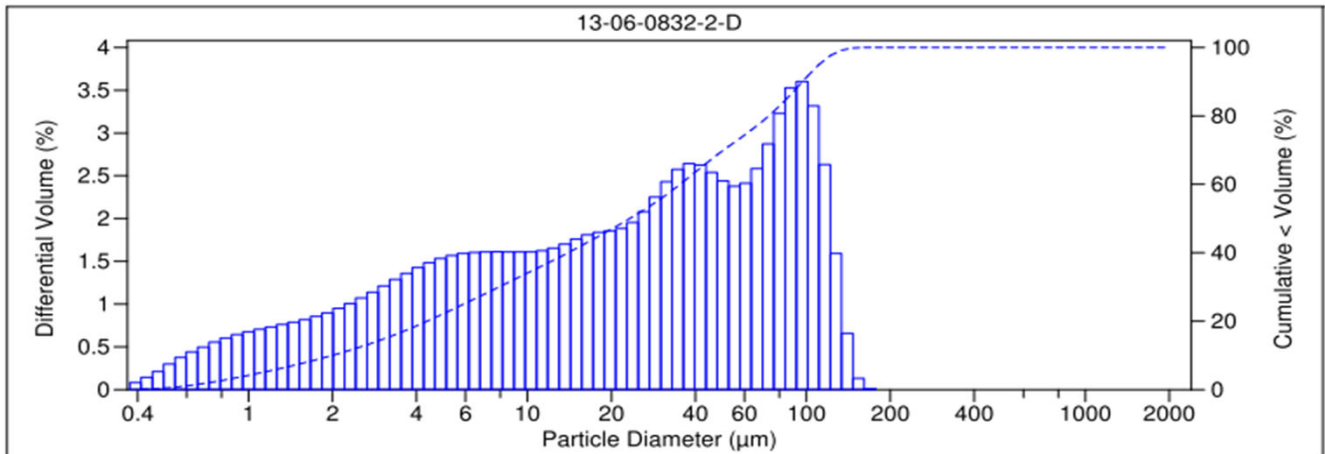
Date Sampled: 6/11/2013  
 Date Received: 6/12/2013  
 Work Order No: 13-06-0832  
 Date Analyzed: 6/20/2013  
 Method: ASTM D4464M

Project: Berths 163-164

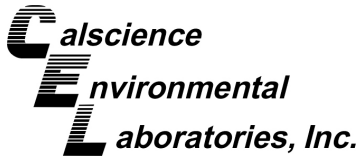
Page 2 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
YTI Comp B Lab Dup		Silt	0.037

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	1.97	22.59	57.16	18.28	75.45



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## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

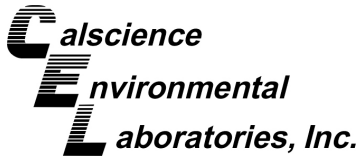
Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0526-1</b>	<b>Sediment</b>		<b>TOC 5</b>		<b>06/17/13</b>	<b>06/17/13 18:28</b>	<b>D0617TOCS1</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.1700	3.000	3.360	106	3.400	108	75-125	1	0-25	





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: Extraction  
 Method: EPA 418.1M

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>13-06-0978-2</b>	<b>Soil</b>		<b>IR 2</b>	<b>06/14/13</b>	<b>06/14/13 18:00</b>	<b>130614S01</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TRPH	13.36	100.0	101.5	88	102.3	89	55-135	1	0-30	



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)

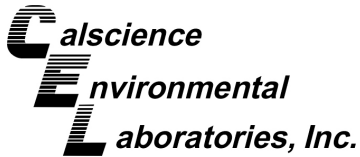
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0878-14</b>	<b>Soil</b>		<b>GC 47</b>		<b>06/14/13</b>	<b>06/14/13 17:59</b>	<b>130614S02</b>			
Parameter	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Diesel	ND	400.0	378.7	95	378.2	95	64-130	0	0-15	

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RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

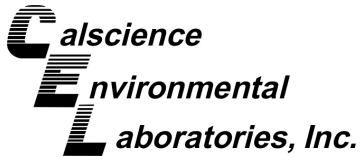
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0714-1</b>	<b>Sediment</b>		<b>GCTQ 1</b>		<b>06/13/13</b>	<b>06/18/13 02:05</b>	<b>130613S01</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.801	36	2.050	41	25-200	13	0-30	
Bifenthrin	ND	5.000	3.142	63	3.422	68	25-200	9	0-30	
Cyfluthrin	ND	5.000	1.828	37	2.197	44	25-200	18	0-30	
Cypermethrin	ND	5.000	1.659	33	1.967	39	25-200	17	0-30	
Deltamethrin/Tralomethrin	ND	5.000	2.381	48	2.763	55	25-200	15	0-30	
Fenpropathrin	ND	5.000	2.961	59	3.006	60	25-200	2	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	3.912	39	4.777	48	25-200	20	0-30	
Fluvalinate	ND	5.000	1.709	34	2.218	44	25-200	26	0-30	
Permethrin (cis/trans)	3.251	5.000	8.042	96	8.269	100	25-200	3	0-30	
Phenothrin	ND	5.000	6.554	131	6.613	132	25-200	1	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.612	92	5.264	105	25-200	13	0-30	
Tetramethrin	ND	5.000	4.514	90	4.959	99	25-200	9	0-30	
lambda-Cyhalothrin	ND	5.000	2.236	45	2.579	52	25-200	14	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

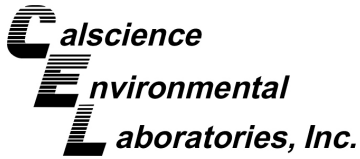
AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3050B  
Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0812-1</b>	<b>Soil</b>		<b>ICP/MS 03</b>		<b>06/13/13</b>	<b>06/13/13 12:36</b>	<b>130613S01</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.906	25.00	28.88	100	28.66	99	72-132	1	0-13	
Cadmium	ND	25.00	24.93	100	25.71	103	85-121	3	0-12	
Chromium	15.21	25.00	37.79	90	38.11	92	20-182	1	0-15	
Copper	21.24	25.00	43.93	91	47.87	106	25-157	9	0-22	
Lead	18.26	25.00	52.74	138	50.77	130	62-134	4	0-23	3
Nickel	13.44	25.00	35.88	90	37.34	96	46-154	4	0-15	
Selenium	ND	25.00	24.50	98	24.89	100	54-132	2	0-14	
Silver	ND	12.50	12.33	99	12.43	99	78-126	1	0-15	
Zinc	62.69	25.00	86.12	94	93.12	122	23-173	8	0-18	



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

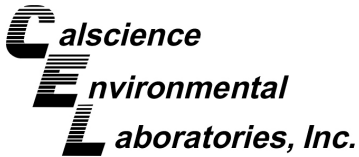
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-04-1004-11</b>	<b>Sediment</b>		<b>Mercury</b>		<b>06/13/13</b>	<b>06/13/13 12:04</b>	<b>130613S01</b>			
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	1.188	0.8350	2.244	126	2.199	121	71-137	2	0-14	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8081A

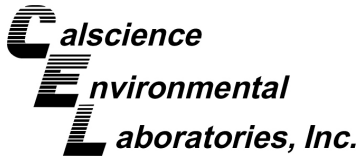
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared		Date Analyzed		MS/MSD Batch Number	
YTI Comp B	Sediment		GC 44		06/17/13		06/19/13 13:51		130617S14	
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	3.511	70	3.366	67	50-135	4	0-25	
Alpha-BHC	ND	5.000	4.491	90	3.778	76	50-135	17	0-25	
Beta-BHC	ND	5.000	5.223	104	4.305	86	50-135	19	0-25	
Delta-BHC	ND	5.000	5.045	101	3.844	77	50-135	27	0-25	4
Gamma-BHC	ND	5.000	4.034	81	3.412	68	50-135	17	0-25	
Dieldrin	ND	5.000	5.215	104	4.641	93	50-135	12	0-25	
4,4'-DDD	ND	5.000	6.598	132	6.077	122	50-135	8	0-25	
4,4'-DDE	8.215	5.000	13.60	108	12.44	85	50-135	9	0-25	
4,4'-DDT	ND	5.000	8.403	168	4.426	89	50-135	62	0-25	3,4
Endosulfan I	ND	5.000	3.855	77	3.845	77	50-135	0	0-25	
Endosulfan II	ND	5.000	3.446	69	3.279	66	50-135	5	0-25	
Endosulfan Sulfate	ND	5.000	4.126	83	3.691	74	50-135	11	0-25	
Endrin	ND	5.000	4.807	96	4.540	91	50-135	6	0-25	
Endrin Aldehyde	ND	5.000	3.080	62	2.448	49	50-135	23	0-25	3
Endrin Ketone	ND	5.000	4.504	90	3.903	78	50-135	14	0-25	
Heptachlor	ND	5.000	3.718	74	2.997	60	50-135	21	0-25	
Heptachlor Epoxide	ND	5.000	5.770	115	5.250	105	50-135	9	0-25	
Methoxychlor	ND	5.000	3.864	77	2.398	48	50-135	47	0-25	3,4
Alpha Chlordane	ND	5.000	4.856	97	4.464	89	50-135	8	0-25	
Gamma Chlordane	ND	5.000	3.829	77	3.653	73	50-135	5	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM

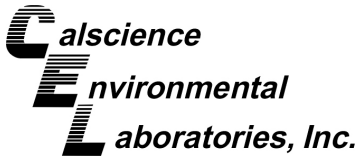
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0714-1</b>	<b>Sediment</b>		<b>GC/MS MM</b>		<b>06/17/13</b>	<b>06/18/13 20:02</b>	<b>130617S12</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	ND	1000	693.0	69	747.3	75	40-160	8	0-20	
2,4-Dichlorophenol	ND	1000	625.0	63	688.1	69	40-160	10	0-20	
2-Methylphenol	ND	1000	725.6	73	799.3	80	40-160	10	0-20	
2-Nitrophenol	ND	1000	670.3	67	739.9	74	40-160	10	0-20	
4-Chloro-3-Methylphenol	ND	1000	664.0	66	737.5	74	40-160	10	0-20	
Acenaphthene	ND	1000	699.5	70	766.7	77	40-106	9	0-20	
Benzo (a) Pyrene	58.46	1000	909.8	85	970.9	91	17-163	7	0-20	
Chrysene	35.05	1000	807.8	77	893.2	86	17-168	10	0-20	
Di-n-Butyl Phthalate	10.59	1000	593.3	58	638.8	63	40-160	7	0-20	
Dimethyl Phthalate	ND	1000	684.1	68	750.5	75	40-160	9	0-20	
Fluoranthene	51.31	1000	710.0	66	779.1	73	26-137	9	0-20	
Fluorene	ND	1000	715.0	72	798.6	80	59-121	11	0-20	
N-Nitrosodimethylamine	ND	1000	501.9	50	571.3	57	40-160	13	0-20	
Naphthalene	ND	1000	688.7	69	727.7	73	21-133	6	0-20	
Phenanthrene	12.20	1000	734.7	72	797.8	79	54-120	8	0-20	
Phenol	ND	1000	530.2	53	575.6	58	40-160	8	0-20	
Pyrene	157.2	1000	958.8	80	1016	86	6-156	6	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

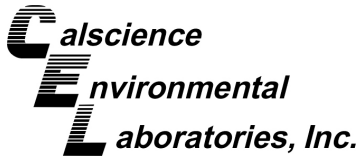
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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
<b>13-06-0440-11</b>	<b>Sediment</b>		<b>GC/MS HHH</b>		<b>06/13/13</b>	<b>06/18/13 00:28</b>	<b>130613S04</b>			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	25.00	21.38	86	19.18	77	50-125	11	0-30	
PCB018	ND	25.00	21.55	86	19.06	76	50-125	12	0-30	
PCB028	ND	25.00	21.28	85	18.78	75	50-125	12	0-30	
PCB044	ND	25.00	17.89	72	15.69	63	50-125	13	0-30	
PCB052	ND	25.00	25.12	100	22.01	88	50-125	13	0-30	
PCB066	ND	25.00	20.51	82	17.67	71	50-125	15	0-30	
PCB077	ND	25.00	15.63	63	13.38	54	50-125	15	0-30	
PCB101	ND	25.00	17.26	69	14.91	60	50-125	15	0-30	
PCB105	ND	25.00	15.20	61	13.27	53	50-125	14	0-30	
PCB118	ND	25.00	19.33	77	16.95	68	50-125	13	0-30	
PCB126	ND	25.00	13.15	53	11.53	46	50-125	13	0-30	3
PCB128	ND	25.00	13.60	54	11.26	45	50-125	19	0-30	3
PCB153	ND	25.00	14.98	60	13.07	52	50-125	14	0-30	
PCB170	ND	25.00	16.60	66	14.68	59	50-125	12	0-30	
PCB180	ND	25.00	14.26	57	11.96	48	50-125	17	0-30	3
PCB187	ND	25.00	13.72	55	12.10	48	50-125	13	0-30	3
PCB195	ND	25.00	14.88	60	13.31	53	50-125	11	0-30	
PCB206	ND	25.00	15.57	62	14.17	57	50-125	9	0-30	
PCB209	ND	25.00	16.47	66	14.90	60	50-125	10	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3550B (M)  
 Method: Organotins by Krone et al.

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>13-06-0715-2</b>	<b>Sediment</b>		<b>GC/MS JJJ</b>	<b>06/12/13</b>	<b>06/14/13 14:10</b>	<b>130612S04</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	ND	100.0	83.38	83	90.79	91	79-175	9	0-31	
Tributyltin	20.64	100.0	83.02	62	94.35	74	69-135	13	0-29	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - PDS/PDSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3050B  
 Method: EPA 6020

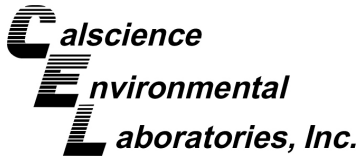
Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number			
<b>13-06-0812-1</b>	<b>Soil</b>			<b>ICP/MS 03</b>	<b>06/13/13 00:00</b>	<b>06/13/13 12:42</b>	<b>130613S01</b>			
Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.906	25.00	29.09	101	28.55	99	75-125	2	0-20	
Cadmium	ND	25.00	25.03	100	25.17	101	75-125	1	0-20	
Chromium	15.21	25.00	36.84	87	36.46	85	75-125	1	0-20	
Copper	21.24	25.00	45.72	98	45.38	97	75-125	1	0-20	
Lead	18.26	25.00	45.06	107	44.70	106	75-125	1	0-20	
Nickel	13.44	25.00	36.70	93	36.47	92	75-125	1	0-20	
Selenium	ND	25.00	25.32	101	25.41	102	75-125	0	0-20	
Silver	ND	12.50	10.08	81	10.15	81	75-125	1	0-20	
Zinc	62.69	25.00	90.03	109	90.22	110	75-125	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Sample Duplicate

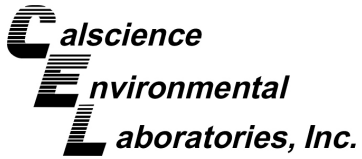
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: EPA 376.2M

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13-06-0715-2</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/17/13 00:00</b>	<b>06/17/13 14:45</b>	<b>D0617SD1</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Total	7.500	7.200	4	0-25	



## Quality Control - Sample Duplicate

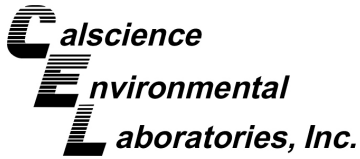
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: EPA 376.2M

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>YTI Comp B</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/12/13 00:00</b>	<b>06/12/13 20:40</b>	<b>D0612DSD3</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Dissolved	ND	ND	N/A	0-25	



## Quality Control - Sample Duplicate

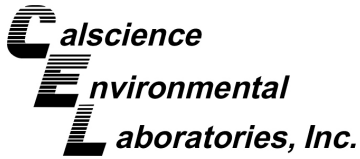
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13-06-0714-1</b>	<b>Sediment</b>	<b>N/A</b>	<b>06/13/13 00:00</b>	<b>06/13/13 19:00</b>	<b>D0613TSD1</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	72.90	71.70	2	0-10	



## Quality Control - LCS/LCSD

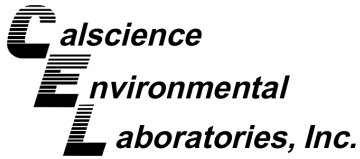
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-06-013-876</b>	<b>Soil</b>		<b>TOC 5</b>	<b>06/17/13</b>	<b>06/17/13 18:28</b>	<b>D0617TOCL1</b>			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Carbon, Total Organic	0.6000	0.6454	108	0.6268	104	80-120	3	0-20	



## Quality Control - LCS/LCSD

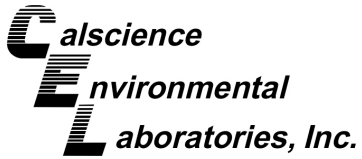
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: N/A  
 Method: SM 4500-NH3 B/C (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-12-816-62</b>	<b>Soil</b>		<b>BUR05</b>	<b>06/19/13</b>	<b>06/19/13 14:00</b>	<b>D0619NH3L1</b>			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Ammonia (as N)	5.000	4.340	87	4.270	85	80-120	2	0-20	



## Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

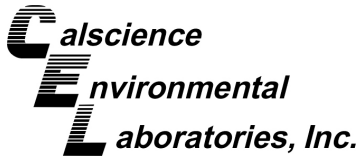
Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: Extraction  
 Method: EPA 418.1M

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-07-015-1927</b>	<b>Soil</b>	<b>IR 2</b>	<b>06/14/13 18:00</b>	<b>130614L01</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
TRPH	100.0	92.28	92	70-130	





## Quality Control - LCS

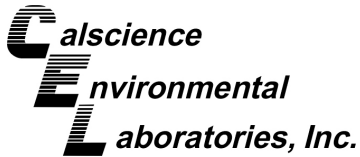
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3550B  
 Method: EPA 8015B (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-15-490-364</b>	<b>Soil</b>	<b>GC 47</b>	<b>06/14/13 17:43</b>	<b>120614B02</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
TPH as Diesel	400.0	444.6	111	75-123	



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-403-34</b>	<b>Sediment</b>	<b>GCTQ 1</b>	<b>06/17/13 21:49</b>	<b>130613L01</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Allethrin	5.000	2.443	49	25-200	0-229	
Bifenthrin	5.000	3.868	77	25-200	0-229	
Cyfluthrin	5.000	2.431	49	25-200	0-229	
Cypermethrin	5.000	2.309	46	25-200	0-229	
Deltamethrin/Tralomethrin	5.000	2.593	52	25-200	0-229	
Fenpropathrin	5.000	2.823	56	25-200	0-229	
Fenvalerate/Esfenvalerate	10.00	4.307	43	25-200	0-229	
Fluvalinate	5.000	2.334	47	25-200	0-229	
Permethrin (cis/trans)	5.000	3.977	80	25-200	0-229	
Phenothrin	5.000	4.836	97	25-200	0-229	
Resmethrin/Bioresmethrin	5.000	4.560	91	25-200	0-229	
Tetramethrin	5.000	3.101	62	25-200	0-229	
lambda-Cyhalothrin	5.000	1.978	40	25-200	0-229	

Total number of LCS compounds: 13

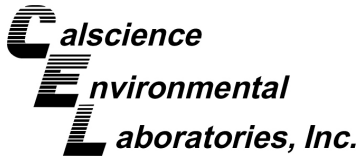
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-15-254-117</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>06/13/13 12:00</b>	<b>130613L01E</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	24.77	99	80-120	
Cadmium	25.00	25.49	102	80-120	
Chromium	25.00	24.40	98	80-120	
Copper	25.00	26.32	105	80-120	
Lead	25.00	25.98	104	80-120	
Nickel	25.00	25.21	101	80-120	
Selenium	25.00	25.55	102	80-120	
Silver	12.50	10.68	85	80-120	
Zinc	25.00	27.47	110	80-120	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

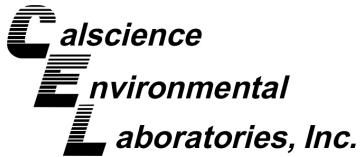
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-12-452-384</b>	<b>Soil</b>	<b>Mercury</b>	<b>06/13/13 10:49</b>	<b>130313L01E</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.7904	95	82-124	



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8081A

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-12-858-208</b>	<b>Soil</b>	<b>GC 44</b>	<b>06/19/13 15:36</b>	<b>130617L14</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	5.000	4.252	85	50-135	36-149	
Alpha-BHC	5.000	4.916	98	50-135	36-149	
Beta-BHC	5.000	4.273	85	50-135	36-149	
Delta-BHC	5.000	3.744	75	50-135	36-149	
Gamma-BHC	5.000	4.885	98	50-135	36-149	
Dieldrin	5.000	4.431	89	50-135	36-149	
4,4'-DDD	5.000	4.339	87	50-135	36-149	
4,4'-DDE	5.000	4.593	92	50-135	36-149	
4,4'-DDT	5.000	4.366	87	50-135	36-149	
Endosulfan I	5.000	4.436	89	50-135	36-149	
Endosulfan II	5.000	4.348	87	50-135	36-149	
Endosulfan Sulfate	5.000	4.147	83	50-135	36-149	
Endrin	5.000	4.919	98	50-135	36-149	
Endrin Aldehyde	5.000	4.636	93	50-135	36-149	
Endrin Ketone	5.000	4.323	86	50-135	36-149	
Heptachlor	5.000	4.415	88	50-135	36-149	
Heptachlor Epoxide	5.000	4.421	88	50-135	36-149	
Methoxychlor	5.000	4.444	89	50-135	36-149	
Alpha Chlordane	5.000	4.338	87	50-135	36-149	
Gamma Chlordane	5.000	4.433	89	50-135	36-149	

Total number of LCS compounds: 20

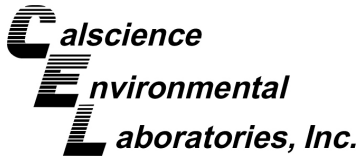
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-256-36</b>	<b>Soil</b>	<b>GC/MS MM</b>	<b>06/18/13 17:28</b>	<b>130617L12</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
2,4,6-Trichlorophenol	1000	522.4	52	40-160	20-180	
2,4-Dichlorophenol	1000	488.3	49	40-160	20-180	
2-Methylphenol	1000	495.2	50	40-160	20-180	
2-Nitrophenol	1000	493.3	49	40-160	20-180	
4-Chloro-3-Methylphenol	1000	481.2	48	40-160	20-180	
Acenaphthene	1000	576.5	58	48-108	38-118	
Benzo (a) Pyrene	1000	732.7	73	17-163	0-187	
Chrysene	1000	657.9	66	17-168	0-193	
Di-n-Butyl Phthalate	1000	676.0	68	40-160	20-180	
Dimethyl Phthalate	1000	498.6	50	40-160	20-180	
Fluoranthene	1000	639.4	64	26-137	8-156	
Fluorene	1000	621.6	62	59-121	49-131	
N-Nitrosodimethylamine	1000	425.3	43	40-160	20-180	
Naphthalene	1000	515.8	52	21-133	2-152	
Phenanthrene	1000	606.8	61	54-120	43-131	
Phenol	1000	399.6	40	40-160	20-180	
Pyrene	1000	674.8	67	28-106	15-119	

Total number of LCS compounds: 17

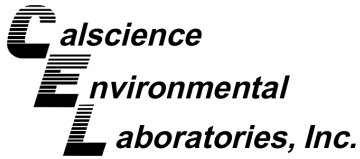
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 06/12/13  
Work Order: 13-06-0832  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number		
<b>099-14-341-104</b>	<b>Soil</b>	<b>GC/MS HHH</b>	<b>06/18/13 13:40</b>	<b>130613L04</b>		
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
PCB008	25.00	20.31	81	50-125	38-138	
PCB018	25.00	22.98	92	50-125	38-138	
PCB028	25.00	23.43	94	50-125	38-138	
PCB044	25.00	23.29	93	50-125	38-138	
PCB052	25.00	21.78	87	50-125	38-138	
PCB066	25.00	25.28	101	50-125	38-138	
PCB077	25.00	22.91	92	50-125	38-138	
PCB101	25.00	22.96	92	50-125	38-138	
PCB105	25.00	22.43	90	50-125	38-138	
PCB118	25.00	24.72	99	50-125	38-138	
PCB126	25.00	20.64	83	50-125	38-138	
PCB128	25.00	20.96	84	50-125	38-138	
PCB153	25.00	21.62	86	50-125	38-138	
PCB170	25.00	20.77	83	50-125	38-138	
PCB180	25.00	19.81	79	50-125	38-138	
PCB187	25.00	20.37	81	50-125	38-138	
PCB195	25.00	18.19	73	50-125	38-138	
PCB206	25.00	20.55	82	50-125	38-138	
PCB209	25.00	17.81	71	50-125	38-138	

Total number of LCS compounds: 19

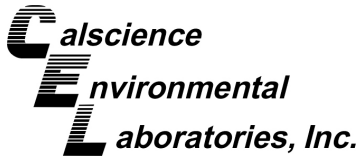
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 06/12/13  
 Work Order: 13-06-0832  
 Preparation: EPA 3550B (M)  
 Method: Organotins by Krone et al.

Project: POLA Berths 217-224 (YTI) Container Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number	
<b>099-07-016-1032</b>	<b>Soil</b>	<b>GC/MS JJJ</b>	<b>06/14/13 11:10</b>	<b>130612L04</b>	
<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Tetrabutyltin	100.0	88.80	89	79-151	
Tributyltin	100.0	90.42	90	51-129	



## Glossary of Terms and Qualifiers

Work Order: 13-06-0832

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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.
BV	Sample received 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.
	For any analysis identified as a "field" test with a holding time (HT) <= 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

LABORATORY CLIENT: <b>AMEC</b>		CLIENT PROJECT NAME / NUMBER: <b>Berths 163-164</b>		P.O. NO.: <b>1015101930</b>																		
ADDRESS: <b>9210 Sky Park Ct # 200</b>		PROJECT CONTACT: <b>Barry Snyder/Tyler Huff</b>		QUOTE NO.:																		
CITY: <b>San Diego, CA 92123</b>		SAMPLE(S): (SIGNATURE) 		<b>13-06-0832</b>																		
TEL: <b>858-449-2334</b>	E-Mail: <b>tyler.huff@amec.com</b>	LAB USE ONLY																				
TURNAROUND TIME: <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input checked="" type="checkbox"/> 5 DAYS <input checked="" type="checkbox"/> 10 DAYS		<b>REQUESTED ANALYSIS</b>																				
SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): <input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL ___ / ___ / ___																						
SPECIAL INSTRUCTIONS: Danielle Gonsman is PM Green Book Testing Please see attached Sheet for Analysis. Please report all applicable totals (i.e. PCBs, PAHs, etc.)																						
LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins	grain size	
	YTI Comp B	Port of Los Angeles	06/11/13	1500	sediment	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Requisitioned by: (Signature) 							Received by: (Signature) 					Date: 06/12/13					Time: 1525					
Requisitioned by: (Signature) 							Received by: (Signature) 					Date: 6/12/13					Time: 1940					
Requisitioned by: (Signature) 							Received by: (Signature) 					Date:					Time:					

0832  
20f2

**Table 4-2.**  
**Chemical Analyses for Elutriate, Sediment and Tissue Samples**

Analyte	Analysis Method	Elutriate Target Detection Limits <sup>a, b</sup>	Sediment Target Detection Limits <sup>a, b</sup>	Tissue Target Detection Limits <sup>a, b</sup>
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M <sup>c</sup>	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 - D <sup>c</sup>	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	N/A	N/A	0.1 %
TRPH	418.1M <sup>d</sup>	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B <sup>d</sup>	N/A	5.0 mg/kg	N/A
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	0.1 µg/L	1.0 - 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	N/A	20 - 100 µg/kg	N/A
Pyrethroids	GC/MS/MS <sup>i</sup>	N/A	0.5 - 1.0 µg/kg	N/A
Phthalates	8270C SIM <sup>d</sup>	N/A	10 µg/kg	N/A
Organotins	Rice/Krone <sup>h</sup>	3.0 ng/L	3.0 µg/kg	N/A

## Notes:

<sup>a</sup> Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

<sup>b</sup> Reporting limits provided by Calscience Environmental Laboratories, Inc.

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

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

<sup>e</sup> 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.

<sup>f</sup> Includes aldrin, α-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

<sup>g</sup> 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)

<sup>h</sup> Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

<sup>i</sup> NOAA 1993

<sup>j</sup> Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lambda, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluralinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)

µg/L - micrograms per liter

mg/kg - milligrams per kilogram (parts per million)

mg/L - milligrams per liter

ng/L - nanograms per liter

N/A - not applicable

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

SM - Standard Methods

SOP - standard operating procedure

TPH - total petroleum hydrocarbons

TRPH - total recoverable petroleum hydrocarbons

WORK ORDER #: **13-06-0832**

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/12/13

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

Temperature 1.7 °C - 0.2 °C (CF) = 1.5 °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: [Signature]

**CUSTODY SEALS INTACT:**

Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A

Initial: [Signature]

Sample  \_\_\_\_\_  No (Not Intact)  Not Present

Initial: JH

**SAMPLE CONDITION:**

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

**CONTAINER TYPE:**

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_)  EnCores®  TerraCores®  Z

Water:  VOA  VOAh  VOAna<sub>2</sub>  125AGB  125AGBh  125AGBp  1AGB  1AGBna<sub>2</sub>  1AGBs  
 500AGB  500AGJ  500AGJs  250AGB  250CGB  250CGBs  1PB  1PBna  500PB  
 250PB  250PBn  125PB  125PBz<sub>na</sub>  100PJ  100PJna<sub>2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Air:  Tedlar®  Canister Other:  \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: JH

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

Preservative: h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure z<sub>na</sub>: ZnAc<sub>2</sub>+NaOH f: Filtered Scanned by: JN

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Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014

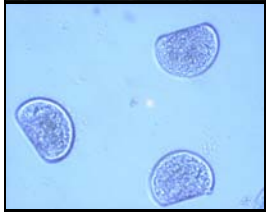
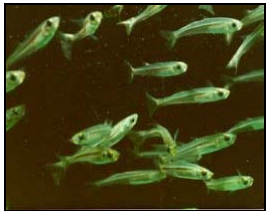
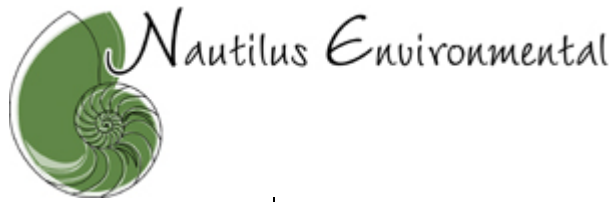


**APPENDIX D**  
**TOXICITY LABORATORY REPORT**

Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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## Port of Los Angeles YTI Terminal Dredged Material Characterization Toxicity and Bioaccumulation Testing Report

June 2013

Prepared by:

**Nautilus Environmental**

4340 Vandever Avenue

San Diego, CA 92120

Prepared for:

**AMEC Environment & Infrastructure, Inc.**

9210 Sky Park Court, Suite 200

San Diego, CA 92123

Submitted: September 26, 2013

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## 1.0 INTRODUCTION

The Port of Los Angeles (POLA) is proposing to dredge sediments at Berths 214-220 for the Yusen Terminals Inc. (YTI) Container Terminal Improvements Project, and dispose of the material at the LA-2 ocean disposal site. In order to assess the suitability for ocean disposal, AMEC Environment & Infrastructure, Inc. (AMEC) has contracted with Nautilus Environmental (Nautilus) to conduct biological testing as part of the sediment characterization. The testing was conducted using methods outlined in the United States Environmental Protection Agency and Army Corps of Engineers (USEPA/USACE) “Green Book” testing protocol; *“Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual”* (USACE/EPA 1991).

The following report presents the results of toxicity and bioaccumulation bioassays conducted on composite sediment samples collected from two sites within the dredging footprint. In addition, reference sediment was collected and tested from the USEPA approved LA-2 Ocean Dredged Material Disposal Site. LA-2 sediment serves as a disposal-site reference location for comparison purposes. Solid- and suspended particulate-phase (SP and SPP) toxicity tests were conducted on whole sediments and sediment elutriates, respectively. Testing of the potential for bioaccumulation of contaminants in the whole sediment was also evaluated.

## 2.0 METHODS

### 2.1 Study Design

The material under consideration for ocean disposal was tested according to the project-specific Sampling and Analysis Plan (SAP) (AMEC, 2013) using criteria outlined in the Ocean Testing Manual (USEPA/USACE 1991), and the Inland Testing Manual (USEPA/USACE 1998).

The solid-phase amphipod tests included two concurrent controls. The laboratory control sediment consisted of coarse sand collected in the same location as the organisms (the amphipod collection site is composed of nearly 100 percent sand, lacking silt and clay fractions). Thus, the additional “fine grain size” control sediment was tested to better represent the common fine sediments found within bays and harbors. The control sediment for the solid-phase polychaete test consisted of clean beach sand collected from Scripps Institution of Oceanography in La Jolla, California; a fine grain control was not tested for polychaetes.

## 2.2 Sample Collection, Receipt, and Preparation

All site sediment cores from the YTI Terminal were collected between June 3 and June 8, 2013. Reference sediment was collected from the LA-2 ocean disposal site on June 2, 2013. Approximately 25 gallons of sediment were collected for toxicity testing from each site. The sediment was collected in food-grade polyethylene plastic liners and was then transported by courier in coolers containing wet ice to the Nautilus laboratory in San Diego, CA. Core samples were received at Nautilus between June 4 and June 8, 2013 and were stored at 4°C until being composited and homogenized by AMEC staff on June 10, 2013. Samples were identified as YTI Comp A, YTI Comp B, and LA-2 Reference (Table 1). Sub-samples were removed from each composite sample for chemical analysis, and then composited sediments were stored at 4°C until used for toxicity testing. Just prior to each phase of testing (SP, SPP, and Bioaccumulation) the samples were thoroughly homogenized. For the solid-phase toxicity tests, a sub-sample of each sample was sieved through a 500-µm Nitex<sup>®</sup> mesh screen to remove native organisms and large debris that may interfere with the survival and recovery of test organisms.

**Table 1. Sediment Sample IDs**

Site ID	Composite Date	Receipt Date
YTI Comp A	June 10, 2013	June 11, 2013 <sup>a</sup>
YTI Comp B	June 10, 2013	June 11, 2013 <sup>a</sup>
LA-2 Reference	June 2, 2013	June 4, 2013

<sup>a</sup> Samples were stored at Nautilus in 4°C overnight after compositing on June 10 and were released to Nautilus staff the following morning of June 11.

Sediment elutriates for suspended particulate phase toxicity tests were prepared by mixing one part sediment with four parts seawater (adjusted to 30 parts per thousand [ppt] with de-ionized water). The sediments were then mixed for 30 minutes (min) in polyethylene plastic-lined 5-gallon plastic buckets using a stainless steel mixing blade. The elutriate preparation was allowed to settle for approximately one hour before testing with bivalve larvae (note: the elutriate was allowed to settle for several hours at 4°C to obtain enough volume for the fish and mysid tests). The resulting supernatant was then siphoned into a clean container for testing. The suspended particulate-phase tests were not performed on sediment from LA-2 Reference.

Sediments were not manipulated in any way prior to use for bioaccumulation exposures.

### **2.3 Toxicity Test Methodology**

Test methods and acceptability criteria are described in Tables 2 through 7. For all tests, water quality parameters (pH, temperature, salinity and dissolved oxygen [D.O.]) were monitored on a daily basis. Water samples from test chambers were also collected at specified intervals to monitor ammonia concentrations. For the 28-day (d) bioaccumulation tests, composite water samples for ammonia were collected on days 0, 7, 14, 21 and 28. For the 10-d solid-phase sediment tests, pore water samples were collected and tested for ammonia before initiation, and from the overlying water at test initiation and termination. For the 48- and 96-h suspended particulate-phase tests, water samples for ammonia analysis were collected at test initiation and termination.

**Table 2. Toxicity Test Methodology and QA/QC Requirements for Solid Phase Toxicity Tests Using the Marine Amphipods *Eohaustorius estuarius***

Test organism	Marine Amphipods – <i>Eohaustorius estuarius</i>
Test organism source	Northwestern Aquatic Sciences, Newport, OR
Test organism size class	3-5 mm
Test duration; endpoint	10 days; survival
Overlying water renewal	None
Feeding	None
Test chamber	1-L glass jar
Sediment depth	2 cm
Overlying water volume	800 mL
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C daily instantaneous
Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 ppt with deionized water prior to testing
Test concentrations	Undiluted sediment composites
Number of organisms/chamber	20
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Negative controls	Sediment from amphipod collection site and fine-grain control from Sail Bay
Photoperiod	Continuous light (24 hr)
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	USEPA/USACE 1991,1998; US EPA 1994
Test acceptability criteria	≥ 90 percent mean survival in the lab control
Reference toxicant	Cadmium chloride

**Table 3. Toxicity Test Methodology and QA/QC Requirements for Solid Phase Toxicity Tests Using the Marine Polychaete *Neanthes arenaceodentata***

---

Test organism	Marine Polychaete – <i>Neanthes arenaceodentata</i>
Test organism source	Aquatic Toxicology Support, Bremerton, WA
Test organism age at initiation	3 weeks
Test duration; endpoint	10 days; survival
Overlying water renewal	None
Feeding	None
Test chamber	1-L glass jar
Sediment depth/ volume	2 cm
Overlying water volume	800 mL
Test temperature	20 ± 1°C test-wide mean, 20 ± 3°C daily instantaneous
Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 ppt with deionized water prior to testing
Test concentrations	Undiluted sediment composites
Number of organisms/chamber	5
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Negative control	Clean, rinsed beach sand collected near Scripps Pier
Photoperiod	12 hours light:12 hours dark
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	USEPA/USACE 1991,1998; ASTM 2000 E1611-00
Test acceptability criteria	≥ 90 percent mean survival in controls
Reference toxicant	Cadmium chloride

---

**Table 4. Toxicity Test Methodology and QA/QC Requirements for Suspended Particulate-Phase Bivalve Embryo Development Toxicity Tests Using the Mediterranean Mussel *Mytilus galloprovincialis***

---

Test organism	Mediterranean mussel - <i>Mytilus galloprovincialis</i>
Test organism source	Taylor Shellfish, Shelton, WA
Test duration, endpoints	48 hours, survival and normal development
Test solution renewal	None
Feeding	None
Test initiation	Within 24 hours of elutriate preparation
Test chamber	30-mL glass shell vial
Test solution volume	10-mL
Test temperature	16 ± 1°C test-wide mean, 16 ± 3°C daily instantaneous
Lab Control/Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 ppt with deionized water prior to testing
Test concentrations	10, 50, and 100 percent elutriate
Number of organisms/chamber	~200 embryos
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None
Test Protocol	USEPA/USACE 1991,1998; USEPA 1995
Test acceptability criteria	≥ 70% or greater survival and ≥ 70% shell development in controls
Reference toxicant	Copper chloride

---



**Table 5. Toxicity Test Methodology and QA/QC Requirements for Suspended Particulate-Phase Toxicity Tests Using the Mysid Shrimp *Americamysis bahia***

---

Test organism	Mysid shrimp - <i>Americamysis bahia</i>
Test organism source	Aquatic BioSystems, Fort Collins, CO
Test organism age at initiation	5 days post-hatch
Test duration; endpoint	96 hours; survival
Test solution renewal	None
Feeding	<i>Artemia</i> nauplii twice daily
Test initiation	Within 24 hours of elutriate preparation
Test chamber	1-L plastic cup
Test solution volume	500 mL
Test temperature	25 ± 1°C test-wide mean, 25 ± 3°C daily instantaneous
Lab Control/Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 parts ppt with deionized water prior to testing
Test concentrations	10, 50, and 100 percent elutriate
Number of organisms/chamber	10
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None, unless D.O. < 4.0 mg/L
Test Protocol	USEPA/USACE 1991,1998; EPA-821-R-02-012
Test acceptability criteria	≥ 90 percent mean survival in controls
Reference toxicant	Copper chloride

---

**Table 6. Toxicity Test Methodology and QA/QC Requirements for Suspended Particulate Phase Toxicity Tests Using the Inland Silverside Minnow *Menidia beryllina***

---

Test organism	Inland silverside - <i>Menidia beryllina</i>
Test organism source	Aquatic BioSystems, Fort Collins, CO
Test organism age at initiation	14 days post-hatch
Test duration; endpoint	96 hours; survival
Test solution renewal	None
Feeding	<i>Artemia</i> nauplii once daily
Test initiation	Within 24 hours of elutriate preparation
Test chamber	1-L glass jar
Test solution volume	500 mL
Test temperature	25 ± 1°C test-wide mean, 25 ± 3°C daily instantaneous
Lab Control/Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; diluted to 30 ppt with deionized water prior to testing
Test concentrations	10, 50, and 100 percent elutriate
Number of organisms/chamber	10
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None, unless D.O. < 4.0 mg/L
Test Protocol	USEPA/USACE 1991,1998; EPA-821-R-02-012
Test acceptability criteria	≥ 90 percent mean survival in controls
Reference toxicant	Copper chloride

---

**Table 7. Toxicity Test Methodology and QA/QC Requirements for 28-Day Bioaccumulation Tests Using the Marine Clam *Macoma nasuta* and the Marine Polychaete *Nereis virens***

---

Test organisms	Marine clam <i>Macoma nasuta</i> and the marine polychaete <i>Nereis virens</i>
Test organism source	Clams: Brezina & Associates, Dillon Beach, CA Worms: Aquatic Research Organisms, Hampton, NH
Test organism age at initiation	Adult
Test duration	28 days + 24-hr depuration period
Test solution renewal	Continuous flow-through
Feeding	None
Test chamber	10-gallon glass tanks
Sediment depth/ volume	5-6 cm
Overlying water volume	Approximately 7 gallons
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C daily instantaneous
Overlying water	Undiluted natural seawater (34 ppt) collected offshore of the Scripps Pier in La Jolla, CA
Test concentrations	Undiluted sediment
Number of organisms/chamber	35 ( <i>Macoma nasuta</i> ), 10 ( <i>Nereis virens</i> )
Number of replicates	5
Negative control	Sediment from clam collection location
Photoperiod	16 hours light/8 hours dark
Aeration	Continuous
Test Protocol	USEPA/USACE 1991,1998
Test acceptability criteria	Adequate mass of organisms at test completion for detection of target analyte(s)
Reference toxicant	None

---

## **2.4 Statistical Analyses**

Experiment-wide survival data from solid-phase and bioaccumulation tests were analyzed using one-way analysis of variance (ANOVA). When ANOVA showed a significant difference, multiple comparison t-tests then compared survival in each of the control and test sediments against survival in the LA-2 Reference sediment. Prior to analyses, normality was evaluated with D'Agostino & Pearson Omnibus test and homogeneity of variance was assessed with either Bartlett's Test or the F-Test. When necessary to satisfy these assumptions, proportional survival data were arcsine square-root transformed. Solid-phase and bioaccumulation analyses were performed with GraphPad Prism, Version 4.02.

Statistical analyses of all suspended particulate-phase and reference toxicant data were performed using CETIS Comprehensive Toxicity Data Analysis and Database Software version 1.8.4.23. Comparisons between the lab control and each test concentration were performed using Dunnett's Multiple Comparison Test if data displayed homogenous variance and a normal distribution. Data with heterogeneous variance, or non-normal distributions were analyzed using Steel's Many-One Rank Test.

## **2.5 Testing Schedule**

A summary of the testing schedule is provided in Table 8. The solid-phase amphipod tests were initiated within one week of the receipt of the composite samples. Following results from this test, as well as analytical chemistry measurements of the samples, approval from the AMEC project manager was given to conduct the remaining tests. All remaining tests were initiated within the six week holding time specified in the SAP (AMEC, April 2013).

**Table 8. Toxicity Test Schedule**

<b>Toxicity Test</b>	<b>Initiation Date</b>
<b>Solid-Phase Tests</b>	
<i>Eohaustorius</i> 10-Day Survival	June 14, 2013
<i>Neanthes</i> 10-Day Survival	July 12, 2013
<b>Suspended Particulate-Phase Tests</b>	
<i>Mytilus</i> 48-Hour Embryo Development	July 10, 2013
<i>Americamysis</i> 96-Hour Survival	July 11, 2013
<i>Menidia</i> 96-Hour Survival	July 11, 2013
<b>Bioaccumulation Tests</b>	
<i>Macoma</i> and <i>Nereis</i> 28-Day Exposure	July 12, 2013

### 3.0 RESULTS

Summaries of toxicity test results are provided in Tables 9-11 and Figures 1-5, detailed results summaries are provided in Appendix A. Water quality and raw data sheets are provided in Appendix B and reference toxicant data can be found in Appendix C. Summaries of statistical analyses are in Appendix D. Chain of custody documentation for all samples is provided in Appendix E.

#### 3.1 Solid-Phase Toxicity Tests

##### 3.1.1 *Eohaustorius*

*Eohaustorius* survival in the solid-phase tests was significantly lower in both composite samples compared to that in the LA-2 Reference sediment. Mean amphipod survival in the LA-2 Reference was 98 percent compared to 68 percent in YTI Comp A, and 87 percent in YTI Comp B. Mean survival in the fine-grained control was 95 percent, indicating that the organisms were not overly-sensitive to fine-grained material during this round of testing. (Table 9, Figure 1). A one-way ANOVA showed a significant difference among sites ( $p < 0.001$ ). Multiple comparison t-tests revealed a significant reduction in survival in YTI Comp A and YTI Comp B when compared to the LA-2 Reference site. In addition, both composite samples were significantly reduced relative to the fine grain control. It does not appear that ammonia was a contributing factor in reduced survival of *Eohaustorius* based on comparison of measured concentrations to those found in published literature (see Section 4.5.1).

##### 3.1.2 *Neanthes*

Mean survival of polychaete worms was 96 percent in the lab control, and 100 percent in the reference sediment. Survival in all test sediments was 100 percent (Table 9, Figure 2).

**Table 9. Summary of 10-day Solid-Phase Mean Survival Results**

Site ID	Amphipod Survival (%)	Polychaete Survival (%)
Lab Control	97	96
Fine Grain Size Control	95	NT
LA-2 Reference	98	100
YTI Comp A	68*	100
YTI Comp B	87*	100

NT- Not tested

\* Values in **bold** indicate a statistically significant decrease from the LA-2 Reference sediment.

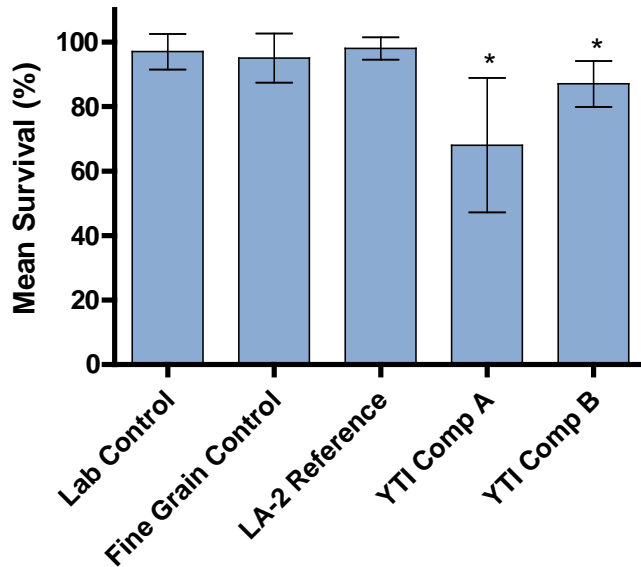


Figure 1. 10-day survival of amphipods (*E. estuarius*) in the solid-phase toxicity test of YTI sediments (mean percent survival  $\pm$  95% CI). Columns marked with an asterisk differ significantly from the LA-2 Reference sample ( $p < 0.05$ ).

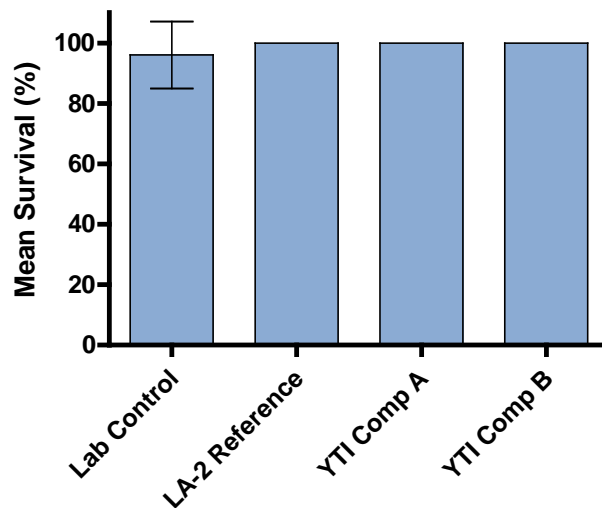


Figure 2. 10-day survival of polychaete worms (*N. arenaceodentata*) in the solid-phase toxicity test of YTI sediments (mean percent survival  $\pm$  95% CI).

### 3.2 Suspended Particulate-Phase Toxicity Tests

Results for the suspended particulate-phase tests are summarized in Table 10. Neither of the sediment elutriates was toxic to the inland silverside minnows or mysid shrimp. However, a significant effect in mussel development was observed in the undiluted elutriate for YTI Comp A compared to the lab control (Figure 3). Mean normal development (percent normal alive) of surviving mussel embryos ranged from 87 to 92 percent in the laboratory controls. Mean percent normal alive was 1.3 in the undiluted elutriate for YTI Comp A, a 98 percent effect from control. No effect was observed in the 10 or 50 percent concentrations and the resulting median effect level (EC<sub>50</sub>) was 75 percent YTI Comp A elutriate. YTI Comp B showed statistically significant effects to mussel embryos in both the 50 and 100 percent elutriate concentrations (11 and 8.2 percent effect, respectively). There was no significant effect observed in the 10 percent concentration and the resulting EC<sub>50</sub> value was greater than 100 percent YTI Comp B elutriate. The effects observed in normal development of mussel embryos may have been related to elevated ammonia levels (see Section 4.5.1).

Mean survival of mysids ranged from 94 to 96 percent in laboratory controls and 86 to 92 percent in undiluted elutriates (Figure 4). Mean survival in both controls for the inland silverside test were 96 percent and 94 to 100 percent in undiluted elutriates (Figure 5).

**Table 10. Summary of Suspended Particulate-Phase Mean Test Results**

Site	Concentration (% Elutriate)	Mussel 48-hr Normal Alive (%)	Mysid Shrimp 96-hr Survival (%)	Inland Silverside 96-hr Survival (%)
YTI Comp A	Lab Control	87	96	96
	10	87	90	98
	50	85	96	100
	100	<b>1.4*</b>	92	94
YTI COMP B	Lab Control	92	94	96
	10	91	94	100
	50	<b>82*</b>	96	100
	100	<b>88*</b>	86	100

\* Values in **bold** indicate a statistically significant decrease from the lab control.



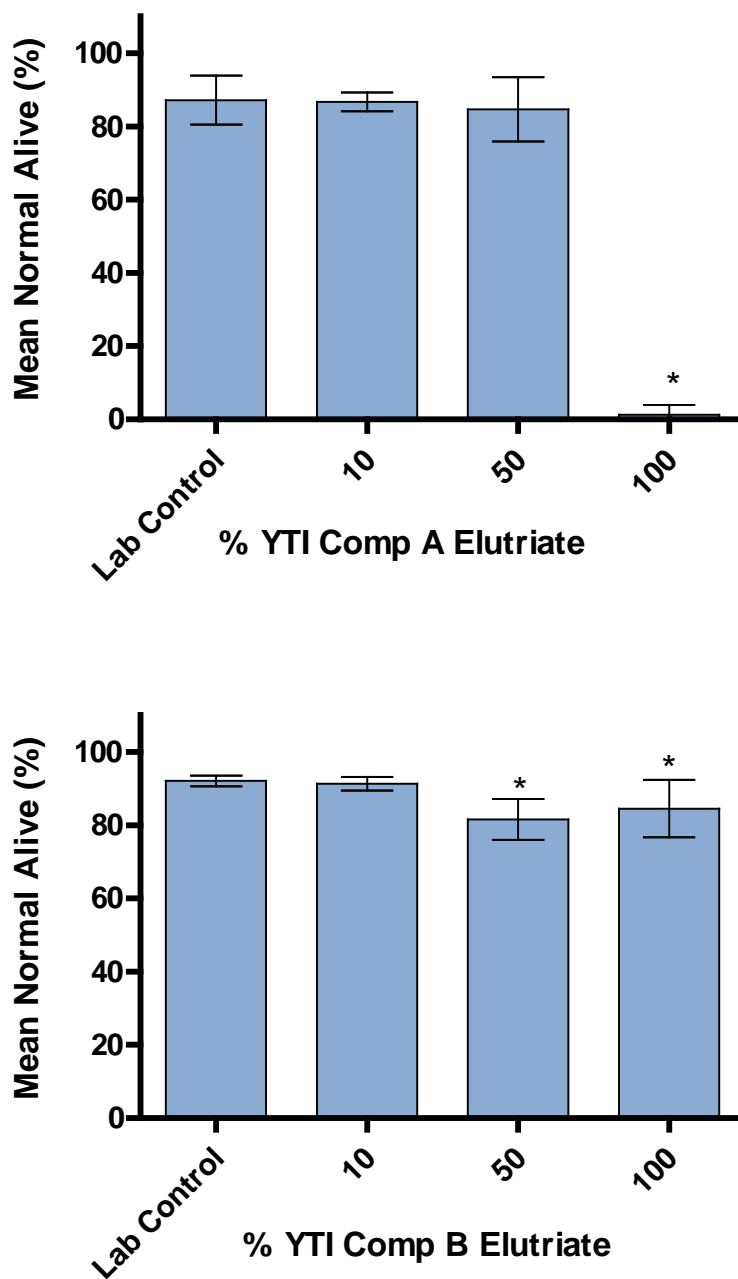


Figure 3. 48-hr percent normal alive of mussel larvae (*M. galloprovincialis*) in the suspended particulate-phase toxicity test of YTI sediment elutriates (mean percent normal alive  $\pm$  95% CI). \*Columns marked with an asterisk differ significantly from the laboratory control.

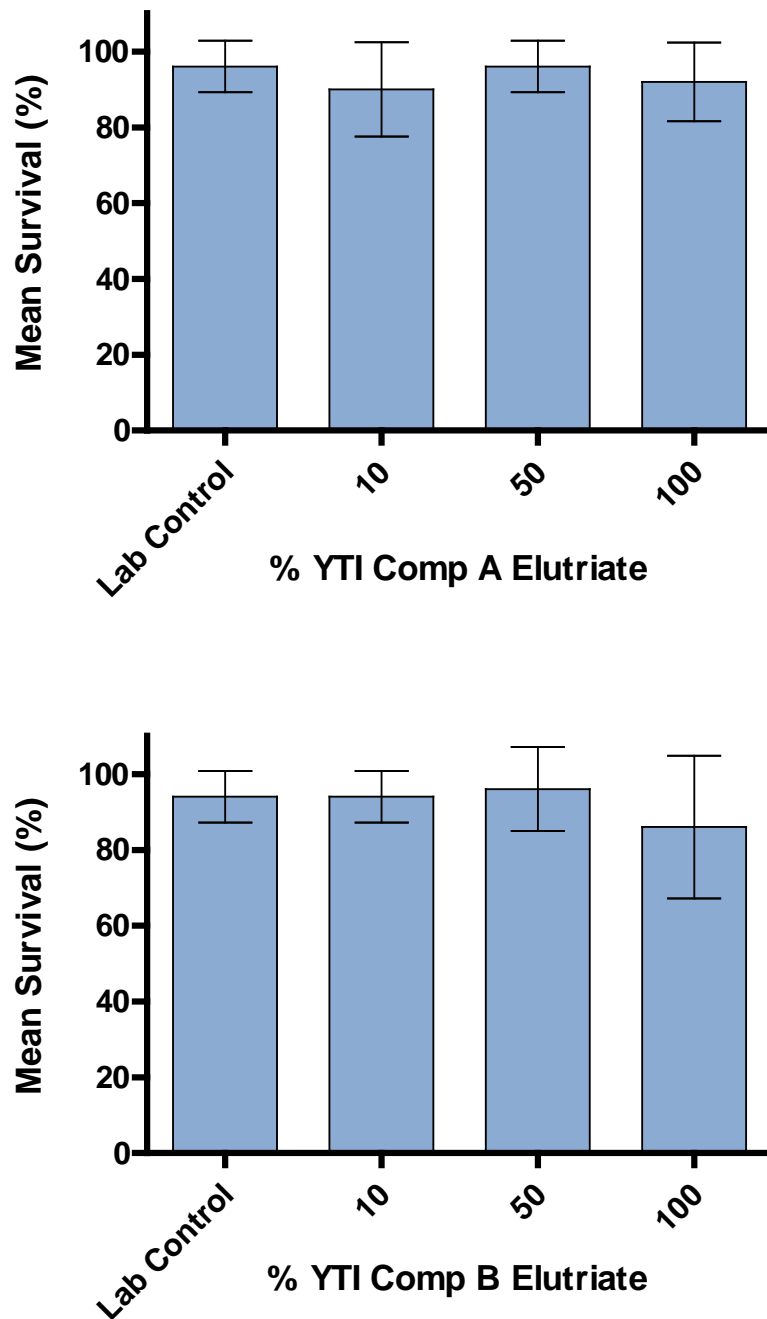


Figure 4. 96-hr survival of mysid shrimp (*A. bahia*) in the suspended particulate-phase toxicity test of YTI sediment elutriates (mean percent survival  $\pm$  95% CI).

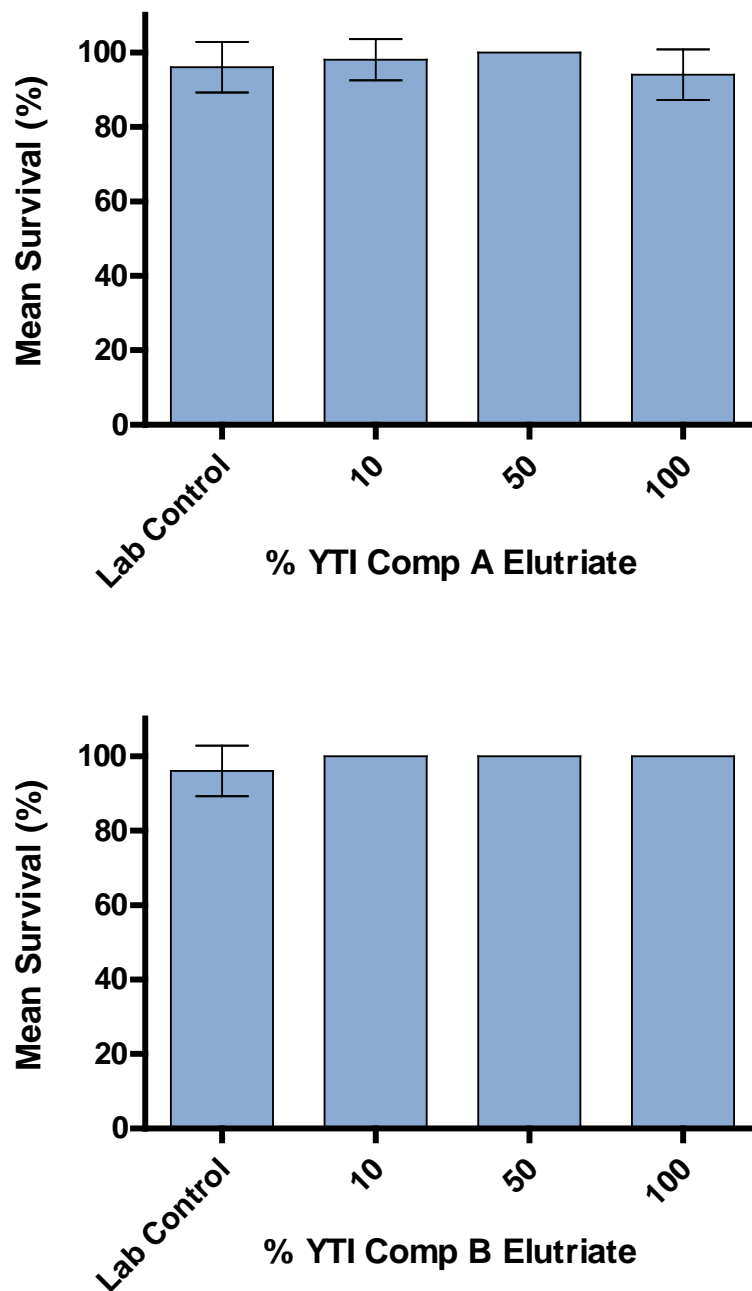


Figure 5. 96-hr survival of inland silverside (*M. beryllina*) in the suspended particulate-phase toxicity test YTI sediment elutriates (mean percent survival  $\pm$  95% CI).

### 3.3 Bioaccumulation Tests

Results of the bioaccumulation tests are summarized in Table 11 and Figures 6 and 7. Mean survival of clams in the laboratory control, LA-2 Reference sediment, and YTI composite sediments was between 87 and 90 percent. Mean survival did not differ significantly among test, reference and control sediments in the experiment-wide ANOVA (Appendix Table D-6,  $p = 0.853$ ). Mean survival of worms in the laboratory control and LA-2 Reference sediment was 100 and 98 percent, respectively, and between 90 and 96 percent for the YTI composite sediments. ANOVA found no significant differences in polychaete survival among test and reference sediments (Appendix Tables D-7,  $p = 0.327$ ).

**Table 11. Summary of 28-day Mean Survival in Bioaccumulation Tests**

Site ID	Bent-nosed Clam Survival (%)	Polychaete Worm Survival (%)
Laboratory Control	87	100
LA-2 Reference Site	90	98
YTI Comp A	88	96
YTI Comp B	88	90

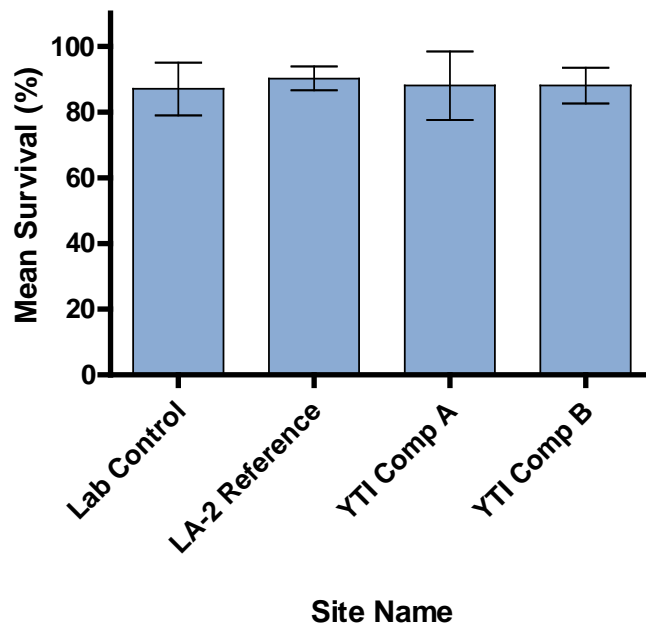


Figure 6. 28-day survival of bent-nosed clams (*M. nasuta*) in the bioaccumulation exposure (mean  $\pm$  95% CI).

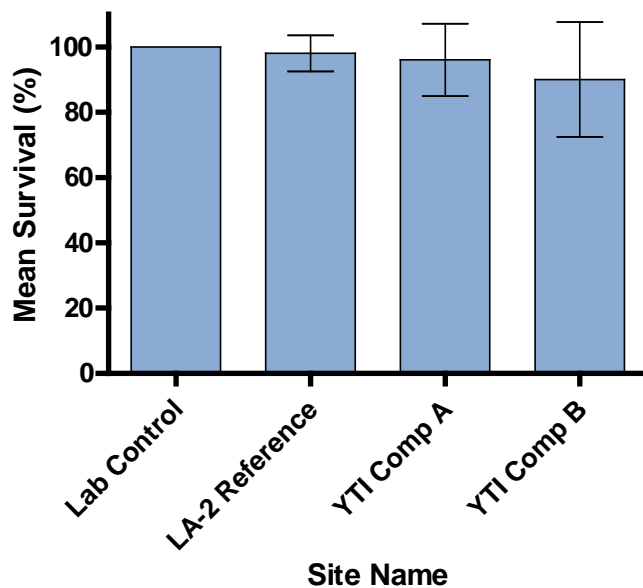


Figure 7. 28-day survival of the blood worm (*N. virens*) in the bioaccumulation exposure (mean  $\pm$  95% CI).

## **4.0 QUALITY ASSURANCE / QUALITY CONTROL**

All of the data presented have been thoroughly reviewed and are deemed acceptable for reporting in accordance with our internal QA/QC program and relevant protocols. All toxicity and bioaccumulation tests were initiated within sediment holding time requirements. Any deviations with respect to test conditions and acceptability criteria are summarized below. All deviations were determined to be minor with no bearing on the data or its final interpretation.

### **4.1 Reference Toxicant Tests**

Reference toxicant test results for solid- and suspended particulate-phase tests are provided in Appendix C. All laboratory controls for reference toxicant tests met test acceptability criteria. Additionally, median lethal and median effect ( $LC_{50}/EC_{50}$ ) concentration values for reference toxicant tests were within two standard deviations of internal control chart means for all species tested.

### **4.2 Solid-Phase Toxicity Tests**

Laboratory control performance for both solid phase tests met minimum test acceptability criteria. All other test acceptability criteria were met and water quality values were within acceptable ranges as defined by the test protocols for both species.

### **4.3 Suspended Particulate-Phase Toxicity Tests**

Fish and mysid survival exceeded the 90 percent criterion in all lab controls. Mussel survival and development met both criteria with greater than 70 percent survival and greater than 70 percent normal shell development of surviving embryos in laboratory controls. Water quality measurements were within specified ranges for the duration of the tests for all species.

### **4.4 Bioaccumulation Tests**

Mean clam and worm survival in laboratory control sediment was 87 and 100 percent, respectively, meeting minimum tissue requirements for chemical analysis. Water quality parameters satisfied test protocol requirements and the data were considered valid without further qualification.

### **4.5 Potential Confounding Factors**

The influence of several potential confounding factors on test performance and interpretation were assessed and are discussed below.

#### 4.5.1 Ammonia

Total and un-ionized ammonia concentrations are summarized in Tables 12 through 15. Un-ionized ammonia, the more toxic form of ammonia, values were calculated from total ammonia measurements (Hampson 1977). Ammonia concentrations were generally below concentrations expected to be toxic, with a few exceptions. The only solid-phase test to show significant toxicity was the *Eohaustorius* solid-phase test, in which both YTI Comp A and YTI Comp B significantly reduced amphipod survival from LA-2 Reference. Total and un-ionized ammonia concentrations in the sediment pore water were well below published toxic thresholds for this species (Table 12). Thus, the toxicity observed in YTI Comp A and YTI Comp B amphipod tests would appear to be unrelated to ammonia concentrations.

Total and un-ionized ammonia was near threshold levels for *Mytilus* in the in the YTI Comp A suspended particulate-phase test, and approximately half that in YTI Comp B. Thus, ammonia may have been a contributing factor in toxicity observed to mussel larvae (Table 14).

**Table 12. Total and Un-ionized Ammonia Concentrations in Sediment Pore Water at Test Initiation**

	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
Fine Grain Size Control	2.6		0.033	
LA-2 Reference	4.1		0.048	
YTI Comp A	15		0.283	
YTI Comp B	7.6		0.109	
Ammonia Threshold Effect Levels (mg/L)				
Test Organism	NOEC		96-hr LC <sub>50</sub> <sup>c</sup>	
	Total	Un-ionized	Total	Un-ionized
<i>Eohaustorius</i> <sup>a</sup>	60	0.8	160	1.5
<i>Neanthes</i> <sup>b</sup>	20	0.7 - 1.25	-	-
<i>Nereis</i>	20	0.68	-	-

<sup>a</sup> NOEC values from EPA 1994 & Kohn et al. 1994

<sup>b</sup> Dillon et al. 1993

<sup>c</sup> 96-h LC<sub>50</sub> values from Nautilus internal data (July 2013)

**Table 13. Total and Un-ionized Ammonia Concentrations in Solid-Phase Toxicity Tests**

	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
	Day 0	Day 10	Day 0	Day 10
<b>Overlying water</b>				
<b><i>Eohaustorius</i></b>				
Lab control	<0.5	<0.5	<0.015	<0.010
Grain Size Control	<0.5	<0.5	<0.014	<0.016
LA-2 Reference	<0.5	1.5	<0.016	0.040
YTI Comp A	1.7	5.0	0.057	0.127
YTI Comp B	<0.5	1.6	<0.015	0.034
<b><i>Neanthes</i></b>				
Lab control	<0.5	<0.5	<0.015	<0.017
LA-2 Reference	0.7	0.9	0.028	0.033
YTI Comp A	2.3	3.8	0.087	0.122
YTI Comp B	<0.5	<0.5	<0.019	<0.018
<b>Ammonia Threshold Effect Levels (mg/L)</b>				
Test Organism	NOEC		96-h LC <sub>50</sub> <sup>c</sup>	
	Total	Un-ionized	Total	Un-ionized
<i>Eohaustorius</i> <sup>a</sup>	60	0.8	160	1.5
<i>Neanthes</i> <sup>b</sup>	20	0.7 - 1.25	-	-

<sup>a</sup> NOEC values from EPA 1994 & Kohn et al. 1994

<sup>b</sup> Dillon et al. 1993

<sup>c</sup> 96-h LC<sub>50</sub> values from Nautilus internal data (July 2013)



**Table 14. Total and Un-ionized Ammonia Concentrations in Suspended Particulate-Phase Toxicity Tests**

Sample	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
<b><i>Mytilus</i></b>	Initiation	Termination	Initiation	Termination
Lab Control	<0.5	0.7	<0.013	0.018
YTI Comp A	7.1	7.9	0.167	0.239
YTI Comp B	3.2	3.4	0.108	0.101
<b><i>Americamysis</i></b>	Initiation	Termination	Initiation	Termination
Lab Control	<0.5	1.2	0.023	0.033
YTI Comp A	6.7	7.7	0.197	0.320
YTI Comp B	2.4	2.3	0.082	0.084
<b><i>Menidia</i></b>	Initiation	Termination	Initiation	Termination
Lab Control	2.1	3.1	0.096	0.117
YTI Comp A	8.7	8.3	0.256	0.378
YTI Comp B	3.1	2.9	0.106	0.139
<b>Ammonia Threshold Effect Levels (mg/L)</b>				
Test Organism	NOEC		96-h LC <sub>50</sub> /EC <sub>50</sub>	
	Total	Un-ionized	Total	Un-ionized
<i>Mytilus</i> <sup>c</sup>	7.8	0.17	12	0.25
<i>Americamysis</i>	29	-	-	2.3
<i>Menidia</i>	4.0 <sup>a</sup>	0.05 <sup>b</sup>	-	0.12 <sup>c</sup>

Note: Results are presented for each undiluted (i.e. 100 percent) elutriate concentration.

<sup>a</sup>Tang et al. 1997

<sup>b</sup>Marine Pollution Studies Laboratory (personal comm.)

<sup>c</sup>Nautilus internal data (July 2013)

**Table 15. Total and Un-ionized Ammonia Concentrations in Bioaccumulation Tests**

<b>Total Ammonia (mg/L)</b>					
	<b>Day 0</b>	<b>Day 7</b>	<b>Day 14</b>	<b>Day 21</b>	<b>Day 28</b>
Lab Control	<0.5	<0.5	<0.5	<0.5	<0.5
LA-2 Reference	<0.5	<0.5	<0.5	<0.5	<0.5
YTI A Comp	1.0	<0.5	<0.5	<0.5	<0.5
YTI B Comp	<0.5	0.7	<0.5	<0.5	<0.5
<b>Un-ionized Ammonia (mg/L)</b>					
Lab Control	<0.014	<0.010	<0.010	<0.010	<0.011
LA-2 Reference	<0.016	<0.010	<0.011	<0.012	<0.012
YTI A Comp	0.031	<0.012	<0.011	<0.012	<0.012
YTI B Comp	<0.015	0.015	<0.011	<0.013	<0.012

## 5.0 REFERENCES

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**Appendix A**  
**Summary of Toxicity Test Results**

**Appendix Table A-1. *Eohaustorius estuarius* 10-day Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: June 14, 2013**

Site ID	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
<b>Laboratory Control</b>	A	20	100	97	4.5
	B	20	100		
	C	19	95		
	D	18	90		
	E	20	100		
<b>Fine Grain Size Control</b>	A	17	85	95	6.1
	B	19	95		
	C	20	100		
	D	20	100		
	E	19	95		
<b>LA-2 Reference</b>	A	20	100	98	2.7
	B	20	100		
	C	19	95		
	D	19	95		
	E	20	100		
<b>YTI Comp A</b>	A	8	40	<b>68*</b>	17
	B	14	70		
	C	14	70		
	D	15	75		
	E	17	85		
<b>YTI Comp B</b>	A	16	80	<b>87*</b>	5.7
	B	17	85		
	C	19	95		
	D	17	85		
	E	18	90		

\*Values with a bold asterisk indicates a statistically significantly decrease from the LA-2 Reference sample.  
Initial number of test organisms per replicate = 20

**Appendix Table A-2. *Neanthes arenaceodentata* 10-day Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 12, 2013**

<b>Site ID</b>	<b>Replicate</b>	<b># Alive</b>	<b>Percent Survival</b>	<b>Mean Percent Survival</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	5	100	96	8.9
	B	4	80		
	C	5	100		
	D	5	100		
	E	5	100		
<b>LA-2 Reference</b>	A	5	100	100	0.0
	B	5	100		
	C	5	100		
	D	5	100		
	E	5	100		
<b>YTI Comp A</b>	A	5	100	100	0.0
	B	5	100		
	C	5	100		
	D	5	100		
	E	5	100		
<b>YTI Comp B</b>	A	5	100	100	0.0
	B	5	100		
	C	5	100		
	D	5	100		
	E	5	100		

Initial number of test organisms per replicate = 5

**Appendix Table A-3. *Mytilus galloprovincialis* 48-hr Survival & Development**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 10, 2013**

**Site ID: YTI Comp A**

<b>Concentration (% Elutriate)</b>	<b>Replicate</b>	<b>Percent Normal Alive</b>	<b>Mean Percent Normal Alive</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	85	87	5.3
	B	89		
	C	79		
	D	92		
	E	91		
<b>10</b>	A	84	87	2.1
	B	85		
	C	90		
	D	88		
	E	87		
<b>50</b>	A	84	85	7.1
	B	83		
	C	95		
	D	86		
	E	75		
<b>100</b>	A	1.8	<b>1.3*</b>	2.1
	B	0.0		
	C	0.0		
	D	0.0		
	E	4.9		

\*Values with a bold asterisk indicates a statistically significantly decrease from the lab control.



Appendix Table A-3 cont. *Mytilus galloprovincialis* 48-hr Survival & Development

Sediment Characterization for YTI Terminal

Test Initiation: July 10, 2013

Site ID: YTI Comp B

Concentration (% Elutriate)	Replicate	Percent Normal Alive	Mean Percent Normal Alive	Standard Deviation
<b>Laboratory Control</b>	A	90	92	1.2
	B	94		
	C	92		
	D	93		
	E	92		
<b>10</b>	A	94	91	1.5
	B	91		
	C	90		
	D	91		
	E	91		
<b>50</b>	A	85	<b>82*</b>	4.5
	B	80		
	C	86		
	D	81		
	E	75		
<b>100</b>	A	77	<b>85*</b>	6.3
	B	84		
	C	89		
	D	80		
	E	93		

\*Values with a bold asterisk indicates a statistically significantly decrease from the lab control.

**Appendix Table A-4. *Americamysis bahia* 96-hr Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 11, 2013**

**Site ID: YTI Comp A**

<b>Concentration (% Elutriate)</b>	<b>Replicate</b>	<b># Alive</b>	<b>Percent Survival</b>	<b>Mean Percent Survival</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	10	100	96	5.5
	B	9	90		
	C	10	100		
	D	10	100		
	E	9	90		
<b>10</b>	A	10	100	90	10
	B	10	100		
	C	8	80		
	D	9	90		
	E	8	80		
<b>50</b>	A	10	100	96	5.5
	B	9	90		
	C	10	100		
	D	10	100		
	E	9	90		
<b>100</b>	A	10	100	92	8.4
	B	9	90		
	C	10	100		
	D	9	90		
	E	8	80		

Initial number of test organisms per replicate = 10

**Appendix Table A-4 cont. *Americamysis bahia* 96-hr Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 11, 2013**

**Site: YTI Comp B**

<b>Concentration (% Elutriate)</b>	<b>Replicate</b>	<b># Alive</b>	<b>Percent Survival</b>	<b>Mean Percent Survival</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	10	100	94	5.5
	B	9	90		
	C	10	100		
	D	9	90		
	E	9	90		
<b>10</b>	A	10	100	94	5.5
	B	10	100		
	C	9	90		
	D	9	90		
	E	9	90		
<b>50</b>	A	10	100	96	8.9
	B	8	80		
	C	10	100		
	D	10	100		
	E	10	100		
<b>100</b>	A	10	100	86	15
	B	7	70		
	C	9	90		
	D	7	70		
	E	10	100		

Initial number of test organisms per replicate = 10

**Appendix Table A-5. *Menidia beryllina* 96-hr Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 11, 2013**

**Site ID: YTI Comp A**

<b>Concentration (% Elutriate)</b>	<b>Replicate</b>	<b># Alive</b>	<b>Percent Survival</b>	<b>Mean Percent Survival</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	9	90	96	5.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	9	90		
<b>10</b>	A	9	90	98	4.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
<b>50</b>	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
<b>100</b>	A	9	90	94	5.5
	B	10	100		
	C	9	90		
	D	10	100		
	E	9	90		

Initial number of test organisms per replicate = 10

**Appendix Table A-5 cont. *Menidia beryllina* 96-hr Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 11, 2013**

**Site ID: YTI Comp B**

<b>Concentration (% Elutriate)</b>	<b>Replicate</b>	<b># Alive</b>	<b>Percent Survival</b>	<b>Mean Percent Survival</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	9	90	96	5.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	9	90		
<b>10</b>	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
<b>50</b>	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
<b>100</b>	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		

Initial number of test organisms per replicate = 10

**Appendix Table A-6. *Macoma nasuta* 28-day Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 12, 2013**

<b>Site ID</b>	<b>Replicate</b>	<b># Alive</b>	<b>Percent Survival</b>	<b>Mean Percent Survival</b>	<b>Standard Deviation</b>
<b>Laboratory Control</b>	A	33	94	87	6.7
	B	29	83		
	C	35 <sup>a</sup>	78		
	D	31	89		
	E	32	91		
<b>LA-2 Reference</b>	A	31	89	90	3.3
	B	33	94		
	C	32	91		
	D	32	91		
	E	30	86		
<b>YTI Comp A</b>	A	30	86	88	8.4
	B	30	86		
	C	35	100		
	D	32	91		
	E	27	77		
<b>YTI Comp B</b>	A	32	91	88	4.7
	B	30	86		
	C	29	83		
	D	33	94		
	E	30	86		

Initial number of test organisms per replicate = 35

<sup>a</sup> Replicate initiated with 45 clams, technician error

**Appendix Table A-7. *Nereis virens* 28-day Survival**

**Sediment Characterization for YTI Terminal**

**Test Initiation: July 12, 2013**

Site ID	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
<b>Laboratory Control</b>	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
<b>LA-2 Reference</b>	A	10	100	98	4.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	9	90		
<b>YTI Comp A</b>	A	8	80	96	8.9
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
<b>YTI Comp B</b>	A	10	100	90	14
	B	8	80		
	C	10	100		
	D	10	100		
	E	7	70		

Initial number of test organisms per replicate = 10

**Appendix B**  
**Water Quality and Raw Data Sheets**



**Marine Amphipod (*Eohaustorius estuarius*) 10-day Survival  
Solid-Phase Sediment Test  
Water Quality and Raw Data Sheets**

**Sediment Bioassay**

**Organism Survival**

Client: AMEC/POLA Test Species: E. estuarius

Project ID: YTI Terminal Start Date/Time: 6/14/2013 1445

Initiated by: BG End Date/Time: 6/24/2013 1040 <sup>vs</sup>

Initial No. Organisms: 20/rep Test No. Series: 1306-~~S074~~ to S079  
5076

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
1	20				
2	18				
3	19				
4	20				
5	8	8			
6	14				
7	20				
8	19				
9	14				
10	19	19			
11	15				
12	17				
13	17				
14	19				
15	20	20			
16	20				
17	20				
18	19				
19	20				
20	17	17			
21	19				
22	17				
23	16				
24	20				
25	18	18			
Tech Initials:	BG/PA	BK	Tech Initials:		

**Initiation QC Check Initials:**

Counts CLM/BG All Jars initiated BG Air BG Lights (24 Hour) BG  
 T<sub>0</sub> pore water WQ (pH, salinity, ammonia) BG All pore water ammonia <60 mg/L BG

**Termination QC Check Initials:**

T<sub>f</sub> <sup>in</sup> pore water WQ (pH, salinity, ammonia) BG

Animal Source/Date Received: Northwestern Aquatic Sciences 07/13 Age at Initiation: 3-5mm

Comments: \_\_\_\_\_

QC Check: BG 7/2/13

Final Review: vs 8/8/13

Sediment Bioassay

Daily Observations

Client: AMEC

Test Species: Eohaustorius estuarius

Project ID: POLA

Start Date/Time: 6/14/2013 1445

Test No.: 1306 - ~~S074~~ <sup>S076</sup> to S079

End Date/Time: 6/24/2013 1040

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
1	Ⓐ	Ⓐ	N	N	N	N	N	N	N	N
2			N	IE	IS	N	N	N	N	IE
3			IS	N	IE	IS	N	N	IS	N
4			N	N	N	N	N	N	N	N
5			N	N	N	N	N	N	N	N
6			N	N	N	N	N	N	N	N
7			N	N	N	N	N	N	N	N
8			N	N	N	N	N	N	N	N
9			N	IE	N	N	N	N	N	N
10			N	N	N	N	N	N	N	N
11			N	IE	N	N	N	N	N	N
12			N	N	N	N	IE	N	N	N
13			N	N	N	N	N	N	N	N
14			N	N	N	N	N	N	N	N
15			IS	2S	IE	N	N	N	IS	N
16			N	N	N	N	N	N	N	N
17			IE	N	N	N	N	N	N	N
18			N	N	N	N	N	N	N	N
19			N	N	N	N	N	N	N	N
20			IS	N	N	N	IS	IS	N	N
21			IS	N	N	2S	N	N	N	IS
22			N	N	N	N	N	N	N	N
23			IE	N	N	N	N	N	N	N
24			N	N	N	N	N	N	N	N
25			N	N	N	N	N	N	N	N
26			N	N	N	N	N	2E	N	N
27			N	N	N	N	N	N	N	N
28			IE	2E	N	IE	N	N	N	IE
29			IE	N	IE	N	IEIS	IE	IS	N
30	✓	✓	N	IS,IE	3S	IS	N	N	IE	IE

Ⓐ Observations not recorded due to tech error

Observations Key: E = Emerged, specify number. S = Trapped on surface, specify number.  
D = No air flow (DO?).

QC Check: BG 7/2/13

Final Review: VS 8/8/13

# Sediment Bioassay

# Daily Observations

Client: AMEC

Test Species: *Eohaustorius estuarius*

Project ID: POLA

Start Date/Time: 6/14/2013 1445

Test No.: 1306 - <sup>5076</sup>~~5074~~ to 5079

End Date/Time: 6/24/2013 1040

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
31	ⓐ	ⓐ	N	N	N	N	3E, 1S	1E	N	N
32	↓	↓	1E	N	N	2S	2E	N	N	2E
33	↓	↓	N	N	N	N	1E	N	1E	1E
34	↓	↓	1E	N	1S	N	3E	N	N	N
35	↓	↓	N	1E	N	7S	2E, 2S	2E	2S	3E

ⓐ observations not recorded due to tech error.

Observations Key: E = Emerged, specify number. S = Trapped on surface, specify number.  
 D = No air flow (DO?).

QC Check: BG 7/2/13 Final Review: VS 8/8/13

AMEC/POLA  
 10-Day *Eohaustorius* Survival Bioassay  
 Random Number Assignment  
 Project: YTI Terminal  
 Test Initiation Date: 6/14/13

Site	Rep	Rand #
Lab Control (Eoh home sediment)	A	16
	B	24
	C	8
	D	25
	E	4
Fine Grain Size Control	A	20
	B	21
	C	17
	D	15
	E	3
LA2 Reference	A	19
	B	1
	C	14
	D	10
	E	7
YTI Composite A	A	5
	B	6
	C	9
	D	11
	E	12
YTI Composite B	A	23
	B	22
	C	18
	D	13
	E	2

QC=BG

final review: AC 9/3/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client: AMEC/POLA Test Species: E. estuarius  
 Site ID: Lab Control Start Date/Time: 6/14/2013 1445  
 Test No.: 1300-S074 to S079 End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.1	15.9	8.1	8.11	CL	
1	<del>28.4</del> 29.6 AD	15.3	8.5	7.96	AD	
2	30.3	15.3	8.4	8.07	SO	
3	29.9	15.2	7.7	7.98	UN	
4	30.1	14.6	8.7	<sup>CL</sup> 7.9801	CL	
5	30.0	14.9	8.7	7.97	CL	
6	30.1	14.8	8.6	7.98	BG	
7	<del>29.4</del> 30.0 ML	14.8	8.2	8.04	ML	
8	<del>29.9</del> 30.0 ML	14.7	8.5	8.08	ML	
9	<sup>CL</sup> <del>30.4</del> 30.0	14.8	8.2	8.05	CL	
10	30.1	14.7	8.7	7.99	BG	

QC Check: BG 7/2/13 Final Review: VS 8/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client: AMEC/POLA Test Species: E. estuarius  
 Site ID: Fine Grain Size Control Start Date/Time: 6/14/2013 1445  
 Test No.: 1300-8074 to 8079 End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.5	15.8	8.0	8.09	CL	
1	<del>30.2</del> 28.7 AP	14.5	8.5	7.96	AP	
2	30.8	14.8	7.8	8.08	SD	
3	30.5	14.8	7.7	8.01	LN	
4	30.5	14.4	8.7	8.03	CL	
5	30.5	14.5	8.4	8.06	CL	
6	30.6	14.6	8.3	8.02	BG	
7	ML <del>30.0-30.5</del> 30.5	14.5	8.1	8.10	ML	
8	30.4	14.6	8.2	8.16	ML	
9	30.6	14.5	8.1	8.21	CL	
10	30.6	14.4	8.5	8.18	BG	

QC Check: BG 7/2/13 Final Review: vs 8/8/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client: AMEC/POLA Test Species: E. estuarius

Site ID: LA2 Reference Start Date/Time: 6/14/2013 1445

Test No.: 1300-2074 to 2079 End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.5	15.0	7.9	8.13	CL	
1	30.5	14.9	8.4	8.02	AD	
2	30.8	15.2	8.1	8.14	SD	
3	30.0	15.1	7.0	8.09	LN	
4	30.0	14.9	8.0	8.09	CL	
5	30.7	15.1	8.4	8.13	CL	
6	30.7	15.1	8.3	8.08	BG	
7	30.6	15.1	8.0	8.13	ML	
8	30.6	15.1	8.2	8.18	ML	
9	30.7	15.1	8.0	8.19	CL	
10	30.0	15.0	8.4	8.09	BG	

QC Check: BG 7/2/13 Final Review: YS 8/8/13



10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client: AMEC/POLA Test Species: E. estuarius  
 Site ID: YTI Terminal Comp A Start Date/Time: 6/14/2013 1445  
 Test No.: 1306 - 5076 End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.1	16.0	7.9	8.16	CL	
1	<del>30.0</del> 28.048	14.8	8.4	7.98	AD	
2	30.3	15.1	8.0	8.08	SD	
3	30.1	14.9	7.6	8.05	LN	
4	30.1	14.0	8.5	8.05	CL	
5	30.4	14.0	8.5	8.06	CL	
6	30.2	14.7	8.3	8.02	BG	
7	<del>24.7</del> 30.1 ML	14.8	7.9	8.06	ML	
8	30.0	14.8	8.2	8.11	ML	
9	30.4	14.6	8.0	8.14	CL	
10	30.5	14.5	8.3	8.08	BG	

QC Check: BG 7/2/13 Final Review: KS 8/8/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client: AMEC/POLA Test Species: E. estuarius  
 Site ID: YTI Terminal Comp B Start Date/Time: 6/14/2013 1445  
 Test No.: 1306-5077 End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.4	15.9	7.9	8.12	CL	
1	30.5	14.8	8.5	8.05	AD	
2	30.8	15.0	8.2	8.10	SD	
3	30.7	14.8	7.7	8.07	UN	
4	31.0	14.6	8.6	8.05	CL	
5	31.0	14.7	8.4	8.07	CL	
6	30.9	14.9	8.2	8.02	BG	
7	<del>30.8</del> 31.0	14.8	8.0	8.03	ML	
8	30.8	14.7	8.3	8.14	ML	
9	30.9	14.7	8.0	8.14	CL	
10	30.7	14.7	8.6	8.00	BG	

QC Check: BG 7/2/13 Final Review: YS 8/8/13

**Total Ammonia Analysis  
Marine**

**Pore Water**

Client: AMEC/POLA  
 Project: YTI Terminal  
 Test Type: Amphipod 10-d survival (Eoh)

DI Blank: 0.0/0.0  
 SW Blank: 0.0/0.0

Test Start Date: 6/14/13

Analyst: AC/BG  
 Analysis Date: 6/11/13 / 6/27/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	pH (units)	Salinity (ppt)	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH <sub>3</sub> )		NA	NA	NA	NA	8.1	9.9
YTI Comp A	-	6/10/13	Pre-test	ⓐ	ⓐ	16.0	19.5
YTI Comp B	-	6/10/13	Pre-test	↓	↓	8.1	9.9
YTI Comp B dup	-	6/10/13	Pre-test	↓	↓	7.9	9.6
YTI Comp B Spk	-	6/10/13	Pre-test	↓	↓	16.2	19.8
LA2 REF	-	6/10/13	Pre-test	↓	↓	3.6	4.4
Blank Spike #2							
Spike Check (10 mg/L NH <sub>3</sub> )		NA	NA	NA	NA	7.7	9.4
Lab Control (Eoh Home)	1	6/14/13	Day 0 PW	7.60	28.6	0.0	40.5
Lab Control (Sail Bay)	2	6/14/13	Day 0 PW	7.72	30.7	2.1	2.6
YTI Comp A	6	6/14/13	Day 0 PW	7.89	28.8	12.3	15.0
YTI Comp B	7	6/14/13	Day 0 PW	7.77	29.2	6.2	7.6
LA2-REF	3	6/14/13	Day 0 PW	7.68	26.7	3.4	4.1
Sample Duplicate <sup>a</sup>	2	NA	NA	NA	NA	2.0	2.4
Sample Duplicate + Spike <sup>a</sup>		NA	NA	NA	NA	9.2	11.2
Spike Check (10 mg/L NH <sub>3</sub> )		NA	NA	NA	NA	7.7	9.4

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{(\text{average ammonia}) (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal [spike]} (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank #2	0.0	NA	9.4	10	NA	94
Lab Control (Sail Bay) #2	2.6	2.4	11.2	10	8	86

Comments: ⓐ Readings not taken

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

<sup>c</sup> RPD calculation not performed due to one or more values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/2/13

Final Review:

BG 8/8/13

**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC/POLA  
 Project: YTI Terminal  
 Test Type: Amphipod 10-d survival (Eoh)

DI Blank: 0.0  
 SW Blank: 0.0

Test Start Date: 6/14/2013

Analyst: BG  
 Analysis Date: 0127/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
<b>Blank Spike (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.1	8.7
Lab Control (Eoh Home)	8	6/14/2013	0	0.0	40.5
Lab Control (Sail Bay)	9	6/14/2013	0	0.1	40.5
YTI Comp A	13	6/14/2013	0	<del>0.4</del> 1.4	1.7
YTI Comp B	14	6/14/2013	0	0.4	40.5
LA2 REF	10 + 2 AC	6/14/13	0 AC	2.7	3.3
				0.4	40.5
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.1	8.7
Lab Control (Eoh Home)	15	6/24/2013	10	0.0	40.5
Lab Control (Sail Bay)	16	6/24/2013	10	0.0	40.5
YTI Comp A	20	6/24/2013	10	4.1	5.0
YTI Comp B	21	6/24/2013	10	1.3	1.0
LA2-REF	17	6/24/13	10	1.2	1.5
Sample Duplicate <sup>a</sup>	9	NA	NA	0.2	40.5
Sample Duplicate + Spike <sup>a</sup>		NA	NA	7.4	9.0
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.1	8.7

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{[\text{average ammonia}] (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal} [\text{spike}] (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.7	10	NA	87
Lab Control Sail Bay	40.5	40.5	9.0	10	ⓐ	→

Comments: \_\_\_\_\_

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

<sup>c</sup> RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/2/13

Final Review: vs 8/8/13

**Marine Polychaete Worm (*Neanthes arenaceodentata*) 10-day Survival  
Solid-Phase Sediment Test  
Water Quality and Raw Data Sheets**

Sediment Bioassay

Organism Survival

Client: AMEC/POLA

Test Species: *N. arenacoedentata*

Project ID: YTI Terminal

Start Date/Time: 7/12/2013 1620

Initiated by: ML/CL

End Date/Time: 7/22/2013 1100

Initial No. Organisms: 5/rep

Test No. Series: 1307 - 5063, 5064, 5156

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
1	5				
2	5				
3	5				
4	5				
5	5	5			
6	5				
7	5				
8	5				
9	5	5			
10	5				
11	5				
12	5				
13	4				
14	5	5			
15	5				
16	5				
17	5				
18	5				
19	5	5			
20	5				
Tech Initials:	ML/AB	BG	Tech Initials:		

Initiation QC Check Initials:

Counts BG All Jars initiated CL Air CL Lights (12:12) BG T<sub>0</sub> Weights —  
 T<sub>0</sub> pore water WQ (pH, salinity, ammonia) CL All pore water ammonia <30 mg/L BG

Termination QC Check Initials:

T<sub>r</sub> pore water WQ (pH, salinity, ammonia) ML/AB

Animal Source/Date Received: ATS 7/19/13

Age at Initiation: 21 days

Comments: \_\_\_\_\_

QC Check: BG 7/23/13

Final Review: ML 8/8/13

AMEC/POLA  
10-Day Neanthes Survival Bioassay  
Random Number Assignment  
Project: YTI Terminal  
Test Initiation Date: 7/12/13

Site	Rep	Rand #
Lab Control (Scrips sand)	A	8
	B	13
	C	11
	D	18
	E	3
LA2 Reference	A	5
	B	12
	C	20
	D	6
	E	7
YTI Composite A	A	14
	B	19
	C	1
	D	16
	E	9
YTI Composite B	A	4
	B	2
	C	15
	D	17
	E	10

QC= 86

final review: AC 9/3/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal

Test Organism: *Neanthes arenaceoedentata*

Sample ID/Log-in No.: Lab Control

Start Date/Time: 7/12/2013 1020

Test No.: 1307-S063, 064, 156

End Date/Time: 7/22/2013 1600

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	19.8	29.8	7.0	7.98	AD	✓ Collect Ammonia
1	19.8	29.9	7.3	8.07	ML	
2	20.5	29.0	7.1	8.16	AD	
3	20.8	29.9	7.0	7.98	LN	
4	20.2	29.9	7.2	8.08	ML	
5	20.2	30.0	7.2	8.02	AG	
6	20.2	29.9	7.2	8.05	LN	
7	19.9	30.0	7.1	7.98	BK	
8	20.0	29.7	7.1	7.99	LN	
9	20.1	29.9	7.2	8.09	LN	
10	20.0	29.8	7.1	8.03	LN	6 ✓ Collect Ammonia

QC Check: BG 7/23/13

Final Review: VB 8/8/13



**10-Day Marine Sediment Bioassay  
Static Conditions**

**Water Quality Measurements**

Client/Project ID: AMEC/POLA YTI Terminal

Test Organism: *Neanthes arenaceodentata*

Sample ID/Log-in No.: LA2 Reference

Start Date/Time: 7/12/2013 1620

Test No.: 1307-S156

End Date/Time: 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	21.0	30.1	7.1	8.07	AD	✓ <sup>W</sup> Collect Ammonia
1	19.9	30.2	7.1	8.08	ML	
2	20.6	30.4	6.9	8.33	AD	
3	20.7	30.3	6.9	8.02	LN	
4	20.4	30.0	7.2	8.01	ML	
5	20.0	30.4	7.3	8.09	AG	
6	20.3	30.4	7.1	8.10	LN	
7	19.9	30.5	7.1	8.06	BK	
8	20.0	30.2	7.0	8.06	LN	
9	20.1	30.6	7.1	8.13	LN	
10	19.9	30.4	7.0	8.07	LN	✓ <sup>W</sup> Collect Ammonia

QC Check: BG 7/23/13

Final Review: V 8/9/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal

Test Organism: *Neanthes arenacoedentata*

Sample ID/Log-in No.: YTI Comp A

Start Date/Time: 7/12/2013 1620

Test No.: 1307-S003

End Date/Time: 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	<del>21.6</del> 20.7 <sup>AT</sup>	29.7	7.0	8.06	AD	✓ Collect Ammonia
1	20.3	29.8	7.1	8.07	ML	
2	20.9	29.9	7.0	8.02	AD	
3	20.7	29.9	7.0	8.01	LN	
4	20.7	29.9	7.1	8.00	ML	
5	20.0	30.0	7.1	8.06	AG	
6	20.5	30.0	7.0	8.07	LN	
7	19.9	30.1	7.1	8.03	BK	
8	20.0	29.9	7.0	8.01	LN	
9	20.1	30.3	7.1	8.08	LN	
10	19.9	30.0	7.1	8.01	LN	✓ Collect Ammonia

QC Check: 869 7/23/13

Final Review: VS 8/8/13

10-Day Marine Sediment Bioassay  
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal

Test Organism: *Neanthes arenaceodentata*

Sample ID/Log-in No.: YTI Comp B

Start Date/Time: 7/12/2013 11:20

Test No.: 1207-3064

End Date/Time: 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	<del>20.9</del> <del>22.0</del> 20.5	29.9	7.0	8.05	AD	<del>AD</del> ✓ Collect Ammonia
1	20.5	30.0	7.0	8.05	ML	
2	21.0	30.2	6.9	8.13	AD	
3	20.8	30.2	7.0	7.96	LN	
4	20.9	30.1	7.1	8.01	ML	
5	20.4	30.2	7.1	8.04	AG	
6	20.6	30.3	7.0	8.05	LN	
7	19.9	30.4	6.9	8.03	BK	
8	20.0	30.1	7.0	8.02	LN	
9	20.1	30.4	7.0	8.10	LN	
10	19.9	30.3	7.0	8.05	LN	✓ Collect Ammonia

QC Check: 86 7/23/13

Final Review: YS 8/8/13

**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC  
Project: POLA YTI Terminal  
Test Type: 10-Day N. arenaceodontata

DI Blank: 0.0  
SW Blank: 0.0

Test Start Date: 7/12/2013

Analyst: AB  
Analysis Date: 7/25/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
<b>Blank Spike (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.0	8.5
Lab Control	N1	7/12/2013	0	0.1	<0.5
Reference	N2	7/12/2013	0	0.6	0.7
YTI Comp A	N3	7/12/2013	0	1.9	2.3
YTI Comp B	N4	7/12/2013	0	0.3	<0.5
Lab Control	N5	7/22/2013	10	0.0	<0.5
Reference	N6	7/22/2013	10	0.7	0.9
YTI Comp A	N7	7/22/2013	10	3.1	<del>3.9</del> 3.8
YTI Comp B	N8	7/22/2013	10	0.3	<0.5
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	6.9	8.4
Sample Duplicate <sup>a</sup>		NA	NA	0.5	0.6
Sample Duplicate + Spike <sup>a</sup>		NA	NA	8.3	10.1
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	6.9	8.4

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{[\text{average ammonia}] (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal} [\text{spike}] (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.5	10	NA	85
YTI Comp B (N8)	<0.5	0.6	10.1	10	C	C

Comments: \_\_\_\_\_

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

<sup>c</sup> RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: 7/30/13 RC

Final Review: KLB/10/13

**Mediterranean Mussel (*Mytilus galloprovincialis*) 48-hr Survival and Development  
Suspended Particulate-Phase Test  
Water Quality and Raw Data Sheets**

# Embryo Larval Bioassay

# 48-hour Development

Client: AMEC/POLA

Test Species: M. galloprovincialis

Project ID: YTI Terminal (Comp B)

Start Date/Time: 7/10/13 1710

End Date/Time: 7/12/13 1730

Sample	Rep	Number Counted	Number Normal	Technician Initials
21	A	181	167	BK
22	B	180	165	BK
23	C	166	143	BK
24	D	175	162	BK
25	E	146	126	BK debms
26	A	176	159	BK
27	B	148	130	BK
28	C	179	159	BK
29	D	162	146	BK
30	E	145	131	BK
31	A	153	139	BK
32	B	171	160	BK
33	C	144	132	BK
34	D	186	170	BK
35	E	160	151	BK
36	A	151	137	BK
37	B	170	159	BK
38	C	169	153	BK
39	D	133	122	BK
40	E	162	149	BK
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			

Note: #25 was difficult to read.

QC Check: KL 7/31/13

Final Review: SO 8/1/13

AMEC/POLA  
48-hr Mussel Development Bioassay  
Random Number Assignment  
Project/Sample ID: YTI Terminal/COMP B  
Test Initiation Date: 7/10/13

Concentration (%)	Rep	Rand #
Lab Control	A	26
	B	37
	C	22
	D	35
	E	21
10	A	32
	B	34
	C	29
	D	38
	E	40
50	A	31
	B	30
	C	23
	D	33
	E	39
100	A	25
	B	36
	C	28
	D	27
	E	24

QC= BK

**Marine Chronic Bioassay**

**Water Quality Measurements**

Client: AMEC/POLA  
 Sample ID: YII Terminal Comp B  
 Sample Log No.: 13-3101  
 Test No.: 1307-5066b

Test Species: M. galloprovincialis  
 Start Date/Time: 7/10/13 1710  
 End Date/Time: 7/12/13 1730

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	29.9	29.5	29.3	16.9	15.5	15.1	8.5	8.6	7.7	8.00	8.05	8.06
10	29.7	29.2	29.1	16.9	15.3	15.0	8.3	8.6	7.8	8.03	8.05	8.05
50	30.0	29.5	29.5	16.9	15.3	15.0	8.2	8.5	7.8	8.07	8.09	8.08
100	30.0	29.4	29.4	16.9	15.4	15.1	7.8	8.4	7.9	<del>8.08</del> 8.18	8.18	8.13

Technician Initials: \_\_\_\_\_  
 WQ Readings: 

0	24	48
AC	PA	EL

  
 Dilutions made by: 

0	24	48
PA	PA	EL

Comments: \_\_\_\_\_  
 0 hrs: \_\_\_\_\_  
 24 hrs: \_\_\_\_\_  
 48 hrs: \_\_\_\_\_

QC Check: KL7/31/13 Final Review: 8/8/13



# Embryo Larval Bioassay

# 48-hour Development

Client: AMEC/POLA

Test Species: M. galloprovincialis

Project ID: YTI Terminal (Comp A)

Start Date/Time: 7/10/13 1710

End Date/Time: 7/12/13 1730

Sample	Rep	Number Counted	Number Normal	Technician Initials
1	A	154	137	cl
2	B	164	156	cl
3	C	167	144	cl
4	D	171	143	cl
5	E	161	138	cl
6	A	145	180	cl
7	B	179	155	cl
8	C	162	8	cl
9	D	146	129	cl
10	E	186	159	cl
11	A	162	3	cl
12	B	179	159	cl
13	C	172	157	cl
14	D	150	0	cl
15	E	191	158	cl
16	A	165	150	BK
17	B	126	0	BK
18	C	142	123	BK
19	D	142	6	BK
20	E	194	170	BK
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			

QC Check: KL 7/31/13

Final Review: [Signature] 8/1/13

AMEC/POLA  
48-hr Mussel Development Bioassay  
Random Number Assignment  
Project/Sample ID: YTI Terminal/COMP A  
Test Initiation Date: 7/10/13

Concentration (%)	Rep	Rand #
Lab Control	A	5
	B	12
	C	9
	D	6
	E	16
10	A	1
	B	10
	C	13
	D	20
	E	7
50	A	4
	B	15
	C	2
	D	3
	E	18
100	A	11
	B	19
	C	17
	D	14
	E	8

QC= BK

**Marine Chronic Bioassay**

**Water Quality Measurements**

Client: AMEC/POLA  
 Sample ID: YTI Terminal Comp A  
 Sample Log No.: 13-3100-3101  
 Test No.: 1307-5065b, 5065b

Test Species: M. galloprovincialis  
 Start Date/Time: 7/10/13 1710  
 End Date/Time: 7/12/13 1730

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	29.9	29.3	29.0	16.9	15.4	15.3	8.5	8.6	8.0	8.00	8.05	8.02
10	30.2	29.6	29.5	16.9	15.5	15.0	8.3	8.6	7.8	8.00	8.04	8.02
SD	30.2	29.7	29.5	16.9	15.4	15.0	7.9	8.6	7.9	7.98	8.07	8.06
100	30.3	29.6	29.6	16.9	15.3	15.1	7.2	8.4	7.8	7.97	8.16	8.14

Technician Initials: \_\_\_\_\_  
 WQ Readings: 

0	24	48
AC	PA	EL

  
 Dilutions made by: 

0	24	48
PA		

Comments: \_\_\_\_\_  
 0 hrs: \_\_\_\_\_  
 24 hrs: \_\_\_\_\_  
 48 hrs: \_\_\_\_\_

QC Check: KL7/BL/13 Final Review: SD 8/8/13

Marine Chronic Bioassay

Larval Development Worksheet

Client: AMEC/POLA  
 Test No.: 1307-5065b, -5066eb  
 Test Species: Mytilus galloprovincialis  
 Animal Source: Taylor shellfish  
 Date Received: 7/10/13  
 Test Chambers: semitranslucent steel vials  
 Sample Volume: 100mls kc

Start Date/Time: 7/10/2013 1445 1710  
 End Date/Time: 7/12/2013 1445 1730  
 Technician Initials: KS KL

Spawn Information

First Gamete Release Time: 1100

Sex	Number Spawning
Male	<u>3</u>
Female	<u>1</u>

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	<u>1, 2, 3</u>	<u>good motility + density</u>
Female 1	<u>1</u>	<u>good density, whitish, misshapen</u>
Female 2		
Female 3		

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	<u>98</u>
Female 2	
Female 3	

Egg Fertilization Time: 1250

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted: 21 7  
12 10  
15 11  
7 17  
15 12

Mean: 12.7

Mean 12.7  $\times \frac{50}{42} =$  635 embryos/ml

Initial Density: 635 = 2.12 (dilution factor)  
 Desired Final Density: 300  
 (to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	Mean % Dividing
<u>T01</u>	<u>143</u>	<u>145</u>	<u>99.3%</u>
<u>T02</u>	<u>187</u>	<u>188</u>	
<u>T03</u>	<u>154</u>	<u>155</u>	
<u>T04</u>	<u>167</u>	<u>168</u>	
<u>T05</u>	<u>166</u>	<u>167</u>	

48-h QC: 124/135 = 92%

Comments: X = 163

QC Check: KL 7/11/13

Final Review: 80 8/1/13

**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC  
Project: POLA Dredge Evaluation  
Test Type: Bivalve Elutriate

DI Blank: 0.0 Test Start Date: 7/10/13 Analyst: CC  
SW Blank: 0.0 Analysis Date: 7/10/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH <sub>3</sub> )		NA	NA	6.8	8.3
Lab Control	25	7/10/2013	0	0.0	0.5
YTI Comp A 10%	26	7/10/2013	0	0.7	0.9
YTI Comp A 50%	27	7/10/2013	0	2.9	3.5
YTI Comp A 100%	28	7/10/2013	0	5.8	7.1
YTI Comp B 10%	29	7/10/2013	0	0.6	0.7
YTI Comp B 50%	30	7/10/2013	0	1.5	1.8
YTI Comp B 100%	31	7/10/2013	0	2.6	3.2
Lab Control	32	7/12/2013	2	0.6	0.7
YTI Comp A 10%	33	7/12/2013	2	1.2	1.5
YTI Comp A 50%	34	7/12/2013	2	3.4	4.1
Spike Check (10 mg/L NH <sub>3</sub> )		NA	NA	6.9	8.4
YTI Comp A 100%	35	7/12/2013	2	6.5	7.9
YTI Comp B 10%	36	7/12/2013	2	1.0	1.2
YTI Comp B 50%	37	7/12/2013	2	1.5	1.8
YTI Comp B 100%	38	7/12/2013	2	2.8	3.4
Sample Duplicate <sup>a</sup>		NA	NA	2.7	3.3
Sample Duplicate + Spike <sup>a</sup>		NA	NA	10.5	12.8
Spike Check (10 mg/L NH <sub>3</sub> )		NA	NA	6.8	8.3

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{\text{average ammonia} (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal [spike]} (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.3	10	NA	83
X 38	3.4	3.3	12.8	10	2.9	94
					3.0	

Comments: \_\_\_\_\_

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.  
<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.  
<sup>c</sup> RPD calculation not performed due to one or both values below the method detection limit.  
Method Detection Limit (MDL) = 0.5 mg/L

QC Check: By 7/10/13 Final Review: KL 8/0/13

**Mysid Shrimp (*Americamysis bahia*) 96-hr Survival  
Suspended Particulate-Phase Test  
Water Quality and Raw Data Sheets**

96-Hour Marine Sediment Bioassay  
Suspended Particulate Phase

Water Quality Measurements  
& Test Organism Survival

Client: AMEC

Test Species: A. bahia

Sample ID: YTI Comp A

Start Date/Time: 7/11/2013 1530

Test No.: 1304-S045

End Date/Time: 7/15/2013 1435

Concentration _____%	Rep	Number of Live Organisms			Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (units)			Percent Survival				
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24		48	72	96	
Lab Control	A	10	10	10	29.3	30.0	30.1	21.2	25.9	28.0	25.5	25.0	5.1	5.3	5.1	7.93	7.98	7.95	7.94	100	
	B	10	10	9																96	
	C	10	10	10																100	
	D	10	10	10																100	
	E	10	10	9																96	
10	A	10	10	10	29.5	30.0	30.1	21.3	25.8	25.8	25.0	25.4	5.1	5.5	5.4	8.00	7.98	7.96	7.85	100	
	B	10	10	10																100	
	C	10	10	8																80	
	D	10	10	9																96	
	E	10	8	8																80	
50	A	10	10	10	29.5	29.8	29.9	24.5	25.9	25.9	25.7	25.2	7.6	5.8	5.4	7.91	7.97	7.95	7.89	100	
	B	10	10	9																90	
	C	10	10	10																100	
	D	10	10	10																100	
	E	10	10	9																90	
100	A	10	10	10	29.1	29.4	29.6	24.3	26.0	25.9	25.9	25.7	7.1	5.7	5.5	7.82	7.97	7.99	8.07	7.94	100
	B	10	10	9																96	
	C	10	10	10																100	
	D	10	10	9																90	
	E	10	9	8																80	

Technician Initials: ML LN

Animal Source/Date Received: Abs 7/11/13

Age at Initiation: 5d

Comments: \_\_\_\_\_  
\_\_\_\_\_

Feeding Times (hr):

0	24	48	72	96
-	8690	1420	1000	0915
-	1100	1100	1300	1505

QC Check: LN 7/11/13

Final Review: sc 7/18/13

96-Hour Marine Sediment Bioassay  
Suspended Particulate Phase

Water Quality Measurements  
& Test Organism Survival

Client: AMEC

Test Species: A. bahia

Sample ID: YTI Comp B

Start Date/Time: 7/11/2013 1545

Test No.: 1307-S000

End Date/Time: 7/15/2013 1445

Concentration _____%	Rep	Number of Live Organisms			Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (units)			Percent Survival		
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24		48	72
Lab Control	A	10	10	10	29.2	29.0	29.1	29.4	29.5	29.4	29.5	29.5	29.5	8.3	8.0	8.1	8.1	8.1	100
	B	10	9	9															90
	C	10	10	10															100
	D	10	10	9															90
	E	10	9	9															90
10	A	10	10	10	29.3	29.0	29.2	29.2	29.2	29.4	29.4	29.4	29.4	8.4	8.0	8.1	8.1	8.1	100
	B	10	10	10															100
	C	10	10	9															90
	D	10	10	9															90
	E	10	9	9															90
50	A	10	10	10	29.1	29.8	29.9	30.1	30.1	29.4	29.3	29.4	29.5	8.0	8.0	8.0	8.0	8.0	100
	B	10	10	8															80
	C	10	10	10															100
	D	10	10	10															100
	E	10	10	10															100
100	A	10	10	10	28.9	28.5	28.7	30.1	30.4	28.9	28.7	28.7	28.7	7.5	7.5	7.5	7.5	7.5	100
	B	10	8	7															70
	C	10	9	9															90
	D	10	10	7															70
	E	10	10	10															100
Technician Initials		SM LN																	

Age at Initiation: 5d

Animal Source/Date Received: ABS 7/11/13

Comments:

0	24	48	72	96
-	0809	1010	1010	0815
-	1700	1600	1600	1505

Feeding Times (hr):

QC Check: LN 7/11/13

Final Review: SC 7-18-13

Nautilus Environmental, LLC. 4340 Vandever Avenue. San Diego, CA 92120.



**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC  
 Project: POLA YTI Comp A  
 Test Type: Mysid Acute Elutriate

DI Blank: 0.0 Test Start Date: 7/11/2013 Analyst: AB  
 SW Blank: 0.0 Analysis Date: 7/17/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
<b>Blank Spike (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.0	8.54 <sup>AB</sup>
YTI Comp A Lab Control	47	7/11/2013	0	0.0	<0.5
YTI Comp A 10%	48	7/11/2013	0	0.7	0.9
YTI Comp A 50%	49	7/11/2013	0	2.8	3.4
YTI Comp A 100%	50	7/11/2013	0	5.5	6.7
YTI Comp A Lab Control	51	7/15/2013	4	1.0	1.22 <sup>AB</sup>
YTI Comp A 10%	52	7/15/2013	4	1.4	1.7
YTI Comp A 50%	53	7/15/2013	4	3.6	4.4
YTI Comp A 100%	54	7/15/2013	4	6.3	7.7
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA		
Sample Duplicate <sup>a</sup>		NA	NA	6.6	8.1
Sample Duplicate + Spike <sup>a</sup>		NA	NA	13.6	16.6
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.0	8.5

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{[\text{average ammonia}] (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal spike} (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0	NA	8.5	10	NA	85
#54	7.7	8.1	16.6	10	5.1	5.7 <sup>AB</sup>

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Comments: \_\_\_\_\_

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

<sup>c</sup> RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/17/13

Final Review: KL 8/10/13



**Elutriate Preparation**

Client : AMEC Test Species: M. beryllina

Sample IDs : YTI Comp A, YTI Comp B A. bahia

Analyst: PA M. galloprovincialis

Test No(s) : 1307-sde5, a, b; 1307-sde6, a, b

Protocol : EPA-503/8-91/001 Feb 1991

Dilution Water Used to prepare elutriate (circle): Lab SW or Site Water

Salinity (ppt): 30

Ratio 1:4 (Sediment:Water):  
 Sediment Volume: 3 L Example: 2 L Sediment  
 Water Volume: 12 L 8 L Water

Mix sediment and water in polyethylene plastic-lined 5-gallon bucket with stainless steel mixing blade for a total of 30 min.

Every 10 minutes, use a stainless steel spoon to manually suspend settled sediment.

*(Bivalve) YTI A: 1415 ✓ 7/10/13*  
*YTI B: 1615 ✓ 1600*  
*YTI A (Bivalve) - 1630 7/10/13*  
*YTI B (Bivalve) - 1215 7/11/13*  
*mb-a + my-a: 1130*

Start Date/Time: (mb-a, my-a) End Date/Time: (mb-a, my-a) - 1215

(When the elutriate starts settling) (When the elutriate is siphoned)  
 Allow sediment to settle for 1-hour. See project manager if settling is insufficient.  
 Siphon overlying water into a new container and collect Ammonia Samples.  
 If necessary, centrifuge elutriate to remove particulates (especially for larval testing).

Check Dissolved Oxygen before preparing dilutions (aerate if < 6.0 mg/L). Record below:

Site:	Initial DO (mg/L):	Final DO (mg/L):
YTI Comp A (bivalve)	<u>3.5</u>	<u>6.8</u>
YTI Comp B (bivalve)	<u>3.7</u>	<u>6.5</u>
YTI Comp A (my-a + mb-a)	<u>4.2</u>	<u>7.1</u>
YTI Comp B (my-a + mb-a)	<u>4.5</u>	<u>7.2</u>

Comments: \* Elutriate collected for bivalve tests  
on 7/10/13 + for mysid and meridia tests  
on 7/11/13.

QC Check: KL 7/31/13 Final Review: gc 8/1/13

**Inland Silverside (*Menidia beryllina*) 96-hr Survival  
Suspended Particulate-Phase Test  
Water Quality and Raw Data Sheets**

96-Hour Marine Sediment Bioassay  
Suspended Particulate Phase

Water Quality Measurements  
& Test Organism Survival

Client: AMEC

Sample ID: YTI Comp A

Test No.: 1307-S0059

Test Species: *M. beryllina*

Start Date/Time: 7/11/2013 1400

End Date/Time: 7/15/2013 1455

Concentration %	Rep	Number of Live Organisms			Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (units)			Percent Survival					
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24		48	72	96		
Lab Control	A	10	10	9	29.3	30.0	30.8	31.1	24.2	25.8	25.2	24.9	8.2	5.5	6.3	6.4	8.03	7.99	8.01	8.10	7.92	90
	B	10	10	10																		100
	C	10	10	10																		100
	D	10	10	10																		100
	E	10	9	9																		90
10	A	10	10	9	29.5	30.1	30.7	31.0	24.3	25.8	25.2	24.9	8.1	5.4	6.2	6.3	8.00	7.88	8.00	8.09	7.92	90
	B	10	10	10																		100
	C	10	10	10																		100
	D	10	10	10																		100
	E	10	10	10																		100
50	A	10	10	10	29.5	29.7	30.2	31.1	24.5	25.8	25.0	24.9	7.6	5.2	6.2	6.4	7.71	7.88	8.09	8.14	7.97	100
	B	10	10	10																		100
	C	10	10	10																		100
	D	10	10	10																		100
	E	10	10	10																		100
100	A	10	10	9	29.1	29.8	30.0	31.5	24.3	25.8	25.2	24.8	7.1	5.1	6.7	6.3	7.82	7.88	8.09	8.17	8.01	90
	B	10	10	10																		100
	C	10	10	9																		90
	D	10	10	10																		100
	E	10	10	9																		90
Technician Initials	ML Ba UN																					

Animal Source/Date Received: ABS / 7/10/13

Age at Initiation: 14 days

Comments: Test aerated at 24 hr

Feeding Times (hr):	0	24	48	72	96
	--	SSP	BP	BP	BP
	--	--	--	--	--

QC Check: UN 7/10/13  
Nautilus Environmental, LLC. 4340 Vandever Avenue. San Diego, CA 92120.

Final Review: JL 7-15-13

96-Hour Marine Sediment Bioassay  
Suspended Particulate Phase

Water Quality Measurements  
& Test Organism Survival

Client: AMEC

Test Species: *M. beryllina*

Sample ID: YTI Comp B

Start Date/Time: 7/11/2013 1015

Test No.: 1307-Schedule

End Date/Time: 7/15/2013 1510

Concentration %	Rep	Number of Live Organisms			Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (units)			Percent Survival										
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24		48	72	96							
Lab Control	A	10	9	9	29.2	29.7	30.1	30.7	31.4	24.1	25.5	26.0	24.9	24.7	24.8	25.4	26.4	27.3	28.3	29.3	30.0	7.93	8.02	8.12	7.94	90	
	B	10	10	10																						100	
	C	10	10	10																						100	
	D	10	10	10																						100	
	E	10	10	9																						90	
10	A	10	10	10	29.3	29.7	30.0	30.5	31.1	24.3	26.0	26.0	24.8	24.7	24.8	25.4	26.4	27.3	28.3	29.3	30.0	7.99	7.90	8.00	8.08	7.91	100
	B	10	10	10																						100	
	C	10	10	10																						100	
	D	10	10	10																						100	
	E	10	10	10																						100	
50	A	10	10	10	29.1	28.4	28.7	30.3	30.7	24.2	25.2	25.1	24.8	24.8	24.8	25.1	26.4	27.3	28.3	29.3	30.0	7.92	7.92	8.07	8.10	7.99	100
	B	10	10	10																						100	
	C	10	10	10																						100	
	D	10	10	10																						100	
	E	10	10	10																						100	
100	A	10	9	10	28.7	29.0	29.0	30.0	30.5	25.4	25.7	25.2	25.1	24.9	24.9	25.4	26.4	27.3	28.3	29.3	30.0	7.85	7.90	8.13	8.19	8.05	100
	B	10	10	10																						100	
	C	10	9	10																						100	
	D	10	10	10																						100	
	E	10	9	10																						100	
Technician Initials				ML		BS		LN																			

Animal Source/Date Received: ABS 7/10/13

Age at Initiation: 14 days

Comments: test started out 24hr

Feeding Times (hr):	0	24	48	72	96
	-	0.50	0.50	0.50	0.50
	-	-	-	-	-

QC Check: LN 7/10/13

Final Review: 9c 7/18/13

Final Review: 9c 7/18/13

Nautilus Environmental, LLC. 4340 Vandever Avenue. San Diego, CA 92120.

**Elutriate Preparation**

Client : AMEC Test Species: M. beryllina

Sample IDs : YTI Comp A, YTI Comp B A. bahia

Analyst: PA M. galloprovincialis

Test No(s) : 1307-sde5, a, b; 1307-sde6, a, b

Protocol : EPA-503/8-91/001 Feb 1991

Dilution Water Used to prepare elutriate (circle): Lab SW or Site Water

Salinity (ppt): 30

Ratio 1:4 (Sediment:Water):  
 Sediment Volume: 3 L Example: 2 L Sediment  
 Water Volume: 12 L 8 L Water

Mix sediment and water in polyethylene plastic-lined 5-gallon bucket with stainless steel mixing blade for a total of 30 min.

Every 10 minutes, use a stainless steel spoon to manually suspend settled sediment.

*(Bivalve) YTI A: 1415 ✓ 7/10/13*  
*YTI B: 1615 ✓ 1600*  
*YTI A (Bivalve) - 1630 7/10/13*  
*YTI B (Bivalve) - 1215 7/11/13*  
*mb-a + mg-a: 1130*

Start Date/Time: (mb-a, mg-a) 1615 End Date/Time: (mb-a, mg-a) 1215  
 (When the elutriate starts settling) (When the elutriate is siphoned)

Allow sediment to settle for 1-hour. See project manager if settling is insufficient.

Siphon overlying water into a new container and collect Ammonia Samples.

If necessary, centrifuge elutriate to remove particulates (especially for larval testing).

Check Dissolved Oxygen before preparing dilutions (aerate if < 6.0 mg/L). Record below:

Site:	Initial DO (mg/L):	Final DO (mg/L):
YTI Comp A (bivalve)	<u>3.5</u>	<u>6.8</u>
YTI Comp B (bivalve)	<u>3.7</u>	<u>6.5</u>
YTI Comp A (mg-a + mb-a)	<u>4.2</u>	<u>7.1</u>
YTI Comp B (mg-a + mb-a)	<u>4.5</u>	<u>7.2</u>

Comments: \* Elutriate collected for bivalve tests on 7/10/13 + for mysid and meridia tests on 7/11/13.

QC Check: KL 7/31/13 Final Review: gc 8/1/13

**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC  
 Project: POLA YTI Comp A  
 Test Type: Menidia Acute Elutriate

DI Blank: 0.0  
 SW Blank: 0.0

Test Start Date: 7/11/13

Analyst: AD  
 Analysis Date: 7/25/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
<b>Blank Spike (10 mg/L NH<sub>3</sub>)</b>		NA	NA	8.2	10.0
YTI Comp A Lab Control	39	7/11/2013	0	1.7	2.1
YTI Comp A 10%	40	7/11/2013	0	2.4	2.9
YTI Comp A 50%	41	7/11/2013	0	4.7	5.7
YTI Comp A 100%	42	7/11/2013	0	7.1	8.7
YTI Comp A Lab Control	43	7/15/2013	4	2.5	3.1
YTI Comp A 10%	44	7/15/2013	4	3.0	3.7
YTI Comp A 50%	45	7/15/2013	4	4.7	5.7
YTI Comp A 100%	46	7/15/2013	4	6.8	8.3
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	8.2	10.0
Sample Duplicate <sup>a</sup>		NA	NA	7.1	8.7
Sample Duplicate + Spike <sup>a</sup>		NA	NA	14.9	18.2
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	8.2	10.0

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{[\text{average ammonia}] (\text{mg/L})} \times 100$       Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal} [\text{spike}] (\text{mg/L})} \times 100$       Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	10.0	10	NA	100
YTI Comp A 100% (46)	8.3	8.7	18.2	10	14.7	99

Comments:

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.  
<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.  
<sup>c</sup> Calculation not performed due to one or both values below the method detection limit.  
 Method Detection Limit (MDL) = 0.5 mg/L

QC Check: LN 8/27/13

Final Review: AC 9/3/13



**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC  
Project: POLA YTI Comp B  
Test Type: Meridia Acute Elutriate

DI Blank: 0.0  
SW Blank: 0.0

Test Start Date: 7/11/2013

Analyst: CL  
Analysis Date: 7/17/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
<b>Blank Spike (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.4	9.0
YTI Comp B Lab Control	55	7/11/2013	0	0.4	0.5
YTI Comp B 10%	56	7/11/2013	0	0.7	0.9
YTI Comp B 50%	57	7/11/2013	0	1.2	1.5
YTI Comp B 100%	58	7/11/2013	0	2.5	3.1
YTI Comp B Lab Control	59	7/15/2013	4	0.7	0.9
YTI Comp B 10%	60	7/15/2013	4	0.8	1.0
YTI Comp B 50%	61	7/15/2013	4	1.7	2.1
YTI Comp B 100%	62	7/15/2013	4	2.4	2.9
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA		
Sample Duplicate <sup>a</sup>		NA	NA	2.4	2.9
Sample Duplicate + Spike <sup>a</sup>		NA	NA	10.9	13.3
<b>Spike Check (10 mg/L NH<sub>3</sub>)</b>		NA	NA	7.1	8.7

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{[\text{average ammonia}] (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal spike} (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.0	10	NA	90
X 62	2.9	2.9	13.3	10	0	104

Comments: \_\_\_\_\_

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

<sup>c</sup> RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/17/13

Final Review: KL 8/13

**Marine Clam (*Macoma nasuta*) and Polychaete Worm (*Nereis virens*)  
28-day Bioaccumulation Test  
Water Quality and Raw Data Sheets**

**28-Day Marine Sediment Bioassay  
Bioaccumulation**

**Organism Survival**

Client: AMEC/ POLA  
Project ID: YTI Terminal

Start Date/Time: 7/12/2013 1500  
End Date/Time: 8/9/2013 1000

Worm Species: Nereis virens  
Clam Species: Macoma nasuta

Initial Number of 35 clams  
Each Species: 10 worms

Site	Rep	Number of Surviving Worms	Number of Surviving Clams
Lab Control	A	10	33
	B	10	29
	CC	10	35
	D	10	31
	E	10	32
LA2 Reference	A	10	31
	B	10	33
	C	10	32
	D	10	32
	E	9	30
YTI Comp A	A	10	30
	B	10	30
	C	10	35
	D	10	32
	E	10	27
YTI Comp B	A	10	32
	B	8	30
	C	10	29
	D	10*	32
	E	7	30
	A		
	B		
	C		
	D		
	E		
	A		
	B		
	C		
	D		
	E		

QC Check: AC 8/30/13

Final Review: 9/26/13

@ Replicate initiated with 45 clams; tech error.

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

\* Worm split in half.

28-Day Marine Sediment Bioassay  
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA  
 Test Organism: *Macoma nasuta* and *Nereis virens*  
 Sample ID/Log-in No.: Lab Control  
 Start Date/Time: 7/12/2013 1500  
 Test No.: 1807-S067 to S068 + S157 End Date/Time: 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
A-D	1	0	A-D <del>LN</del>		ML
B-C	2	2 clam, 1 clam			S
A-E	3	1 clam each			LN
- A-E M-APP	4	M-1 clam, 2 clams			JAE AG-ML
LN-D A-D	5	2 clam, 1 clam			AG LN
LN C, D	6	2 clam, 1 clam			LN
-	7	-			BK
-	8	-			LN
-	9	-			LN
-	10	-			LN
-	11	-			LN
-	12	-			LN
-	13	-			LN
-	14	-			AG
C	15	1 clam			BG
-	16	-			BK
C	17	1 clam			LN
D	18	1 clam			BG
-	19	-			BK
C, E	20	1 clam, 1 clam			ML
-	21	-			BK
-	22	-			ML
-	23	-			ML
B	24	1 clam			LN
B, C	25	1 clam, 1 clam			LN
E	26	1 clam			ML
-	27	-			ML
C	28	1 clam			BK

QC Check: AL 9/3/13 Final Review: LS 9/26/13

28-Day Marine Sediment Bioassay  
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA Test Organism: *Macoma nasuta* and *Nereis virens*  
 Sample ID/Log-in No.: LA2 Reference Start Date/Time: 7/12/2013 1500  
 Test No.: 1307-S157 End Date/Time: 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
A-E	1	0	A, B, E ↑		ML
B, D	2	2 <sup>1</sup> <del>1</del> clams, 1 clam			G
C, D, E	3	1 clam, 2 clams, 1 clam			LN
A, E	4	4 clams, 2 clams			ML
D	5	1 clam			AO
-	6	-			LN
C	7	1 clam			BK
-	8	-			LW
-	9	-			LN
-	10	-			LN
-	11	-			LN
-	12	-			LN
-	13	-			AG
-	14	-			BG
-	15	-			BK
-	16	-			LN
-	17	-			BG
-	18	-			BK
E	19	2 clams			ML
-	20	-			BK
-	21	-			ML
-	22	-			ML
-	23	-			AO
-	24	-			LN
-	25	-			LN
-	26	-			ML
-	27	-			ML
-	28	-			BK

QC Check: AC & 9/3/13 Final Review: ML 8/26/13

28-Day Marine Sediment Bioassay  
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA

Test Organism: *Macoma nasuta* and *Nereis virens*

Sample ID/Log-in No.: YTI Comp A

Start Date/Time: 7/12/2013 1500

Test No.: 1307-S067

End Date/Time: 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
A+C	1	0	A+C ↑		ML
A,B	2	1 clam, 1 clam,	-		GT
A-E	3	0	CT		LN
A,D,E	4	2, 1, 1 clams			ML
A,D	5	1 clam each			AG
E	6	2 clams			LN
E	7	1 clam			BK
-	8	-			LN
-	9	-			LN
-	10	-			LN
-	11	-			LN
-	12	-			LN
-	13	-			LN
E	14	2 clams			AG
-	15	-			BG
-	16	-			BK
-	17	-			LN
-	18	-			BG
B	19	2 <sup>ML</sup> clams			BK
-	20	-			ML
-	21	-			BK
-	22	-			ML
-	23	-			ML
-	24	-			AD
-	25	-			LN
A,D	26	1 clam, 2 clams			LN
-	27	-			ML
-	28	-			ML
					BK

QC Check: AC-9/3/13

Final Review: 9/26/13

28-Day Marine Sediment Bioassay  
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA

Test Organism: *Macoma nasuta* and *Nereis virens*

Sample ID/Log-in No.: YTI Comp B

Start Date/Time: 7/12/2013 1800

End Date/Time: 8/9/2013 1000

Test No.: 1307-SD68

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
-	1	-			ML
A, C, D	2	1 clam, 2 clams, 1 clam			GT
A, B, E	3	1 clam, 1 clam, 1 clam			UN
<del>A, B</del>	4	<del>1 clam, 1 clam</del>			<del>AG</del> ML
- B	5	- 1 clam			AG
-	6	-			LN
-	7	-			BK
C	8	1 clam			LN
-	9	-			LN
C	10	1 clam			LN
-	11	-			LN
-	12	-			LN
-	13	-			AG
C	14	1 clam			EG
-	15	-			BK
-	16	-			LN
-	17	-			EG
-	18	-			BK
<del>ML</del> B	19	1 clam			ML
B, B, E	20	1 clam			BK
-	21	-			ML
E	22	1 clam			BK
-	23	-			ML
-	24	-			AD
-	25	-			UN
-	26	-			UN
-	27	-			ML
<del>A, B, C, E</del>	28	<del>1 clam, 2 clam, 1 clam, 3 clams</del>			ML

QC Check: AC 9/3/13

Final Review: 9/26/13

Water Quality Measurements

28-Day Marine Sediment Bioassay Bioaccumulation

Start Date/Time: 7/12/2013 1500  
 End Date/Time: 8/2/2013 8/1/13 1000

YTI Terminal  
 Lab Control

Project ID:  
 Site ID:

Client: AMECIPOLA  
 Macoma and Nereis

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	14.0	14.2	14.3	14.4	14.4	8.5	8.5	8.4	8.4	8.4	8.4	8.12	8.08	8.09	8.10	83.0	83.0	83.0	83.0	83.3	AG
1	17.4	16.4	16.1	16.2	15.2	7.2	7.5	7.7	7.7	7.7	7.7	7.86	7.86	7.91	7.87	83.0	83.2	83.2	83.2	83.1	ML
2	14.7	14.4	15.2	15.6	15.2	8.1	8.2	7.9	7.8	7.8	7.8	7.91	7.69	7.90	7.80	83.0	83.1	83.2	83.2	83.2	B
3	14.9	14.2	15.3	15.7	15.5	8.1	8.1	7.9	7.7	7.8	7.8	7.73	7.79	7.77	7.75	83.1	83.2	83.2	83.2	83.3	LN
4	14.9	14.1	15.4	15.2	15.5	8.2	8.3	8.0	8.1	8.0	8.0	7.90	7.92	7.96	7.90	83.2	83.3	83.3	83.3	83.3	ML
5	15.1	14.2	15.7	15.1	15.4	8.1	8.3	7.8	8.0	7.7	7.7	7.83	7.96	7.92	7.91	83.1	83.2	83.3	83.3	83.3	AG
6	15.2	14.4	15.9	15.3	15.6	7.9	8.2	7.7	8.1	7.7	7.7	7.87	7.95	7.90	7.89	83.2	83.3	83.3	83.4	83.4	LN
7*	15.3	14.6	15.1	15.2	15.7	7.9	8.1	8.0	8.1	7.8	7.8	7.84	7.94	7.94	7.88	83.3	83.4	83.4	83.4	83.4	BK
8	15.3	14.8	15.3	15.4	15.7	7.7	7.9	7.9	7.8	7.8	7.8	7.81	7.80	7.89	7.87	83.2	83.2	83.3	83.3	83.3	LN
9	15.5	15.1	15.4	15.5	15.6	8.0	8.1	8.0	7.9	7.9	7.9	7.87	7.95	7.97	7.90	83.4	83.4	83.5	83.5	83.8	LN
10	15.4	14.8	15.3	15.5	15.8	7.8	8.0	7.9	7.7	7.7	7.7	7.84	7.91	7.87	7.88	83.2	83.2	83.3	83.3	83.3	LN
11	15.9	15.2	15.4	15.7	15.9	7.8	8.0	7.8	7.8	7.7	7.7	7.84	7.90	7.87	7.87	83.0	83.1	83.1	83.1	83.2	LN
12	14.8	14.8	15.4	14.8	14.8	8.3	8.3	8.1	8.1	8.1	8.2	7.94	7.94	7.96	7.95	83.0	83.1	83.2	83.2	83.1	ML
13	14.5	14.8	15.3	14.9	14.9	8.1	8.0	7.9	7.8	7.8	7.9	7.76	7.78	7.83	7.82	83.2	83.3	83.4	83.4	83.4	AG
14*	14.8	15.0	15.6	15.0	15.0	8.5	8.5	8.2	8.3	8.3	8.3	7.91	7.92	7.95	7.93	83.2	83.3	83.5	83.5	83.4	BG
15	14.7	14.9	15.5	14.9	14.9	8.2	8.3	8.0	8.0	7.9	7.9	7.89	7.94	7.96	7.94	83.0	83.0	83.1	83.1	83.1	BK
16	14.9	14.8	15.2	14.8	14.8	8.4	8.4	8.2	8.2	8.2	8.2	7.88	7.93	7.92	7.92	83.1	83.1	83.3	83.3	83.2	LN
17	14.5	14.8	15.2	14.9	14.9	8.5	8.5	8.3	8.2	8.3	8.3	7.92	7.95	7.93	7.93	83.1	83.2	83.3	83.3	83.2	BG
18	14.5	14.7	15.2	14.8	14.8	8.5	8.5	8.3	8.1	8.0	8.2	7.93	7.96	7.93	7.93	83.5	83.7	83.8	83.9	83.9	ML
19	14.7	14.6	15.3	14.8	14.8	8.2	8.1	8.0	8.0	8.0	8.2	7.92	7.93	7.93	7.93	83.0	83.0	83.0	83.0	83.0	ML
20	14.5	14.7	15.2	14.6	14.6	8.4	8.4	8.2	8.2	8.2	8.2	8.00	8.03	8.01	7.99	83.3	83.3	83.3	83.3	83.7	ML
21*	14.8	14.8	15.3	14.7	14.7	8.6	8.6	8.0	8.0	8.0	8.2	7.90	7.94	7.91	7.95	83.4	83.5	83.5	83.5	83.2	ML
22	14.6	14.7	15.3	14.7	14.7	8.4	8.3	8.1	8.1	8.1	8.1	7.99	7.94	7.91	7.95	83.0	83.1	83.1	83.1	83.3	AD
23	14.7	14.7	15.1	14.9	14.8	8.5	8.3	8.2	8.1	8.2	8.1	7.91	7.93	7.90	7.90	83.2	83.3	83.4	83.4	83.3	LN
24	14.8	15.0	15.5	15.4	15.4	8.3	8.3	8.2	8.2	8.2	8.2	7.87	7.91	7.92	7.94	83.4	83.4	83.4	83.4	83.3	LN
25	15.8	15.4	15.9	15.8	15.5	7.9	7.8	7.9	7.8	7.9	7.8	7.99	7.89	7.88	7.84	83.3	83.4	83.4	83.4	83.3	LN
26	14.7	14.8	14.8	14.8	14.4	8.3	8.2	8.0	8.1	8.1	8.1	7.94	7.94	7.90	7.90	83.3	83.4	83.5	83.5	83.4	ML
27	14.5	14.8	14.9	14.7	14.7	8.4	8.3	8.2	8.2	8.2	8.2	7.94	7.90	7.90	7.95	83.4	83.5	83.5	83.5	83.4	ML
28*	14.7	14.9	14.9	15.3	14.8	8.3	8.1	8.1	8.0	8.1	8.1	7.96	7.98	8.00	7.96	83.4	83.5	83.5	83.5	83.5	BK

Comments: \* Collect NH<sub>3</sub> Samples

QC Check: AC 9/3/13

Final Review: 9/26/13



Water Quality Measurements

28-Day Marine Sediment Bioassay  
Bioaccumulation

Client: AMEC/POLA  
Macoma and Nereis  
YTI Terminal  
LA2 Reference  
Project ID:  
Site ID:  
Start Date/Time: 7/12/2013 1500  
End Date/Time: 8/2/2013 1000

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	14.7	14.8	14.9	14.9	15.8	8.3	8.2	8.1	8.2	7.8	8.15	8.14	8.14	8.13	8.10	35.4	33.3	33.4	33.2	33.2	AG
1	14.1	15.0	16.2	15.9	16.1	8.2	7.6	7.5	7.4	7.4	7.96	7.94	7.93	7.90	7.97	33.1	33.2	33.1	33.2	33.2	ML
2	14.5	14.6	14.6	15.0	15.2	7.9	8.0	7.9	7.9	7.8	7.81	7.80	7.74	7.84	7.78	33.2	33.2	33.1	33.2	33.3	S
3	14.7	14.7	15.2	15.3	15.4	7.7	7.9	7.7	7.8	7.8	7.89	7.96	7.94	7.96	7.92	33.2	33.5	33.2	33.3	33.4	LN
4	14.8	15.0	15.1	15.2	15.5	7.4	8.1	7.9	8.0	7.8	7.89	7.96	7.94	7.96	7.92	33.3	33.4	33.4	33.4	33.4	ML
5	14.7	14.9	15.1	15.2	15.2	7.9	8.0	8.0	7.9	7.9	7.95	7.99	7.96	7.97	7.97	33.2	33.3	33.3	33.5	33.3	AG
6	14.9	15.0	15.3	15.0	15.7	8.0	8.0	7.9	8.0	7.8	7.94	7.94	7.94	7.94	7.94	33.3	33.4	33.4	33.4	33.4	LN
7*	14.9	15.1	15.4	15.5	15.6	7.9	8.2	8.0	7.8	7.8	7.94	7.96	7.93	7.96	7.95	33.4	33.4	33.5	33.5	33.4	BK
8	15.0	15.1	15.5	15.0	15.7	7.9	7.8	7.7	7.7	7.6	7.87	7.91	7.89	7.92	7.90	33.2	33.2	33.3	33.3	33.1	LN
9	15.0	15.2	15.0	15.0	15.8	8.1	7.8	7.8	7.9	7.9	7.94	7.98	7.94	7.92	7.91	33.4	33.5	33.2	33.5	33.3	LN
10	14.9	15.2	15.5	15.0	15.8	7.8	7.9	7.7	7.7	7.7	7.89	7.90	7.88	7.92	7.91	33.0	33.2	33.3	33.3	33.3	LN
11	14.9	15.5	15.9	15.9	15.9	7.7	7.8	7.7	7.7	7.6	7.89	7.90	7.88	7.90	7.94	33.0	33.2	33.2	33.2	33.3	LN
12	14.7	15.0	15.1	14.4	14.0	8.2	8.2	8.1	8.3	8.2	7.96	7.96	7.96	7.97	7.99	33.1	33.2	33.2	33.1	33.1	ML
13	14.7	14.9	15.0	14.5	14.7	7.9	7.9	7.9	7.9	7.9	7.84	7.85	7.86	7.90	7.89	33.3	33.4	33.4	33.4	33.4	AG
14*	14.9	15.2	15.3	14.6	15.0	8.3	8.3	8.1	8.5	8.3	7.94	7.95	7.93	7.99	7.97	33.4	33.5	33.3	33.3	33.3	BG
15	15.0	15.1	15.2	14.6	14.9	7.8	8.0	8.0	8.1	8.0	7.92	7.94	7.92	7.98	7.94	33.1	33.1	33.2	33.0	33.1	BK
16	14.8	15.0	15.1	15.0	14.7	8.4	8.2	8.1	8.2	8.3	7.98	8.00	7.97	8.02	7.95	33.1	33.1	33.1	33.1	33.1	LN
17	14.7	15.0	15.3	14.4	14.6	8.3	8.2	8.2	8.3	8.3	7.94	7.95	7.94	7.98	7.97	33.2	33.2	33.2	33.1	33.2	BG
18	14.6	15.0	15.2	14.3	14.8	8.2	8.1	8.0	8.3	8.1	7.95	7.95	7.93	7.97	7.95	32.9	33.1	33.1	33.0	33.1	CC
19	14.4	15.1	15.3	14.5	14.8	8.1	8.0	8.0	8.2	8.1	7.94	7.94	7.94	7.97	7.94	33.9	33.9	33.8	33.6	33.6	ML
20	14.4	14.9	15.1	14.3	14.6	8.3	8.2	8.1	8.4	8.3	8.02	8.02	8.02	8.05	8.04	33.9	33.9	33.5	33.5	33.5	CC
21*	14.6	15.0	15.5	14.3	14.7	8.7	8.1	7.9	8.3	8.2	7.98	7.97	7.96	7.99	8.01	33.3	33.6	33.6	33.6	33.8	ML
22	14.6	14.8	15.2	14.2	14.6	8.1	8.1	8.0	8.3	8.2	7.95	7.96	7.96	7.99	7.97	33.2	33.3	33.3	33.3	33.3	ML
23	14.5	14.7	15.0	14.5	14.9	8.0	8.2	8.1	8.2	8.4	7.97	7.98	7.97	7.99	7.98	33.3	33.5	33.4	33.4	33.5	AD
24	15.1	15.0	15.2	14.3	14.7	8.2	8.2	8.2	8.3	8.3	7.91	7.94	7.95	7.98	7.97	33.3	33.3	33.3	33.3	33.4	LN
25	15.5	15.5	15.7	15.2	15.4	7.9	7.9	7.8	7.6	7.8	7.87	7.87	7.87	7.90	7.89	33.4	33.6	33.6	33.7	33.7	LN
26	14.4	14.8	15.0	14.0	14.6	8.2	8.1	8.0	8.4	8.2	7.97	7.97	7.96	8.00	8.01	33.4	33.5	33.5	33.5	33.5	ML
27	14.5	14.8	15.1	14.5	14.7	8.3	8.1	8.1	8.3	8.2	7.99	7.99	7.98	8.01	8.00	33.6	33.6	33.6	33.6	33.6	ML
28*	14.5	14.9	15.1	14.7	14.7	7.9	7.9	8.1	8.2	8.2	8.01	8.01	7.99	8.01	8.03	33.5	33.5	33.5	33.5	33.5	BK

Comments: \* Collect NH<sub>3</sub> Samples  
QC Check: AC 9/3/13  
Final Review: LAG 9/26/13

28-Day Marine Sediment Bioassay  
Bioaccumulation

Water Quality Measurements

Client: AMEC/POLA Project ID: YTI Terminal Start Date/Time: 7/12/2013 1500  
 Test Species: *Macoma and Nereis* Site ID: YTI Comp A End Date/Time: 8/2/2013 1000 8/9/13

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	15.4	15.7	15.3	15.4	15.6	8.1	8.1	8.2	8.1	8.1	8.12	8.12	8.13	8.12	8.12	33.0	33.0	33.0	33.0	33.0	AG
1	15.0	16.7	16.6	15.4	14.7	7.1	7.6	7.4	7.7	7.9	7.92	7.96	7.96	7.97	7.99	33.0	33.0	33.0	33.0	33.0	ML
2	15.5	15.6	15.5	15.5	15.5	7.2	7.6	7.7	7.8	7.8	7.83	7.92	7.92	7.95	7.95	33.1	33.1	33.2	33.3	33.1	SS
3	14.0	16.0	16.3	15.9	15.8	7.0	7.7	7.4	7.4	7.7	7.91	7.86	7.82	7.84	7.87	33.2	33.2	33.3	33.3	33.3	LN
4	14.5	14.3	14.9	15.8	15.7	8.1	8.3	8.0	7.6	7.7	8.01	8.02	7.98	7.97	7.94	33.3	33.3	33.3	33.3	33.3	ML
5	14.6	14.4	14.4	15.0	15.2	8.2	8.2	8.1	8.0	8.0	7.97	8.02	8.02	7.98	7.98	33.1	33.1	33.3	33.3	33.3	AG
6	14.4	14.5	14.4	15.5	15.5	8.0	8.3	8.1	8.0	7.7	8.01	8.01	8.00	8.01	7.92	33.3	33.3	33.3	33.4	33.3	LN
7*	14.7	14.7	14.7	15.5	15.6	8.1	8.2	8.1	7.9	7.8	8.00	8.01	7.99	7.96	7.93	33.4	33.4	33.4	33.5	33.5	BK
8	14.9	14.7	14.9	15.4	15.4	7.9	8.0	7.9	7.8	7.8	7.94	7.96	7.93	7.92	7.88	33.2	33.2	33.2	33.3	33.3	LN
9	14.9	14.7	14.9	15.7	15.5	8.1	8.2	8.1	7.9	7.9	7.97	8.03	7.98	7.98	7.97	33.4	33.4	33.5	33.6	33.6	LN
10	14.4	14.7	14.7	15.4	15.5	7.9	8.0	7.9	7.7	7.7	7.91	7.95	7.92	7.92	7.92	33.2	33.2	33.1	33.4	33.2	LN
11	15.5	15.3	15.1	15.9	15.9	7.9	7.9	7.9	7.7	7.7	7.93	7.93	7.93	7.92	7.92	33.1	33.1	33.2	33.2	33.2	LN
12	14.4	14.5	14.6	15.3	15.0	8.2	8.3	8.2	8.0	8.1	8.01	8.02	7.98	7.98	7.98	33.6	33.6	33.6	33.6	33.6	ML
13	14.6	14.6	14.7	15.0	15.0	7.9	7.9	7.9	7.8	7.9	7.91	7.92	7.90	7.90	7.91	33.3	33.4	33.4	33.3	33.3	AG
14*	14.9	14.9	15.0	15.2	15.1	8.4	8.4	8.3	8.2	8.3	7.98	8.00	7.94	7.96	7.97	33.3	33.4	33.3	33.3	33.3	BG
15	14.7	14.8	14.7	15.1	15.0	8.1	8.2	8.0	7.9	8.0	7.97	8.02	7.95	7.96	7.98	33.1	33.1	33.1	33.2	33.1	BK
16	14.4	14.5	14.4	15.0	14.9	8.4	8.2	8.3	8.1	8.0	7.97	8.03	7.96	8.00	8.01	33.2	33.2	33.2	33.1	33.1	LN
17	14.4	14.6	14.6	14.9	14.9	8.3	8.3	8.3	8.3	8.4	7.99	8.02	7.95	7.97	7.98	33.2	33.2	33.2	33.2	33.2	BG
18	14.7	14.6	14.8	14.8	14.8	8.2	8.3	8.1	8.2	8.1	7.95	7.96	7.93	7.96	7.96	33.0	33.1	33.2	33.1	33.1	LN
19	14.4	14.7	15.1	14.6	14.9	8.1	8.1	8.1	8.1	8.1	7.97	7.96	7.94	7.96	7.97	33.8	33.8	33.8	33.8	33.8	ML
20	14.4	14.3	14.4	14.4	14.7	8.4	8.4	8.4	8.3	8.3	8.08	8.08	8.03	8.04	8.05	33.5	33.5	33.5	33.4	33.4	LN
21*	14.8	14.4	14.7	14.5	14.7	8.2	8.3	8.1	8.2	8.2	8.02	8.04	8.01	8.02	8.02	33.6	33.6	33.6	33.6	33.6	ML
22	14.7	14.4	14.5	14.3	14.7	8.1	8.3	8.2	8.2	8.2	7.96	8.00	7.97	7.98	7.99	33.3	33.3	33.3	33.3	33.3	ML
23	14.4	14.5	14.9	14.7	14.8	8.1	8.2	8.2	8.2	8.3	7.99	8.00	7.98	7.99	8.00	33.5	33.5	33.4	33.5	33.4	AD
24	15.1	14.3	14.9	14.4	14.4	8.2	8.3	8.2	8.3	8.2	7.94	7.98	7.95	7.96	7.98	33.3	33.3	33.5	33.5	33.5	LN
25	15.4	15.4	15.4	15.4	15.4	7.9	7.9	7.9	7.8	7.9	7.89	7.91	7.90	7.90	7.91	33.7	33.7	33.7	33.7	33.7	LN
26	14.4	14.3	14.5	14.4	14.4	8.0	8.3	8.2	8.2	8.2	8.02	8.04	8.03	8.00	8.06	33.3	33.3	33.5	33.5	33.5	ML
27	14.4	14.4	14.7	14.4	14.7	8.2	8.3	8.2	8.2	8.3	8.01	8.02	8.03	8.00	8.00	33.4	33.4	33.4	33.4	33.4	ML
28*	14.8	14.5	14.7	14.5	14.8	8.2	8.1	8.2	8.0	7.2	8.03	8.04	8.03	8.03	8.02	33.5	33.5	33.4	33.5	33.5	BK

Comments: \* Collect NH<sub>3</sub> Samples  
 QC Check: AC 9/3/13  
 Final Review: WJ 9/26/13

28-Day Marine Sediment Bioassay  
Bioaccumulation

Water Quality Measurements

Client: AMEC/POLA  
Test Species: Macoma and Nereis

Project ID:  
Site ID:

YTI Terminal  
YTI Comp B

Start Date/Time: 7/12/2013 1500  
End Date/Time: 8/2/2013 AC 1000 8/9/13

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	14.3	15.2	15.6	15.9	8.4	8.1	8.0	8.1	8.0	8.0	8.09	8.09	8.09	8.09	8.09	33.1	33.0	33.0	33.0	33.1	ML
1	15.2	15.4	15.3	15.3	7.8	7.7	7.8	7.8	7.7	7.7	7.96	7.96	7.96	7.96	7.96	33.1	33.2	33.2	33.2	33.2	ML
2	14.8	15.2	14.8	15.2	7.9	7.6	7.8	7.9	7.8	7.8	7.96	7.96	7.96	7.96	7.96	33.2	33.2	33.2	33.2	33.2	ML
3	15.1	15.4	15.4	15.3	7.8	7.6	7.7	7.8	7.7	7.7	7.96	7.96	7.96	7.96	7.96	33.2	33.3	33.3	33.3	33.3	UN
4	15.0	15.4	15.3	15.4	7.9	7.7	7.9	7.9	7.9	7.9	7.96	7.96	7.96	7.96	7.96	33.3	33.4	33.4	33.4	33.4	ML
5	15.4	15.3	15.3	15.3	7.9	7.5	7.8	7.9	7.8	7.8	7.96	7.96	7.96	7.96	7.96	33.4	33.4	33.4	33.4	33.4	ML
6	15.4	15.2	15.4	15.5	7.9	7.7	7.9	7.9	7.7	7.7	7.96	7.96	7.96	7.96	7.96	33.4	33.5	33.5	33.5	33.5	UN
7*	15.1	15.5	15.5	15.3	8.0	7.7	7.9	7.9	7.9	7.9	7.96	7.96	7.96	7.96	7.96	33.4	33.5	33.5	33.5	33.5	BK
8	15.2	15.5	15.4	15.4	7.7	7.5	7.5	7.5	7.5	7.5	7.96	7.96	7.96	7.96	7.96	33.2	33.3	33.3	33.3	33.3	UN
9	15.3	15.4	15.4	15.4	7.9	7.7	7.9	7.9	7.9	7.9	7.96	7.96	7.96	7.96	7.96	33.2	33.3	33.3	33.3	33.3	UN
10	15.2	15.4	15.4	15.3	7.7	7.4	7.7	7.7	7.7	7.7	7.96	7.96	7.96	7.96	7.96	33.2	33.4	33.4	33.4	33.4	UN
11	15.7	15.7	15.2	15.2	7.7	7.4	7.7	7.7	7.7	7.7	7.96	7.96	7.96	7.96	7.96	33.1	33.2	33.2	33.2	33.2	UN
12	15.4	15.4	14.5	14.9	8.1	7.6	8.1	8.4	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.0	33.1	33.1	33.1	33.1	ML
13	15.0	15.2	14.7	14.5	7.8	7.7	7.8	8.0	7.8	7.8	7.96	7.96	7.96	7.96	7.96	33.3	33.4	33.4	33.4	33.4	AG
14*	15.1	15.5	14.9	14.7	8.1	7.9	8.2	8.5	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.3	33.3	33.3	33.3	33.3	BG
15	15.1	15.4	14.9	14.5	7.9	7.7	7.9	8.0	7.9	7.9	7.96	7.96	7.96	7.96	7.96	33.1	33.2	33.2	33.2	33.2	BK
16	15.0	15.1	14.4	15.0	8.0	7.9	8.0	8.2	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.1	33.2	33.2	33.2	33.2	UN
17	14.9	15.3	14.7	14.4	8.2	8.0	8.2	8.4	8.3	8.3	7.96	7.96	7.96	7.96	7.96	33.2	33.2	33.2	33.2	33.2	BG
18	15.0	15.3	14.8	14.3	8.0	7.8	8.1	8.3	8.0	8.0	7.96	7.96	7.96	7.96	7.96	33.1	33.1	33.1	33.1	33.1	CC
19	15.1	15.4	14.8	14.4	7.9	7.4	8.0	8.2	8.0	8.0	7.96	7.96	7.96	7.96	7.96	33.0	33.1	33.1	33.1	33.1	ML
20	15.2	15.2	14.7	14.3	8.0	7.7	8.0	8.2	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.4	33.4	33.4	33.4	33.4	CC
21*	15.3	15.4	14.9	14.5	7.9	7.7	7.9	8.0	7.9	7.9	7.96	7.96	7.96	7.96	7.96	33.5	33.5	33.5	33.5	33.5	ML
22	15.3	15.4	14.9	14.7	7.8	7.6	7.8	8.1	7.8	7.8	7.96	7.96	7.96	7.96	7.96	33.3	33.3	33.3	33.3	33.3	ML
23	15.1	15.3	14.8	15.1	7.9	7.8	8.0	8.1	8.0	8.0	7.96	7.96	7.96	7.96	7.96	33.4	33.4	33.4	33.4	33.4	AD
24	15.7	15.5	15.0	14.6	8.0	7.5	8.1	8.3	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.5	33.5	33.5	33.5	33.5	UN
25	15.8	15.7	15.4	15.2	7.8	7.4	7.8	7.9	7.8	7.8	7.96	7.96	7.96	7.96	7.96	33.8	33.8	33.8	33.8	33.8	UN
26	15.2	15.3	14.8	14.4	7.8	7.7	7.9	8.2	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.5	33.5	33.5	33.5	33.5	ML
27	15.2	15.4	15.0	14.5	7.9	7.6	8.2	8.2	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.6	33.6	33.6	33.6	33.6	ML
28*	15.4	15.5	15.0	14.7	7.9	7.7	7.9	8.1	8.1	8.1	7.96	7.96	7.96	7.96	7.96	33.5	33.5	33.5	33.5	33.5	BK

Comments: \* Collect NH<sub>3</sub> Samples

QC Check: AC 9/3/13 Final Review: AC 9/26/13

28-Day Marine Sediment Bioassay  
Bioaccumulation

Water Quality Measurements

Client: AMEC/POHA  
 Test Species: Macoma and Nereis

Project ID: YT, Terminal  
 Site ID: Comp A+B  
 Start Date/Time: 8/19/13 AC  
 End Date/Time: 8/19/13 1500

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (pH units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
29	14.6	14.1	14.1	14.6	14.0	8.6	7.8	8.3	8.4	8.4	7.95	7.68	7.73	8.00	8.00	33.8	33.8	33.8	33.8	33.9	AC
29	15.4	15.9	15.7	16.0	15.7	7.7	7.6	7.6	7.7	7.4	7.92	7.89	7.87	7.84	7.84	33.6	33.7	33.7	33.7	33.6	CC

worm  
Clam

Comments:

QC Check: AC 9/3/13 Final Review: YF 9/26/13

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

AMEC/POLA 28-day Bioaccumulation  
YTI Terminal  
Test Species: *Macoma nasuta* and *Nereis virens*  
Test Date: 7/12/13

Site	Rep	Rand #
LA2 Reference	A	9
	B	12
	C	4
	D	6
	E	10
YTI Composite A	A	7
	B	5
	C	11
	D	14
	E	13
YTI Composite B	A	8
	B	2
	C	1
	D	3
	E	15

Indicate C for clam, or W for worm next to random number

QC-A

**Total Ammonia Analysis  
Marine**

**Overlying Water**

Client: AMEC  
Project: POLA  
Test Type: 28-Day Bioaccumulation

DI Blank: 0.0  
SW Blank: 0.0

Test Start Date: 7/12/2013

Analyst: TS  
Analysis Date: 9/24/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH <sub>3</sub> )		NA	NA	7.6	9.3
Lab Control	B1	7/12/2013	0	-0.1	<0.5
Reference	B2	7/12/2013	0	0.4	<0.5
YTI Comp A	B3	7/12/2013	0	0.8	0.7
YTI Comp B	B4	7/12/2013	0	0.3	<0.5
Lab Control	B5	7/19/2013	7	0.2	<0.5
Reference	B6	7/19/2013	7	0.2	0.5
YTI Comp A	B7	7/19/2013	7	0.3	<0.5
YTI Comp B	B8	7/19/2013	7	0.6	0.7
Lab Control	B9	7/26/2013	14	0.0	<0.5
Reference	B10	7/26/2013	14	0.1	<0.5
Spike Check (10 mg/L NH <sub>3</sub> )		NA	NA	7.6	9.3
YTI Comp A	B11	7/26/2013	14	0.1	<0.5
YTI Comp B	B12	7/26/2013	14	0.2	<0.5
Lab Control	B13	8/2/2013	21	-0.1	<0.5
Reference	B14	8/2/2013	21	0.0	<0.5
YTI Comp A	B15	8/2/2013	21	0.0	<0.5
YTI Comp B	B16	8/2/2013	21	0.4	<0.5
Lab Control	B17	8/9/2013	28	0.0	<0.5
Reference	B18	8/9/2013	28	-0.2	<0.5
YTI Comp A	B19	8/9/2013	28	0.0	<0.5
YTI Comp B	B20	8/9/2013	28	0.0	<0.5
Sample Duplicate <sup>a</sup>		NA	NA	0.3	<0.5
Sample Duplicate + Spike <sup>a</sup>		NA	NA	7.8	9.5
Spike Check (10 mg/L NH <sub>3</sub> )		NA	NA	7.6	9.3

Relative Percent Difference (RPD) =  $\frac{[\text{sample}] (\text{mg/L}) - [\text{sample duplicate}] (\text{mg/L})}{[\text{average ammonia}] (\text{mg/L})} \times 100$

Acceptable Range: 0-20%

Percent Recovery =  $\frac{[\text{spiked sample}] (\text{mg/L}) - [\text{sample}] (\text{mg/L})}{\text{nominal} [\text{spike}] (\text{mg/L})} \times 100$

Acceptable Range: 80-120%<sup>b</sup>

QC Sample ID	[NH <sub>3</sub> ]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.3	10	NA	93
YTI Comp B	20.5	<0.5	9.5	10	C	48.8

Comments: \_\_\_\_\_

Notes: <sup>a</sup> Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

<sup>b</sup> Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

<sup>c</sup> RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: AC 9/18/13

Final Review: AS 9/25/13

**Appendix C**  
**Reference Toxicant Data**

**Marine Amphipod (*Eohaustorius estuarius*)**



# CETIS Summary Report

Report Date: 19 Jun-13 10:07 (p 1 of 1)  
 Test Code: 130614eera | 07-2203-5945

Acute Amphipod Survival Test Nautilus Environmental (CA)

Batch ID: 01-5191-3962	Test Type: Survival (96h)	Analyst:
Start Date: 14 Jun-13 16:05	Protocol: EPA/600/R-94/025 (1994)	Diluent: Diluted Natural Seawater
Ending Date: 18 Jun-13 14:30	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 94h	Source: Northwestern Aquatic Science, OR	Age: Size 3-5 mm

Sample ID: 00-0192-5160	Code: 130614eera	Client: Internal
Sample Date: 14 Jun-13	Material: Cadmium chloride	Project:
Receive Date: 14 Jun-13	Source: Reference Toxicant	
Sample Age: 16h	Station: Cadmium chloride	

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-3812-0276	96h Survival Rate	1.25	2.5	1.768	15.1%		Dunnett Multiple Comparison Test

Point Estimate Summary							
Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
15-9339-8356	96h Survival Rate	EC50	9.612	7.784	11.87		Trimmed Spearman-Kärber

96h Survival Rate Summary											
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
1.25		4	0.9	0.8695	0.9305	0.8	1	0.04082	0.08165	9.07%	10.0%
2.5		4	0.825	0.778	0.872	0.7	1	0.06292	0.1258	15.25%	17.5%
5		4	0.725	0.669	0.781	0.6	0.9	0.075	0.15	20.69%	27.5%
10		4	0.7	0.6695	0.7305	0.6	0.8	0.04082	0.08165	11.66%	30.0%
20		4	0.1	0.05688	0.1431	0	0.2	0.05774	0.1155	115.5%	90.0%

96h Survival Rate Detail					
C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
1.25		0.8	1	0.9	0.9
2.5		1	0.8	0.8	0.7
5		0.6	0.6	0.9	0.8
10		0.6	0.8	0.7	0.7
20		0.2	0	0	0.2

**CETIS Analytical Report**

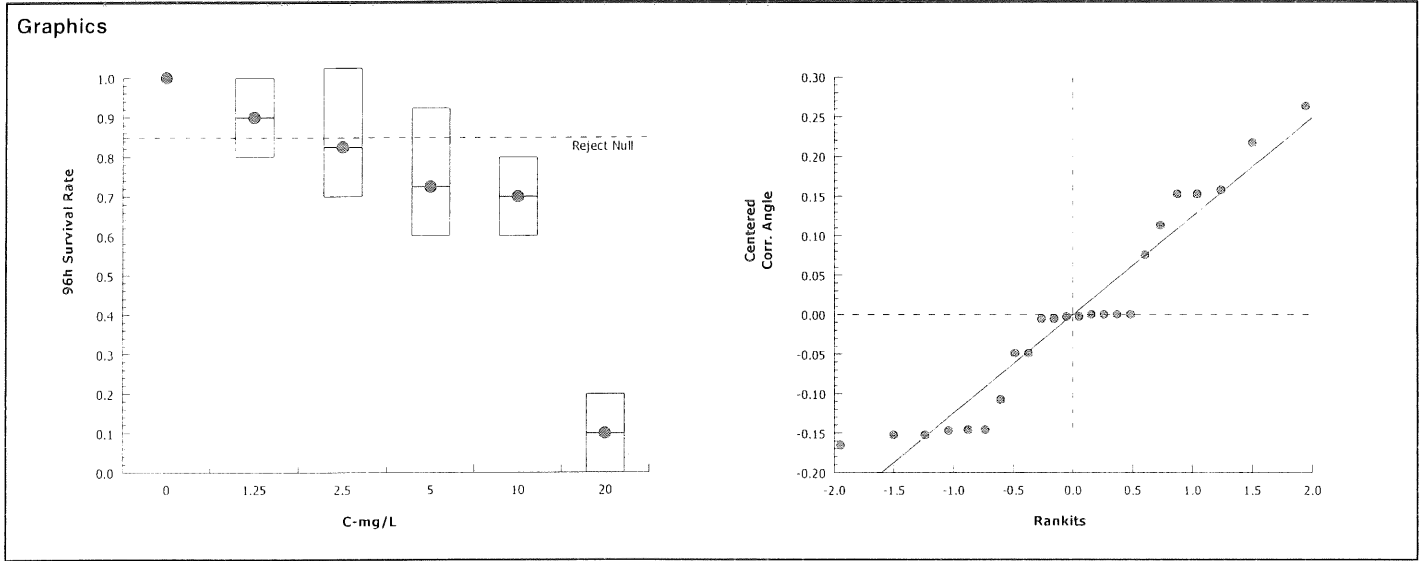
Report Date: 19 Jun-13 10:07 (p 1 of 2)  
 Test Code: 130614eera | 07-2203-5945

Acute Amphipod Survival Test										Nautilus Environmental (CA)	
Analysis ID: 18-3812-0276		Endpoint: 96h Survival Rate			CETIS Version: CETISv1.8.4						
Analyzed: 19 Jun-13 10:04		Analysis: Parametric-Control vs Treatments			Official Results: Yes						
Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD		
Angular (Corrected)	NA	C > T	NA	NA	1.25	2.5	1.768		15.1%		
Dunnett Multiple Comparison Test											
Control	vs	C-mg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)		
Lab Control		1.25	1.575	2.407	0.241	6	0.2046	CDF	Non-Significant Effect		
		2.5*	2.555	2.407	0.241	6	0.0376	CDF	Significant Effect		
		5*	3.796	2.407	0.241	6	0.0029	CDF	Significant Effect		
		10*	4.177	2.407	0.241	6	0.0013	CDF	Significant Effect		
		20*	11	2.407	0.241	6	<0.0001	CDF	Significant Effect		
Auxiliary Tests											
Attribute	Test		Test Stat	Critical	P-Value	Decision(α:5%)					
Extreme Value	Grubbs Extreme Value		2.102	2.802	0.6778	No Outliers Detected					
ANOVA Table											
Source	Sum Squares		Mean Square	DF	F Stat	P-Value	Decision(α:5%)				
Between	2.920323		0.5840646	5	29.15	<0.0001	Significant Effect				
Error	0.3606956		0.02003864	18							
Total	3.281018			23							
Distributional Tests											
Attribute	Test		Test Stat	Critical	P-Value	Decision(α:1%)					
Variances	Mod Levene Equality of Variance		2.089	4.248	0.1141	Equal Variances					
Variances	Levene Equality of Variance		3.433	4.248	0.0236	Equal Variances					
Distribution	Shapiro-Wilk W Normality		0.9184	0.884	0.0537	Normal Distribution					
96h Survival Rate Summary											
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
1.25		4	0.9	0.7701	1	0.9	0.8	1	0.04082	9.07%	10.0%
2.5		4	0.825	0.6248	1	0.8	0.7	1	0.06292	15.25%	17.5%
5		4	0.725	0.4863	0.9637	0.7	0.6	0.9	0.075	20.69%	27.5%
10		4	0.7	0.5701	0.8299	0.7	0.6	0.8	0.04082	11.66%	30.0%
20		4	0.1	0	0.2837	0.1	0	0.2	0.05774	115.5%	90.0%
Angular (Corrected) Transformed Summary											
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
1.25		4	1.254	1.056	1.453	1.249	1.107	1.412	0.06231	9.94%	11.17%
2.5		4	1.156	0.8637	1.449	1.107	0.9912	1.419	0.09191	15.9%	18.11%
5		4	1.032	0.7484	1.316	0.9966	0.8861	1.249	0.08914	17.27%	26.91%
10		4	0.9939	0.8502	1.138	0.9912	0.8861	1.107	0.04515	9.09%	29.61%
20		4	0.3112	0.03113	0.5913	0.3112	0.1588	0.4636	0.08801	56.56%	77.96%

CETIS Analytical Report

Report Date: 19 Jun-13 10:07 (p 2 of 2)  
Test Code: 130614eera | 07-2203-5945

Acute Amphipod Survival Test		Nautilus Environmental (CA)	
Analysis ID: 18-3812-0276	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.8.4	Official Results: Yes
Analyzed: 19 Jun-13 10:04	Analysis: Parametric-Control vs Treatments		



CETIS Analytical Report

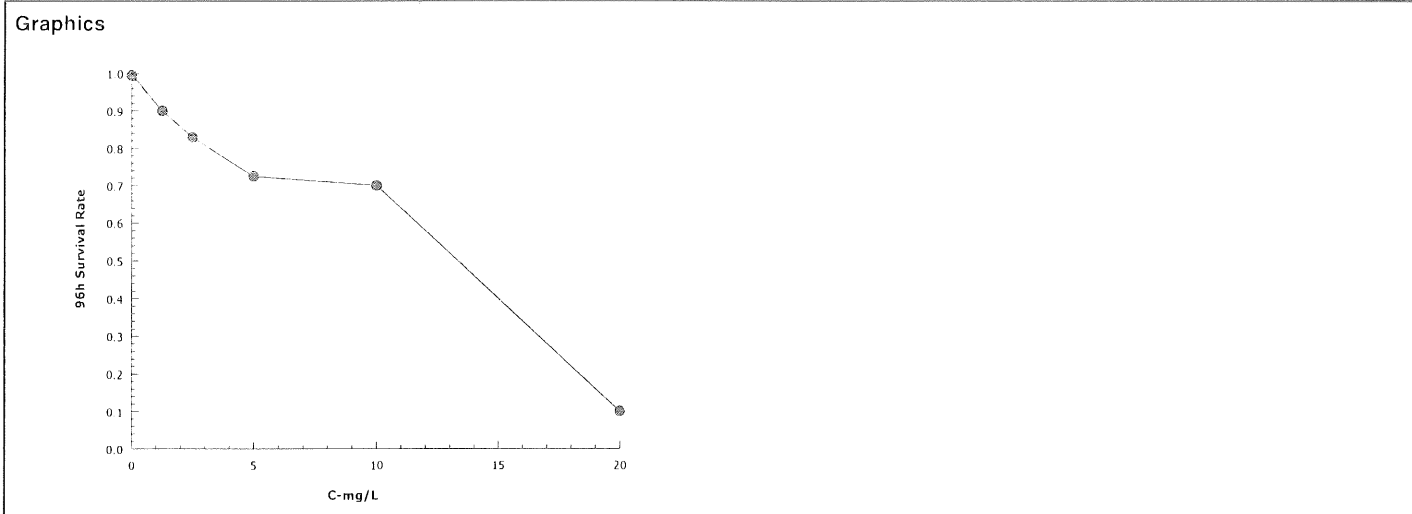
Report Date: 19 Jun-13 10:07 (p 1 of 1)  
 Test Code: 130614eera | 07-2203-5945

Acute Amphipod Survival Test			Nautilus Environmental (CA)		
Analysis ID: 15-9339-8356	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.8.4			
Analyzed: 19 Jun-13 10:05	Analysis: Trimmed Spearman-Kärber	Official Results: Yes			

Trimmed Spearman-Kärber Estimates							
Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	10.00%	0.9828	0.0458	9.612	7.784	11.87

Residual Analysis						
Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)	
Extreme Value	Grubbs Extreme Value	2.102	2.802	0.6778	No Outliers Detected	

96h Survival Rate Summary			Calculated Variate(A/B)									
C-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Lab Control	4	1	1	1	0	0	0.0%	0.0%	40	40	
1.25		4	0.9	0.8	1	0.04082	0.08165	9.07%	10.0%	36	40	
2.5		4	0.825	0.7	1	0.06292	0.1258	15.25%	17.5%	34	41	
5		4	0.725	0.6	0.9	0.075	0.15	20.69%	27.5%	29	40	
10		4	0.7	0.6	0.8	0.04082	0.08165	11.66%	30.0%	28	40	
20		4	0.1	0	0.2	0.05774	0.1155	115.5%	90.0%	4	40	



Acute Amphipod Survival Test

Nautilus Environmental (CA)

Test Type: Survival (96h)

Organism: Eohaustorius estuarius (Amphipod)

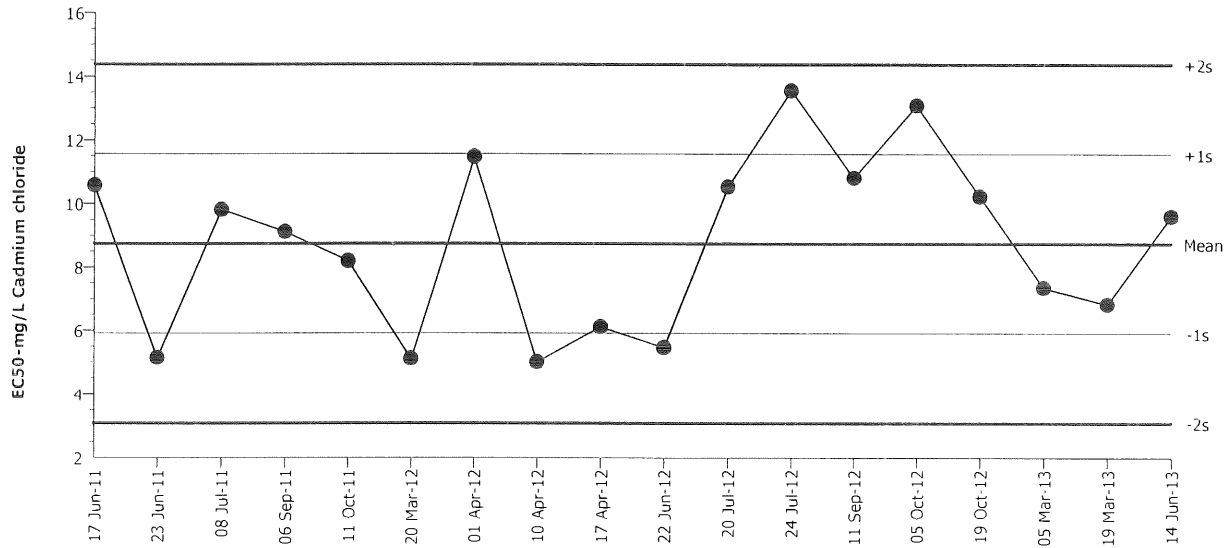
Material: Cadmium chloride

Protocol: EPA/600/R-94/025 (1994)

Endpoint: 96h Survival Rate

Source: Reference Toxicant-REF

Acute Amphipod Survival Test



Mean: 8.738      Count: 17      -1s Warning Limit: 5.916      -2s Action Limit: 3.094  
 Sigma: 2.822      CV: 32.30%      +1s Warning Limit: 11.56      +2s Action Limit: 14.38

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Jun	17	10.58	1.844	0.6535			04-7355-3643	07-6874-3745
2			23	5.151	-3.587	-1.271	(-)		13-2405-8190	14-5588-5921
3		Jul	8	9.819	1.081	0.3831			15-6016-6275	08-2935-4591
4		Sep	6	9.123	0.3854	0.1366			19-8263-9958	15-3049-8972
5		Oct	11	8.208	-0.53	-0.1878			04-5683-5278	08-5229-4738
6	2012	Mar	20	5.125	-3.613	-1.28	(-)		08-7199-6871	10-8279-6045
7		Apr	1	11.49	2.749	0.9741			16-6898-4384	19-8941-9944
8			10	5.017	-3.721	-1.319	(-)		17-6920-6681	20-9566-8272
9			17	6.123	-2.615	-0.9268			09-5184-8036	12-7137-1039
10		Jun	22	5.471	-3.267	-1.158	(-)		07-6049-5353	11-0995-0121
11		Jul	20	10.54	1.804	0.6392			16-2846-0234	13-2124-5320
12			24	13.56	4.822	1.709	(+)		13-0734-2251	08-2819-6469
13		Sep	11	10.82	2.083	0.738			04-2672-2264	19-7399-3537
14		Oct	5	13.09	4.356	1.544	(+)		11-0626-8499	15-2615-3111
15			19	10.24	1.5	0.5315			20-1096-6081	15-0965-7000
16	2013	Mar	5	7.357	-1.381	-0.4895			15-1987-8538	07-6132-5027
17			19	6.83	-1.908	-0.676			15-7965-1544	07-5996-2822
18		Jun	14	9.612	0.8735	0.3095			07-2203-5945	15-9339-8356

96-hour Marine Acute Bioassay  
Static Conditions

Water Quality Measurements  
& Test Organism Survival

Client: Internal  
Sample ID: CdCl<sub>2</sub>  
Test No.: 130614eera

Test Species: E. estuarius  
Start Date/Time: 6/14/2013 1605  
End Date/Time: 6/18/2013 1430

Tech Initials				
0	24	48	72	96
ML				CL
CL	ADSS		LN	CL
CL				
20				
16.9				
4000				

Counts:  
Readings:  
Dilutions made by:  
High conc. made (mg/L):  
Vol. Cd stock added (mL):  
Final Volume (mL):

Cd stock concentration (mg/L): 1040

Concentration mg/L	RAND #	Number of Live Organisms		Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	10	10	10	30.0	28.5	30.3	30.4	30.2	14.8	14.2	14.2	13.9	8.0	8.2	7.9	7.6	8.7	8.4	8.0	7.9	7.9	7.9	7.9
	5	10	10		30																		
	6	10	10																				
	11	10	10																				
1.25	22	10	8	30.2	28.6	30.7	30.2	30.0	14.5	14.1	14.0	13.9	8.0	8.3	7.9	7.5	8.4	8.5	8.0	7.9	7.9	7.9	
	2	10	10		30.1																		
	24	10	9																				
	19	10	9																				
2.5	4	11	11	30.2	28.5	30.3	30.5	30.5	14.6	14.1	14.0	13.8	8.0	8.2	7.9	7.7	8.5	8.1	8.0	7.9	7.9	7.9	
	1	10	8		30.0																		
	21	10	8																				
	23	10	7																				
5.0	20	10	6	30.1	28.4	30.1	30.2	30.3	14.5	14.1	14.0	13.8	8.0	8.1	7.8	7.5	8.5	8.1	8.0	7.9	7.9	7.9	
	18	10	6		29.9																		
	3	10	9																				
	14	10	8																				
10	17	10	10	30.0	28.4	30.1	30.2	30.2	14.6	14.2	14.1	13.9	8.0	8.2	7.8	7.5	8.3	8.1	8.0	7.9	7.9	7.9	
	12	10	8		29.8																		
	8	10	7																				
	9	10	7																				
20	15	10	2	29.0	28.1	29.8	29.7	29.9	14.6	14.0	14.0	13.6	8.0	8.4	8.2	7.7	8.6	8.1	8.0	7.9	7.8	7.9	
	16	10	0		29.6																		
	13	10	0																				
	7	10	2																				

Initial Counts  
QC'd by: KS

Animal Source/Date Received: Northwestern Aquatic Sciences 6/7/13 Size at Initiation: 3-5mm

Comments: \_\_\_\_\_

QC Check: 6/19/13 BG Final Review: VFP 6/14/13

**Marine Polychaete Worm (*Neanthes arenaceodentata*)**

**CETIS Summary Report**

Report Date: 24 Jul-13 11:59 (p 1 of 1)  
 Test Code: 130712nara | 12-6036-7885

**Neanthes 96-h Survival Test** Nautilus Environmental (CA)

<b>Batch ID:</b> 00-6759-6780	<b>Test Type:</b> Survival	<b>Analyst:</b>
<b>Start Date:</b> 12 Jul-13 16:55	<b>Protocol:</b> ASTM E1611-00 (2000)	<b>Diluent:</b> Diluted Natural Seawater
<b>Ending Date:</b> 16 Jul-13 15:10	<b>Species:</b> Neanthes arenaceodentata	<b>Brine:</b> Not Applicable
<b>Duration:</b> 94h	<b>Source:</b> Aquatic Tox Support	<b>Age:</b> 21 d

<b>Sample ID:</b> 02-7431-4815	<b>Code:</b> 130712nara	<b>Client:</b> Internal
<b>Sample Date:</b> 12 Jul-13	<b>Material:</b> Cadmium chloride	<b>Project:</b>
<b>Receive Date:</b> 12 Jul-13	<b>Source:</b> Reference Toxicant	
<b>Sample Age:</b> 17h	<b>Station:</b> Cadmium chloride	

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-0383-2761	Survival Rate	5	10	7.071	9.55%		Steel Many-One Rank Sum Test

Point Estimate Summary							
Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
14-3553-9167	Survival Rate	EC50	7.629	7.078	8.224		Trimmed Spearman-Kärber

Survival Rate Summary											
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
2.5		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	2.5%
5		4	1	1	1	1	1	0	0	0.0%	0.0%
10		4	0.125	0.07801	0.172	0	0.3	0.06292	0.1258	100.7%	87.5%
20		4	0	0	0	0	0	0	0		100.0%
40		4	0	0	0	0	0	0	0		100.0%

Survival Rate Detail						
C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	
0	Lab Control	1	1	1	1	
2.5		1	0.9	1	1	
5		1	1	1	1	
10		0.3	0	0.1	0.1	
20		0	0	0	0	
40		0	0	0	0	



**CETIS Analytical Report**

Report Date: 24 Jul-13 11:59 (p 1 of 2)  
 Test Code: 130712nara | 12-6036-7885

**Neanthes 96-h Survival Test** Nautilus Environmental (CA)

Analysis ID: 07-0383-2761      Endpoint: Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 24 Jul-13 11:57      Analysis: Nonparametric-Control vs Treatments      Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	5	10	7.071		9.55%

**Steel Many-One Rank Sum Test**

Control	vs	C-mg/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	16	10	1	6	0.5065	Asymp	Non-Significant Effect
		5	18	10	1	6	0.7500	Asymp	Non-Significant Effect
		10*	10	10	0	6	0.0276	Asymp	Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.330569	1.11019	3	120.3	<0.0001	Significant Effect
Error	0.1107333	0.009227772	12			
Total	3.441303		15			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.724	5.953	0.2151	Equal Variances
Variances	Levene Equality of Variance	3.712	5.953	0.0425	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7869	0.8408	0.0018	Non-normal Distribution

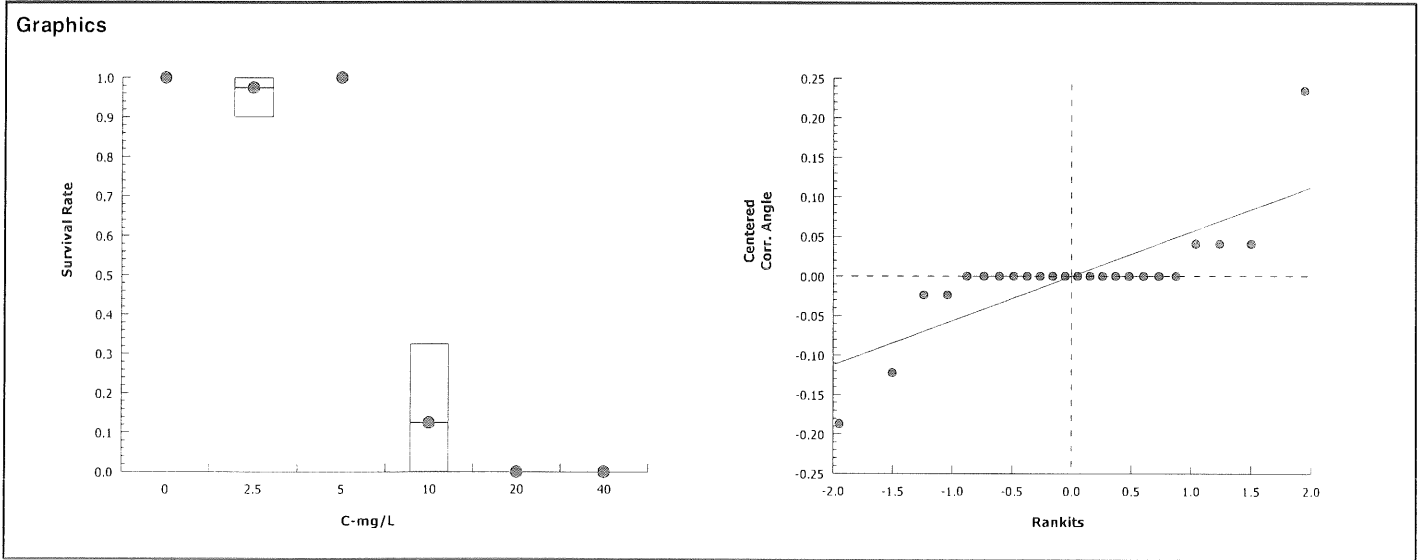
**Survival Rate Summary**

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
2.5		4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	2.5%
5		4	1	1	1	1	1	1	0	0.0%	0.0%
10		4	0.125	0	0.3252	0.1	0	0.3	0.06292	100.7%	87.5%
20		4	0	0	0	0	0	0	0		100.0%
40		4	0	0	0	0	0	0	0		100.0%

**Angular (Corrected) Transformed Summary**

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
2.5		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	2.89%
5		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
10		4	0.3455	0.06863	0.6223	0.3218	0.1588	0.5796	0.08699	50.36%	75.53%
20		4	0.1588	0.1588	0.1588	0.1588	0.1588	0.1588	0	0.0%	88.76%
40		4	0.1588	0.1588	0.1588	0.1588	0.1588	0.1588	0	0.0%	88.76%

Neanthes 96-h Survival Test		Nautilus Environmental (CA)	
Analysis ID: 07-0383-2761	Endpoint: Survival Rate	CETIS Version: CETISv1.8.4	
Analyzed: 24 Jul-13 11:57	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes	



# CETIS Analytical Report

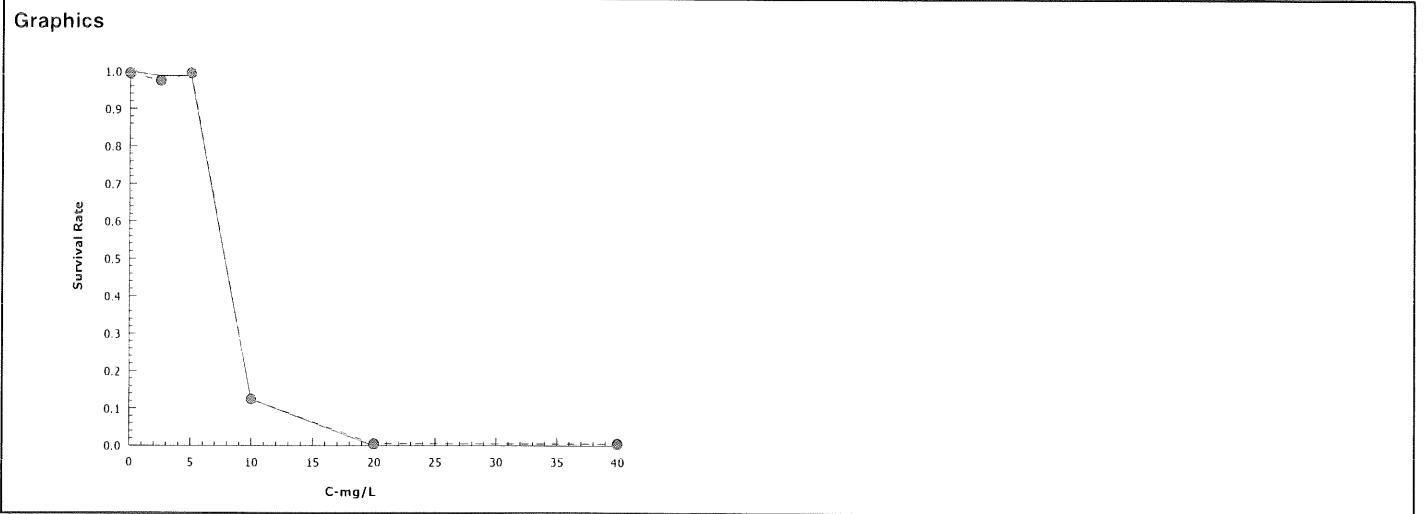
Report Date: 24 Jul-13 11:59 (p 1 of 1)  
 Test Code: 130712nara | 12-6036-7885

**Neanthes 96-h Survival Test** **Nautilus Environmental (CA)**

Analysis ID: 14-3553-9167      Endpoint: Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 24 Jul-13 11:57      Analysis: Trimmed Spearman-Kärber      Official Results: Yes

Trimmed Spearman-Kärber Estimates							
Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	1.25%	0.8825	0.01629	7.629	7.078	8.224

Survival Rate Summary			Calculated Variate(A/B)								
C-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	4	1	1	1	0	0	0.0%	0.0%	40	40
2.5		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40
5		4	1	1	1	0	0	0.0%	0.0%	40	40
10		4	0.125	0	0.3	0.06292	0.1258	100.7%	87.5%	5	40
20		4	0	0	0	0	0		100.0%	0	40
40		4	0	0	0	0	0		100.0%	0	40



Neanthes 96-h Survival Test

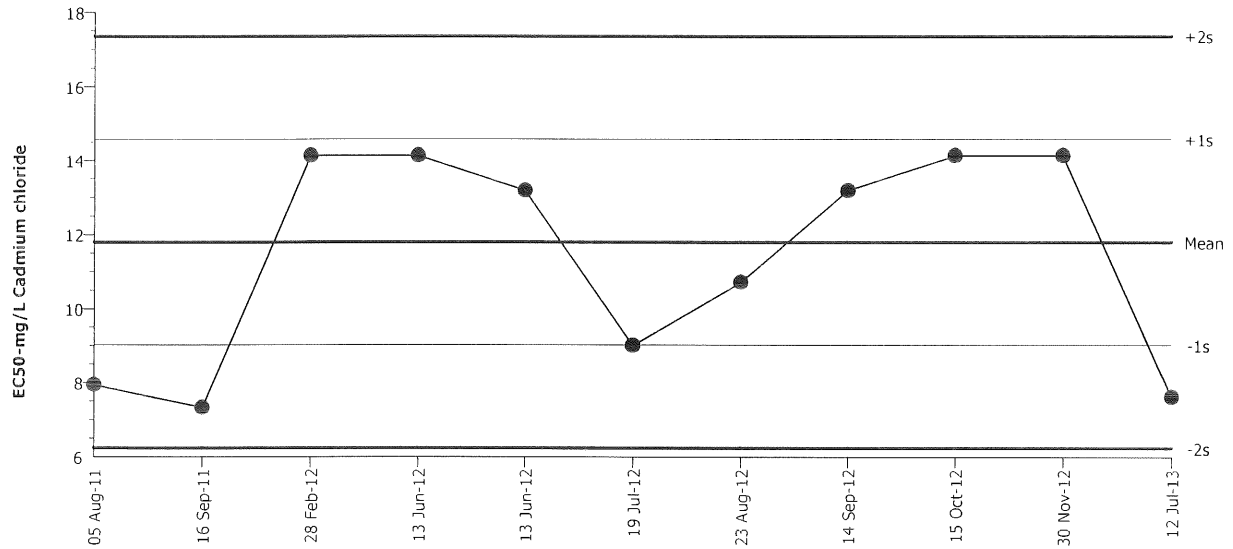
Nautilus Environmental (CA)

Test Type: Survival  
 Protocol: ASTM E1611-00 (2000)

Organism: Neanthes arenaceodentata (Polycha)  
 Endpoint: Survival Rate

Material: Cadmium chloride  
 Source: Reference Toxicant-REF

Neanthes 96-h Survival Test



Mean: 11.8      Count: 10      -1s Warning Limit: 9.021      -2s Action Limit: 6.242  
 Sigma: 2.779      CV: 23.60%      +1s Warning Limit: 14.58      +2s Action Limit: 17.36

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Aug	5	7.954	-3.846	-1.384	(-)		20-3080-1811	03-7530-2445
2		Sep	16	7.334	-4.466	-1.607	(-)		18-2093-5043	17-5340-3813
3	2012	Feb	28	14.14	2.342	0.8428			16-6209-9761	07-9744-0637
4		Jun	13	14.14	2.342	0.8428			19-3428-8273	00-9159-1641
5			13	13.2	1.395	0.502			08-3573-0593	08-2667-0688
6		Jul	19	9.013	-2.787	-1.003	(-)		05-3194-5614	06-9744-1383
7		Aug	23	10.72	-1.082	-0.3894			00-6415-4847	03-7452-2860
8		Sep	14	13.2	1.395	0.502			01-3108-0767	00-3026-5642
9		Oct	15	14.14	2.342	0.8428			12-2615-0269	05-9401-1565
10		Nov	30	14.14	2.342	0.8428			00-0423-6005	16-0678-5834
11	2013	Jul	12	7.629	-4.171	-1.501	(-)		12-6036-7885	05-4895-6417

Marine Acute Bioassay  
Static Conditions

Water Quality Measurements  
& Test Organism Survival

Client: Internal  
Sample ID: CdCl<sub>2</sub>  
Test No.: 130712nava

Test Species: N. arenaceodentata  
Start Date/Time: 7/12/2013 1655  
End Date/Time: 7/16/2013 1510

Tech Initials				
0	24	48	72	96
Counts:	ML			CL
Readings:	ML	AD	LN	ML
Dilutions made by:	CL			
High conc. made (mg/L):	40			
Vol. Cd stock added (mL):	15.4			
Final Volume (mL):	4000			

Cd stock concentration (mg/L): 1,040

Concentration mg/L	Rand #	Number of Live Organisms		Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	3	510	10	30.0	30.0	30.0	29.9	29.9	19.8	19.4	19.6	19.7	19.5	6.8	6.7	6.6	6.5	6.7	7.97	7.97	7.98	7.80	7.86
	4	510	10																				
	2	510	10																				
	9	510	10																				
2.5	22	510	10	29.4	29.9	30.1	30.0	30.1	19.7	19.3	19.4	19.5	19.3	6.9	6.7	6.7	6.6	6.8	7.98	7.97	8.01	7.85	7.88
	23	510	9	29.6																			7.90
	19	510	10	ML																			
	15	510	10																				
5	1	510	10	29.4	29.2	30.0	29.9	29.9	19.9	19.3	19.6	19.6	19.5	6.9	6.7	6.7	6.5	6.7	7.99	7.97	8.01	7.84	7.90
	18	510	10	29.6																			
	24	510	10																				
	16	510	10																				
10	6	510	3	29.7	29.7	29.9	30.1	30.2	19.8	19.3	19.5	19.5	19.5	6.9	6.8	6.7	6.6	6.7	7.99	7.98	8.05	7.85	7.91
	20	510	0																				
	5	510	1																				
	12	510	1																				
20	10	510	0	29.4	29.5	29.6	29.8	29.6	19.9	19.3	19.5	19.5	19.4	6.9	6.9	6.8	6.7	6.8	7.99	7.98	8.04	7.86	7.84
	7	510	0																				
	13	510	0																				
	17	510	0																				
40	8	510	0	29.7	29.0	29.1	29.1	29.2	19.7	19.2	19.5	19.5	19.5	7.0	7.0	6.9	6.8	6.2	8.00	7.99	8.05	7.85	7.86
	11	510	0																				
	14	510	0																				
	21	510	0																				

QC ML

Animal Source/Date Received: ATS 7/9/13 Age at Initiation: 21 days

Comments: \_\_\_\_\_

QC Check: BG 7/17/13

Final Review: VS 8/8/13

**Mediterranean Mussel (*Mytilus galloprovincialis*)**

**CETIS Summary Report**

Report Date: 31 Jul-13 14:39 (p 1 of 3)  
 Test Code: 130710msdv | 10-9836-3796

**Bivalve Larval Survival and Development Test** Nautilus Environmental (CA)

Batch ID: 08-8607-9570	Test Type: Development-Survival	Analyst:
Start Date: 10 Jul-13 14:45	Protocol: EPA/600/R-95/136 (1995)	Diluent: Diluted Natural Seawater
Ending Date: 12 Jul-13 14:45	Species: Mytilus galloprovincialis	Brine: Not Applicable
Duration: 48h	Source: Taylor Shellfish, WA	Age:

Sample ID: 05-0458-8522	Code: 130710msdv	Client: Internal
Sample Date: 10 Jul-13	Material: Copper chloride	Project:
Receive Date: 10 Jul-13	Source: Reference Toxicant	
Sample Age: 15h	Station: Copper Chloride	

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-3998-0218	Combined Development Ra	5	10	7.071	8.38%		Steel Many-One Rank Sum Test
18-4348-0015	Development Rate	5	10	7.071	6.31%		Dunnett Multiple Comparison Test
04-5405-3327	Survival Rate	20	40	28.28	7.36%		Steel Many-One Rank Sum Test

Point Estimate Summary							
Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
03-5789-9070	Combined Development Ra	EC25	9.081	7.927	11.02		Linear Interpolation (ICPIN)
		EC50	12.82	11.86	13.97		
04-7883-9678	Development Rate	EC25	8.945	7.875	10.7		Linear Interpolation (ICPIN)
		EC50	12.71	11.71	13.76		
15-6444-9625	Survival Rate	EC25	25.92	24.3	30.4		Linear Interpolation (ICPIN)
		EC50	32.45	29.51	41.92		

Test Acceptability						
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
04-7883-9678	Development Rate	Control Resp	0.8931	0.9 - NL	Yes	Below Acceptability Criteria <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">*</span>
18-4348-0015	Development Rate	Control Resp	0.8931	0.9 - NL	Yes	Below Acceptability Criteria
04-5405-3327	Survival Rate	Control Resp	1	0.5 - NL	Yes	Passes Acceptability Criteria
15-6444-9625	Survival Rate	Control Resp	1	0.5 - NL	Yes	Passes Acceptability Criteria
12-3998-0218	Combined Development Ra	PMSD	0.08384	NL - 0.25	No	Passes Acceptability Criteria

⊕ The development rate in the control was slightly below the EPA 1995 mean test acceptability criterion of 90% (89.3%). However, a dose response was observed, and the calculated effect concentration was within two standard deviations of the historical mean. The test was therefore deemed valid.

This test meets the Inland testing manual (EPA 1998) control criterion  $0.6 \geq 70\%$ .

**CETIS Summary Report**

Report Date: 31 Jul-13 14:39 (p 2 of 3)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test										Nautilus Environmental (CA)	
<b>Combined Development Rate Summary</b>											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9051	0.8937	0.9165	0.8646	0.9448	0.01365	0.03053	3.37%	0.0%
2.5		5	0.8896	0.8674	0.9117	0.8405	0.9877	0.02653	0.05932	6.67%	1.72%
5		5	0.8977	0.889	0.9064	0.8712	0.9264	0.0104	0.02325	2.59%	0.82%
10		5	0.6294	0.599	0.6599	0.5706	0.773	0.03643	0.08146	12.94%	30.46%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%
<b>Development Rate Summary</b>											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8931	0.8834	0.9028	0.8646	0.9239	0.01158	0.0259	2.9%	0.0%
2.5		5	0.9105	0.9031	0.918	0.8903	0.936	0.0089	0.0199	2.19%	-1.95%
5		5	0.8934	0.8762	0.9105	0.8212	0.9467	0.02055	0.04595	5.14%	-0.03%
10		5	0.6194	0.5921	0.6468	0.5537	0.7412	0.03276	0.07325	11.82%	30.64%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%
<b>Survival Rate Summary</b>											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	1	1	1	1	1	0	0	0.0%	0.0%
2.5		5	0.9656	0.9518	0.9794	0.908	1	0.01653	0.03696	3.83%	3.44%
5		5	0.9816	0.9686	0.9946	0.9202	1	0.01552	0.0347	3.54%	1.84%
10		5	0.9791	0.9662	0.9921	0.9202	1	0.01547	0.0346	3.53%	2.09%
20		5	0.9804	0.9705	0.9903	0.9387	1	0.01186	0.02653	2.71%	1.96%
40		5	0.211	0.1039	0.3182	0.06748	0.7239	0.1283	0.287	136.0%	78.9%
<b>Combined Development Rate Detail</b>											
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5					
0	Lab Control	0.8967	0.8646	0.9239	0.8957	0.9448					
2.5		0.8405	0.9877	0.8466	0.8957	0.8773					
5		0.9119	0.8712	0.9018	0.9264	0.8773					
10		0.6012	0.5706	0.5951	0.6074	0.773					
20		0	0	0	0	0					
40		0	0	0	0	0					
<b>Development Rate Detail</b>											
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5					
0	Lab Control	0.8967	0.8646	0.9239	0.869	0.9112					
2.5		0.9257	0.936	0.8903	0.9068	0.8938					
5		0.9119	0.9467	0.8212	0.8988	0.8882					
10		0.5537	0.62	0.6101	0.5723	0.7412					
20		0	0	0	0	0					
40		0	0	0	0	0					
<b>Survival Rate Detail</b>											
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5					
0	Lab Control	1	1	1	1	1					
2.5		0.908	1	0.9509	0.9877	0.9816					
5		1	0.9202	1	1	0.9877					
10		1	0.9202	0.9755	1	1					
20		0.9387	0.9939	1	0.9693	1					
40		0.07362	0.7239	0.09816	0.06748	0.09202					



**CETIS Summary Report**

Report Date: 31 Jul-13 14:39 (p 3 of 3)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test							Nautilus Environmental (CA)
<b>Combined Development Rate Binomials</b>							
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	165/184	166/192	170/184	146/163	154/163	
2.5		137/163	161/163	138/163	146/163	143/163	
5		176/193	142/163	147/163	151/163	143/163	
10		98/163	93/163	97/163	99/163	126/163	
20		0/163	0/163	0/163	0/163	0/163	
40		0/163	0/163	0/163	0/163	0/163	
<b>Development Rate Binomials</b>							
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	165/184	166/192	170/184	146/168	154/169	
2.5		137/148	161/172	138/155	146/161	143/160	
5		176/193	142/150	147/179	151/168	143/161	
10		98/177	93/150	97/159	99/173	126/170	
20		0/153	0/162	0/172	0/158	0/180	
40		0/12	0/118	0/16	0/11	0/15	
<b>Survival Rate Binomials</b>							
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	163/163	163/163	163/163	163/163	163/163	
2.5		148/163	163/163	155/163	161/163	160/163	
5		163/163	150/163	163/163	163/163	161/163	
10		163/163	150/163	159/163	163/163	163/163	
20		153/163	162/163	163/163	158/163	163/163	
40		12/163	118/163	16/163	11/163	15/163	

# CETIS Analytical Report

Report Date: 31 Jul-13 10:14 (p 1 of 4)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test							Nautilus Environmental (CA)		
Analysis ID:	12-3998-0218	Endpoint:	Combined Development Rate		CETIS Version:	CETISv1.8.4			
Analyzed:	31 Jul-13 10:14	Analysis:	Nonparametric-Control vs Treatments		Official Results:	Yes			
Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	5	10	7.071		8.38%

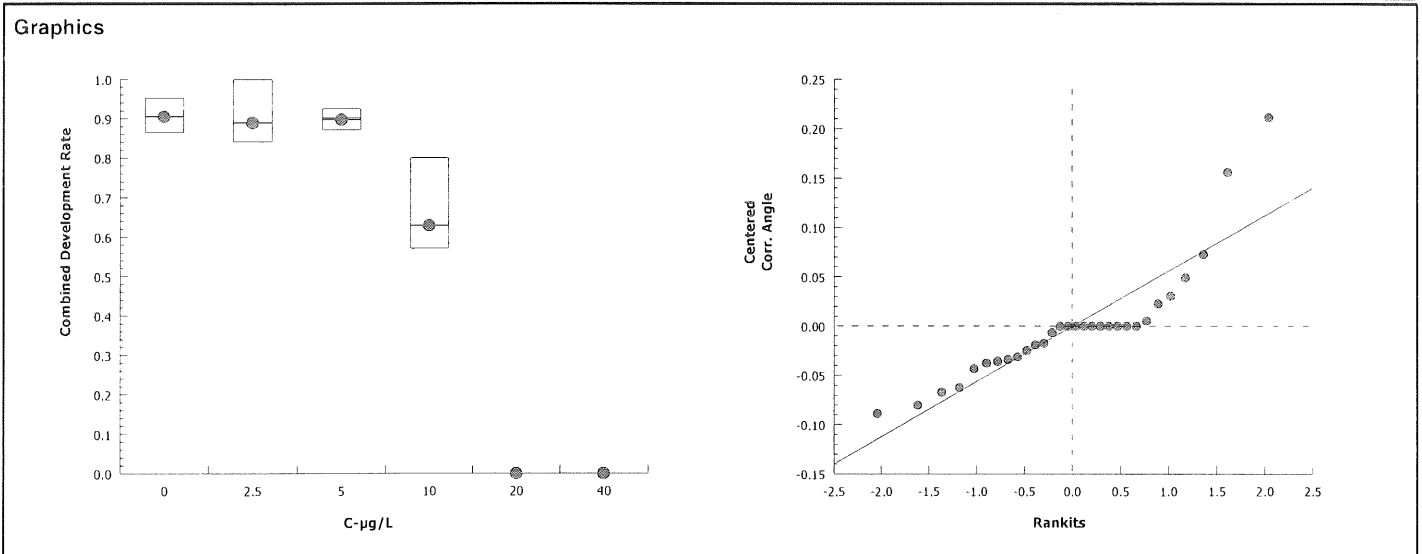
Steel Many-One Rank Sum Test									
Control	vs	C-µg/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	22.5	17	1	8	0.3045	Asymp	Non-Significant Effect
		5	27	17	0	8	0.7105	Asymp	Non-Significant Effect
		10*	15	17	0	8	0.0123	Asymp	Significant Effect

ANOVA Table							
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)	
Between	0.4180117	0.1393372	3	20.52	<0.0001	Significant Effect	
Error	0.1086542	0.006790886	16				
Total	0.5266659		19				

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Bartlett Equality of Variance	5.272	11.34	0.1529	Equal Variances	
Distribution	Shapiro-Wilk W Normality	0.8504	0.866	0.0054	Non-normal Distribution	

Combined Development Rate Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9051	0.8672	0.9431	0.8967	0.8646	0.9448	0.01365	3.37%	0.0%
2.5		5	0.8896	0.8159	0.9632	0.8773	0.8405	0.9877	0.02653	6.67%	1.72%
5		5	0.8977	0.8689	0.9266	0.9018	0.8712	0.9264	0.0104	2.59%	0.82%
10		5	0.6294	0.5283	0.7306	0.6012	0.5706	0.773	0.03643	12.94%	30.46%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.261	1.195	1.327	1.244	1.194	1.334	0.02382	4.23%	0.0%
2.5		5	1.249	1.096	1.401	1.213	1.16	1.46	0.05487	9.83%	0.98%
5		5	1.247	1.199	1.295	1.252	1.204	1.296	0.01728	3.1%	1.12%
10		5	0.9185	0.809	1.028	0.8873	0.8562	1.074	0.03944	9.6%	27.16%
20		5	0.03917	0.03916	0.03918	0.03917	0.03917	0.03917	0	0.0%	96.89%
40		5	0.03917	0.03916	0.03918	0.03917	0.03917	0.03917	0	0.0%	96.89%



# CETIS Analytical Report

Report Date: 31 Jul-13 10:15 (p 2 of 4)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test							Nautilus Environmental (CA)			
Analysis ID:	18-4348-0015	Endpoint:	Development Rate	CETIS Version:	CETISv1.8.4					
Analyzed:	31 Jul-13 10:14	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes					
Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD	
Angular (Corrected)	NA	C > T	NA	NA	5	10	7.071		6.31%	

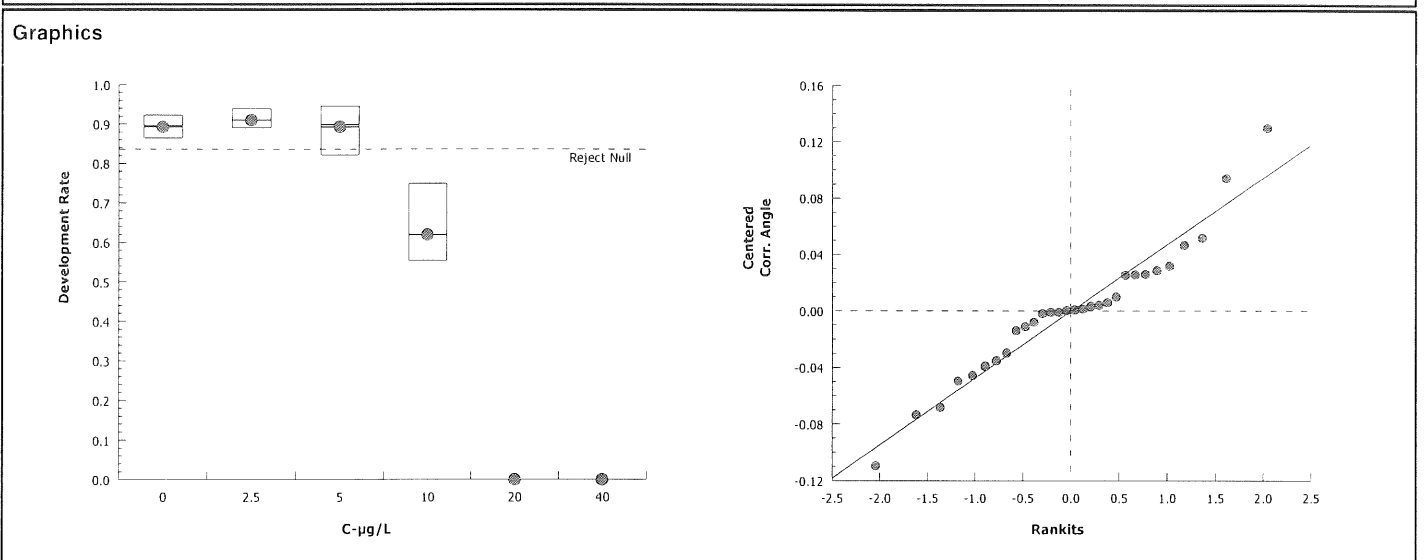
Dunnett Multiple Comparison Test									
Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	-0.7606	2.227	0.085	8	0.9356	CDF	Non-Significant Effect
		5	-0.1086	2.227	0.085	8	0.7872	CDF	Non-Significant Effect
		10*	8.729	2.227	0.085	8	<0.0001	CDF	Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.4440236	0.1480079	3	40.89	<0.0001	Significant Effect
Error	0.05790778	0.003619236	16			
Total	0.5019314		19			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Bartlett Equality of Variance	3.081	11.34	0.3792	Equal Variances	
Distribution	Shapiro-Wilk W Normality	0.9762	0.866	0.8767	Normal Distribution	

Development Rate Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8931	0.8609	0.9253	0.8967	0.8646	0.9239	0.01158	2.9%	0.0%
2.5		5	0.9105	0.8858	0.9352	0.9068	0.8903	0.936	0.0089	2.19%	-1.95%
5		5	0.8934	0.8363	0.9504	0.8988	0.8212	0.9467	0.02055	5.14%	-0.03%
10		5	0.6194	0.5285	0.7104	0.6101	0.5537	0.7412	0.03276	11.82%	30.64%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.24	1.187	1.292	1.244	1.194	1.291	0.01888	3.41%	0.0%
2.5		5	1.268	1.224	1.313	1.261	1.233	1.315	0.01589	2.8%	-2.34%
5		5	1.244	1.152	1.335	1.247	1.134	1.338	0.03293	5.92%	-0.33%
10		5	0.9074	0.8112	1.004	0.8964	0.8392	1.037	0.03467	8.54%	26.79%
20		5	0.03899	0.0374	0.04057	0.03929	0.03728	0.04043	0.000569	3.27%	96.85%
40		5	0.1194	0.06678	0.172	0.1295	0.04604	0.1513	0.01895	35.49%	90.37%



**CETIS Analytical Report**

Report Date: 31 Jul-13 10:15 (p 3 of 4)  
 Test Code: 130710msdv | 10-9836-3796

<b>Bivalve Larval Survival and Development Test</b>						<b>Nautilus Environmental (CA)</b>			
Analysis ID: 04-5405-3327		Endpoint: Survival Rate		CETIS Version: CETISv1.8.4					
Analyzed: 31 Jul-13 10:14		Analysis: Nonparametric-Control vs Treatments		Official Results: Yes					
<b>Data Transform</b>	<b>Zeta</b>	<b>Alt Hyp</b>	<b>Trials</b>	<b>Seed</b>	<b>NOEL</b>	<b>LOEL</b>	<b>TOEL</b>	<b>TU</b>	<b>PMSD</b>
Angular (Corrected)	NA	C > T	NA	NA	20	40	28.28		7.36%

<b>Steel Many-One Rank Sum Test</b>									
<b>Control</b>	<b>vs</b>	<b>C-µg/L</b>	<b>Test Stat</b>	<b>Critical</b>	<b>Ties</b>	<b>DF</b>	<b>P-Value</b>	<b>P-Type</b>	<b>Decision(α:5%)</b>
Lab Control		2.5	17.5	16	1	8	0.0695	Asymp	Non-Significant Effect
		5	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		10	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		20	20	16	1	8	0.1899	Asymp	Non-Significant Effect
		40*	15	16	0	8	0.0191	Asymp	Significant Effect

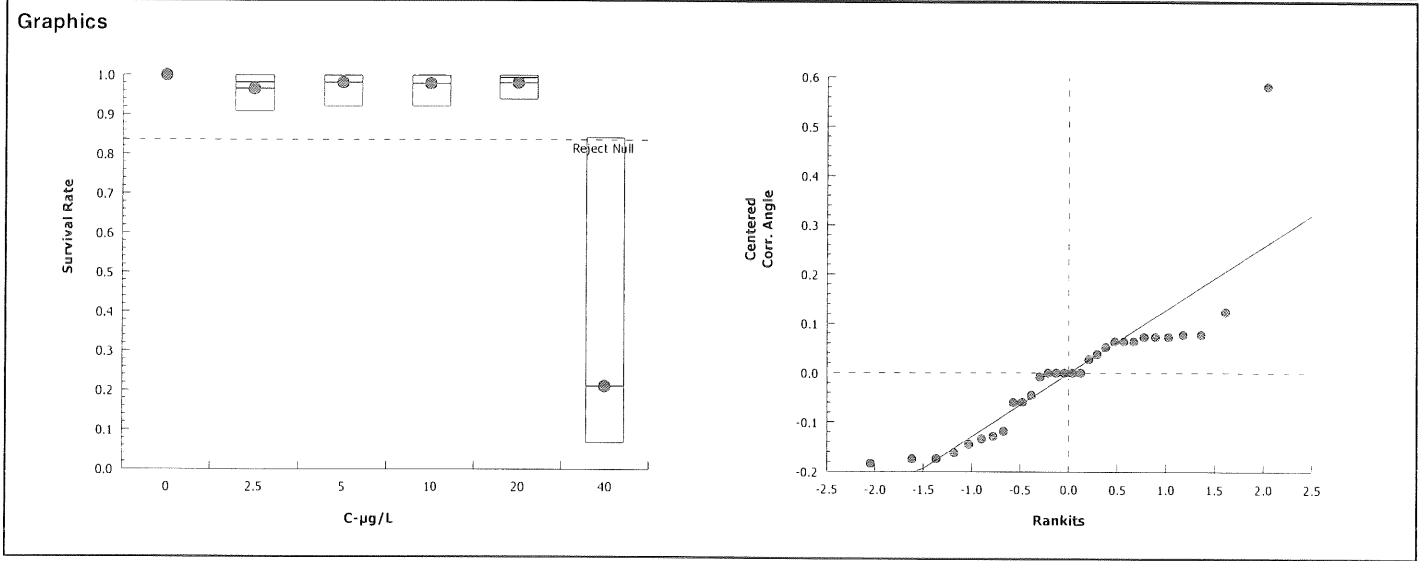
<b>ANOVA Table</b>						
<b>Source</b>	<b>Sum Squares</b>	<b>Mean Square</b>	<b>DF</b>	<b>F Stat</b>	<b>P-Value</b>	<b>Decision(α:5%)</b>
Between	4.438498	0.8876997	5	35.69	<0.0001	Significant Effect
Error	0.5969064	0.0248711	24			
Total	5.035405		29			

<b>Distributional Tests</b>					
<b>Attribute</b>	<b>Test</b>	<b>Test Stat</b>	<b>Critical</b>	<b>P-Value</b>	<b>Decision(α:1%)</b>
Variances	Mod Levene Equality of Variance	0.6445	4.248	0.6690	Equal Variances
Variances	Levene Equality of Variance	3.529	3.895	0.0156	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7816	0.9031	<0.0001	Non-normal Distribution

<b>Survival Rate Summary</b>											
<b>C-µg/L</b>	<b>Control Type</b>	<b>Count</b>	<b>Mean</b>	<b>95% LCL</b>	<b>95% UCL</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>	<b>Std Err</b>	<b>CV%</b>	<b>%Effect</b>
0	Lab Control	5	1	1	1	1	1	1	0	0.0%	0.0%
2.5		5	0.9656	0.9197	1	0.9816	0.908	1	0.01653	3.83%	3.44%
5		5	0.9816	0.9385	1	1	0.9202	1	0.01552	3.54%	1.84%
10		5	0.9791	0.9362	1	1	0.9202	1	0.01547	3.53%	2.09%
20		5	0.9804	0.9474	1	0.9939	0.9387	1	0.01186	2.71%	1.96%
40		5	0.211	0	0.5674	0.09202	0.06748	0.7239	0.1283	136.0%	78.9%

<b>Angular (Corrected) Transformed Summary</b>											
<b>C-µg/L</b>	<b>Control Type</b>	<b>Count</b>	<b>Mean</b>	<b>95% LCL</b>	<b>95% UCL</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>	<b>Std Err</b>	<b>CV%</b>	<b>%Effect</b>
0	Lab Control	5	1.532	1.531	1.532	1.532	1.532	1.532	0	0.0%	0.0%
2.5		5	1.407	1.278	1.537	1.435	1.263	1.532	0.04663	7.41%	8.12%
5		5	1.468	1.335	1.601	1.532	1.284	1.532	0.0479	7.3%	4.17%
10		5	1.459	1.322	1.595	1.532	1.284	1.532	0.04917	7.54%	4.77%
20		5	1.454	1.338	1.57	1.492	1.321	1.532	0.04175	6.42%	5.06%
40		5	0.4364	0.03199	0.8408	0.3082	0.2628	1.018	0.1457	74.63%	71.51%

Bivalve Larval Survival and Development Test		Nautilus Environmental (CA)	
Analysis ID: 04-5405-3327	Endpoint: Survival Rate	CETIS Version: CETISv1.8.4	
Analyzed: 31 Jul-13 10:14	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes	



**CETIS Analytical Report**

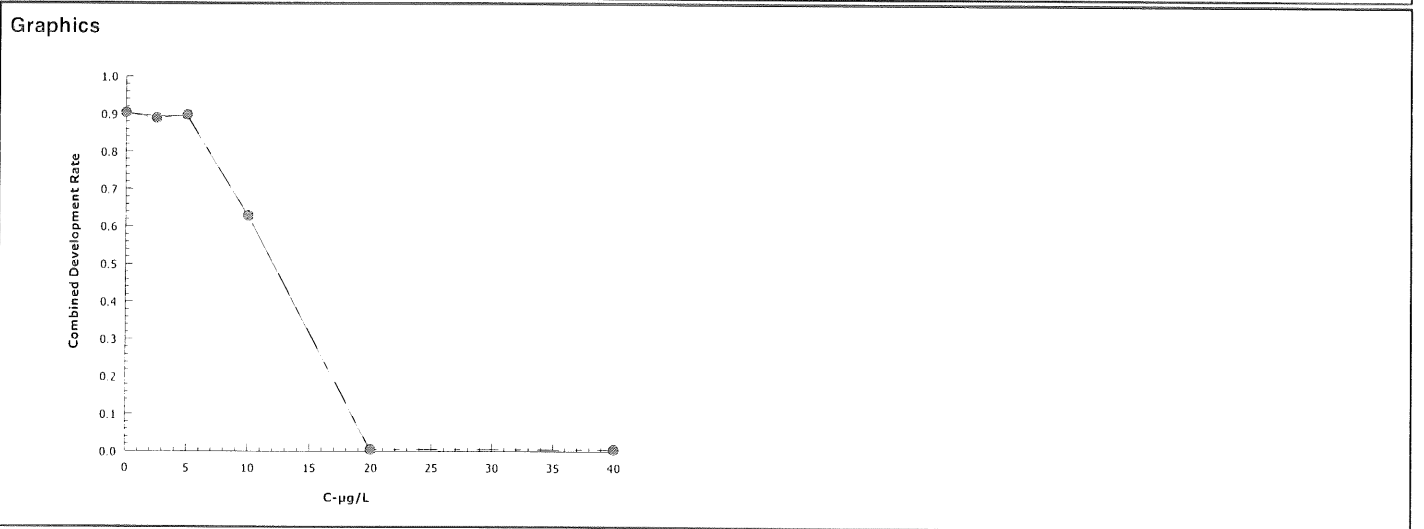
Report Date: 31 Jul-13 10:15 (p 1 of 3)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test			Nautilus Environmental (CA)
Analysis ID: 03-5789-9070	Endpoint: Combined Development Rate	CETIS Version: CETISv1.8.4	
Analyzed: 31 Jul-13 10:14	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes	

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1359064	1000	Yes	Two-Point Interpolation

Point Estimates			
Level	µg/L	95% LCL	95% UCL
EC25	9.081	7.927	11.02
EC50	12.82	11.86	13.97

Combined Development Rate Summary			Calculated Variate(A/B)									
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Lab Control	5	0.9051	0.8646	0.9448	0.01365	0.03053	3.37%	0.0%	801	886	
2.5		5	0.8896	0.8405	0.9877	0.02653	0.05932	6.67%	1.72%	725	815	
5		5	0.8977	0.8712	0.9264	0.0104	0.02325	2.59%	0.82%	759	845	
10		5	0.6294	0.5706	0.773	0.03643	0.08146	12.94%	30.46%	512	815	
20		5	0	0	0	0	0		100.0%	0	815	
40		5	0	0	0	0	0		100.0%	0	815	



**CETIS Analytical Report**

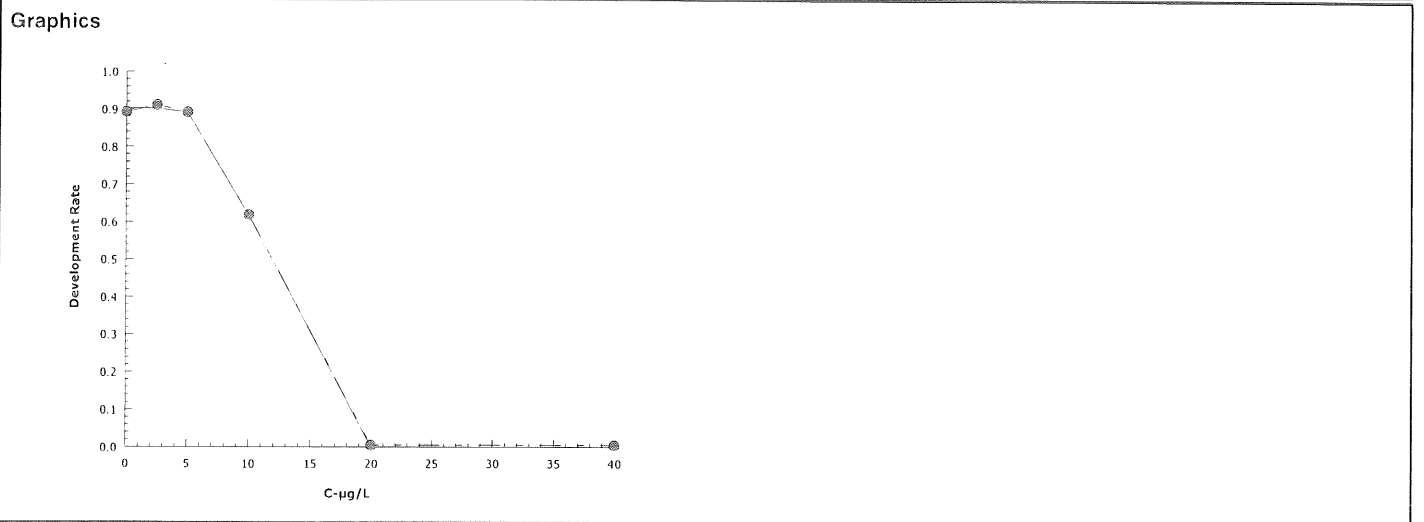
Report Date: 31 Jul-13 10:15 (p 2 of 3)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test		Nautilus Environmental (CA)	
Analysis ID: 04-7883-9678	Endpoint: Development Rate	CETIS Version: CETISv1.8.4	
Analyzed: 31 Jul-13 10:14	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes	

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	93938	1000	Yes	Two-Point Interpolation

Point Estimates			
Level	µg/L	95% LCL	95% UCL
EC25	8.945	7.875	10.7
EC50	12.71	11.71	13.76

Development Rate Summary			Calculated Variate(A/B)									
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Lab Control	5	0.8931	0.8646	0.9239	0.01158	0.0259	2.9%	0.0%	801	897	
2.5		5	0.9105	0.8903	0.936	0.0089	0.0199	2.19%	-1.95%	725	796	
5		5	0.8934	0.8212	0.9467	0.02055	0.04595	5.14%	-0.03%	759	851	
10		5	0.6194	0.5537	0.7412	0.03276	0.07325	11.82%	30.64%	513	829	
20		5	0	0	0	0	0		100.0%	0	825	
40		5	0	0	0	0	0		100.0%	0	172	



# CETIS Analytical Report

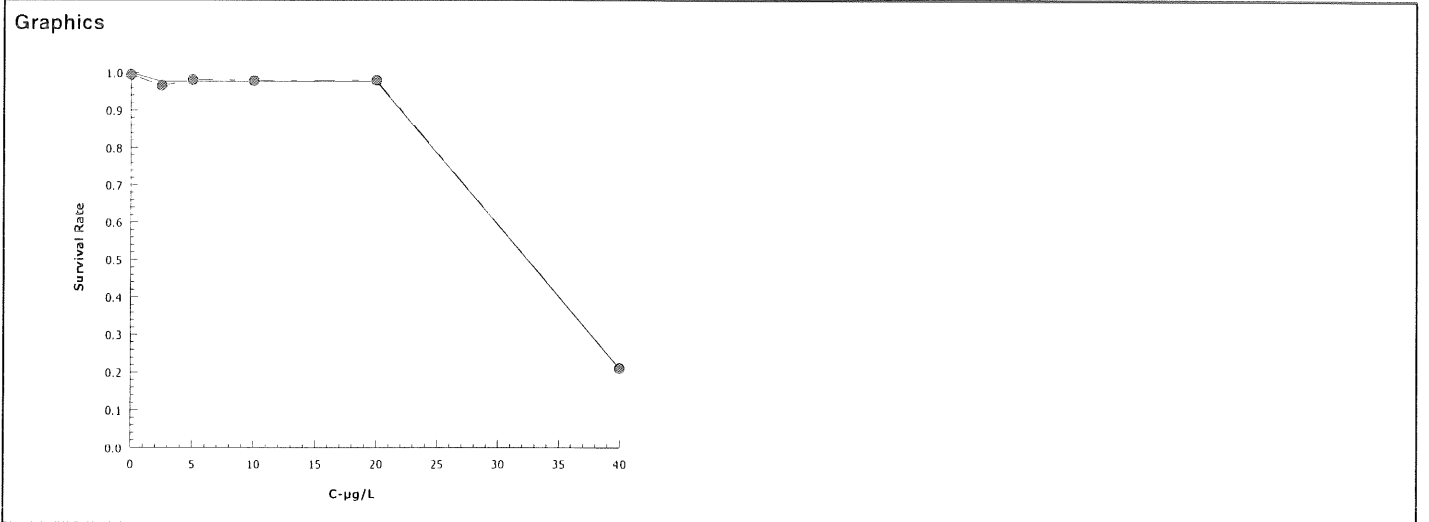
Report Date: 31 Jul-13 10:15 (p 3 of 3)  
 Test Code: 130710msdv | 10-9836-3796

Bivalve Larval Survival and Development Test		Nautilus Environmental (CA)	
Analysis ID: 15-6444-9625	Endpoint: Survival Rate	CETIS Version: CETISv1.8.4	
Analyzed: 31 Jul-13 10:14	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes	

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1204356	1000	Yes	Two-Point Interpolation

Point Estimates			
Level	µg/L	95% LCL	95% UCL
EC25	25.92	24.3	30.4
EC50	32.45	29.51	41.92

Survival Rate Summary			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	1	1	1	0	0	0.0%	0.0%	815	815
2.5		5	0.9656	0.908	1	0.01653	0.03696	3.83%	3.44%	787	815
5		5	0.9816	0.9202	1	0.01552	0.0347	3.54%	1.84%	800	815
10		5	0.9791	0.9202	1	0.01547	0.0346	3.53%	2.09%	798	815
20		5	0.9804	0.9387	1	0.01186	0.02653	2.71%	1.96%	799	815
40		5	0.211	0.06748	0.7239	0.1283	0.287	136.0%	78.9%	172	815





Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Test Type: Development-Survival

Organism: Mytilus galloprovincialis (Bay Mussel)

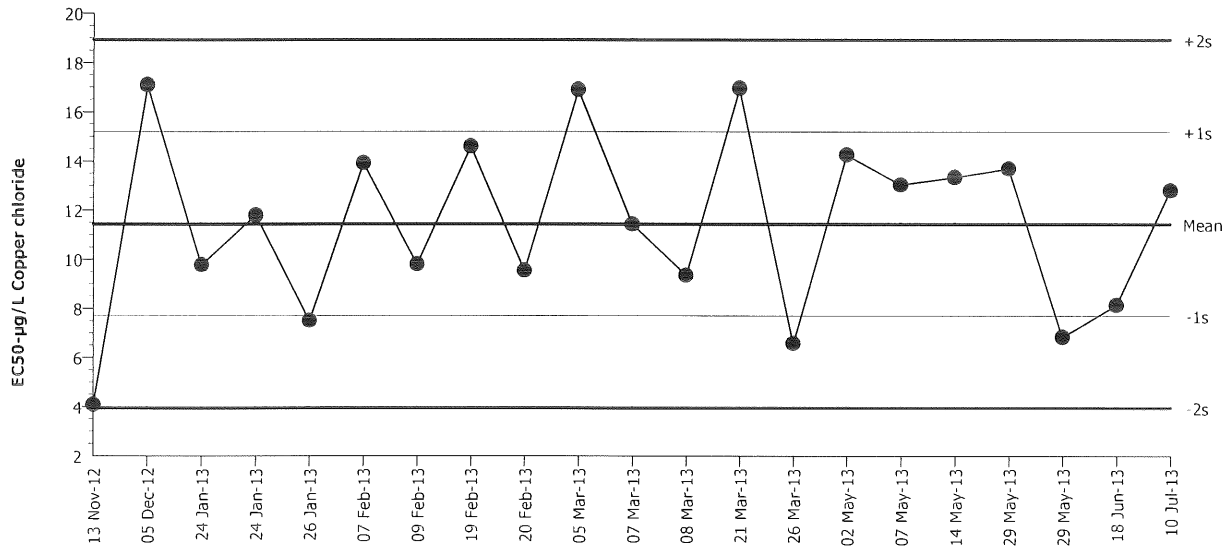
Material: Copper chloride

Protocol: EPA/600/R-95/136 (1995)

Endpoint: Combined Development Rate

Source: Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean: 11.44      Count: 20      -1s Warning Limit: 7.695      -2s Action Limit: 3.95  
 Sigma: 3.745      CV: 32.70%      +1s Warning Limit: 15.19      +2s Action Limit: 18.93

Quality Control Data

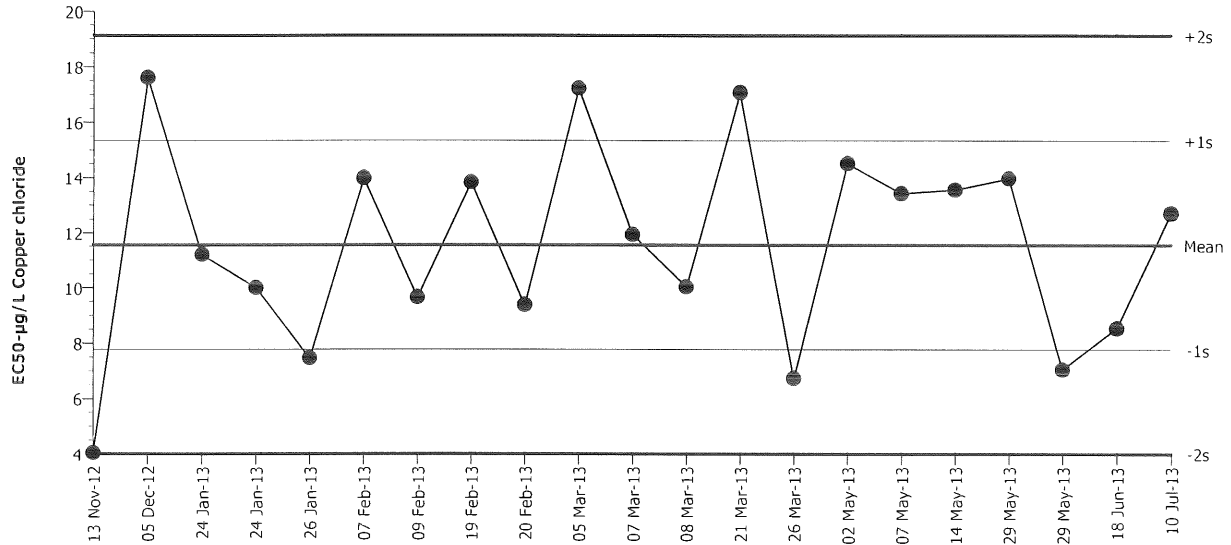
Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Nov	13	4.091	-7.349	-1.962	(-)		16-2586-9280	19-7451-6090
2		Dec	5	17.1	5.658	1.511	(+)		17-5951-5975	13-1946-8153
3	2013	Jan	24	9.788	-1.652	-0.4411			20-8582-9547	09-0079-6369
4			24	11.8	0.3635	0.09707			14-2291-4286	02-1982-6605
5			26	7.51	-3.93	-1.049	(-)		04-1387-5400	03-9637-5631
6		Feb	7	13.93	2.49	0.6648			11-7014-2670	05-8474-1082
7			9	9.81	-1.63	-0.4352			03-6836-9424	12-1620-4564
8			19	14.61	3.167	0.8456			04-5663-0104	17-4674-6012
9			20	9.557	-1.883	-0.5029			21-1062-2821	21-4473-8496
10		Mar	5	16.91	5.469	1.46	(+)		08-9136-0206	00-8102-9322
11			7	11.44	0.00163	0.000435			05-5501-3020	15-2467-0428
12			8	9.363	-2.077	-0.5545			12-9537-7450	09-1022-1133
13			21	16.98	5.535	1.478	(+)		05-9590-7799	20-0082-7594
14			26	6.583	-4.857	-1.297	(-)		11-3003-2528	12-2262-3339
15		May	2	14.26	2.821	0.7534			16-0143-2407	08-3550-0080
16			7	13.05	1.607	0.4291			02-6091-8512	00-2150-5072
17			14	13.35	1.907	0.5092			18-9528-2070	03-8361-8573
18			29	13.7	2.264	0.6045			06-8722-8513	03-9638-2513
19			29	6.845	-4.595	-1.227	(-)		14-9746-9153	04-5524-7511
20		Jun	18	8.15	-3.29	-0.8785			12-2146-1379	18-2724-8163
21		Jul	10	12.82	1.379	0.3681			10-9836-3796	03-5789-9070

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Test Type: Development-Survival      Organism: Mytilus galloprovincialis (Bay Mussel)      Material: Copper chloride  
 Protocol: EPA/600/R-95/136 (1995)      Endpoint: Development Rate      Source: Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean: 11.57      Count: 20      -1s Warning Limit: 7.791      -2s Action Limit: 4.012  
 Sigma: 3.779      CV: 32.70%      +1s Warning Limit: 15.35      +2s Action Limit: 19.13

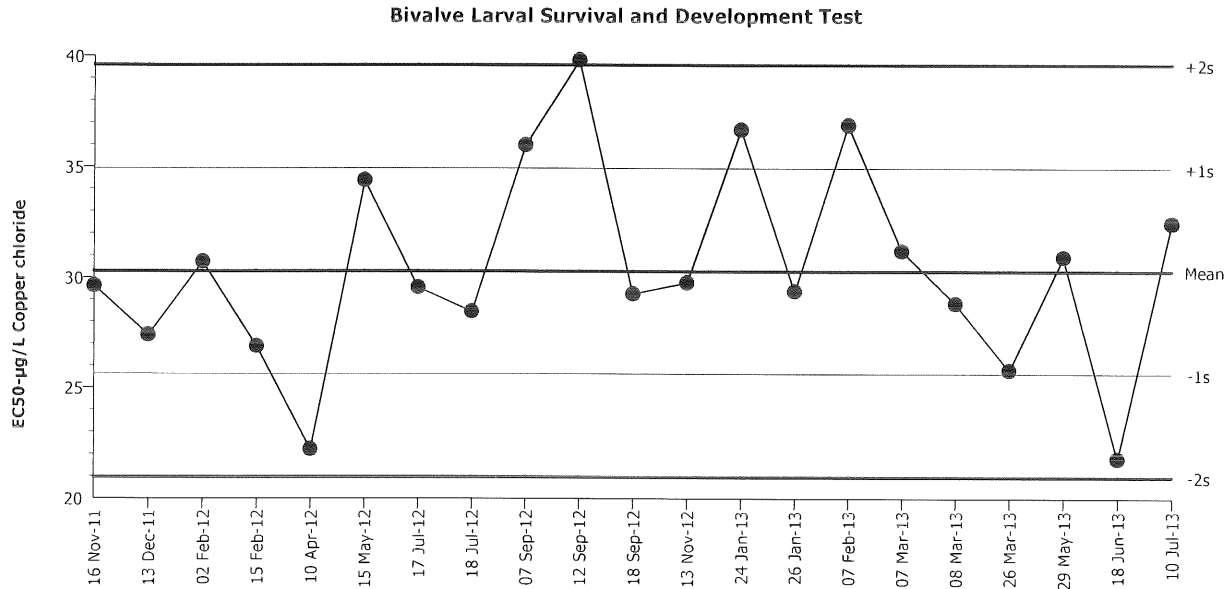
Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Nov	13	4.041	-7.529	-1.992	(-)		16-2586-9280	16-8301-8577
2		Dec	5	17.62	6.052	1.601	(+)		17-5951-5975	13-3724-4809
3	2013	Jan	24	11.22	-0.3513	-0.09297			14-2291-4286	06-2822-0925
4			24	10.01	-1.558	-0.4123			20-8582-9547	05-5941-2374
5			26	7.483	-4.087	-1.081	(-)		04-1387-5400	04-9418-6756
6		Feb	7	13.99	2.421	0.6405			11-7014-2670	03-7347-9680
7			9	9.673	-1.897	-0.5019			03-6836-9424	04-9175-8387
8			19	13.83	2.264	0.5991			04-5663-0104	12-7309-6114
9			20	9.397	-2.173	-0.575			21-1062-2821	08-3144-0973
10		Mar	5	17.23	5.662	1.498	(+)		08-9136-0206	18-0505-8125
11			7	11.94	0.3691	0.09767			05-5501-3020	01-1708-3412
12			8	10.04	-1.527	-0.404			12-9537-7450	03-6244-3019
13			21	17.09	5.519	1.46	(+)		05-9590-7799	12-0274-6486
14			26	6.754	-4.816	-1.274	(-)		11-3003-2528	03-7867-8973
15		May	2	14.52	2.953	0.7814			16-0143-2407	03-8019-1302
16			7	13.43	1.862	0.4927			02-6091-8512	20-1774-5230
17			14	13.56	1.989	0.5265			18-9528-2070	03-1135-2986
18			29	13.97	2.402	0.6357			06-8722-8513	07-9875-3443
19			29	7.06	-4.51	-1.194	(-)		14-9746-9153	09-3883-6352
20		Jun	18	8.553	-3.017	-0.7983			12-2146-1379	07-1806-0886
21		Jul	10	12.71	1.143	0.3024			10-9836-3796	04-7883-9678

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Test Type: Development-Survival      Organism: Mytilus galloprovincialis (Bay Mussel)      Material: Copper chloride  
 Protocol: EPA/600/R-95/136 (1995)      Endpoint: Survival Rate      Source: Reference Toxicant-REF



Mean: 30.28      Count: 20      -1s Warning Limit: 25.62      -2s Action Limit: 20.97  
 Sigma: 4.656      CV: 15.40%      +1s Warning Limit: 34.94      +2s Action Limit: 39.59

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Nov	16	29.63	-0.6504	-0.1397			01-3866-2459	09-7123-6611
2		Dec	13	27.4	-2.875	-0.6175			16-5303-6389	03-4314-1413
3	2012	Feb	2	30.73	0.4486	0.09636			02-8290-1129	06-5308-1220
4			15	26.89	-3.39	-0.7281			03-9202-5766	03-0054-0264
5		Apr	10	22.23	-8.054	-1.73	(-)		15-7981-3111	00-9478-2939
6		May	15	34.4	4.12	0.8849			19-9919-9115	06-3888-9077
7		Jul	17	29.56	-0.7243	-0.1556			00-3685-9935	09-6737-3689
8			18	28.46	-1.817	-0.3902			00-9675-8352	17-9922-1502
9		Sep	7	35.99	5.705	1.225	(+)		02-8412-2333	13-0108-2795
10			12	39.82	9.541	2.049	(+)	(+)	11-2649-8855	01-9640-6551
11			18	29.27	-1.009	-0.2166			04-8953-1458	18-1880-6886
12		Nov	13	29.77	-0.5051	-0.1085			16-2586-9280	01-0474-2618
13	2013	Jan	24	36.69	6.41	1.377	(+)		20-8582-9547	07-5471-1162
14			26	29.38	-0.9023	-0.1938			04-1387-5400	19-1179-1229
15		Feb	7	36.89	6.611	1.42	(+)		11-7014-2670	04-6605-1393
16		Mar	7	31.21	0.9257	0.1988			05-5501-3020	15-0705-6905
17			8	28.83	-1.451	-0.3116			12-9537-7450	13-1150-4633
18			26	25.8	-4.481	-0.9625			11-3003-2528	01-1386-0792
19		May	29	30.92	0.6447	0.1385			14-9746-9153	17-7839-1939
20		Jun	18	21.8	-8.478	-1.821	(-)		12-2146-1379	02-6513-2144
21		Jul	10	32.45	2.172	0.4665			10-9836-3796	15-6444-9625

CETIS Test Data Worksheet

Report Date: 02 Jul-13 13:35 (p 1 of 1)  
 Test Code: 10-9836-3796/130710msdv

Bivalve Larval Survival and Development Test Nautilus Environmental (CA)

Start Date: 10 Jul-13      Species: Mytilus galloprovincialis      Sample Code: 130710msdv  
 End Date: 12 Jul-13      Protocol: EPA/600/R-95/136 (1995)      Sample Source: Reference Toxicant  
 Sample Date: 02 Jul-13 13:34      Material: Copper chloride      Sample Station: Copper Chloride

C-µg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
			1			192	166	NH ↓
			2			169	154	
			3			172	0	
			4			15	0	
			5			150	93	
			6			180	0	
			7			162	0	
			8			158	0	
			9			179	147	
			10			168	146	
			11			148	137	
			12			173	99	
			13			155	138	
			14			61	146	
			15			193	176	
			16			159	97	
			17			172	161	
			18			118	0	
			19			184	170	
			20			168	151	
			21			160	143	
			22			150	142	
			23			16	0	
			24			177	98	
			25			184	165	
			26			12	0	
			27			170	126	
			28			153	0	
			29			161	143	
			30			11	0	

MS-d: CuCl<sub>2</sub> 130710msdv

CETIS Test Data Worksheet

Report Date: 02 Jul-13 13:35 (p 1 of 1)  
 Test Code: 10-9836-3796/130710msdv

<b>Bivalve Larval Survival and Development Test</b>				<b>Nautilus Environmental (CA)</b>			
Start Date: 10 Jul-13		Species: Mytilus galloprovincialis		Sample Code: 130710msdv			
End Date: 12 Jul-13		Protocol: EPA/600/R-95/136 (1995)		Sample Source: Reference Toxicant			
Sample Date: 02 Jul-13 13:34		Material: Copper chloride		Sample Station: Copper Chloride			

C-µg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	25					
0	LC	2	1					
0	LC	3	19					
0	LC	4	10					
0	LC	5	2					
2.5		1	11					
2.5		2	17					
2.5		3	13					
2.5		4	14					
2.5		5	21					
5		1	15					
5		2	22					
5		3	9					
5		4	20					
5		5	29					
10		1	24					
10		2	5					
10		3	16					
10		4	12					
10		5	27					
20		1	28					
20		2	7					
20		3	3					
20		4	8					
20		5	6					
40		1	26					
40		2	18					
40		3	23					
40		4	30					
40		5	4					

*QC*

**Marine Chronic Bioassay**

**Water Quality Measurements**

Client: Internal

Test Species: *M. galloprovincialis*

Sample ID: CuCl<sub>2</sub>

Start Date/Time: 7/10/2013 1445

Test No.: 130710msdv

End Date/Time: 7/12/2013 1445

Concentration (µg/L)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	32.1	31.6	31.5	15.8	14.9	14.9	8.2	8.7	8.0	8.02	7.98	8.01
2.5	32.3	31.9	31.7	15.7	14.9	14.6	8.0	8.7	8.1	8.02	7.95	8.02
5	32.4	31.9	31.8	15.9	15.1	14.5	7.9	8.7	8.0	8.03	8.01	8.02
10	32.4	31.8	31.7	15.9	15.2	14.5	8.0	8.7	8.7	8.03	7.98	8.02
20	32.4	31.8	31.7	16.0	15.1	14.4	8.0	8.7	7.9	8.02	7.99	8.04
40	32.3	31.7	31.6	16.0	15.2	14.4	7.9	8.7	8.0	8.03	7.99	8.03

High conc. made (µg/L):	40
Vol. Cu stock added (mL):	2.2
Final Volume (mL):	500
Cu stock concentration (µg/L):	9330

WQ Readings:	0	24	48
Dilutions made by:	BK	6	CC

Technician Initials:

Comments:  
 0 hrs:  
 24 hrs:  
 48 hrs:

QC Check: KL7/31/13 Final Review: KFP 8/1/13

Marine Chronic Bioassay

Larval Development Worksheet

Client: Internal  
 Test No.: 130710msdv  
 Test Species: Mytilus galloprovincialis  
 Animal Source: Taylor shellfish  
 Date Received: 7/10/13  
 Test Chambers: semitrattas shell vials  
 Sample Volume: 10mLs

Start Date/Time: 7/10/2013 1445  
 End Date/Time: 7/12/2013 1445  
 Technician Initials: KS

Spawn Information

First Gamete Release Time: 1100

Sex	Number Spawning
Male	3
Female	1

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2, 3	good motility + density
Female 1	1	good density, whitish, misspoken
Female 2		
Female 3		

Egg Fertilization Time: 1250

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted: 21      7  
12      10  
15      11  
7      17  
15      12

Mean: 12.7

Mean 12.7 x  $\frac{50}{42} = \underline{635}$  embryos/ml

Initial Density: 635 = 2.12 (dilution factor)

Desired Final Density: 300  
 (to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	Mean % Dividing
T01	143	145	99.3% KL
T02	187	188	
T03	154	155	
T04	167	168	
T05	166	167	

48-h QC: 124/135 = 92%

Comments:  $\bar{x} = 163$

QC Check: KL 7/31/13

Final Review: KFP 8/1/13

**Mysid Shrimp (*Americamysis bahia*)**



# CETIS Summary Report

Report Date: 16 Jul-13 17:21 (p 1 of 1)  
 Test Code: 130711myra | 12-4282-0224

**Mysid 96-h Acute Survival Test** **Nautilus Environmental (CA)**

Batch ID: 06-1825-4355	Test Type: Survival (96h)	Analyst:
Start Date: 11 Jul-13 16:00	Protocol: EPA/821/R-02-012 (2002)	Diluent: Diluted Natural Seawater
Ending Date: 15 Jul-13 14:50	Species: Americamysis bahia	Brine: Not Applicable
Duration: 95h	Source: Aquatic Biosystems, CO	Age: 5d

Sample ID: 15-9451-0623	Code: 130711myra	Client: Internal
Sample Date: 11 Jul-13	Material: Copper chloride	Project:
Receive Date: 11 Jul-13	Source: Reference Toxicant	
Sample Age: 16h	Station: Copper Chloride	

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
06-5926-1608	96h Survival Rate	200	400	282.8	22.4%		Dunnett Multiple Comparison Test

Point Estimate Summary							
Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
15-7501-2492	96h Survival Rate	EC50	276.3	239.8	318.3		Spearman-Kärber

96h Survival Rate Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.95	0.9127	0.9873	0.8	1	0.05	0.1	10.53%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	-5.26%
100		4	1	1	1	1	1	0	0	0.0%	-5.26%
200		4	0.85	0.7785	0.9215	0.6	1	0.09574	0.1915	22.53%	10.53%
400		4	0.1	0.02532	0.1747	0	0.4	0.1	0.2	200.0%	89.47%
800		4	0	0	0	0	0	0	0		100.0%

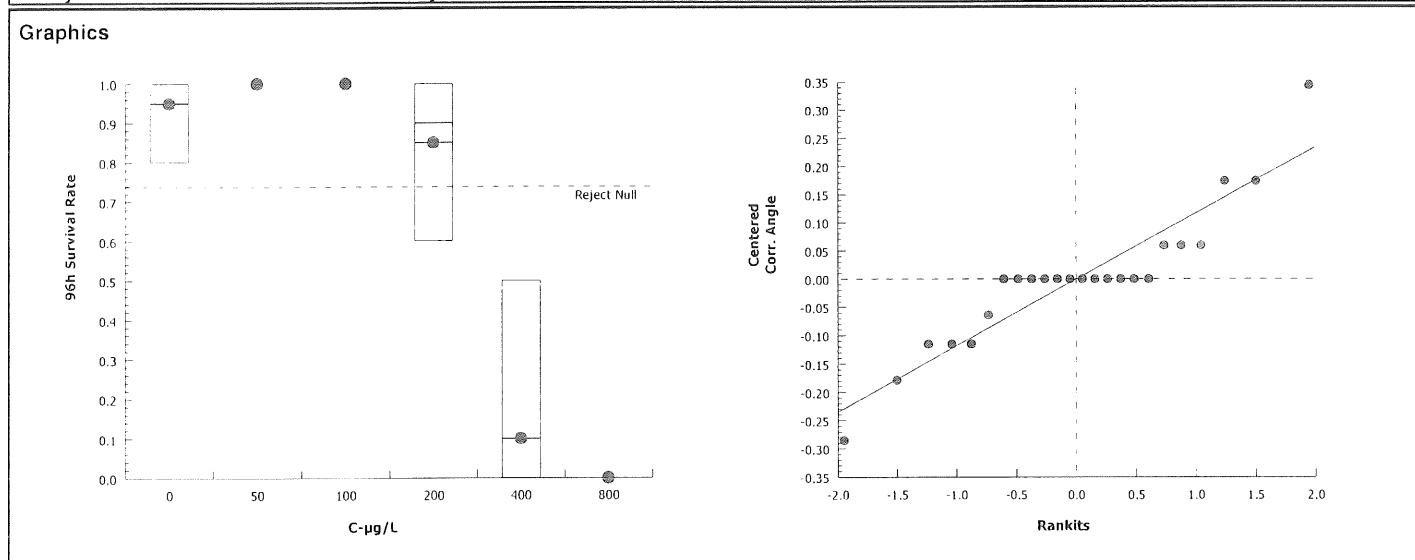
96h Survival Rate Detail					
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	0.8	1
50		1	1	1	1
100		1	1	1	1
200		1	1	0.6	0.8
400		0	0	0.4	0
800		0	0	0	0

**CETIS Analytical Report**

Report Date: 16 Jul-13 17:21 (p 1 of 2)  
 Test Code: 130711myra | 12-4282-0224

Mysid 96-h Acute Survival Test										Nautilus Environmental (CA)	
Analysis ID: 06-5926-1608		Endpoint: 96h Survival Rate			CETIS Version: CETISv1.8.4						
Analyzed: 16 Jul-13 17:21		Analysis: Parametric-Control vs Treatments			Official Results: Yes						
Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD		
Angular (Corrected)	NA	C > T	NA	NA	200	400	282.8		22.4%		
Dunnnett Multiple Comparison Test											
Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)		
Lab Control		50	-0.5538	2.356	0.253	6	0.9298	CDF	Non-Significant Effect		
		100	-0.5538	2.356	0.253	6	0.9298	CDF	Non-Significant Effect		
		200	1.068	2.356	0.253	6	0.3552	CDF	Non-Significant Effect		
		400*	8.795	2.356	0.253	6	<0.0001	CDF	Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α:5%)			
Between	2.947818		0.7369545		4	31.89	<0.0001	Significant Effect			
Error	0.3466905		0.0231127		15						
Total	3.294508				19						
Distributional Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α:1%)				
Variances	Mod Levene Equality of Variance			1.441	4.893	0.2689	Equal Variances				
Variances	Levene Equality of Variance			6.038	4.893	0.0042	Unequal Variances				
Distribution	Shapiro-Wilk W Normality			0.9291	0.866	0.1483	Normal Distribution				
96h Survival Rate Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
50		4	1	1	1	1	1	1	0	0.0%	-5.26%
100		4	1	1	1	1	1	1	0	0.0%	-5.26%
200		4	0.85	0.5453	1	0.9	0.6	1	0.09574	22.53%	10.53%
400		4	0.1	0	0.4182	0	0	0.4	0.1	200.0%	89.47%
800		4	0	0	0	0	0	0	0		100.0%
Angular (Corrected) Transformed Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
200		4	1.171	0.8199	1.522	1.226	0.8861	1.345	0.1103	18.84%	8.93%
400		4	0.3403	-0.02503	0.7057	0.2255	0.2255	0.6847	0.1148	67.47%	73.53%
800		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	82.46%

Mysid 96-h Acute Survival Test		Nautilus Environmental (CA)	
Analysis ID: 06-5926-1608	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.8.4	
Analyzed: 16 Jul-13 17:21	Analysis: Parametric-Control vs Treatments	Official Results: Yes	



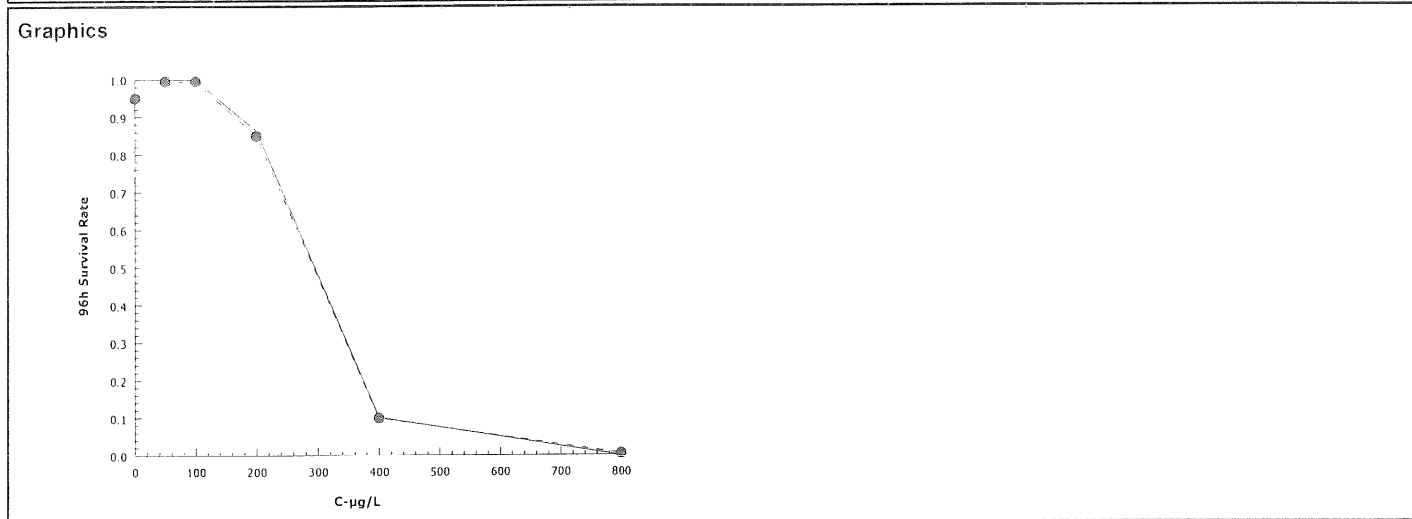
CETIS Analytical Report

Report Date: 16 Jul-13 17:21 (p 1 of 1)  
 Test Code: 130711myra | 12-4282-0224

Mysid 96-h Acute Survival Test			Nautilus Environmental (CA)		
Analysis ID: 15-7501-2492	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.8.4			
Analyzed: 16 Jul-13 17:21	Analysis: Untrimmed Spearman-Kärber	Official Results: Yes			

Spearman-Kärber Estimates							
Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.05	0.00%	2.441	0.03074	276.3	239.8	318.3

96h Survival Rate Summary			Calculated Variate(A/B)									
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Lab Control	4	0.95	0.8	1	0.05	0.1	10.53%	0.0%	19	20	
50		4	1	1	1	0	0	0.0%	-5.26%	20	20	
100		4	1	1	1	0	0	0.0%	-5.26%	20	20	
200		4	0.85	0.6	1	0.09574	0.1915	22.53%	10.53%	17	20	
400		4	0.1	0	0.4	0.1	0.2	200.0%	89.47%	2	20	
800		4	0	0	0	0	0		100.0%	0	20	



Mysid 96-h Acute Survival Test

Nautilus Environmental (CA)

Test Type: Survival (96h)

Organism: Americamysis bahia (Opossum Shri

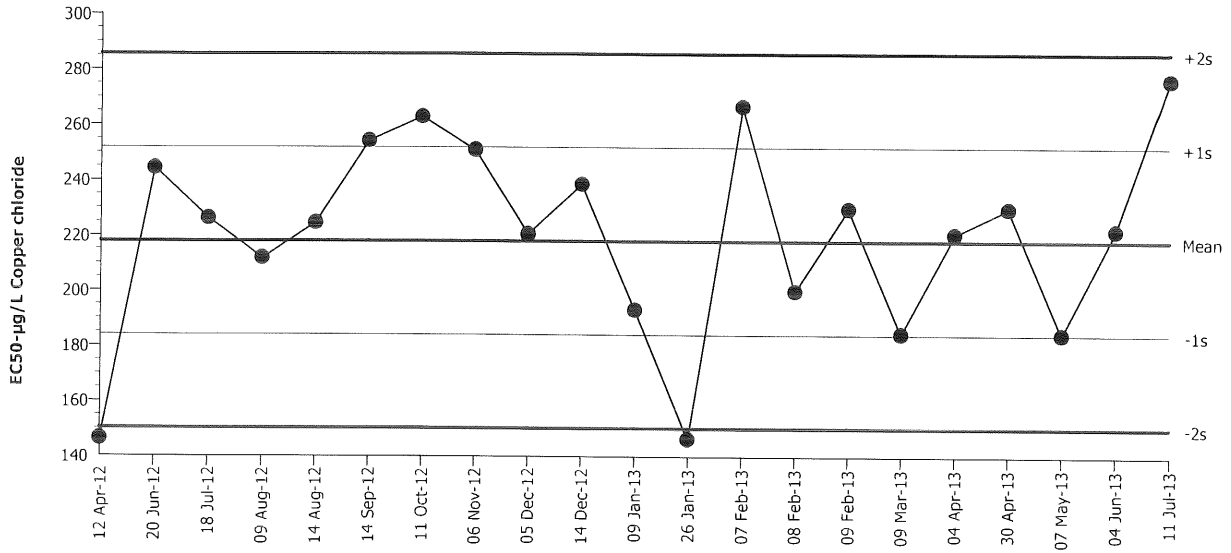
Material: Copper chloride

Protocol: EPA/821/R-02-012 (2002)

Endpoint: 96h Survival Rate

Source: Reference Toxicant-REF

Mysid 96-h Acute Survival Test



Mean: 217.9      Count: 20      -1s Warning Limit: 184      -2s Action Limit: 150.2  
 Sigma: 33.87      CV: 15.50%      +1s Warning Limit: 251.8      +2s Action Limit: 285.6

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Apr	12	146.4	-71.49	-2.111	(-)	(-)	18-4156-9891	06-8116-5972
2		Jun	20	244.4	26.54	0.7836			14-4876-2820	15-5597-1021
3		Jul	18	226.2	8.305	0.2452			19-0591-6573	01-8064-5028
4		Aug	9	211.9	-6.007	-0.1774			03-7650-1350	01-2638-0993
5			14	224.5	6.592	0.1946			00-4657-5056	17-8150-2104
6		Sep	14	254.2	36.33	1.073	(+)		02-3745-0967	07-8515-2357
7		Oct	11	262.9	45.04	1.33	(+)		16-6426-6275	09-7589-5463
8		Nov	6	251	33.08	0.9767			10-8430-0036	06-6663-1893
9		Dec	5	220.5	2.638	0.07788			04-0398-2004	00-6325-8584
10			14	238.6	20.67	0.6103			18-8768-0228	02-9826-1371
11	2013	Jan	9	193.2	-24.71	-0.7296			03-0771-5543	14-5886-5607
12			26	146.4	-71.49	-2.111	(-)	(-)	17-7211-3223	08-8577-1525
13		Feb	7	266.7	48.81	1.441	(+)		19-2692-5068	03-4918-2198
14			8	200	-17.9	-0.5285			06-9316-5762	17-6117-6270
15			9	229.7	11.84	0.3496			20-8185-6664	18-8287-9152
16		Mar	9	184.7	-33.25	-0.9817			12-8356-2336	06-9480-6166
17		Apr	4	220.5	2.638	0.07788			07-3349-2487	06-7553-2117
18			30	229.7	11.84	0.3496			17-7383-1596	04-6524-3221
19		May	7	184.3	-33.56	-0.9907			00-3243-0139	19-9640-3177
20		Jun	4	221.9	4.014	0.1185			12-8621-3943	18-1045-5488
21		Jul	11	276.3	58.37	1.723	(+)		12-4282-0224	15-7501-2492

Marine Acute Bioassay  
Static-Renewal Conditions

Water Quality Measurements  
& Test Organism Survival

Client: Internal  
Sample ID: CuCl<sub>2</sub>  
Test No.: 13071 myra

Test Species: A. bahia  
Start Date/Time: 7/10/2013 15:50-1600  
End Date/Time: 7/14/2013 1450

Tech Initials				
0	24	48	72	96
PA	BC	ML	AD	ML
EC	EC	ML	AD	LN
LN		BC		
800	--	800	--	--
17.6	--	17.6	--	--
2000	--	2000	--	--

Counts:  
Readings:  
Dilutions made by:  
High conc. made (µg/L):  
Vol. Cu stock added (mL):  
Final Volume (mL):

Cu stock concentration (µg/L): 90,900

Concentration (µg/L)	Rand #	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	8	5	5	5	5	5	19.8	30.2	29.9	30.3	30.4	24.5	25.0	24.0	25.1	25.1	8.0	6.0	7.1	5.5	5.7	7.9	8.0	8.02	7.98	7.90
	7	5	5	5	5	5			30.3					25.3			7.2		5.5					7.92		
	15	5	5	5	5	5																				
	4	5	5	5	5	5																				
50	11	5	5	5	5	5	19.9	30.2	29.9	30.6	30.7	24.4	25.5	24.0	25.2	25.2	8.0	6.1	7.0	6.0	5.7	7.9	8.01	8.05	7.98	7.89
	12	5	5	5	5	5			30.3					25.2			7.1		6.0					7.97		
	2	5	5	5	5	5																				
	21	5	5	5	5	5																				
100	10	5	5	5	5	5	19.9	30.3	29.9	30.4	30.4	24.5	25.4	24.1	25.2	25.3	8.0	5.9	7.0	5.7	5.7	7.9	8.01	8.05	7.98	7.89
	13	5	5	5	5	5			30.3					25.1			7.2		5.9					7.97		
	1	5	5	5	5	5			30.4																	
	23	5	5	5	5	5																				
200	20	5	5	5	5	5	19.9	30.3	29.9	30.4	30.4	24.5	25.0	24.0	25.3	25.3	8.1	6.0	7.0	5.6	5.8	7.9	8.02	8.06	7.99	7.89
	14	5	5	5	5	5			30.4					25.3			7.2		5.9					7.97		
	6	5	4	4	3	3																				
	22	5	4	4	4	4																				
400	3	5	3	0	-	-	19.8	30.1	29.8	30.2	30.3	24.5	25.4	24.0	25.4	25.4	8.1	6.2	7.0	6.2	5.9	7.9	8.02	8.04	8.06	7.92
	19	5	4	2	0	-			30.2					25.3			7.2		5.8					7.98		
	16	5	3	2	2	2			30.2																	
	9	5	0	-	-	-																				
800	5	5	3	0	-	-	19.7	30.0	29.8	30.1	30.1	24.5	25.3	24.0	25.4	25.4	8.1	6.1	7.0	6.2	5.8	7.9	8.07	8.02	8.05	7.91
	24	5	2	1	1	0			30.2					25.1			7.1		6.0					7.99		
	18	5	1	0	-	-																				
	17	5	1	0	-	-																				

Initial Counts  
QC'd by: EC

Animal Source/Date Received: 1110/13 ABS Age at Initiation: 5 days

Feeding Times					
0	24	48	72	96	
AM:	-	0830	0900	0900	0815
PM:	-	1700	1800	1300	-

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal  
Organisms fed prior to initiation, circle one (y) / n

QC Check: LN 7/10/13

Final Review: KL 7/10/13

**Inland Silverside (*Menidia beryllina*)**

# CETIS Summary Report

Report Date: 16 Jul-13 17:29 (p 1 of 1)  
 Test Code: 130711mbra | 06-9216-5908

Inland Silverside 96-h Acute Survival Test							Nautilus Environmental (CA)				
Batch ID:	00-1540-0493	Test Type:	Survival (96h)	Analyst:							
Start Date:	11 Jul-13 16:35	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Diluted Natural Seawater						
Ending Date:	15 Jul-13 14:40	Species:	Menidia beryllina	Brine:	Not Applicable						
Duration:	94h	Source:	Aquatic Biosystems, CO	Age:	14d						
Sample ID:	01-7071-2299	Code:	130711mbra	Client:	Internal						
Sample Date:	11 Jul-13	Material:	Copper chloride	Project:							
Receive Date:	11 Jul-13	Source:	Reference Toxicant								
Sample Age:	17h	Station:	Copper Chloride								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
05-1902-3886	96h Survival Rate	100	200	141.4	13.9%		Dunnett Multiple Comparison Test				
Point Estimate Summary											
Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method				
21-2743-4643	96h Survival Rate	EC50	141.4	124	161.3		Spearman-Kärber				
Test Acceptability											
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision					
05-1902-3886	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria					
21-2743-4643	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria					
96h Survival Rate Summary											
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	0.9	0.8569	0.9431	0.8	1	0.05774	0.1155	12.83%	10.0%
200		4	0.1	0.05688	0.1431	0	0.2	0.05774	0.1155	115.5%	90.0%
400		4	0	0	0	0	0	0	0		100.0%
800		4	0	0	0	0	0	0	0		100.0%
96h Survival Rate Detail											
C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Lab Control	1	1	1	1						
50		1	1	1	1						
100		0.8	1	1	0.8						
200		0	0.2	0	0.2						
400		0	0	0	0						
800		0	0	0	0						



CETIS Analytical Report

Report Date: 16 Jul-13 17:29 (p 1 of 1)  
 Test Code: 130711mbra | 06-9216-5908

Inland Silverside 96-h Acute Survival Test Nautilus Environmental (CA)

Analysis ID: 05-1902-3886      Endpoint: 96h Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 16 Jul-13 17:29      Analysis: Parametric-Control vs Treatments      Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	200	141.4		13.9%

Dunnnett Multiple Comparison Test

Control	vs C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control	50	0	2.287	0.157	6	0.7500	CDF	Non-Significant Effect
	100	1.732	2.287	0.157	6	0.1239	CDF	Non-Significant Effect
	200*	14.56	2.287	0.157	6	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.808445	0.9361485	3	99.05	<0.0001	Significant Effect
Error	0.1134158	0.009451317	12			
Total	2.921861		15			

Distributional Tests

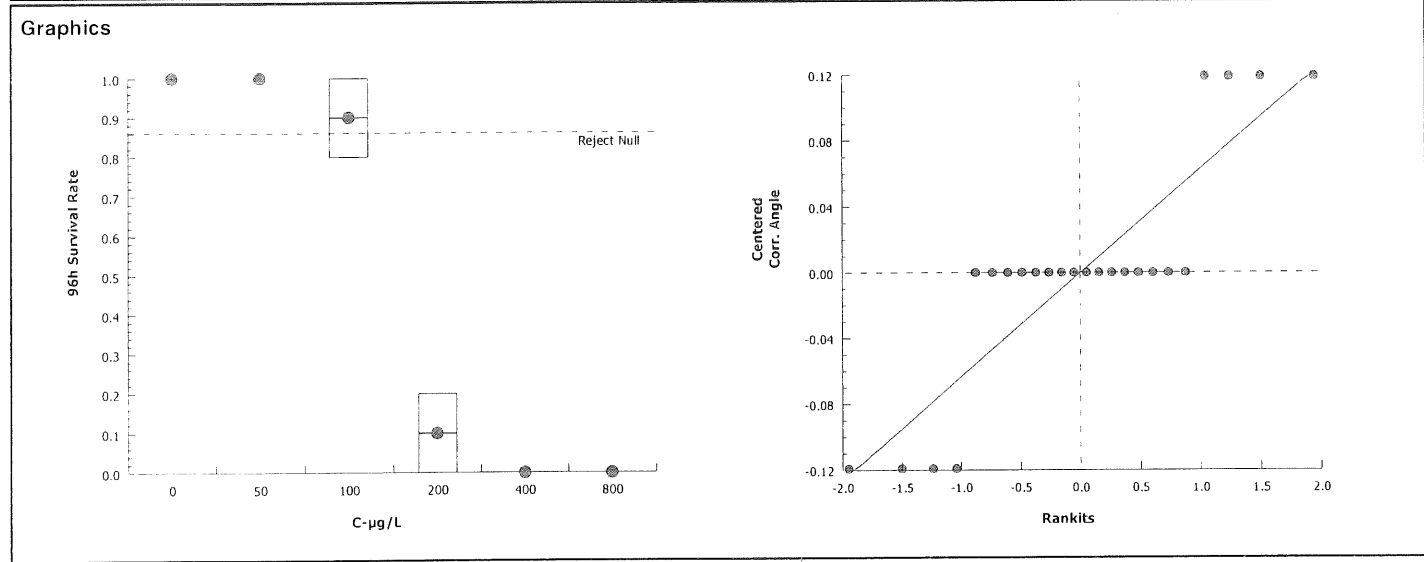
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Distribution	Shapiro-Wilk W Normality	0.8197	0.8408	0.0050	Non-normal Distribution

96h Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
50		4	1	1	1	1	1	1	0	0.0%	0.0%
100		4	0.9	0.7163	1	0.9	0.8	1	0.05774	12.83%	10.0%
200		4	0.1	0	0.2837	0.1	0	0.2	0.05774	115.5%	90.0%
400		4	0	0	0	0	0	0	0		100.0%
800		4	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
100		4	1.226	1.007	1.445	1.226	1.107	1.345	0.06874	11.21%	8.85%
200		4	0.3446	0.1258	0.5634	0.3446	0.2255	0.4636	0.06874	39.9%	74.39%
400		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	83.24%
800		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	83.24%



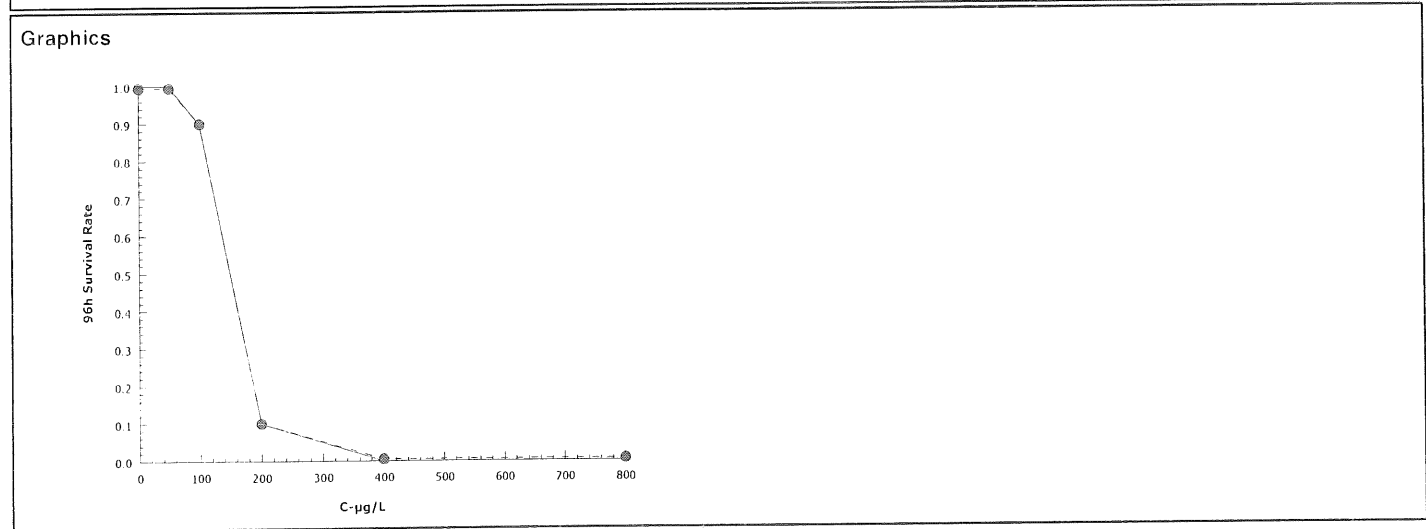
**CETIS Analytical Report**

Report Date: 16 Jul-13 17:29 (p 1 of 1)  
 Test Code: 130711mbra | 06-9216-5908

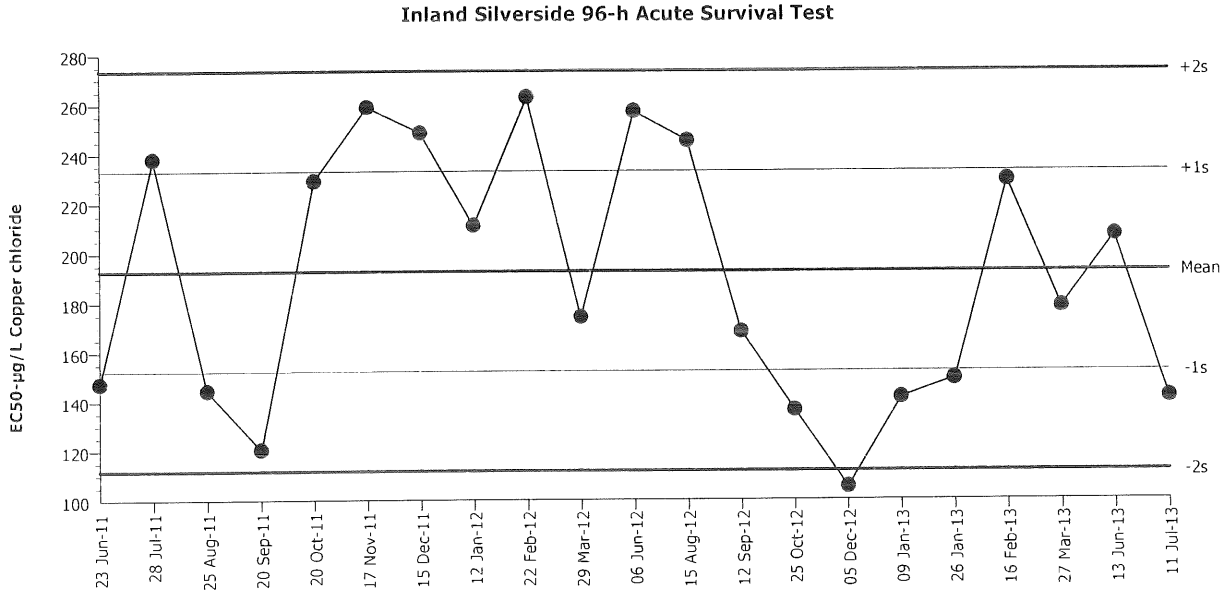
Inland Silverside 96-h Acute Survival Test			Nautilus Environmental (CA)		
Analysis ID: 21-2743-4643	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.8.4			
Analyzed: 16 Jul-13 17:29	Analysis: Untrimmed Spearman-Kärber	Official Results: Yes			

Spearman-Kärber Estimates							
Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	0.00%	2.151	0.02856	141.4	124	161.3

96h Survival Rate Summary			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	4	1	1	1	0	0	0.0%	0.0%	20	20
50		4	1	1	1	0	0	0.0%	0.0%	20	20
100		4	0.9	0.8	1	0.05774	0.1155	12.83%	10.0%	18	20
200		4	0.1	0	0.2	0.05774	0.1155	115.5%	90.0%	2	20
400		4	0	0	0	0	0		100.0%	0	20
800		4	0	0	0	0	0		100.0%	0	20



Inland Silverside 96-h Acute Survival Test		Nautilus Environmental (CA)	
Test Type: Survival (96h)	Organism: Menidia beryllina (Inland Silverside)	Material: Copper chloride	
Protocol: EPA/821/R-02-012 (2002)	Endpoint: 96h Survival Rate	Source: Reference Toxicant-REF	



Mean: 192.6      Count: 20      -1s Warning Limit: 152.2      -2s Action Limit: 111.7  
 Sigma: 40.45      CV: 21.00%      +1s Warning Limit: 233      +2s Action Limit: 273.5

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Jun	23	147.3	-45.29	-1.12	(-)		05-2107-1041	05-9540-6331
2		Jul	28	238.1	45.53	1.126	(+)		01-6343-6449	12-9704-3526
3		Aug	25	144.5	-48.08	-1.189	(-)		05-5823-2261	15-2283-7803
4		Sep	20	120.5	-72.08	-1.782	(-)		06-3695-9039	12-2236-1593
5		Oct	20	229.2	36.57	0.9042			07-3892-1606	02-4474-7245
6		Nov	17	259	66.36	1.641	(+)		17-8936-4519	19-9945-6978
7		Dec	15	248.6	55.95	1.383	(+)		01-4479-8124	14-1199-6620
8	2012	Jan	12	211.3	18.66	0.4614			19-8808-8752	12-8970-8273
9		Feb	22	262.9	70.34	1.739	(+)		06-7665-9706	20-9384-3150
10		Mar	29	174.1	-18.49	-0.4572			05-6826-0640	08-0221-7732
11		Jun	6	257.2	64.57	1.597	(+)		18-8343-8398	07-5920-5510
12		Aug	15	245.4	52.76	1.304	(+)		09-7983-0200	09-2700-9318
13		Sep	12	168.2	-24.42	-0.6038			03-5102-6858	08-5346-6708
14		Oct	25	136.4	-56.24	-1.391	(-)		07-9246-4343	01-9148-8858
15		Dec	5	105.2	-87.42	-2.161	(-)	(-)	06-0212-4364	02-3516-9009
16	2013	Jan	9	141.4	-51.18	-1.265	(-)		17-2187-6754	18-4890-8322
17			26	149.2	-43.43	-1.074	(-)		18-1935-7382	02-8788-6074
18		Feb	16	229.4	36.8	0.9097			10-2313-3759	14-4667-5668
19		Mar	27	178.2	-14.42	-0.3565			07-8835-5536	15-9493-1462
20		Jun	13	207.1	14.45	0.3573			15-3690-9471	03-7822-6454
21		Jul	11	141.4	-51.18	-1.265	(-)		06-9216-5908	21-2743-4643

Q18

**Marine Acute Bioassay**  
**Static-Renewal Conditions**

**Water Quality Measurements**  
**& Test Organism Survival**

Client: Internal  
 Sample ID: CuCl<sub>2</sub>  
 Test No.: 130711 mbca

Test Species: M. beryllina  
 Start Date/Time: 7/12/2013 11:35  
 End Date/Time: 7/16/2013 14:40

Tech Initials				
0	24	48	72	96
ML	BC	ML	AD	ML
EC	EC	ML	AD	LN
LN		BC		
800	--	200	--	--
16.0	--	4.4	--	--
2000	--	2000	--	--

Counts:  
 Readings:  
 Dilutions made by:  
 High conc. made (µg/L):  
 Vol. Cu stock added (mL):  
 Final Volume (mL):

Cu stock concentration (µg/L): 90,900

Concentration (µg/L)	Rand #	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	19	5	5	5	5	5	29.8	30.1	30.0	30.3	30.2	24.4	25.2	24.0	25.3	25.4	7.9	5.2	7.1	4.9	4.9	7.88	7.91	8.03	7.9	7.75
	14	5	5	5	5	5			30.2					25.2					5.0					7.89		
	6	5	5	5	5	5																				
	24	5	5	5	5	5																				
50	11	5	5	5	5	5	29.8	30.3	30.0	30.2	30.3	24.4	25.3	24.0	25.4	25.4	7.8	5.2	7.1	5.1	5.3	7.98	7.95	8.04	7.95	7.80
	20	5	5	5	5	5			30.2					25.3					5.3					7.82		
	1	5	5	5	5	5																				
	7	5	5	5	5	5																				
100	5	5	4	4	4	4	29.8	30.2	30.0	30.3	30.4	24.5	25.0	24.0	25.4	25.3	8.0	5.2	7.1	5.3	5.4	7.90	7.95	8.04	7.97	7.83
	9	5	5	5	5	5			30.1					25.3					7.2					7.90		
	18	5	5	5	5	5																				
	2	5	4	4	4	4																				
200	21	5	0	-	-	-	29.7	30.2	29.9	30.2	30.5	24.6	25.0	24.0	25.4	25.4	8.1	5.6	7.1	5.8	5.6	7.9	7.97	8.03	8.03	7.88
	4	5	1	1	1	1			30.1					25.3					7.2					7.93		
	17	5	0	-	-	-																				
	22	5	1	1	1	1																				
400	10	5	0	-	-	-	29.7	30.1				24.5	25.3				8.2	5.5				7.91	7.97			
	23	5	0	-	-	-																				
	12	5	0	-	-	-																				
	8	5	0	-	-	-																				
800	16	5	0	-	-	-	29.5	30.0				24.5	25.0				8.0	5.3				7.89	7.95			
	13	5	0	-	-	-																				
	3	5	0	-	-	-																				
	15	5	0	-	-	-																				

Initial Counts  
 QC'd by: AG

Animal Source/Date Received: ABS / 7/10/13 Age at Initiation: 14d

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal  
Organisms fed prior to initiation, circle one (y) / n )

Feeding Times				
0	24	48	72	96
AM:				
PM:				

QC Check: LN 7/16/13

Final Review: KL 7/10/13

## **Appendix D**

### **Summary of Statistical Analyses**

**Appendix Table D-1. Statistical Analysis of *Eohaustorius* Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: June 14, 2013**

**Analysis of Variance (ANOVA)**

Dependent variable:		<i>Eohaustorius</i> Survival				
Source	SS	df	MS	F	p	
Site	0.6635	4	0.1659	12.35	<b>&lt;0.0001*</b>	
Residual	0.2687	20	0.01344			

**Bold asterisk** indicates a statistically significant difference in amphipod survival among sediments (p<0.05).

**Multiple Comparison t-tests**

Comparison	Percent Difference	p
LA-2 Reference vs. YTI Comp A	-30	<b>0.0004*</b>
LA-2 Reference vs. YTI Comp B	-11	<b>0.0016*</b>
Fine Grain Control vs. YTI Comp A	-27	<b>0.0021*</b>
Fine Grain Control vs. YTI Comp B	-8	<b>0.0289*</b>

**Bold asterisk** indicates a statistically significant reduction in survival relative to the LA-2 Reference sediment or Fine Grain Size Control (p<0.05).

**Appendix Table D-2. Analysis of *Neanthes arenaceodentata* Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: July 10, 2013**

Analysis of Variance (ANOVA)					
Dependent variable:	<i>Neanthes</i> Survival				
Source	SS	df	MS	F	P
Site	0.006000	3	0.002000	1.000	0.4182
Residual	0.0320	16	0.0020		

**Appendix D-3. Analysis of *Americamysis bahia* Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: July 11, 2013**



**CETIS Summary Report**

Report Date: 01 Aug-13 09:04 (p 1 of 1)  
 Test Code: 1307-S065 | 19-8461-1956

**Mysid 96-h Acute Survival Test** Nautilus Environmental (CA)

Batch ID: 06-2275-4419	Test Type: Survival (96h)	Analyst:
Start Date: 11 Jul-13 15:30	Protocol: EPA/821/R-02-012 (2002) <i>EPA/ACE 1991, 1998</i>	Diluent: <del>Not Applicable</del> <i>Diluted Natural Seawater</i>
Ending Date: 15 Jul-13 14:35	Species: Americamysis bahia	Brine: Not Applicable
Duration: 95h	Source: Aquatic Biosystems, CO	Age: 5d

Sample ID: 01-9219-3544	Code: 13-3100	Client: AMEC
Sample Date: 11 Jul-13 12:15	Material: Elutriate	Project:
Receive Date: 11 Jul-13 12:15	Source: AMEC POLA (AMEC/POLA)	
Sample Age: 3h	Station: YTI Comp A	

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-5809-2743	96h Survival Rate	100	>100	NA	10.9%	1	Dunnett Multiple Comparison Test

96h Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
10		5	0.9	0.8627	0.9373	0.8	1	0.04472	0.1	11.11%	6.25%
50		5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
100		5	0.92	0.8888	0.9512	0.8	1	0.03742	0.08367	9.09%	4.17%

96h Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	1	0.9	1	1	0.9
10		1	1	0.8	0.9	0.8
50		1	0.9	1	1	0.9
100		1	0.9	1	0.9	0.8

96h Survival Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	10/10	9/10	10/10	10/10	9/10
10		10/10	10/10	8/10	9/10	8/10
50		10/10	9/10	10/10	10/10	9/10
100		10/10	9/10	10/10	9/10	8/10

# CETIS Analytical Report

Report Date: 16 Jul-13 17:54 (p 1 of 1)  
 Test Code: 1307-S065 | 19-8461-1956

**Mysid 96-h Acute Survival Test** Nautilus Environmental (CA)

Analysis ID: 18-5809-2743      Endpoint: 96h Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 16 Jul-13 17:54      Analysis: Parametric-Control vs Treatments      Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	10.9%

**Dunnett Multiple Comparison Test**

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	1.196	2.227	0.166	8	0.2602	CDF	Non-Significant Effect
		50	0	2.227	0.166	8	0.7500	CDF	Non-Significant Effect
		100	0.8162	2.227	0.166	8	0.4065	CDF	Non-Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.030261	0.010087	3	0.7229	0.5529	Non-Significant Effect
Error	0.2232544	0.0139534	16			
Total	0.2535154		19			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.575	11.34	0.6650	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9134	0.866	0.0741	Normal Distribution

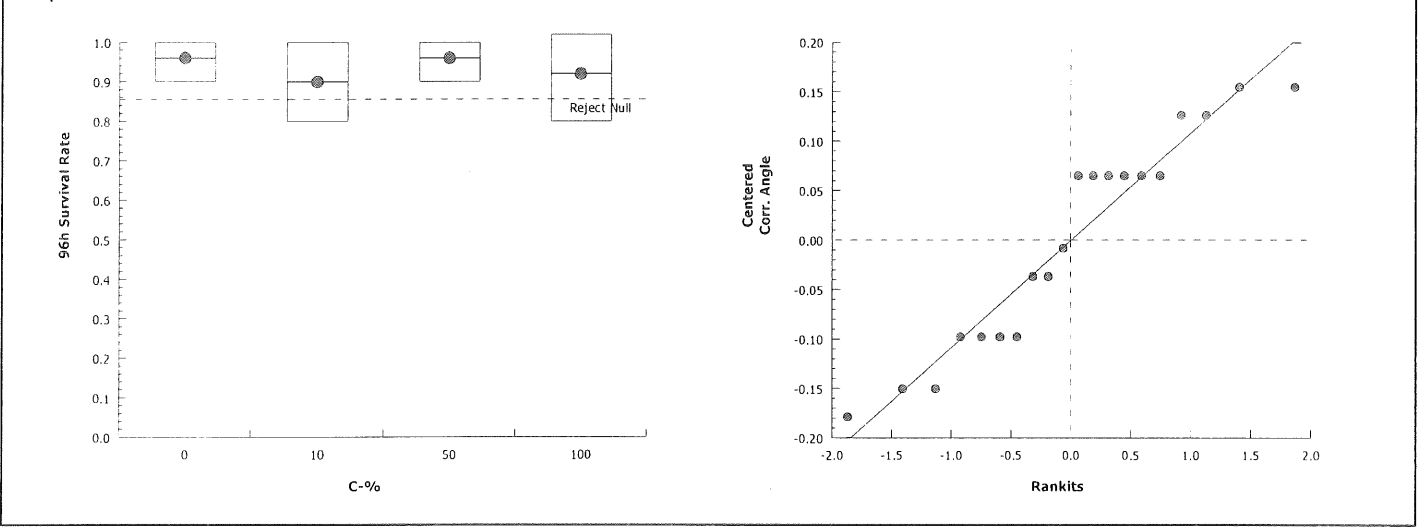
**96h Survival Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
10		5	0.9	0.7758	1	0.9	0.8	1	0.04472	11.11%	6.25%
50		5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
100		5	0.92	0.8161	1	0.9	0.8	1	0.03742	9.09%	4.17%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
10		5	1.257	1.068	1.447	1.249	1.107	1.412	0.0682	12.13%	6.63%
50		5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
100		5	1.286	1.126	1.446	1.249	1.107	1.412	0.05765	10.03%	4.53%

**Graphics**



**CETIS Summary Report**

Report Date: 01 Aug-13 09:20 (p 1 of 1)  
 Test Code: 1307-S066 | 08-9253-3032

Mysid 96-h Acute Survival Test Nautilus Environmental (CA)

Batch ID: 08-0647-8475	Test Type: Survival (96h)	Analyst:
Start Date: 11 Jul-13 15:45	Protocol: EPA/821/R-02-012 (2002) / EPA/ACE	Diluent: <del>Not Applicable</del> Diluted Natural
Ending Date: 15 Jul-13 14:45	Species: Americamysis bahia	Brine: Not Applicable Sea water
Duration: 95h	Source: Aquatic Biosystems, CO	Age: 5d

Sample ID: 01-5409-7810	Code: 13-3101	Client: AMEC
Sample Date: 11 Jul-13 11:30	Material: Elutriate	Project:
Receive Date: 11 Jul-13 11:30	Source: AMEC POLA (AMEC/POLA)	
Sample Age: 4h	Station: YTI Comp B	

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-8090-0520	96h Survival Rate	100	>100	NA	14.1%	1	Dunnett Multiple Comparison Test

96h Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.94	0.9195	0.9605	0.9	1	0.02449	0.05477	5.83%	0.0%
10		5	0.94	0.9195	0.9605	0.9	1	0.02449	0.05477	5.83%	0.0%
50		5	0.96	0.9266	0.9934	0.8	1	0.04	0.08944	9.32%	-2.13%
100		5	0.86	0.8034	0.9166	0.7	1	0.06782	0.1517	17.63%	8.51%

96h Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	1	0.9	1	0.9	0.9
10		1	1	0.9	0.9	0.9
50		1	0.8	1	1	1
100		1	0.7	0.9	0.7	1

96h Survival Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	10/10	9/10	10/10	9/10	9/10
10		10/10	10/10	9/10	9/10	9/10
50		10/10	8/10	10/10	10/10	10/10
100		10/10	7/10	9/10	7/10	10/10

# CETIS Analytical Report

Report Date: 16 Jul-13 17:58 (p 1 of 1)  
 Test Code: 1307-S066 | 08-9253-3032

**Mysid 96-h Acute Survival Test** Nautilus Environmental (CA)

Analysis ID: 20-8090-0520      Endpoint: 96h Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 16 Jul-13 17:58      Analysis: Parametric-Control vs Treatments      Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	14.1%

**Dunnett Multiple Comparison Test**

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	0	2.227	0.198	8	0.7500	CDF	Non-Significant Effect
		50	-0.4135	2.227	0.198	8	0.8725	CDF	Non-Significant Effect
		100	1.159	2.227	0.198	8	0.2730	CDF	Non-Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.05447748	0.01815916	3	0.9165	0.4551	Non-Significant Effect
Error	0.3170224	0.0198139	16			
Total	0.3714998		19			

**Distributional Tests**

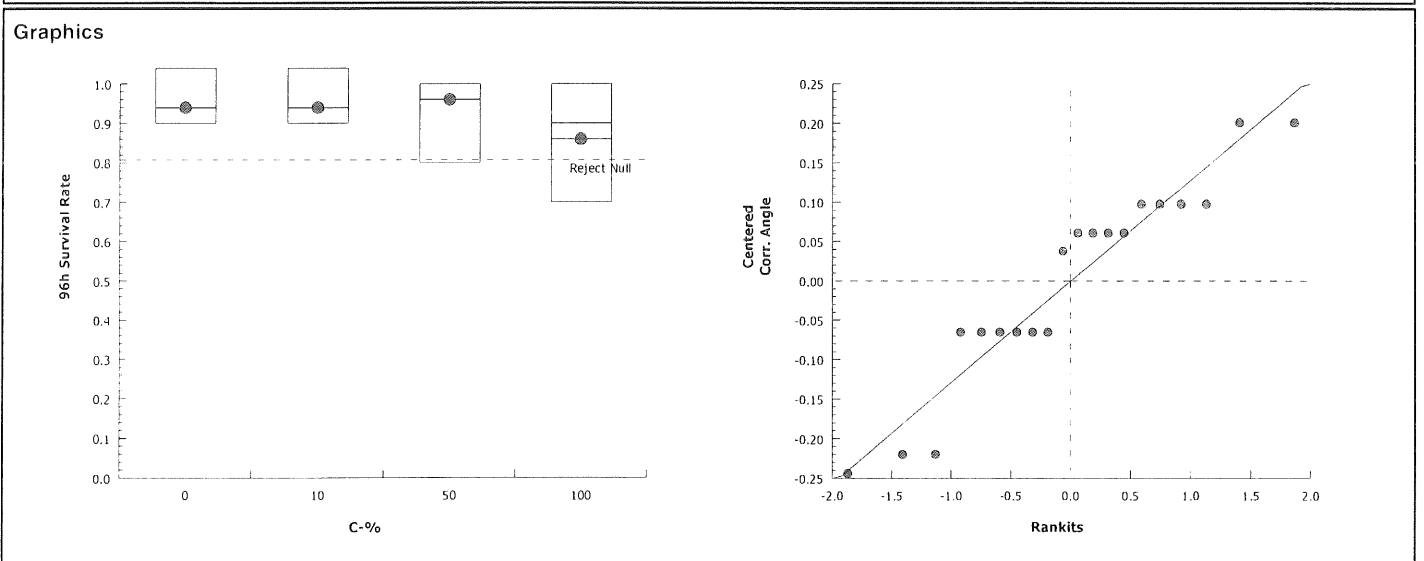
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.882	11.34	0.2745	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9125	0.866	0.0713	Normal Distribution

**96h Survival Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.94	0.872	1	0.9	0.9	1	0.02449	5.83%	0.0%
10		5	0.94	0.872	1	0.9	0.9	1	0.02449	5.83%	0.0%
50		5	0.96	0.8489	1	1	0.8	1	0.04	9.32%	-2.13%
100		5	0.86	0.6717	1	0.9	0.7	1	0.06782	17.63%	8.51%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.314	1.203	1.425	1.249	1.249	1.412	0.03992	6.79%	0.0%
10		5	1.314	1.203	1.425	1.249	1.249	1.412	0.03992	6.79%	0.0%
50		5	1.351	1.182	1.52	1.412	1.107	1.412	0.06097	10.09%	-2.8%
100		5	1.211	0.9485	1.474	1.249	0.9912	1.412	0.09458	17.46%	7.85%



**Appendix D-4. Analysis of *Menidia beryllina* Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: July 11, 2013**

**CETIS Summary Report**

Report Date: 01 Aug-13 09:22 (p 1 of 1)  
 Test Code: 1307-S065a | 08-8520-2128

Inland Silverside 96-h Acute Survival Test Nautilus Environmental (CA)

Batch ID: 18-2557-7449	Test Type: Survival (96h)	Analyst:	
Start Date: 11 Jul-13 16:00	Protocol: EPA/821/R-02-012 (2002) <i>EPA/ACE 1991, 1998</i>	Diluent: <del>Artificial Saltwater</del> Diluted Natural	
Ending Date: 15 Jul-13 14:55	Species: Menidia beryllina	Brine: <del>Instant Ocean</del> NA Sea Water	
Duration: 95h	Source: Aquatic Indicators	Age: 14d	

Sample ID: 21-0470-2153	Code: 13-3100	Client: AMEC	
Sample Date: 11 Jul-13 12:15	Material: Elutriate	Project:	
Receive Date: 11 Jul-13 12:15	Source: AMEC POLA (AMEC/POLA)		
Sample Age: 4h	Station: YTI Comp A		

**Sample Note:** Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 °C

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-3585-5603	96h Survival Rate	100	>100	NA	6.56%	1	Dunnett Multiple Comparison Test

Test Acceptability							
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision	
09-3585-5603	96h Survival Rate	Control Resp	0.96	0.9 - NL	Yes	Passes Acceptability Criteria	

96h Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
10		5	0.98	0.9633	0.9967	0.9	1	0.02	0.04472	4.56%	-2.08%
50		5	1	1	1	1	1	0	0	0.0%	-4.17%
100		5	0.94	0.9195	0.9605	0.9	1	0.02449	0.05477	5.83%	2.08%

96h Survival Rate Detail							
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	0.9	1	1	1	0.9	
10		0.9	1	1	1	1	
50		1	1	1	1	1	
100		0.9	1	0.9	1	0.9	

96h Survival Rate Binomials							
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	9/10	10/10	10/10	10/10	9/10	
10		9/10	10/10	10/10	10/10	10/10	
50		10/10	10/10	10/10	10/10	10/10	
100		9/10	10/10	9/10	10/10	9/10	

**CETIS Analytical Report**

Report Date: 17 Jul-13 16:15 (p 1 of 1)  
 Test Code: 1307-S065a | 08-8520-2128

Inland Silverside 96-h Acute Survival Test Nautilus Environmental (CA)

Analysis ID: 09-3585-5603      Endpoint: 96h Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 17 Jul-13 16:10      Analysis: Parametric-Control vs Treatments      Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	6.56%

**Dunnett Multiple Comparison Test**

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	-0.7071	2.227	0.103	8	0.9280	CDF	Non-Significant Effect
		50	-1.414	2.227	0.103	8	0.9860	CDF	Non-Significant Effect
		100	0.7071	2.227	0.103	8	0.4534	CDF	Non-Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02655933	0.00885311	3	1.667	0.2140	Non-Significant Effect
Error	0.08498986	0.005311866	16			
Total	0.1115492		19			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	5.953	0.4262	Equal Variances
Variances	Levene Equality of Variance	10.67	5.292	0.0004	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9344	0.866	0.1876	Normal Distribution

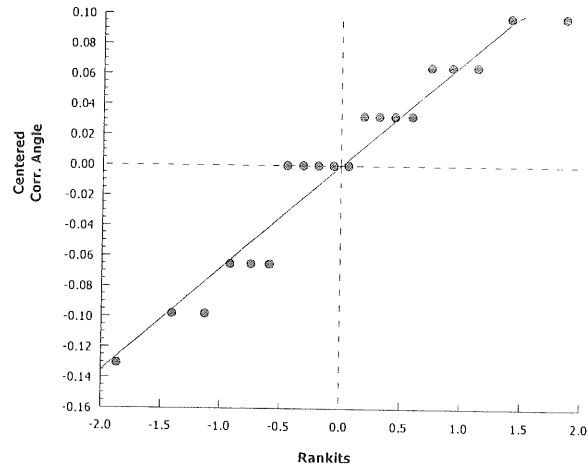
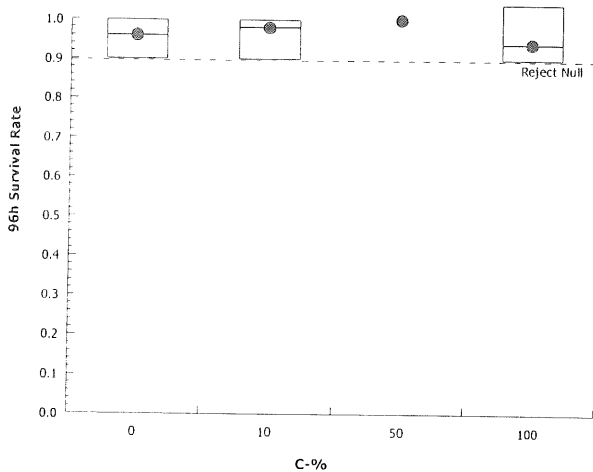
**96h Survival Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
10		5	0.98	0.9245	1	1	0.9	1	0.02	4.56%	-2.08%
50		5	1	1	1	1	1	1	0	0.0%	-4.17%
100		5	0.94	0.872	1	0.9	0.9	1	0.02449	5.83%	2.08%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
10		5	1.379	1.289	1.47	1.412	1.249	1.412	0.03259	5.28%	-2.42%
50		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%
100		5	1.314	1.203	1.425	1.249	1.249	1.412	0.03992	6.79%	2.42%

**Graphics**



# CETIS Summary Report

Report Date: 01 Aug-13 09:24 (p 1 of 1)  
 Test Code: 1307-S066a | 20-5339-9786

Inland Silverside 96-h Acute Survival Test Nautilus Environmental (CA)

Batch ID: 14-8834-6613	Test Type: Survival (96h)	Analyst:
Start Date: 11 Jul-13 16:15	Protocol: EPA/821/R-02-012 (2002) / <i>EPA/ACE</i>	Diluent: <i>Artificial Saltwater Diluted Natural</i>
Ending Date: 15 Jul-13 15:10	Species: Menidia beryllina	Brine: <i>Instant Ocean NA Sea water</i>
Duration: 95h	Source: Aquatic Indicators	Age: 14d

Sample ID: 16-0162-3596	Code: 13-3101	Client: AMEC
Sample Date: 11 Jul-13 11:30	Material: Elutriate	Project:
Receive Date: 11 Jul-13 11:30	Source: AMEC POLA (AMEC/POLA)	
Sample Age: 5h	Station: YTI Comp B	

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-5408-7641	96h Survival Rate	100	>100	NA	4.17%	1	Steel Many-One Rank Sum Test

Test Acceptability							
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision	
08-5408-7641	96h Survival Rate	Control Resp	0.96	0.9 - NL	Yes	Passes Acceptability Criteria	

96h Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
10		5	1	1	1	1	1	0	0	0.0%	-4.17%
50		5	1	1	1	1	1	0	0	0.0%	-4.17%
100		5	1	1	1	1	1	0	0	0.0%	-4.17%

96h Survival Rate Detail							
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	0.9	1	1	1	0.9	
10		1	1	1	1	1	
50		1	1	1	1	1	
100		1	1	1	1	1	

96h Survival Rate Binomials							
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Lab Control	9/10	10/10	10/10	10/10	9/10	
10		10/10	10/10	10/10	10/10	10/10	
50		10/10	10/10	10/10	10/10	10/10	
100		10/10	10/10	10/10	10/10	10/10	



# CETIS Analytical Report

Report Date: 17 Jul-13 16:18 (p 1 of 1)  
 Test Code: 1307-S066a | 20-5339-9786

Inland SilverSide 96-h Acute Survival Test Nautilus Environmental (CA)

Analysis ID: 08-5408-7641      Endpoint: 96h Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 17 Jul-13 16:18      Analysis: Nonparametric-Control vs Treatments      Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	4.17%

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	32.5	17	1	8	0.9699	Asymp	Non-Significant Effect
		50	32.5	17	1	8	0.9699	Asymp	Non-Significant Effect
		100	32.5	17	1	8	0.9699	Asymp	Non-Significant Effect

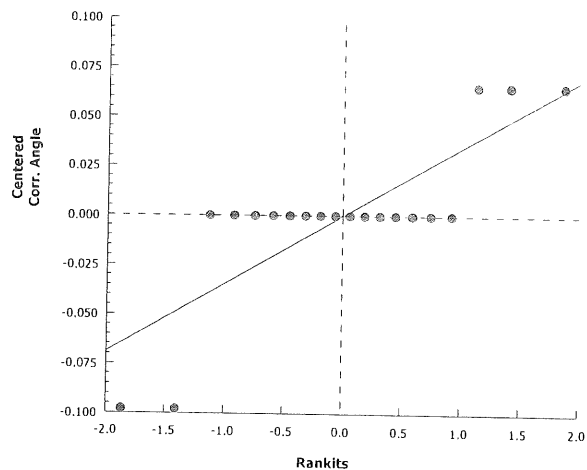
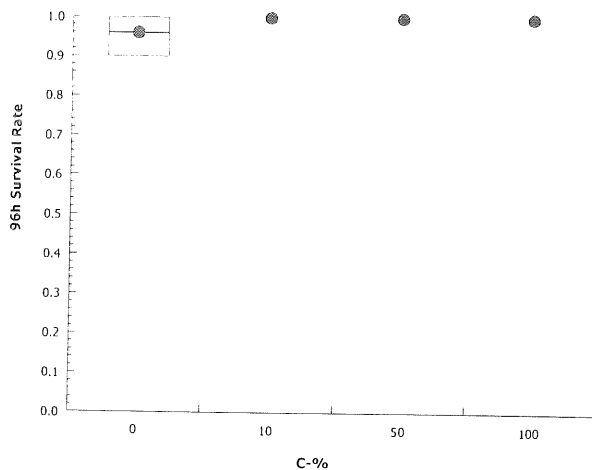
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0159356	0.005311866	3	2.667	0.0829	Non-Significant Effect
Error	0.0318712	0.00199195	16			
Total	0.0478068		19			

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	3	5.953	0.0728	Equal Variances
Variances	Levene Equality of Variance	96	5.292	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.6711	0.866	<0.0001	Non-normal Distribution

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
10		5	1	1	1	1	1	1	0	0.0%	-4.17%
50		5	1	1	1	1	1	1	0	0.0%	-4.17%
100		5	1	1	1	1	1	1	0	0.0%	-4.17%

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
10		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%
50		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%
100		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%

## Graphics



**Appendix D-5. Analysis of *Mytilus galloprovincialis* Embryo Development**

**Sediment Characterization for YTI Terminal**

**Test initiation: July 10, 2013**

# CETIS Summary Report

Report Date: 26 Sep-13 15:13 (p 1 of 1)  
 Test Code: 1307-S065b | 08-7234-8874

**Bivalve Larval Survival and Development Test** Nautilus Environmental (CA)

Batch ID: 05-7772-3829	Test Type: Development-Survival	Analyst:
Start Date: 10 Jul-13 17:10	Protocol: EPA/600/R-95/136 (1995) <i>EPA/ACE</i>	Diluent: Diluted Natural Seawater
Ending Date: 12 Jul-13 17:30	Species: Mytilus galloprovincialis <i>1991, 1998</i>	Brine: Not Applicable
Duration: 48h	Source: Taylor Shellfish	Age:

Sample ID: 01-6796-9334	Code: 13-3100	Client: AMEC
Sample Date: 10 Jul-13 16:30	Material: Elutriate	Project:
Receive Date: 10 Jul-13 16:30	Source: AMEC POLA (AMEC/POLA)	
Sample Age: 40m	Station: YTI Comp A	

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
19-2119-5373	Combined Development Ra	50	100	70.71	9.15%	2	Dunnnett Multiple Comparison Test

Point Estimate Summary							
Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
15-2801-7410	Combined Development Ra	EC25	61.43	56.87	63.49	1.628	Linear Interpolation (ICPIN)
		EC50	74.56	71.35	76.25	1.341	

Test Acceptability						
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
19-2119-5373	Combined Development Ra	PMSD	0.09149	NL - 0.25	No	Passes Acceptability Criteria

Combined Development Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8717	0.8518	0.8916	0.7914	0.9231	0.02386	0.05336	6.12%	0.0%
10		5	0.8666	0.8588	0.8744	0.8405	0.8953	0.00933	0.02086	2.41%	0.59%
50		5	0.8463	0.8198	0.8728	0.7546	0.9512	0.03173	0.07095	8.38%	2.91%
100		5	0.0135	0.005495	0.0215	0	0.04908	0.009583	0.02143	158.8%	98.45%

Combined Development Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.8466	0.8883	0.7914	0.9231	0.9091
10		0.8405	0.8548	0.8953	0.8763	0.8659
50		0.8363	0.8272	0.9512	0.8623	0.7546
100		0.0184	0	0	0	0.04908

Combined Development Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	138/163	159/179	129/163	180/195	150/165
10		137/163	159/186	154/172	170/194	155/179
50		143/171	158/191	156/164	144/167	123/163
100		3/163	0/163	0/163	0/163	8/163

# CETIS Analytical Report

Report Date: 26 Sep-13 15:13 (p 1 of 1)

Test Code: 1307-S065b | 08-7234-8874

**Bivalve Larval Survival and Development Test** **Nautilus Environmental (CA)**

Analysis ID: 19-2119-5373      Endpoint: Combined Development Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 26 Sep-13 15:12      Analysis: Parametric-Control vs Treatments      Official Results: Yes

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 C

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	50	100	70.71	2	9.15%

**Dunnnett Multiple Comparison Test**

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	0.2396	2.227	0.113	8	0.6570	CDF	Non-Significant Effect
		50	0.6388	2.227	0.113	8	0.4834	CDF	Non-Significant Effect
		100*	22.03	2.227	0.113	8	<0.0001	CDF	Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.53699	1.51233	3	236.3	<0.0001	Significant Effect
Error	0.102395	0.006399687	16			
Total	4.639385		19			

**Distributional Tests**

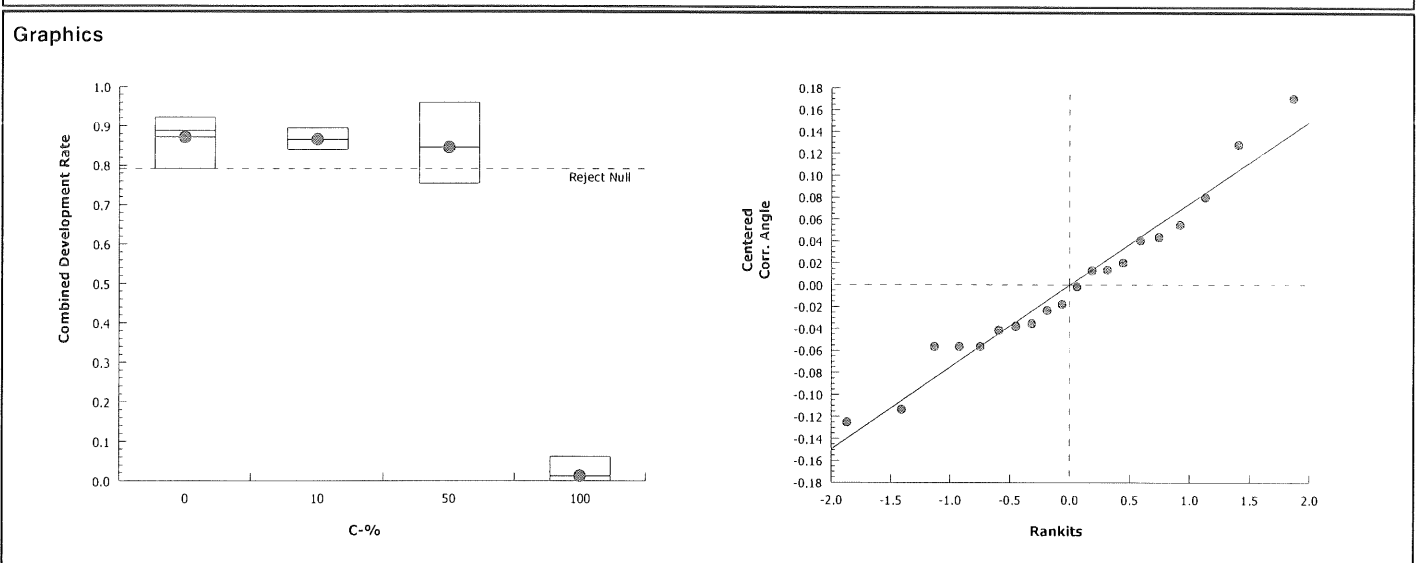
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.616	11.34	0.2022	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9655	0.866	0.6587	Normal Distribution

**Combined Development Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8717	0.8054	0.9379	0.8883	0.7914	0.9231	0.02386	6.12%	0.0%
10		5	0.8666	0.8407	0.8925	0.8659	0.8405	0.8953	0.00933	2.41%	0.59%
50		5	0.8463	0.7582	0.9344	0.8363	0.7546	0.9512	0.03173	8.38%	2.91%
100		5	0.0135	0	0.0401	0	0	0.04908	0.009583	158.8%	98.45%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.21	1.113	1.307	1.23	1.096	1.29	0.03489	6.45%	0.0%
10		5	1.198	1.159	1.236	1.196	1.16	1.241	0.01385	2.59%	1.0%
50		5	1.178	1.043	1.312	1.154	1.053	1.348	0.04832	9.18%	2.67%
100		5	0.0954	-0.0076	0.1984	0.03917	0.03917	0.2234	0.0371	86.95%	92.11%



# CETIS Analytical Report

Report Date: 26 Sep-13 15:13 (p 2 of 2)  
 Test Code: 1307-S065b | 08-7234-8874

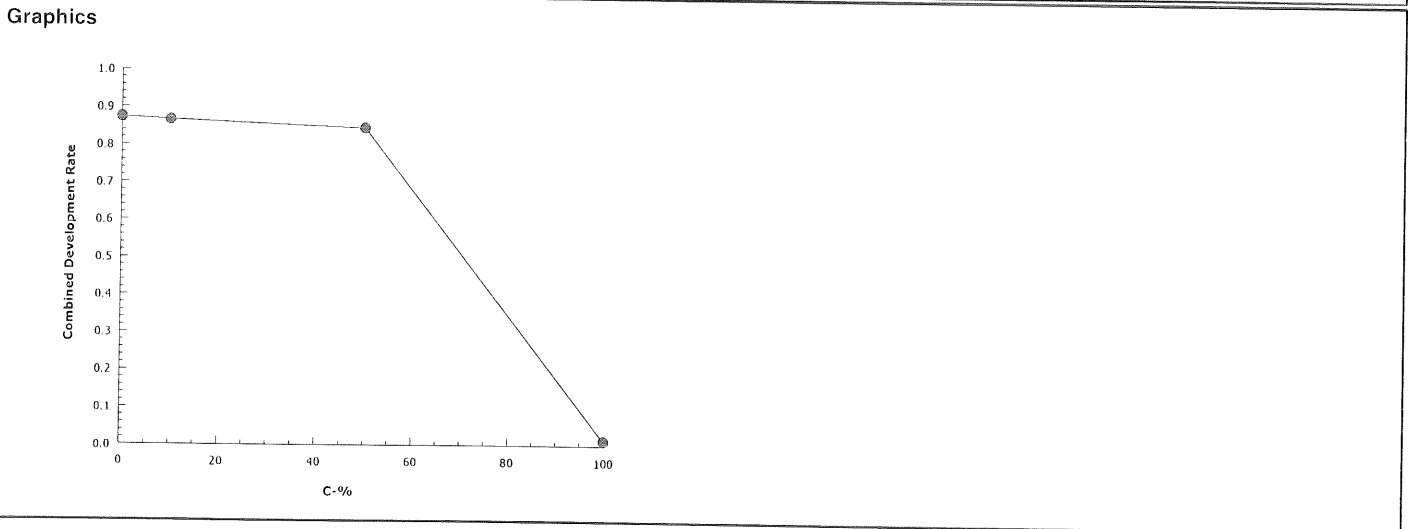
Bivalve Larval Survival and Development Test			Nautilus Environmental (CA)		
Analysis ID: 15-2801-7410	Endpoint: Combined Development Rate	CETIS Version: CETISv1.8.4			
Analyzed: 26 Sep-13 15:12	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes			

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 C

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	821978	1000	Yes	Two-Point Interpolation

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	61.43	56.87	63.49	1.628	1.575	1.758
EC50	74.56	71.35	76.25	1.341	1.312	1.401

Combined Development Rate Summary			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.8717	0.7914	0.9231	0.02386	0.05336	6.12%	0.0%	756	865
10		5	0.8666	0.8405	0.8953	0.00933	0.02086	2.41%	0.59%	775	894
50		5	0.8463	0.7546	0.9512	0.03173	0.07095	8.38%	2.91%	724	856
100		5	0.0135	0	0.04908	0.009583	0.02143	158.8%	98.45%	11	815



# CETIS Summary Report

Report Date: 26 Sep-13 15:23 (p 1 of 1)  
 Test Code: 1307-S066b | 16-6834-7350

**Bivalve Larval Survival and Development Test** Nautilus Environmental (CA)

Batch ID: 21-2538-5141	Test Type: Development-Survival	Analyst:
Start Date: 10 Jul-13 17:10	Protocol: EPA/600/R-95/136 (1995) / EPA/ACE	Diluent: Diluted Natural Seawater
Ending Date: 12 Jul-13 17:30	Species: Mytilus galloprovincialis 1991, 1998	Brine: Not Applicable
Duration: 48h	Source: Taylor Shellfish	Age:

Sample ID: 10-7254-0976	Code: 13-3101	Client: AMEC
Sample Date: 10 Jul-13 16:30	Material: Elutriate	Project:
Receive Date: 10 Jul-13 16:30	Source: AMEC POLA (AMEC/POLA)	
Sample Age: 40m	Station: YTI Comp B	

Batch Note: Sediment sample date/time: 6/11/13, 15:00; Receipt date/time: 6/11/13, 17:00; Receipt temperature 4°C.

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-9155-9066	Combined Development Ra	10	50	22.36	5.17%	10	Dunnett Multiple Comparison Test

Test Acceptability						
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
12-9155-9066	Combined Development Ra	PMSD	0.05169	NL - 0.25	No	Passes Acceptability Criteria

Combined Development Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9209	0.9164	0.9253	0.9034	0.9353	0.005311	0.01188	1.29%	0.0%
10		5	0.913	0.9074	0.9185	0.8957	0.9357	0.006611	0.01478	1.62%	0.86%
50		5	0.8152	0.7984	0.8321	0.7485	0.8614	0.0202	0.04518	5.54%	11.47%
100		5	0.845	0.8215	0.8685	0.773	0.9257	0.02814	0.06293	7.45%	8.24%

Combined Development Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9034	0.9353	0.9167	0.9264	0.9227
10		0.9357	0.914	0.8957	0.9053	0.9141
50		0.8528	0.8037	0.8614	0.8098	0.7485
100		0.773	0.8405	0.8883	0.7975	0.9257

Combined Development Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	159/176	159/170	165/180	151/163	167/181
10		160/171	170/186	146/163	153/169	149/163
50		139/163	131/163	143/166	132/163	122/163
100		126/163	137/163	159/179	130/163	162/175

# CETIS Analytical Report

Report Date: 26 Sep-13 16:24 (p 1 of 1)  
 Test Code: 1307-S066b | 16-6834-7350

Bivalve Larval Survival and Development Test Nautilus Environmental (CA)

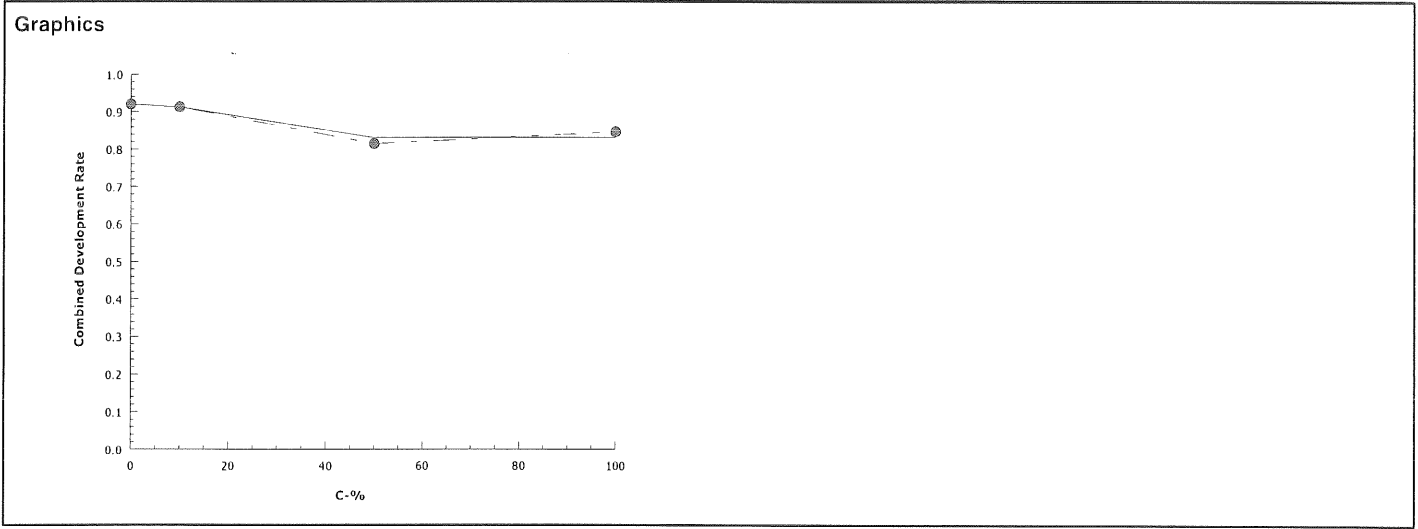
Analysis ID: 01-7701-6282      Endpoint: Combined Development Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 26 Sep-13 16:24      Analysis: Linear Interpolation (ICPIN)      Official Results: Yes

Batch Note: Sediment sample date/time: 6/11/13, 15:00; Receipt date/time: 6/11/13, 17:00; Receipt temperature 4 C.

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	839123	1000	Yes	Two-Point Interpolation

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary				Calculated Variate(A/B)							
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9209	0.9034	0.9353	0.005311	0.01188	1.29%	0.0%	801	870
10		5	0.913	0.8957	0.9357	0.006611	0.01478	1.62%	0.86%	778	852
50		5	0.8152	0.7485	0.8614	0.0202	0.04518	5.54%	11.47%	667	818
100		5	0.845	0.773	0.9257	0.02814	0.06293	7.45%	8.24%	714	843



**CETIS Analytical Report**

Report Date: 26 Sep-13 15:23 (p 1 of 1)  
 Test Code: 1307-S066b | 16-6834-7350

**Bivalve Larval Survival and Development Test** **Nautilus Environmental (CA)**

Analysis ID: 12-9155-9066      Endpoint: Combined Development Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 26 Sep-13 15:14      Analysis: Parametric-Control vs Treatments      Official Results: Yes

Batch Note: Sediment sample date/time: 6/11/13, 15:00; Receipt date/time: 6/11/13, 17:00; Receipt temperature 4 C.

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	10	50	22.36	10	5.17%

**Dunnnett Multiple Comparison Test**

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	0.3952	2.227	0.079	8	0.5908	CDF	Non-Significant Effect
		50*	4.42	2.227	0.079	8	0.0006	CDF	Significant Effect
		100*	3.187	2.227	0.079	8	0.0076	CDF	Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.08803269	0.02934423	3	9.229	0.0009	Significant Effect
Error	0.0508741	0.003179631	16			
Total	0.1389068		19			

**Distributional Tests**

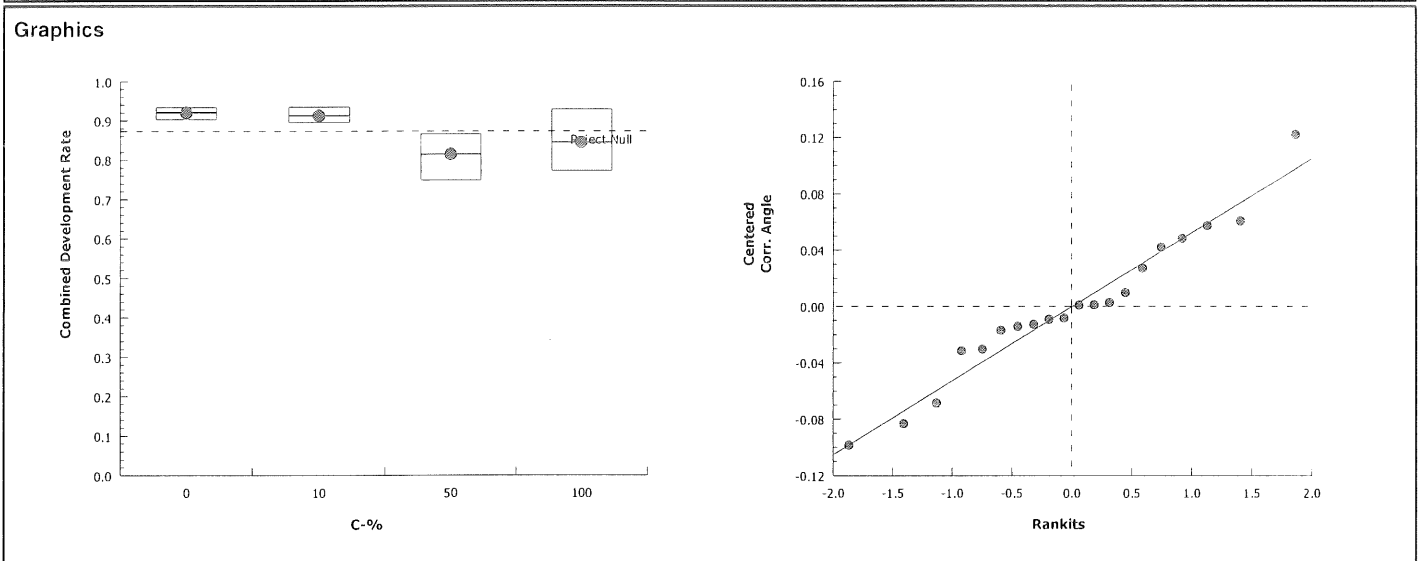
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.635	11.34	0.0346	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9664	0.866	0.6786	Normal Distribution

**Combined Development Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9209	0.9061	0.9356	0.9227	0.9034	0.9353	0.005311	1.29%	0.0%
10		5	0.913	0.8946	0.9313	0.914	0.8957	0.9357	0.006611	1.62%	0.86%
50		5	0.8152	0.7591	0.8713	0.8098	0.7485	0.8614	0.0202	5.54%	11.47%
100		5	0.845	0.7669	0.9231	0.8405	0.773	0.9257	0.02814	7.45%	8.24%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.286	1.259	1.313	1.289	1.255	1.314	0.009774	1.7%	0.0%
10		5	1.272	1.239	1.306	1.273	1.242	1.314	0.01203	2.12%	1.1%
50		5	1.129	1.057	1.2	1.12	1.045	1.189	0.02581	5.11%	12.26%
100		5	1.173	1.06	1.285	1.16	1.074	1.295	0.04047	7.72%	8.84%





**Appendix Table D-6. Analysis of *Macoma nasuta* Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: July 12, 2013**

Analysis of Variance (ANOVA)					
Dependent variable:	Percent <i>Macoma nasuta</i> Survival				
Source	SS	df	MS	F	P
Site	0.002740	3	0.0009133	0.2606	0.8527
Residual	0.05608	16	0.003505		

**Appendix Table D-7. Analysis of *Nereis virens* Survival**

**Sediment Characterization for YTI Terminal**

**Test initiation: July 12, 2013**

Analysis of Variance (ANOVA)					
Dependent variable:	Percent <i>Nereis virens</i> Survival				
Source	SS	df	MS	F	P
Site	0.02800	3	0.009333	1.244	0.3265
Residual	0.1200	16	0.0075		

**Appendix E**  
**Chain of Custody Documentation**

Client: AMEC

Log-In Nos.: 13-3100 - 13-3101

Project: POLA YTI Terminal

Test Type(s): ECHAUSTORIUS NEUTRES SED. TEST IDS: 1306-3074 to 3079  
MYSID / MYSTIC / NEUTRES / ECHAUSTORIUS

Sample ID	Collection Date & Time	Receipt Date & Time	Receipt Temp. (°C)	No. Containers	Container Type	Approx. Total Volume Received (L)	Sample Description	Tech Initials
YTI Comp A	6/14/13 0900	6/11/13 1700	4.0	5	bag	~100	Sediment	BG
YTI Comp B	6/14/13 1500	6/11/13 1700	4.0	5	bag	~100	Sediment	BG
LA2-Reference	6/2/13 1430	6/4/13 1930	1.1	4	bag	~40	↓	AC

Samples Shipped Via: N/A

COC Present?  N

Sieving Required?  N Screen Size: 500um

Lab Control Sediment: Eon Home

Sail Bay

SIO Sand

Sub-samples for additional chemistry:

Collect Porewater Tech Initials AC

Other Tech Initials \_\_\_\_\_

Other Tech Initials \_\_\_\_\_

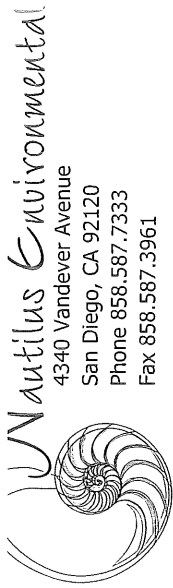
Other Tech Initials \_\_\_\_\_

Test Organism:	Supplier:	Receipt Date:	Condition:	Supplier:	Receipt Date:	Condition:
ECHAUSTORIUS	BVAALVE	6/11/13	Good	MYSID	7/11/13	Good
NW AQUATICS	TaylorStelfox	7/10/13	Good	MEGALOA	7/10/13	Good
				AQUATIC	7/9/13	Good
				NEUTRES		

Comments:

QC Check: BG 7/2/13

Final Review: AC 7-18-13

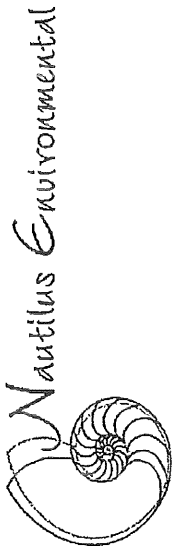


Nautilus Environmental  
 4340 Vandever Avenue  
 San Diego, CA 92120  
 Phone 858.587.7333  
 Fax 858.587.3961

Chain of Custody

Date 6/4/13 Page 1 of 1

Sample Collection By: <u>AMEC Environment &amp; Infrastructure</u>		Invoice To:		ANALYSES REQUIRED	
Report to:	Company: <u>AMEC EIT</u>	Company: <u>SARDE</u>			
Address: <u>9210 Sky Pk Ct Ste 200</u>	Address: _____	Address: _____			
City/State/Zip: <u>San Diego, CA 92123</u>	City/State/Zip: _____	City/State/Zip: _____			
Contact: <u>Bonny Snyder/Tyler Huff</u>	Contact: _____	Contact: _____			
Phone: <u>(658) 300-1300</u>	Phone: _____	Phone: _____			
Email: <u>Bonny.Snyder@amec.com</u>	Email: _____	Email: <u>Tyler.Huff@amec.com</u>			
	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS		
1 Reference	bag	4	for use w/ Bearings 103104 & HTI Container Terminal-fox 58F tests		
2					
3					
4					
5					
6					
7					
8					
9					
10					
PROJECT INFORMATION		SAMPLE RECEIPT		RECEIVED BY (CLIENT)	
Client: <u>POLA</u>	Total No. of Containers: <u>4</u>	(Signature) <u>Kumari Gobbil</u>	(Time) <u>1655</u>	(Signature) _____	(Time) _____
PO No.: <u>1015101929/30</u>	Received Good Condition? <input checked="" type="checkbox"/>	(Printed Name) <u>Kumari Gobbil</u>	(Date) <u>6/4/13</u>	(Printed Name) _____	(Date) _____
Shipped Via: <u>Courier</u>	Matches Test Schedule? <input checked="" type="checkbox"/>	(Company) _____	<u>AMEC</u>	(Company) _____	<u>6/4</u>
SPECIAL INSTRUCTIONS/COMMENTS:		RECEIVED BY (LABORATORY)		RECEIVED BY (LABORATORY)	
		(Signature) _____	(Time) _____	(Signature) _____	(Time) _____
		(Printed Name) _____	(Date) <u>19:30</u>	(Printed Name) <u>Gilienne Cibar</u>	(Date) <u>19:30</u>
		(Company) _____	<u>6/4</u>	(Company) <u>Adrienne Cibar</u>	(Date) <u>6/4/13</u>
		<u>Messenger Express</u>		<u>Nautilus</u>	



# Chain of Custody

4340 Vandever Ave.  
San Diego, CA 92120  
Phone 858.587.7333  
Fax 858.587.3961

Date 06/11/2013 Page 1 of 1

Sample Collection By:		Report to:				Invoice To:		ANALYSES REQUIRED										Receipt Temperature (°C)
Company: AMEC Environment & Infrastructure Address: 9210 Sky Park Ct. Ste 200 City/State/Zip: San Diego, CA 92123 Contact: Barry Snyder/Tyler Huff Phone: (858) 300-4300 Email: barry.snyder@amec.com and tyler.huff@amec.com		Same as "Report to" at left Company Address: _____ City/State/Zip: _____ Contact: _____ Phone: _____ Email: _____				tyler.huff@amec.com												
SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS												
1	6/11/2013	900	sediment	5 gallon bag	6	YTI Terminal Sediment Composite												
2	6/11/2013	1500	sediment	5 gallon bag	6	YTI Terminal Sediment Composite												
3																		
4						Please start SP amphipod testing for EOH, hold remainder of sample pending chemistry results.												
5																		
6																		
7																		
8																		
9																		
10																		
PROJECT INFORMATION		SAMPLE RECEIPT			RELINQUISHED BY (CLIENT)					RELINQUISHED BY (COURIER)								
Client:	AMEC/POLA	Total No. of Containers	6/11/13 1700		[Signature]					[Signature]								
PO No.:	1015101929	Received Good Condition?			[Printed Name]					[Printed Name]								
Shipped Via:	hand-delivered	Matches Test Schedule?			[Company]					[Company]								
SPECIAL INSTRUCTIONS/COMMENTS:		RECEIVED BY (COURIER)			RECEIVED BY (LABORATORY)													
		[Signature]			[Signature]													
		[Printed Name]			[Printed Name]													
		[Company]			[Company]													

Additional costs may be required for sample disposal or storage. Pavment net 30 unless otherwise contracted. DISTRIBUTION: WHITE - Nautilus Environmental. COLOR - Original



Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



## **APPENDIX E**

### **BIOACCUMULATION TISSUE STATISTICS AND CHEMISTRY**

Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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**Appendix Table E-1. Summary of Lipid and Solid Concentrations in Clam Tissues  
Following the 28-Day Bioaccumulation Exposure**

***Macoma nasuta***

	Analyte (%)		
	RL Replicate	0.1 Lipids	0.1 Solids
<b>Reference</b>	9C	0.6	15.4
	12C	0.28	13.7
	4C	0.71	12.8
	6C	0.65	14.8
	10C	0.62	14.5
	<b>Mean</b>	<b>0.57</b>	<b>14.24</b>
	Std. Dev.	0.17	1.01
<b>Composite A</b>	7C	0.44	13.7
	5C	0.5	13.8
	11C	0.55	14
	14C	0.5	15
	13C	0.53	13.7
	<b>Mean</b>	<b>0.50</b>	<b>14.04</b>
	Std. Dev.	0.04	0.55
	p-value <sup>b</sup>	0.20	0.35
<b>Composite B</b>	8C	0.55	15.9
	2C	0.6	14.3
	1C	0.57	14.3
	3C	0.61	14.1
	15C	0.47	14
	<b>Mean</b>	<b>0.56</b>	<b>14.52</b>
	Std. Dev.	0.06	0.78
	p-value <sup>b</sup>	0.44	0.32

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

**Appendix Table E-2. Summary of Lipid and Solid Concentrations in Worm Tissues  
Following the 28-Day Bioaccumulation Exposure**

*Nereis virens*

	Analyte (%)		
	RL Replicate	0.1 Lipids	0.1 Solids
<b>Reference</b>	9W	1.4	16.4
	12W	1.1	16.2
	4W	1.5	17.6
	6W	1.2	15.3
	10W	1.4	15.4
	<b>Mean</b>	<b>1.32</b>	<b>16.18</b>
	Std. Dev.	0.16	0.93
<b>Composite A</b>	7W	1.3	19.5
	5W	1.4	16.3
	11W	1.5	16.9
	14W	1.4	17.1
	13W	1.3	16.7
	<b>Mean</b>	<b>1.38</b>	<b>17.30</b>
	Std. Dev.	0.08	1.26
	p-value <sup>b</sup>	0.24	0.075
<b>Composite B</b>	8W	1.5	17.1
	2W	1.8	17.1
	1W	1.6	16.2
	3W	1.6	17.1
	15W	1.8	16.9
	<b>Mean</b>	<b>1.66</b>	<b>16.88</b>
	Std. Dev.	0.13	0.39
	p-value <sup>b</sup>	0.0036	0.079

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

**Appendix Table E-3. Summary of Trace Metal Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure  
*Macoma nasuta***

		Trace Metal (mg/kg wet weight)									
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
Site	RL FDA <sup>a</sup>	0.10 86	0.10 4.0	0.020 13	0.10 -	0.10 1.7	0.010 1.0*	0.10 80	0.10 -	0.10 -	1.0 -
<b>Reference</b>	9C	2.65	ND	0.173	1.5	0.161	ND	0.377	0.289	ND	12.4
	12C	2.15	ND	0.158	1.49	0.146	ND	0.334	0.228	ND	9.62
	4C	2.21	ND	0.163	1.39	0.138	ND	0.376	0.264	ND	11.4
	6C	2.5	ND	0.223	1.37	0.144	ND	0.41	0.262	ND	11.7
	10C	2.6	ND	0.201	1.62	0.172	ND	0.398	0.276	ND	11.6
	<b>Mean</b>	<b>2.42</b>	<b>NA</b>	<b>0.184</b>	<b>1.47</b>	<b>0.152</b>	<b>NA</b>	<b>0.38</b>	<b>0.26</b>	<b>NA</b>	<b>11.34</b>
	Std. Dev.	0.23	NA	0.03	0.10	0.01	NA	0.03	0.02	NA	1.03
<b>Composite A</b>	7C	2.54	ND	0.181	1.66	0.284	ND	0.305	0.226	ND	12.6
	5C	2.39	ND	0.227	1.78	0.313	ND	0.35	0.192	ND	12.8
	11C	2.26	ND	0.194	1.51	0.306	ND	0.287	0.226	ND	11.5
	14C	2.8	ND	0.185	1.73	0.293	ND	0.388	0.202	ND	12.3
	13C	2.51	ND	0.242	1.76	0.36	ND	0.372	0.252	ND	12.3
	<b>Mean</b>	<b>2.50</b>	<b>NA</b>	<b>0.21</b>	<b>1.69</b>	<b>0.311</b>	<b>NA</b>	<b>0.34</b>	<b>0.22</b>	<b>NA</b>	<b>12.30</b>
	Std. Dev.	0.20	NA	0.03	0.11	0.03	NA	0.04	0.02	NA	0.49
p-value <sup>b</sup>	0.29	NA	0.12	0.006	0.000002	NA	0.07	0.01	NA	0.05	
<b>Composite B</b>	8C	2.34	ND	0.27	1.73	0.288	ND	0.403	0.317	ND	11.2
	2C	2.48	ND	0.392	2.09	0.462	ND	0.527	0.312	ND	12.5
	1C	3.21	ND	1.06	2.19	0.439	ND	0.914	0.326	ND	14.1
	3C	2.68	ND	0.417	1.95	0.357	ND	0.443	0.236	ND	13.2
	15C	2.39	ND	0.268	1.81	0.343	ND	0.339	0.217	ND	12
	<b>Mean</b>	<b>2.62</b>	<b>NA</b>	<b>0.481</b>	<b>1.95</b>	<b>0.378</b>	<b>NA</b>	<b>0.53</b>	<b>0.28</b>	<b>NA</b>	<b>12.60</b>
	Std. Dev.	0.35	NA	0.33	0.19	0.07	NA	0.23	0.05	NA	1.11
p-value <sup>b</sup>	0.16	NA	0.040	0.0005	0.00006	NA	0.10	0.25	NA	0.05	

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

\*FDA action limits for methyl mercury (wet weight)

RL = reporting limit

ND = not detected

NA = not applicable

**Appendix Table E-4. Summary of Trace Metal Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure  
*Nereis virens***

Site	Trace Metal (mg/kg wet weight)										
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
	<b>RL</b>	<b>0.10</b>	<b>0.10</b>	<b>0.020</b>	<b>0.10</b>	<b>0.10</b>	<b>0.010</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>1.0</b>
	<b>FDA<sup>a</sup></b>	<b>86</b>	<b>4.0</b>	<b>13</b>	<b>-</b>	<b>1.7</b>	<b>1.0*</b>	<b>80</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Reference</b>	9W	2.23	ND	0.132	1.29	ND	ND	0.293	0.187	ND	16.1
	12W	2.17	ND	0.23	1.25	ND	ND	0.266	0.266	ND	35.4
	4W	2.32	ND	0.171	1.3	ND	ND	0.256	0.32	ND	25.2
	6W	2.4	ND	0.186	1.31	ND	ND	0.32	0.304	ND	24.7
	10W	2.02	ND	0.0938	1.24	ND	ND	0.243	0.285	ND	14.2
	<b>Mean</b>	<b>2.23</b>	<b>NA</b>	<b>0.163</b>	<b>1.28</b>	<b>NA</b>	<b>NA</b>	<b>0.28</b>	<b>0.27</b>	<b>NA</b>	<b>23.12</b>
	Std. Dev.	0.15	NA	0.05	0.03	NA	NA	0.03	0.05	NA	8.46
<b>Composite A</b>	7W	1.9	ND	0.128	1.51	ND	ND	0.228	0.239	ND	15.4
	5W	2.03	ND	0.243	1.38	ND	ND	0.242	0.295	ND	25.8
	11W	2.05	ND	0.297	1.42	ND	ND	0.305	0.221	ND	11.5
	14W	2.17	ND	0.106	1.31	ND	ND	0.207	0.229	ND	18.9
	13W	2.31	ND	0.157	1.33	ND	ND	0.25	0.258	ND	10.9
	<b>Mean</b>	<b>2.09</b>	<b>NA</b>	<b>0.19</b>	<b>1.39</b>	<b>NA</b>	<b>NA</b>	<b>0.25</b>	<b>0.25</b>	<b>NA</b>	<b>16.50</b>
	Std. Dev.	0.15	NA	0.08	0.08	NA	NA	0.04	0.03	NA	6.12
	p-value <sup>b</sup>	0.10	NA	0.30	0.010	NA	NA	0.10	0.20	NA	0.10
<b>Composite B</b>	8W	2.39	ND	0.199	1.65	ND	ND	0.315	0.252	ND	30.6
	2W	2.55	ND	0.35	1.73	ND	ND	0.307	0.375	ND	12.6
	1W	2.58	ND	1.08	1.81	ND	ND	0.855	0.338	ND	30.6
	3W	2.26	ND	0.441	1.57	ND	ND	0.366	0.295	ND	18.8
	15W	2.13	ND	0.12	1.6	ND	ND	0.196	0.207	ND	21.2
	<b>Mean</b>	<b>2.38</b>	<b>NA</b>	<b>0.44</b>	<b>1.67</b>	<b>NA</b>	<b>NA</b>	<b>0.41</b>	<b>0.29</b>	<b>NA</b>	<b>22.76</b>
	Std. Dev.	0.19	NA	0.38	0.10	NA	NA	0.26	0.07	NA	7.81
	p-value <sup>b</sup>	0.09	NA	0.07	0.00001	NA	NA	0.14	0.30	NA	0.47

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

\*FDA action limits for methyl mercury (wet weight)

RL = reporting limit

ND = not detected

NA = not applicable

**Appendix Table E-5. Summary of PAH Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal**  
***Macoma nasuta***

Analyte (µg/kg wet weight)	RL	FDA <sup>a</sup>	Reference					Composite A					Composite B												
			9C	12C	4C	6C	10C	Mean	Std. Dev.	7C	5C	11C	14C	13C	Mean	Std. Dev.	p-value <sup>b</sup>	8C	2C	1C	3C	15C	Mean	Std. Dev.	p-value <sup>b</sup>
Acenaphthene	10	--	ND	ND	ND	ND	ND	NA	NA	24	ND	ND	ND	ND	24.0	NA	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Acenaphthylene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Anthracene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	14	ND	12	13.0	1	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (a) Anthracene	10	--	ND	ND	ND	ND	ND	NA	NA	13	12	20	14	18	15.4	3	< 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (a) Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	33	29	48	36	44	38.0	8	< 0.05	23	27	30	21	21	24.4	4	< 0.05
Benzo (b) Fluoranthene	10	--	ND	ND	ND	ND	ND	NA	NA	46	41	67	50	62	53.2	11	< 0.05	35	42	46	35	33	38.2	6	< 0.05
Benzo (e) Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	31	28	46	34	42	36.2	8	< 0.05	22	26	30	22	21	24.2	4	< 0.05
Benzo (g,h,i) Perylene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (k) Fluoranthene	10	--	ND	ND	ND	ND	ND	NA	NA	34	27	51	38	45	39.0	9	< 0.05	26	29	33	26	25	27.8	3	< 0.05
Biphenyl	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Chrysene	10	--	ND	ND	ND	ND	ND	NA	NA	21	18	33	23	28	24.6	6	< 0.05	ND	10	12	ND	ND	11.0	1	> 0.05
Dibenz (a,h) Anthracene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2,6-Dimethylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Fluoranthene	10	--	ND	ND	ND	ND	ND	NA	NA	70	63	120	83	110	89.2	25	< 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Fluorene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Indeno (1,2,3-c,d) Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
1-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
1-Methylphenanthrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Naphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Perylene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	13	10	12	11.7	2	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Phenanthrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	200	180	310	230	310	246.0	61	< 0.05	15	19	17	15	14	16.0	2	< 0.05
1,6,7-Trimethylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Dibenzothiophene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Total PAHs	10	--	ND	ND	ND	ND	ND	NA	NA	472	398	722	518	683	559	139	< 0.05	121	153	168	119	114	135	24	< 0.05

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

Italicized values indicate the analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.

ND = not detected

NA = not applicable

**Appendix Table E-6. Summary of PAH Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal**  
***Nereis virens***

Analyte (µg/kg wet weight)	RL	FDA <sup>a</sup>	Reference					Mean		Composite A					Mean			Composite B					Mean		
			9W	12W	4W	6W	10W	Std. Dev.	7W	5W	11W	14W	13W	Std. Dev.	p-value <sup>b</sup>	8W	2W	1W	3W	15W	Std. Dev.	p-value <sup>b</sup>			
Acenaphthene	10	--	ND	ND	ND	ND	ND	NA	NA	12	ND	11	ND	ND	11.5	0.71	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Acenaphthylene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Anthracene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	10	10.0	NA	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (a) Anthracene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (a) Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (b) Fluoranthene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	13	ND	10	11.5	2.12	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (e) Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	10	15	12	13	12.5	2.08	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (g,h,i) Perylene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (k) Fluoranthene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	12	ND	11	11.5	0.71	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Biphenyl	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Chrysene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	14	11	12	12.3	1.53	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Dibenz (a,h) Anthracene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2,6-Dimethylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	10	10.0	NA	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Fluoranthene	10	--	ND	ND	ND	ND	ND	NA	NA	19	38	69	46	48	44.0	18.07	< 0.05	ND	ND	ND	ND	ND	NA	NA	NA
Fluorene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Indeno (1,2,3-c,d) Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
1-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
1-Methylphenanthrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Naphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	11	ND	ND	ND	ND	11.0	NA	> 0.05
Perylene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Phenanthrene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Pyrene	10	--	ND	ND	ND	ND	ND	NA	NA	38	77	140	95	88	87.6	36.65	< 0.05	ND	ND	ND	ND	ND	NA	NA	NA
1,6,7-Trimethylnaphthalene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Dibenzothiophene	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Total PAHs	10	--	ND	ND	ND	ND	ND	NA	NA	69	125	274	164	202	166.8	77.54	< 0.05	11	ND	ND	ND	ND	11.0	NA	> 0.05

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

Italicized values indicate the analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.

ND = not detected

NA = not applicable

**Appendix Table E-7. Summary of PCB Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal**  
**Macoma nasuta**

Analyte (µg/kg wet weight)	RL	FDA <sup>a</sup>	Reference					Mean	Std. Dev.	Composite A					Mean	Std. Dev.	p-value <sup>b</sup>	Composite B					Mean	Std. Dev.	p-value <sup>b</sup>
			9C	12C	4C	6C	10C			7C	5C	11C	14C	13C				8C	2C	1C	3C	15C			
PCB003	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB008	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB018	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB028	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.54	ND	0.62	ND	ND	0.58	0.06	NA	ND	ND	0.51	ND	ND	0.51	NA	NA
PCB031	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	0.62	ND	0.64	0.63	0.01	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB033	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB037	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB044	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB049	0.5	--	ND	ND	ND	ND	ND	NA	NA	1	0.88	1.3	1.1	1	1.06	0.16	NA	0.83	0.86	1.1	0.64	0.73	0.83	0.2	NA
PCB052	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.68	0.76	0.89	0.77	1	0.82	0.13	NA	0.64	0.63	0.8	0.53	0.56	0.63	0.1	NA
PCB056	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB060	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB066	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.63	0.63	0.9	0.66	0.86	0.74	0.13	NA	0.64	0.62	0.82	0.58	0.59	0.65	0.1	NA
PCB070	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.71	0.66	0.76	0.67	0.8	0.72	0.06	NA	0.54	0.59	0.75	0.52	ND	0.60	0.1	NA
PCB074	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB077	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB081	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB087	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	0.52	ND	ND	0.52	NA	NA	ND	ND	0.56	ND	ND	0.56	NA	NA
PCB095	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.65	0.76	0.84	0.71	0.86	0.76	0.09	NA	0.79	0.98	1.2	0.8	0.88	0.93	0.2	NA
PCB097	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	0.64	ND	ND	0.64	NA	NA	0.52	0.61	0.73	ND	ND	0.62	0.1	NA
PCB099	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	0.67	0.69	0.84	0.5	0.6	0.66	0.1	NA
PCB101	0.5	--	ND	ND	ND	ND	ND	NA	NA	1	0.93	1.2	1.1	1.3	1.11	0.15	NA	1.5	1.4	1.7	1.1	1.3	1.40	0.2	NA
PCB105	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.58	ND	ND	0.51	0.51	0.53	0.04	NA	ND	0.56	0.58	ND	ND	0.57	0.0	NA
PCB110	0.5	--	ND	ND	ND	ND	ND	NA	NA	1	0.99	1.5	1.1	1.4	1.20	0.24	NA	1.5	1.4	1.7	1.1	1.3	1.40	0.2	NA
PCB114	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB118	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.92	0.76	1	0.84	1	0.90	0.10	NA	1.2	1.3	1.6	1	1.1	1.24	0.2	NA
PCB119	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB123	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB126	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB128	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	0.57	0.51	ND	0.54	0.0	NA
PCB132	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB138/158	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	1.4	1.4	2	1.4	1.3	1.50	0.3	NA
PCB141	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB149	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.57	0.51	0.77	0.68	0.73	0.65	0.11	NA	1	1.2	1.5	1	0.99	1.14	0.2	NA
PCB151	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	0.54	0.53	0.68	0.54	ND	0.57	0.1	NA
PCB153	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.94	0.89	1.2	0.93	1.1	1.01	0.13	NA	1.7	1.8	2.4	1.5	1.6	1.80	0.4	NA
PCB156	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB157	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB167	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB168	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB169	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB170	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB174	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB177	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB180	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	0.56	0.68	0.53	ND	0.59	0.1	NA
PCB183	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB184	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB187	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB189	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB194	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB195	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB200	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB201	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB203	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB206	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
PCB209	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Total PCB Congeners	0.5	--	ND	ND	ND	ND	ND	NA	NA	9.22	7.77	12.76	9.07	11.20	10.00	1.76	< 0.05	13.47	15.13	20.72	12.25	10.95	14.50	3.40	< 0.05

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable

**Appendix Table E-8. Summary of PCB Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal**  
*Nereis virens*

Analyte (µg/kg wet weight)	RL	FDA <sup>a</sup>	Reference					Composite A					Composite B													
			9C	12C	4C	6C	10C	Mean	Std. Dev.	7C	5C	11C	14C	13C	Mean	Std. Dev.	p-value <sup>b</sup>	8C	2C	1C	3C	15C	Mean	Std. Dev.	p-value <sup>b</sup>	
PCB003	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB008	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB018	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	0.69	ND	<b>0.69</b>	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB028	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	0.57	0.62	0.64	<b>0.61</b>	0.04	NA	ND	0.52	ND	ND	ND	ND	<b>0.52</b>	NA	NA
PCB031	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB033	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB037	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.51	ND	0.75	0.56	ND	<b>0.61</b>	0.13	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB044	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.53	ND	0.63	0.55	ND	<b>0.57</b>	0.05	NA	ND	0.55	ND	ND	ND	NA	NA	NA	
PCB049	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	0.57	ND	ND	<b>0.57</b>	NA	NA	ND	0.73	0.51	ND	0.65	<b>0.63</b>	0.11	NA	
PCB052	0.5	--	ND	ND	ND	ND	ND	NA	NA	1.8	1.5	2.1	1.7	1.6	<b>1.74</b>	0.23	NA	1.1	1.3	0.89	0.66	1.4	<b>1.07</b>	0.30	NA	
PCB056	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB060	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.66	ND	0.69	0.62	ND	<b>0.66</b>	0.04	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB066	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.73	0.62	0.79	0.77	0.72	<b>0.73</b>	0.07	NA	0.5	0.87	0.58	0.58	0.63	<b>0.63</b>	0.14	NA	
PCB070	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB074	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB077	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB081	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB087	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB095	0.5	--	ND	ND	ND	ND	ND	NA	NA	1.5	1.2	1.3	1.4	1.2	<b>1.32</b>	0.13	NA	1.2	1.7	1.3	1.2	1.6	<b>1.40</b>	0.23	NA	
PCB097	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.57	ND	0.53	ND	ND	<b>0.55</b>	0.03	NA	ND	0.56	ND	ND	0.69	<b>0.63</b>	0.09	NA	
PCB099	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.67	ND	0.71	0.69	0.64	<b>0.68</b>	0.03	NA	0.7	0.88	0.62	0.6	1.2	<b>0.80</b>	0.25	NA	
PCB101	0.5	--	ND	ND	ND	ND	ND	NA	NA	1.8	1.3	2.1	1.8	1.5	<b>1.70</b>	0.31	NA	1.7	2.1	1.5	1.5	3.8	<b>2.12</b>	0.97	NA	
PCB105	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.53	ND	0.57	0.56	0.58	<b>0.56</b>	0.02	NA	ND	0.67	0.53	ND	0.85	<b>0.68</b>	0.16	NA	
PCB110	0.5	--	ND	ND	ND	ND	ND	NA	NA	1.6	0.95	1.7	1.7	1.2	<b>1.43</b>	0.34	NA	1.2	1.3	1.1	0.95	1.5	<b>1.21</b>	0.21	NA	
PCB114	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB118	0.5	--	ND	ND	ND	ND	ND	NA	NA	1	0.88	0.82	0.87	0.78	<b>0.87</b>	0.08	NA	0.81	1.5	0.94	0.87	1.2	<b>1.06</b>	0.29	NA	
PCB119	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB123	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB126	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB128	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB132	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB138/158	1.0	--	ND	ND	ND	ND	ND	NA	NA	1.7	1.3	1.3	1.3	1.2	<b>1.36</b>	0.19	NA	1.6	2.4	1.6	1.6	2.2	<b>1.88</b>	0.39	NA	
PCB141	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB149	0.5	--	ND	ND	ND	ND	ND	NA	NA	1	0.85	0.91	1	0.91	<b>0.93</b>	0.07	NA	1	1.8	1.2	1.1	1.7	<b>1.36</b>	0.36	NA	
PCB151	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	0.51	ND	<b>0.51</b>	NA	NA	0.55	0.54	0.64	0.57	0.72	<b>0.60</b>	0.08	NA	
PCB153	0.5	--	ND	ND	ND	ND	ND	NA	NA	2.2	1.7	1.9	1.9	1.7	<b>1.88</b>	0.20	NA	2.3	2.9	2.2	2.1	5.5	<b>3.00</b>	1.43	NA	
PCB156	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB157	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB167	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB168	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB169	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB170	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	0.54	ND	ND	ND	<b>0.54</b>	NA	NA	
PCB174	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB177	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB180	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.68	0.55	ND	ND	ND	<b>0.62</b>	0.09	NA	0.62	1.2	0.75	0.61	0.67	<b>0.77</b>	0.25	NA	
PCB183	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB184	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB187	0.5	--	ND	ND	ND	ND	ND	NA	NA	0.72	0.51	0.59	0.58	0.52	<b>0.58</b>	0.08	NA	0.66	1	0.65	0.66	1.1	<b>0.81</b>	0.22	NA	
PCB189	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB194	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB195	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB200	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB201	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB203	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB206	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
PCB209	0.5	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	
Total PCB Congeners	0.5	--	ND	ND	ND	ND	ND	NA	NA	18.20	11.36	18.53	17.82	13.19	<b>15.82</b>	2.96	< 0.05	13.94	23.06	15.01	13.00	25.41	<b>18.08</b>	5.12	< 0.05	

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable



**Appendix Table E-9. Summary of Pesticide Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal**  
***Macoma nasuta***

Analyte (µg/kg wet weight)	RL	FDA <sup>a</sup>	Reference					Composite A					Composite B												
			9C	12C	4C	6C	10C	Mean	Std. Dev.	7C	5C	11C	14C	13C	Mean	Std. Dev.	p-value <sup>b</sup>	8C	2C	1C	3C	15C	Mean	Std. Dev.	p-value <sup>b</sup>
2,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2,4'-DDE	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
4,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	NA	NA	1.1	ND	1.5	ND	ND	1.30	0.28	> 0.05	ND	ND	ND	ND	ND	NA	NA	NA
4,4'-DDE	1.0	5000	8.9	4.3	10	9.8	12	9	3	6	5.5	7.3	6.5	7.1	6.48	0.75	0.047	11	11	12	10	11	11.00	0.71	0.08
4,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Aldrin	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Alpha Chlordane	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Alpha-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Beta-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Delta-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Dieldrin	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endosulfan I	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endosulfan II	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endosulfan Sulfate	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endrin	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endrin Aldehyde	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endrin Ketone	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Gamma Chlordane	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Gamma-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Heptachlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Heptachlor Epoxide	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Methoxychlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Chlordane	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Cis-nonachlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Toxaphene	25	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Trans-nonachlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Oxychlordane	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable

**Appendix Table E-10. Summary of Pesticide Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal  
*Nereis virens***

Analyte (µg/kg wet weight)	RL	FDA <sup>a</sup>	Reference					Composite A					Composite B												
			9W	12W	4W	6W	10W	Mean	Std. Dev.	7W	5W	11W	14W	13W	Mean	Std. Dev.	p-value <sup>b</sup>	8W	2W	1W	3W	15W	Mean	Std. Dev.	p-value <sup>b</sup>
2,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2,4'-DDE	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
2,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
4,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
4,4'-DDE	1.0	5000	1.7	ND	1.7	1.2	1.9	1.63	0.30	3.2	2.7	3.6	3	2.7	3.04	0.38	0.00010	2.7	4.7	3.8	3	3.4	3.52	0.78	0.0004
4,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	4.7	ND	ND	ND	4.70	NA	NA
Aldrin	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Alpha Chlordane	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Alpha-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Beta-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Delta-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Dieldrin	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endosulfan I	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endosulfan II	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endosulfan Sulfate	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endrin	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endrin Aldehyde	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Endrin Ketone	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Gamma Chlordane	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Gamma-BHC	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Heptachlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Heptachlor Epoxide	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Methoxychlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Chlordane	10	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Cis-nonachlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Toxaphene	25	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
Trans-nonachlor	1.0	--	ND	ND	ND	ND	ND	NA	NA	1	ND	ND	ND	ND	1.00	NA	> 0.05	1.2	ND	ND	ND	ND	1.20	NA	> 0.05
Oxychlordane	1.0	--	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA

<sup>a</sup> FDA action limits are reported in wet weight.

<sup>b</sup> One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable



# CALSCIENCE

## WORK ORDER NUMBER: 13-08-0936

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** Berths 212-224 YTI Terminal

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

Approved for release on 08/29/2013 by:  
Danielle Gonsman  
Project Manager

ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.





Client Project Name: Berths 212-224 YTI Terminal  
Work Order Number: 13-08-0936

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## CASE NARRATIVE

**CalScience Work Order No.: 13-08-0936**  
**Project ID: Berths 212-224 YTI Terminal**

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

### ***Sample Condition on Receipt***

Thirty tissue samples were received for this project on August 13, 2013. 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 sample upon receipt at the laboratory was 1.4°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

### ***Sample Preparation***

The tissue samples were thawed and homogenized using a stainless steel blending device. The homogenization unit was thoroughly cleaned between the tissue samples. Samples were composited according to the client's instructions listed on the COC.

After extractions, the tissue extracts were subjected to appropriate clean-up procedures. The samples were then analyzed in accordance with the instructions listed on the Chain of Custody for the following methods:

Total Solids by SM 2540B  
Percent Lipids by MeCl<sub>2</sub> Ext (NOAA 1993a)  
Trace Metals by EPA 6020/7471  
Chlorinated Pesticides by EPA 8081A  
PCB Congeners by EPA 8270C SIM  
PAHs by EPA 8270C SIM

### ***Data Summary***

#### Holding times

All holding times were met.

#### Blanks

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

### Reporting Limits

The Method Detection Limits were met.

### Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits with the following exception.

The Acenaphthene recovery was outside of standard control limits. However, the recovery was within the ME limits, therefore the results are released with no further action.

### Matrix Spikes

Matrix spiking was performed at the required frequencies for the tissues on project and non-project samples. All matrix spike parameters outside the acceptable control limits were noted below.

For Metals by EPA 6020, in one QC batch, the Zinc MSD recovery was above the control limits. In the second QC batch, the Copper and Silver MS/MSDs were outside the control limits and the Zinc sample concentration was over four times the spike level so the recovery could not be determined. Since all LCS/LCSD recoveries were acceptable, the data is released.

For Mercury by EPA 7471A, the recoveries in one MS/MSD pair was low outside of acceptance limits. The other MS/MSD pair was within acceptance limits and the LCS/LCSD recoveries were within acceptance limits.

Several of the Chlorinated Pesticides (by EPA 8081A) matrix spike and/or matrix spike duplicate recoveries were outside of acceptance limits. Since the LCS/LCSD recoveries were acceptable, the data is released.

### Surrogates

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

### Acronyms

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

**Work Order Narrative**

Work Order: 13-08-0936

Page 1 of 1

**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 08/13/13. They were assigned to Work Order 13-08-0936.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

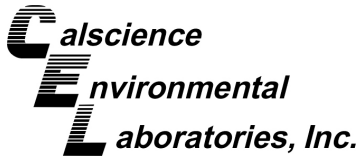
**Additional Comments:**

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.





## Sample Summary

Client: AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

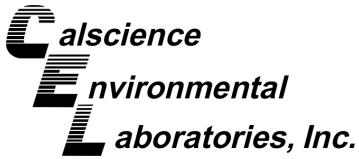
Work Order: 13-08-0936  
 Project Name: Berths 212-224 YTI Terminal  
 PO Number:  
 Date/Time Received: 08/13/13 18:50  
 Number of Containers: 30

Attn: Barry Snyder

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
1C	13-08-0936-1	08/10/13 15:00	1	Tissue
2C	13-08-0936-2	08/10/13 15:00	1	Tissue
3C	13-08-0936-3	08/10/13 15:00	1	Tissue
4C	13-08-0936-4	08/10/13 15:00	1	Tissue
5C	13-08-0936-5	08/10/13 15:00	1	Tissue
6C	13-08-0936-6	08/10/13 15:00	1	Tissue
7C	13-08-0936-7	08/10/13 15:00	1	Tissue
8C	13-08-0936-8	08/10/13 15:00	1	Tissue
9C	13-08-0936-9	08/10/13 15:00	1	Tissue
10C	13-08-0936-10	08/10/13 15:00	1	Tissue
11C	13-08-0936-11	08/10/13 15:00	1	Tissue
12C	13-08-0936-12	08/10/13 15:00	1	Tissue
13C	13-08-0936-13	08/10/13 15:00	1	Tissue
14C	13-08-0936-14	08/10/13 15:00	1	Tissue
15C	13-08-0936-15	08/10/13 15:00	1	Tissue
1W	13-08-0936-16	08/10/13 13:00	1	Tissue
2W	13-08-0936-17	08/10/13 13:00	1	Tissue
3W	13-08-0936-18	08/10/13 13:00	1	Tissue
4W	13-08-0936-19	08/10/13 13:00	1	Tissue
5W	13-08-0936-20	08/10/13 13:00	1	Tissue
6W	13-08-0936-21	08/10/13 13:00	1	Tissue
7W	13-08-0936-22	08/10/13 13:00	1	Tissue
8W	13-08-0936-23	08/10/13 13:00	1	Tissue
9W	13-08-0936-24	08/10/13 13:00	1	Tissue
10W	13-08-0936-25	08/10/13 13:00	1	Tissue
11W	13-08-0936-26	08/10/13 13:00	1	Tissue
12W	13-08-0936-27	08/10/13 13:00	1	Tissue
13W	13-08-0936-28	08/10/13 13:00	1	Tissue
14W	13-08-0936-29	08/10/13 13:00	1	Tissue
15W	13-08-0936-30	08/10/13 13:00	1	Tissue



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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

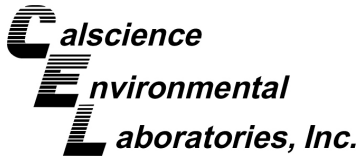
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.3	0.100		1		
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.3	0.100		1		
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.1	0.100		1		
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		12.8	0.100		1		
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.8	0.100		1		
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.8	0.100		1		
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.7	0.100		1		
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.9	0.100		1		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

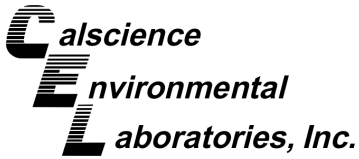
Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>9C</b>	<b>13-08-0936-9-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.4	0.100		1		
<b>10C</b>	<b>13-08-0936-10-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.5	0.100		1		
<b>11C</b>	<b>13-08-0936-11-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.0	0.100		1		
<b>12C</b>	<b>13-08-0936-12-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.7	0.100		1		
<b>13C</b>	<b>13-08-0936-13-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.7	0.100		1		
<b>14C</b>	<b>13-08-0936-14-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.0	0.100		1		
<b>15C</b>	<b>13-08-0936-15-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.0	0.100		1		
<b>1W</b>	<b>13-08-0936-16-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.2	0.100		1		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

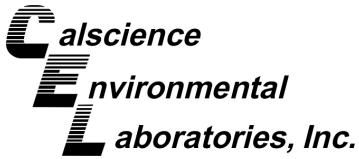
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.6	0.100		1		
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.3	0.100		1		
6W	13-08-0936-21-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.3	0.100		1		
7W	13-08-0936-22-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		19.5	0.100		1		
8W	13-08-0936-23-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
9W	13-08-0936-24-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.4	0.100		1		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

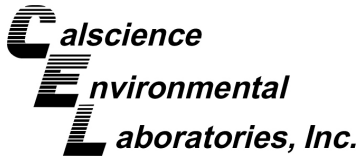
Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

Project: Berths 212-224 YTI Terminal

Page 4 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10W</b>	<b>13-08-0936-25-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.4	0.100		1		
<b>11W</b>	<b>13-08-0936-26-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.9	0.100		1		
<b>12W</b>	<b>13-08-0936-27-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.2	0.100		1		
<b>13W</b>	<b>13-08-0936-28-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.7	0.100		1		
<b>14W</b>	<b>13-08-0936-29-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
<b>15W</b>	<b>13-08-0936-30-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.9	0.100		1		
<b>Method Blank</b>	<b>099-05-019-2306</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		ND	0.100		1		
<b>Method Blank</b>	<b>099-05-019-2307</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		ND	0.100		1		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

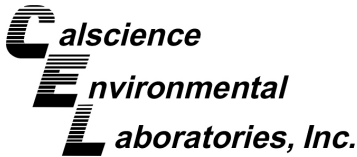
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.57	0.10		1		
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.60	0.10		1		
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.61	0.10		1		
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.71	0.10		1		
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.50	0.10		1		
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.65	0.10		1		
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.44	0.10		1		
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.55	0.10		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

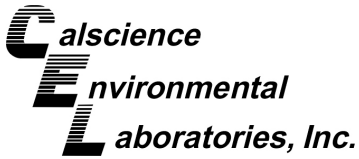
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>9C</b>	<b>13-08-0936-9-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.60	0.10		1		
<b>10C</b>	<b>13-08-0936-10-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.62	0.10		1		
<b>11C</b>	<b>13-08-0936-11-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.55	0.10		1		
<b>12C</b>	<b>13-08-0936-12-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.28	0.10		1		
<b>13C</b>	<b>13-08-0936-13-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.53	0.10		1		
<b>14C</b>	<b>13-08-0936-14-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.50	0.10		1		
<b>15C</b>	<b>13-08-0936-15-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.47	0.10		1		
<b>1W</b>	<b>13-08-0936-16-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.6	0.10		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

Project: Berths 212-224 YTI Terminal

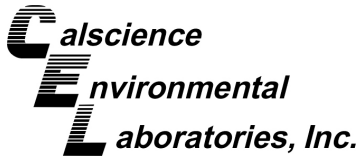
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.8	0.10		1		
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.6	0.10		1		
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.5	0.10		1		
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.2	0.10		1		
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.3	0.10		1		
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.5	0.10		1		
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

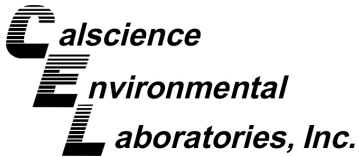
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10W</b>	<b>13-08-0936-25-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		
<b>11W</b>	<b>13-08-0936-26-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.5	0.10		1		
<b>12W</b>	<b>13-08-0936-27-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.1	0.10		1		
<b>13W</b>	<b>13-08-0936-28-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.3	0.10		1		
<b>14W</b>	<b>13-08-0936-29-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		
<b>15W</b>	<b>13-08-0936-30-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.8	0.10		1		
<b>Method Blank</b>	<b>099-14-104-36</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		ND	0.10		1		
<b>Method Blank</b>	<b>099-14-104-37</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		ND	0.10		1		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:44	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	3.21	0.100	1	
Cadmium	ND	0.100	1	
Chromium	1.06	0.0200	1	
Copper	2.19	0.100	1	
Lead	0.439	0.100	1	
Nickel	0.914	0.100	1	
Selenium	0.326	0.100	1	
Silver	ND	0.100	1	
Zinc	14.1	1.00	1	

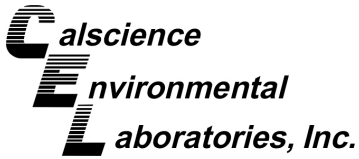
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:47	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.48	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.392	0.0200	1	
Copper	2.09	0.100	1	
Lead	0.462	0.100	1	
Nickel	0.527	0.100	1	
Selenium	0.312	0.100	1	
Silver	ND	0.100	1	
Zinc	12.5	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:50	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.68	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.417	0.0200	1	
Copper	1.95	0.100	1	
Lead	0.357	0.100	1	
Nickel	0.443	0.100	1	
Selenium	0.236	0.100	1	
Silver	ND	0.100	1	
Zinc	13.2	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:53	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.21	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.163	0.0200	1	
Copper	1.39	0.100	1	
Lead	0.138	0.100	1	
Nickel	0.376	0.100	1	
Selenium	0.264	0.100	1	
Silver	ND	0.100	1	
Zinc	11.4	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:56	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.39	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.227	0.0200	1	
Copper	1.78	0.100	1	
Lead	0.313	0.100	1	
Nickel	0.350	0.100	1	
Selenium	0.192	0.100	1	
Silver	ND	0.100	1	
Zinc	12.8	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:59	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.50	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.223	0.0200	1	
Copper	1.37	0.100	1	
Lead	0.144	0.100	1	
Nickel	0.410	0.100	1	
Selenium	0.262	0.100	1	
Silver	ND	0.100	1	
Zinc	11.7	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:02	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.54	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.181	0.0200	1	
Copper	1.66	0.100	1	
Lead	0.284	0.100	1	
Nickel	0.305	0.100	1	
Selenium	0.226	0.100	1	
Silver	ND	0.100	1	
Zinc	12.6	1.00	1	

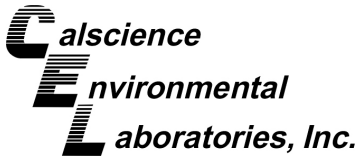
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:05	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.34	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.270	0.0200	1	
Copper	1.73	0.100	1	
Lead	0.288	0.100	1	
Nickel	0.403	0.100	1	
Selenium	0.317	0.100	1	
Silver	ND	0.100	1	
Zinc	11.2	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:08	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.65	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.173	0.0200	1	
Copper	1.50	0.100	1	
Lead	0.161	0.100	1	
Nickel	0.377	0.100	1	
Selenium	0.289	0.100	1	
Silver	ND	0.100	1	
Zinc	12.4	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10C</b>	<b>13-08-0936-10-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 21:11</b>	<b>130815L01T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.60	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.201	0.0200	1	
Copper	1.62	0.100	1	
Lead	0.172	0.100	1	
Nickel	0.398	0.100	1	
Selenium	0.276	0.100	1	
Silver	ND	0.100	1	
Zinc	11.6	1.00	1	

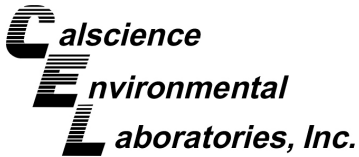
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>11C</b>	<b>13-08-0936-11-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 21:20</b>	<b>130815L01T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.26	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.194	0.0200	1	
Copper	1.51	0.100	1	
Lead	0.306	0.100	1	
Nickel	0.287	0.100	1	
Selenium	0.226	0.100	1	
Silver	ND	0.100	1	
Zinc	11.5	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>12C</b>	<b>13-08-0936-12-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 21:23</b>	<b>130815L01T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.15	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.158	0.0200	1	
Copper	1.49	0.100	1	
Lead	0.146	0.100	1	
Nickel	0.334	0.100	1	
Selenium	0.228	0.100	1	
Silver	ND	0.100	1	
Zinc	9.62	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:26	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.51	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.242	0.0200	1	
Copper	1.76	0.100	1	
Lead	0.360	0.100	1	
Nickel	0.372	0.100	1	
Selenium	0.252	0.100	1	
Silver	ND	0.100	1	
Zinc	12.3	1.00	1	

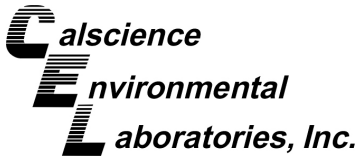
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:29	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.80	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.185	0.0200	1	
Copper	1.73	0.100	1	
Lead	0.293	0.100	1	
Nickel	0.388	0.100	1	
Selenium	0.202	0.100	1	
Silver	ND	0.100	1	
Zinc	12.3	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:32	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.39	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.268	0.0200	1	
Copper	1.81	0.100	1	
Lead	0.343	0.100	1	
Nickel	0.339	0.100	1	
Selenium	0.217	0.100	1	
Silver	ND	0.100	1	
Zinc	12.0	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:35	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.58	0.100	1	
Cadmium	ND	0.100	1	
Chromium	1.08	0.0200	1	
Copper	1.81	0.100	1	
Lead	ND	0.100	1	
Nickel	0.855	0.100	1	
Selenium	0.338	0.100	1	
Silver	ND	0.100	1	
Zinc	30.6	1.00	1	

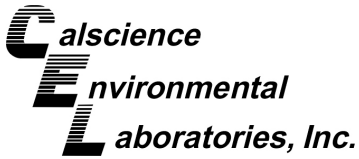
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:38	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.55	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.350	0.0200	1	
Copper	1.73	0.100	1	
Lead	ND	0.100	1	
Nickel	0.307	0.100	1	
Selenium	0.375	0.100	1	
Silver	ND	0.100	1	
Zinc	12.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:41	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.26	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.441	0.0200	1	
Copper	1.57	0.100	1	
Lead	ND	0.100	1	
Nickel	0.366	0.100	1	
Selenium	0.295	0.100	1	
Silver	ND	0.100	1	
Zinc	18.8	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:44	130815L01T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.32	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.171	0.0200	1	
Copper	1.30	0.100	1	
Lead	ND	0.100	1	
Nickel	0.256	0.100	1	
Selenium	0.320	0.100	1	
Silver	ND	0.100	1	
Zinc	25.2	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:47	130815L01T

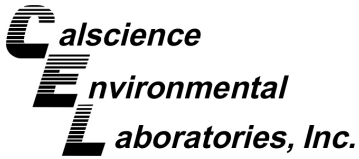
Parameter	Result	RL	DF	Qualifiers
Arsenic	2.03	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.243	0.0200	1	
Copper	1.38	0.100	1	
Lead	ND	0.100	1	
Nickel	0.242	0.100	1	
Selenium	0.295	0.100	1	
Silver	ND	0.100	1	
Zinc	25.8	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:10	130815L02T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.40	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.186	0.0200	1	
Copper	1.31	0.100	1	
Lead	ND	0.100	1	
Nickel	0.320	0.100	1	
Selenium	0.304	0.100	1	
Silver	ND	0.100	1	
Zinc	24.7	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>7W</b>	<b>13-08-0936-22-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 22:13</b>	<b>130815L02T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	1.90	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.128	0.0200	1	
Copper	1.51	0.100	1	
Lead	ND	0.100	1	
Nickel	0.228	0.100	1	
Selenium	0.239	0.100	1	
Silver	ND	0.100	1	
Zinc	15.4	1.00	1	

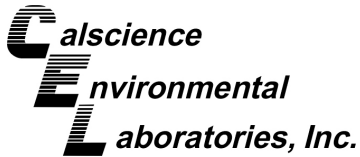
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>8W</b>	<b>13-08-0936-23-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 22:16</b>	<b>130815L02T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.39	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.199	0.0200	1	
Copper	1.65	0.100	1	
Lead	ND	0.100	1	
Nickel	0.315	0.100	1	
Selenium	0.252	0.100	1	
Silver	ND	0.100	1	
Zinc	30.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>9W</b>	<b>13-08-0936-24-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 22:19</b>	<b>130815L02T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.23	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.132	0.0200	1	
Copper	1.29	0.100	1	
Lead	ND	0.100	1	
Nickel	0.293	0.100	1	
Selenium	0.187	0.100	1	
Silver	ND	0.100	1	
Zinc	16.1	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10W</b>	<b>13-08-0936-25-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 22:22</b>	<b>130815L02T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.02	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.0938	0.0200	1	
Copper	1.24	0.100	1	
Lead	ND	0.100	1	
Nickel	0.243	0.100	1	
Selenium	0.285	0.100	1	
Silver	ND	0.100	1	
Zinc	14.2	1.00	1	

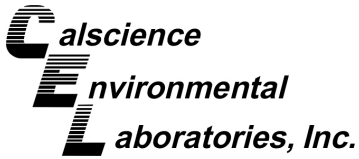
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>11W</b>	<b>13-08-0936-26-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 22:25</b>	<b>130815L02T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.05	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.297	0.0200	1	
Copper	1.42	0.100	1	
Lead	ND	0.100	1	
Nickel	0.305	0.100	1	
Selenium	0.221	0.100	1	
Silver	ND	0.100	1	
Zinc	11.5	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>12W</b>	<b>13-08-0936-27-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 22:28</b>	<b>130815L02T</b>

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.17	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.230	0.0200	1	
Copper	1.25	0.100	1	
Lead	ND	0.100	1	
Nickel	0.266	0.100	1	
Selenium	0.266	0.100	1	
Silver	ND	0.100	1	
Zinc	35.4	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:31	130815L02T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.31	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.157	0.0200	1	
Copper	1.33	0.100	1	
Lead	ND	0.100	1	
Nickel	0.250	0.100	1	
Selenium	0.258	0.100	1	
Silver	ND	0.100	1	
Zinc	10.9	1.00	1	

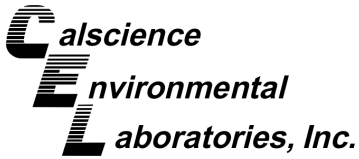
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14W	13-08-0936-29-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:34	130815L02T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.17	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.106	0.0200	1	
Copper	1.31	0.100	1	
Lead	ND	0.100	1	
Nickel	0.207	0.100	1	
Selenium	0.229	0.100	1	
Silver	ND	0.100	1	
Zinc	18.9	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:37	130815L02T

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.13	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.120	0.0200	1	
Copper	1.60	0.100	1	
Lead	ND	0.100	1	
Nickel	0.196	0.100	1	
Selenium	0.207	0.100	1	
Silver	ND	0.100	1	
Zinc	21.2	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-15-258-20</b>	<b>N/A</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 19:59</b>	<b>130815L01T</b>

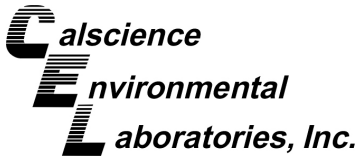
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-15-258-21</b>	<b>N/A</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 19:18</b>	<b>130815L02T</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

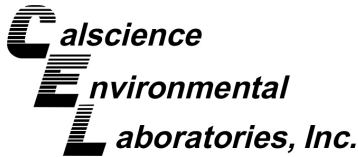
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:28	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:35	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:37	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:39	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:41	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:43	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:46	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:52	130815L05T
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

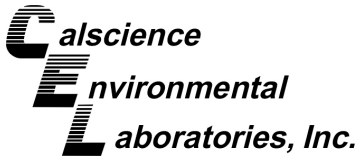
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>9C</b>	<b>13-08-0936-9-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 17:55</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>10C</b>	<b>13-08-0936-10-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 17:57</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>11C</b>	<b>13-08-0936-11-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 17:59</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>12C</b>	<b>13-08-0936-12-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:01</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>13C</b>	<b>13-08-0936-13-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:03</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>14C</b>	<b>13-08-0936-14-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:06</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>15C</b>	<b>13-08-0936-15-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:08</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		
<b>1W</b>	<b>13-08-0936-16-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:10</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Mercury		ND	0.00958		0.599		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

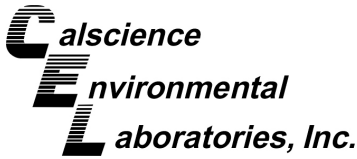
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:12	130815L05T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:19	130815L05T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:22	130815L05T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:24	130815L05T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:26	130815L06T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:32	130815L06T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:35	130815L06T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:37	130815L06T
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
Mercury		ND	0.00958	0.599			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

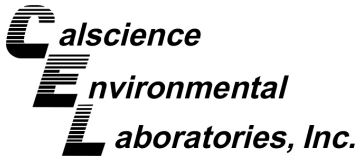
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10W</b>	<b>13-08-0936-25-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:39</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>11W</b>	<b>13-08-0936-26-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:46</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>12W</b>	<b>13-08-0936-27-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:48</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>13W</b>	<b>13-08-0936-28-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:50</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>14W</b>	<b>13-08-0936-29-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:53</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>15W</b>	<b>13-08-0936-30-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:55</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>Method Blank</b>	<b>099-12-409-46</b>	<b>N/A</b>	<b>Soil</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/15/13 15:51</b>	<b>130815L05T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	
<b>Method Blank</b>	<b>099-12-409-47</b>	<b>N/A</b>	<b>Soil</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/15/13 15:49</b>	<b>130815L06T</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.00958		0.599	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:09	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	89	50-135		
Dibutylchloredate	79	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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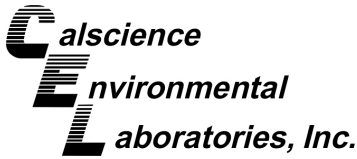
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 21:25	130816F05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	12	5.0	2.5	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchloredate	79	50-135	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:23	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135		
Dibutylchloredate	81	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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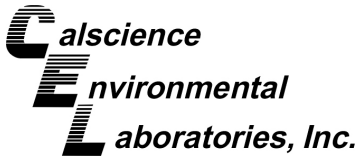
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 21:39	130816F05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	11	2.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchloredate	86	50-135	

  
Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

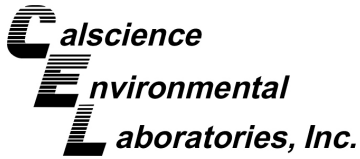
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:38	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135		
Dibutylchloredate	80	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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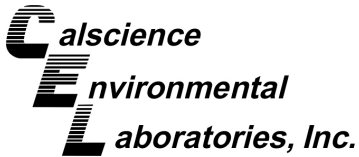
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 21:53	130816F05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	10	2.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,5,6-Tetrachloro-m-Xylene	107	50-135	
Dibutylchloredate	92	50-135	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

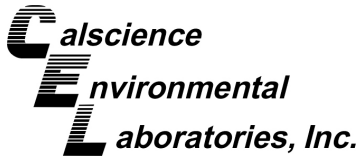
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:52	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	88	50-135		
Dibutylchloredate	77	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:08	130816F05

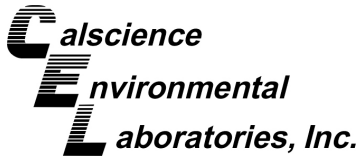
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	10	2.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,5,6-Tetrachloro-m-Xylene	98	50-135	
Dibutylchloredate	85	50-135	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

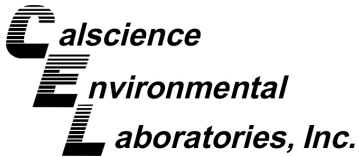
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:06	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	5.5	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	82	50-135		
Dibutylchloroendate	82	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

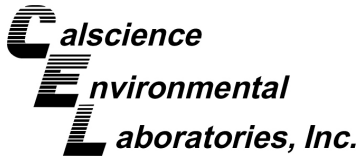
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:21	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135		
Dibutylchloredate	83	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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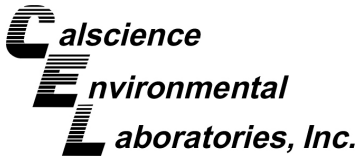
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:22	130816F05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	9.8	2.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchloredate	93	50-135	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

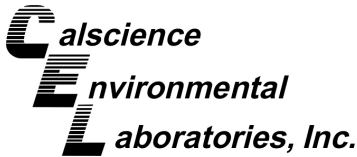
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:35	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	1.1	1.0	0.5	
4,4'-DDE	6.0	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	117	50-135		
Dibutylchloroendate	81	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

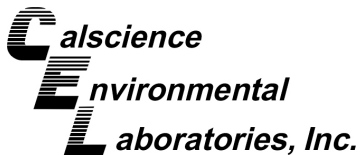
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:49	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	84	50-135		
Dibutylchloredate	78	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



### Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

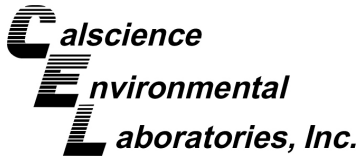
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:36	130816F05

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	11	2.0	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloredate	86	50-135		



RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

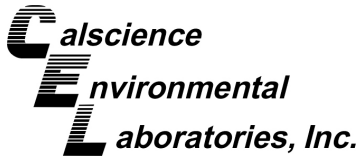
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 16:04	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	91	50-135		
Dibutylchloredate	88	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:51	130816F05

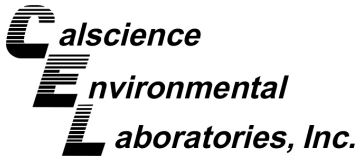
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	8.9	2.0	1	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,5,6-Tetrachloro-m-Xylene	97	50-135	
Dibutylchloredate	97	50-135	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 16:18	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	90	50-135		
Dibutylchloredate	88	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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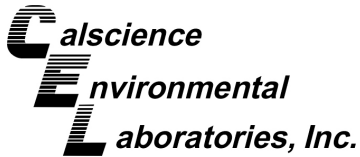
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 23:05	130816F05

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	12	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	101	50-135	
Dibutylchloredate	99	50-135	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

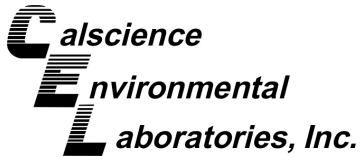
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 19:27	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	1.5	1.0	0.5	
4,4'-DDE	7.3	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	93	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

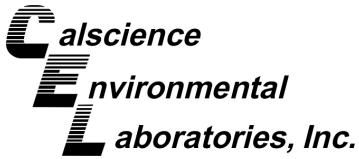
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 19:41	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	4.3	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	82	50-135		
Dibutylchloroendate	76	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

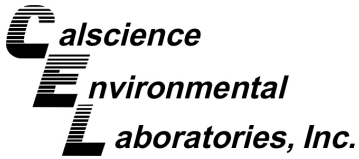
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/24/13 10:57	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	7.1	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	90	50-135		
Dibutylchloroendate	70	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

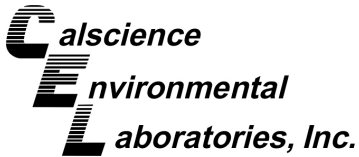
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/24/13 11:11	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	6.5	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	75	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

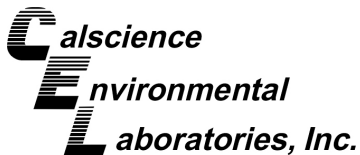
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/24/13 11:26	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloredate	74	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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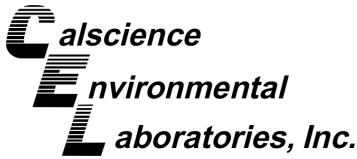
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/24/13 18:25	130816F05

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	11	2.0	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135		
Dibutylchloredate	74	50-135		



RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

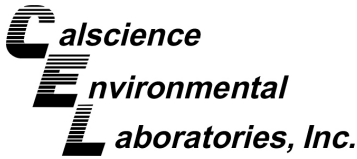
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 11:40	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.8	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	88	50-135		
Dibutylchloroendate	89	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

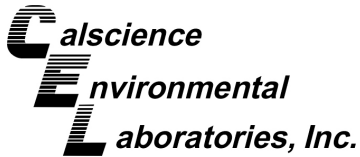
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 11:54	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	4.7	1.0	0.5	
4,4'-DDT	4.7	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	88	50-135		
Dibutylchloroendate	77	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

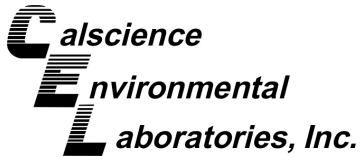
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:08	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.0	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	87	50-135		
Dibutylchloroendate	91	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

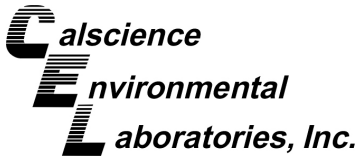
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:23	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135		
Dibutylchloroendate	80	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

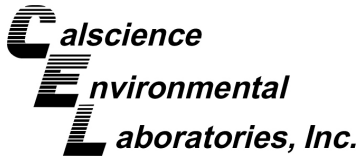
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:37	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	2.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135		
Dibutylchloroendate	71	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

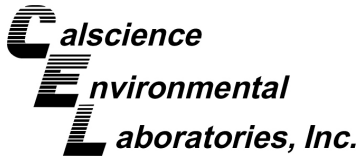
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:51	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.2	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	89	50-135		
Dibutylchloroendate	76	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

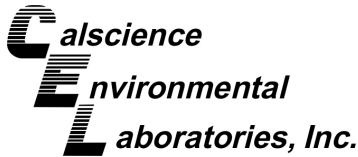
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:06	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.2	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	1.0	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	103	50-135		
Dibutylchloroendate	90	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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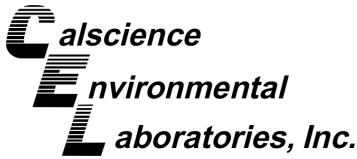
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:20	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	2.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	1.2	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	108	50-135		
Dibutylchloroendate	98	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

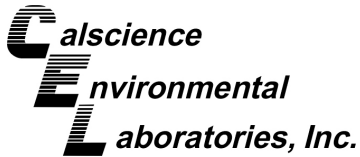
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:34	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	99	50-135		
Dibutylchloroendate	97	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

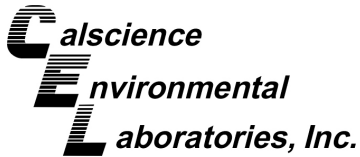
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:48	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.9	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	85	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

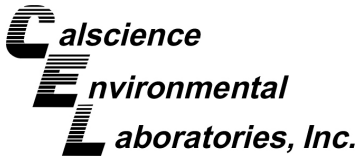
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:03	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.6	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	97	50-135		
Dibutylchloroendate	83	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

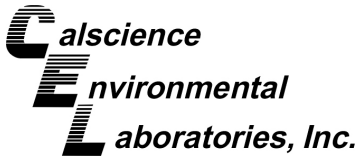
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:17	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135		
Dibutylchloroendate	67	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

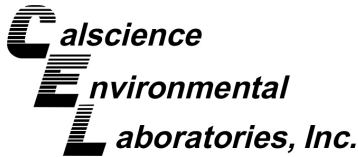
Page 37 of 41

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:31	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	2.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	63	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

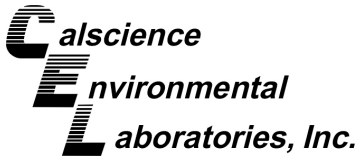
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:45	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.0	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	93	50-135		
Dibutylchloroendate	75	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

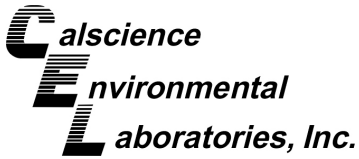
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 15:00	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.4	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135		
Dibutylchloroendate	56	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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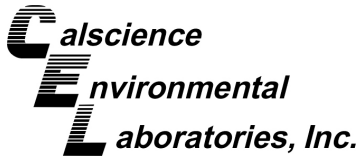
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Method Blank	099-14-294-22	N/A	Soil	GC 51	08/16/13	08/23/13 13:55	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	105	50-135	
Dibutylchloroendate	102	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

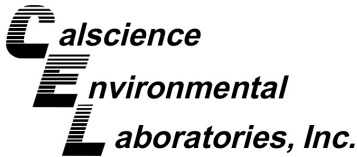
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-294-23	N/A	Soil	GC 51	08/16/13	08/24/13 10:43	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	121	50-135	
Dibutylchloroendate	105	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

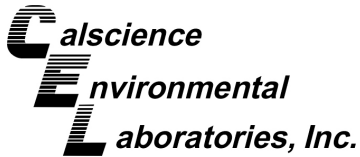
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 13:27	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	30	10	1	
Benzo (b) Fluoranthene	46	10	1	
Benzo (e) Pyrene	30	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	33	10	1	
Biphenyl	ND	10	1	
Chrysene	12	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	17	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	110	14-146	
Nitrobenzene-d5	97	18-162	
p-Terphenyl-d14	138	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

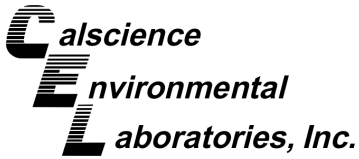
Page 2 of 32

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 13:53	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	27	10	1	
Benzo (b) Fluoranthene	42	10	1	
Benzo (e) Pyrene	26	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	29	10	1	
Biphenyl	ND	10	1	
Chrysene	10	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	19	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	100	14-146		
Nitrobenzene-d5	88	18-162		
p-Terphenyl-d14	118	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

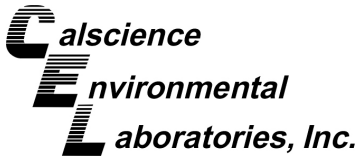
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 14:20	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	21	10	1	
Benzo (b) Fluoranthene	35	10	1	
Benzo (e) Pyrene	22	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	26	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	15	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	99	14-146	
Nitrobenzene-d5	105	18-162	
p-Terphenyl-d14	116	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

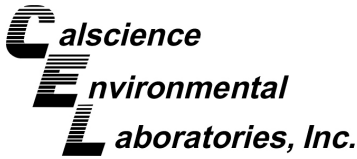
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 14:46	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	96	14-146	
Nitrobenzene-d5	97	18-162	
p-Terphenyl-d14	114	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PAHs  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

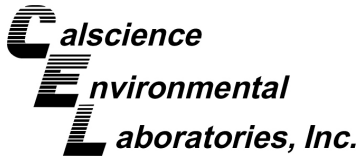
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 15:12	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	12	10	1	
Benzo (a) Pyrene	29	10	1	
Benzo (b) Fluoranthene	41	10	1	
Benzo (e) Pyrene	28	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	27	10	1	
Biphenyl	ND	10	1	
Chrysene	18	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	63	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	180	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	94	14-146		
Nitrobenzene-d5	81	18-162		
p-Terphenyl-d14	107	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

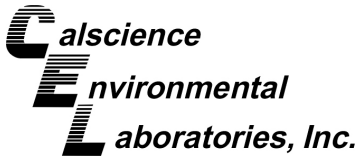
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 15:39	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	111	14-146		
Nitrobenzene-d5	103	18-162		
p-Terphenyl-d14	128	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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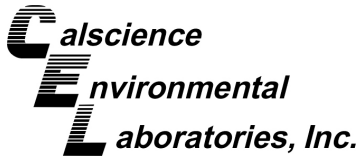
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 18:09	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	24	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	13	10	1	
Benzo (a) Pyrene	33	10	1	
Benzo (b) Fluoranthene	46	10	1	
Benzo (e) Pyrene	31	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	34	10	1	
Biphenyl	ND	10	1	
Chrysene	21	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	70	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	200	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	102	14-146		
Nitrobenzene-d5	96	18-162		
p-Terphenyl-d14	125	34-148		

Return to Contents

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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

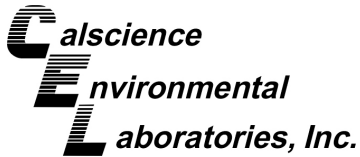
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 18:35	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	23	10	1	
Benzo (b) Fluoranthene	35	10	1	
Benzo (e) Pyrene	22	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	26	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	15	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	95	14-146		
Nitrobenzene-d5	86	18-162		
p-Terphenyl-d14	115	34-148		

Return to Contents

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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

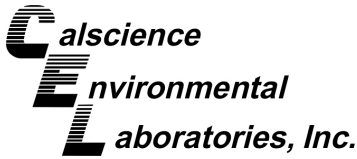
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 19:02	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	103	14-146	
Nitrobenzene-d5	119	18-162	
p-Terphenyl-d14	115	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

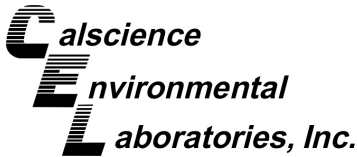
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 19:28	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	106	14-146	
Nitrobenzene-d5	114	18-162	
p-Terphenyl-d14	120	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

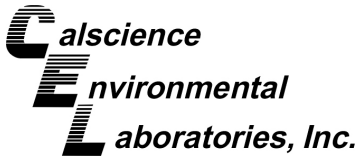
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 19:54	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	14	10	1	
Benzo (a) Anthracene	20	10	1	
Benzo (a) Pyrene	48	10	1	
Benzo (b) Fluoranthene	67	10	1	
Benzo (e) Pyrene	46	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	51	10	1	
Biphenyl	ND	10	1	
Chrysene	33	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	120	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	13	10	1	
Phenanthrene	ND	10	1	
Pyrene	310	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	122	14-146		
Nitrobenzene-d5	120	18-162		
p-Terphenyl-d14	143	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

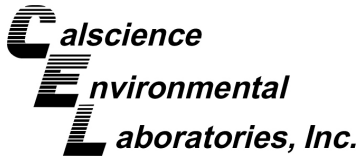
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 20:21	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	96	14-146		
Nitrobenzene-d5	80	18-162		
p-Terphenyl-d14	112	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

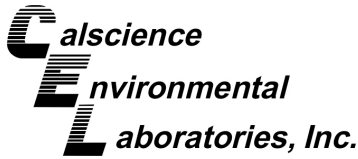
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 20:47	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	12	10	1	
Benzo (a) Anthracene	18	10	1	
Benzo (a) Pyrene	44	10	1	
Benzo (b) Fluoranthene	62	10	1	
Benzo (e) Pyrene	42	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	45	10	1	
Biphenyl	ND	10	1	
Chrysene	28	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	110	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	12	10	1	
Phenanthrene	ND	10	1	
Pyrene	310	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	117	14-146		
Nitrobenzene-d5	112	18-162		
p-Terphenyl-d14	136	34-148		

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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

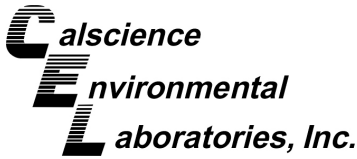
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 21:13	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	14	10	1	
Benzo (a) Pyrene	36	10	1	
Benzo (b) Fluoranthene	50	10	1	
Benzo (e) Pyrene	34	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	38	10	1	
Biphenyl	ND	10	1	
Chrysene	23	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	83	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	10	10	1	
Phenanthrene	ND	10	1	
Pyrene	230	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	111	14-146	
Nitrobenzene-d5	109	18-162	
p-Terphenyl-d14	127	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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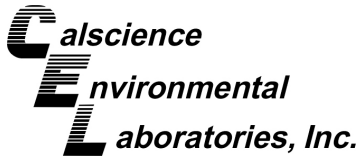
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15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 21:40	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	21	10	1	
Benzo (b) Fluoranthene	33	10	1	
Benzo (e) Pyrene	21	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	25	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	14	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	102	14-146	
Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	119	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

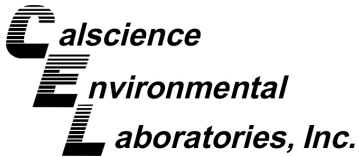
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 22:06	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	98	14-146		
Nitrobenzene-d5	81	18-162		
p-Terphenyl-d14	112	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

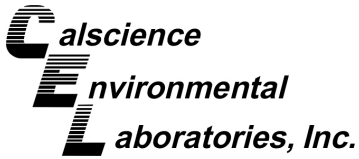
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 22:32	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	70	18-162	
p-Terphenyl-d14	105	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

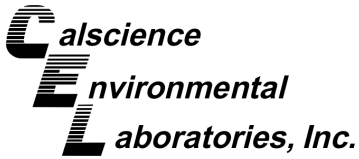
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 22:59	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	116	14-146		
Nitrobenzene-d5	105	18-162		
p-Terphenyl-d14	132	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

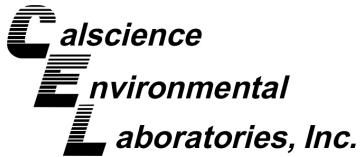
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 23:25	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	110	14-146		
Nitrobenzene-d5	79	18-162		
p-Terphenyl-d14	124	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

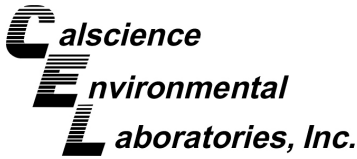
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 23:51	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	10	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	38	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	77	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	94	14-146		
Nitrobenzene-d5	72	18-162		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PAHs  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

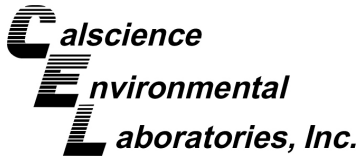
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 00:18	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	104	14-146		
Nitrobenzene-d5	76	18-162		
p-Terphenyl-d14	117	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

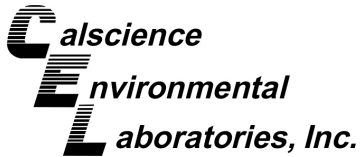
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>7W</b>	<b>13-08-0936-22-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/24/13 00:44</b>	<b>130816L02</b>

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	12	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	19	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	38	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	101	14-146		
Nitrobenzene-d5	70	18-162		
p-Terphenyl-d14	113	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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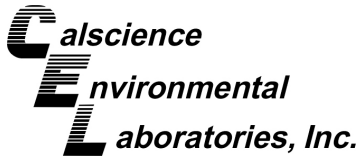
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8W	13-08-0936-23-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 01:10	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	11	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	136	14-146		
Nitrobenzene-d5	101	18-162		
p-Terphenyl-d14	147	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

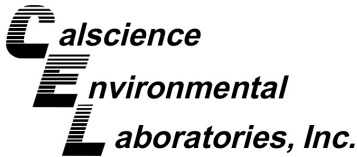
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 01:36	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	107	14-146		
Nitrobenzene-d5	78	18-162		
p-Terphenyl-d14	120	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

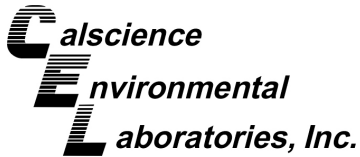
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 02:03	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	126	14-146		
Nitrobenzene-d5	101	18-162		
p-Terphenyl-d14	141	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

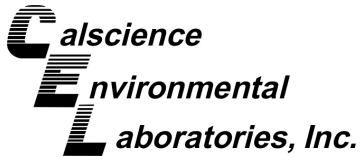
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 02:29	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	11	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	13	10	1	
Benzo (e) Pyrene	15	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	12	10	1	
Biphenyl	ND	10	1	
Chrysene	14	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	69	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	140	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	113	14-146		
Nitrobenzene-d5	84	18-162		
p-Terphenyl-d14	122	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

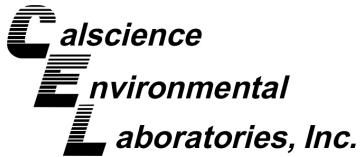
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 02:55	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	91	14-146		
Nitrobenzene-d5	77	18-162		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

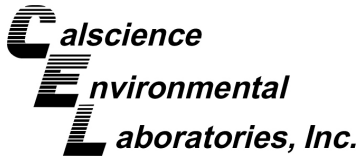
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 03:21	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	10	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	10	10	1	
Benzo (e) Pyrene	13	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	11	10	1	
Biphenyl	ND	10	1	
Chrysene	12	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	10	10	1	
Fluoranthene	48	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	88	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	88	18-162	
p-Terphenyl-d14	130	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

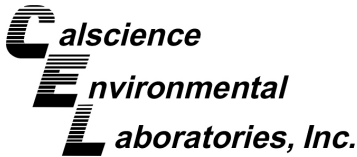
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 03:48	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	12	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	11	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	46	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	95	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	126	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

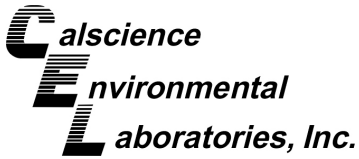
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 04:14	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	103	14-146	
Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	117	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-943-5	N/A	Soil	GC/MS AAA	08/16/13	08/23/13 11:15	130816L01

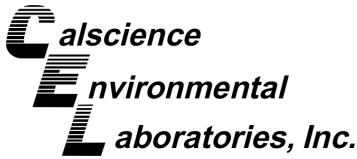
Parameter	Result	RL	DF	Qualifiers
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Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	108	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	128	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

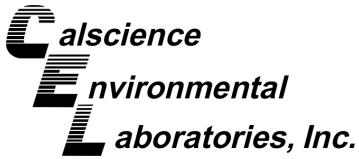
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-943-6	N/A	Soil	GC/MS AAA	08/16/13	08/23/13 16:05	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	84	18-162	
p-Terphenyl-d14	106	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

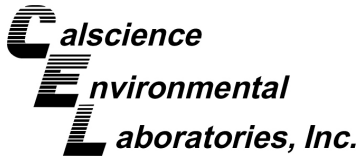
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 14:18	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.51	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.1	0.50	1	
PCB052	0.80	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.82	0.50	1	
PCB070	0.75	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	0.56	0.50	1	
PCB095	1.2	0.50	1	
PCB097	0.73	0.50	1	
PCB099	0.84	0.50	1	
PCB101	1.7	0.50	1	
PCB105	0.58	0.50	1	
PCB110	1.7	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.6	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	0.57	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	2.0	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.5	0.50	1	
PCB151	0.68	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

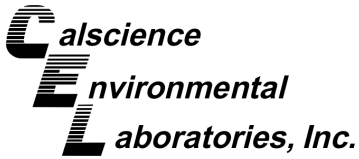
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	2.4	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.68	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	100	14-146		
p-Terphenyl-d14	117	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

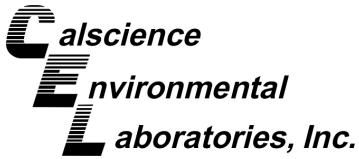
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 14:48	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.86	0.50	1	
PCB052	0.63	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.62	0.50	1	
PCB070	0.59	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.98	0.50	1	
PCB097	0.61	0.50	1	
PCB099	0.69	0.50	1	
PCB101	1.4	0.50	1	
PCB105	0.56	0.50	1	
PCB110	1.4	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.3	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.2	0.50	1	
PCB151	0.53	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

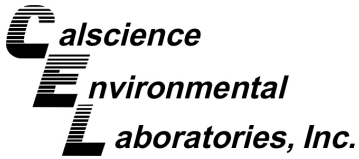
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.8	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.56	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	98	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

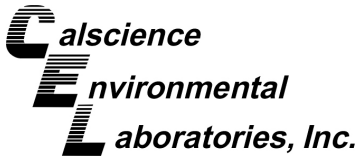
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 15:18	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.64	0.50	1	
PCB052	0.53	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.58	0.50	1	
PCB070	0.52	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.80	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.50	0.50	1	
PCB101	1.1	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.1	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	0.51	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.54	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

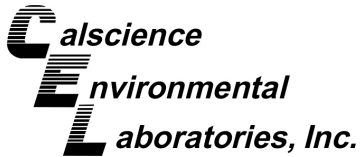
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.5	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.53	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

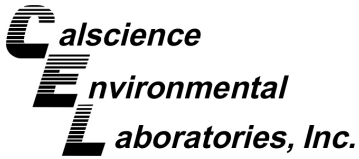
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 15:48	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

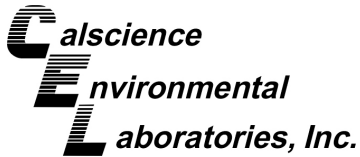
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	84	14-146		
p-Terphenyl-d14	111	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

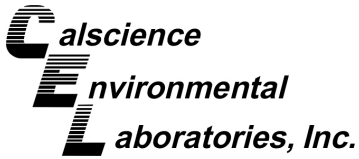
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 16:17	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.88	0.50	1	
PCB052	0.76	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.63	0.50	1	
PCB070	0.66	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.76	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	0.93	0.50	1	
PCB105	ND	0.50	1	
PCB110	0.99	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.76	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.51	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

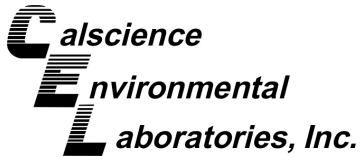
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	0.89	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	99	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

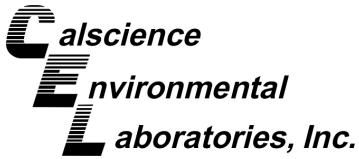
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 16:47	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

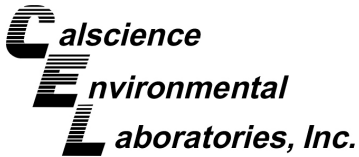
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	69	14-146		
p-Terphenyl-d14	92	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

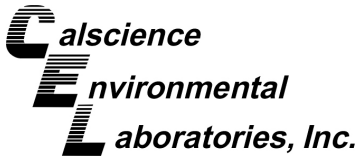
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 17:18	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.54	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.0	0.50	1	
PCB052	0.68	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.63	0.50	1	
PCB070	0.71	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.65	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.0	0.50	1	
PCB105	0.58	0.50	1	
PCB110	1.0	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.92	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.57	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

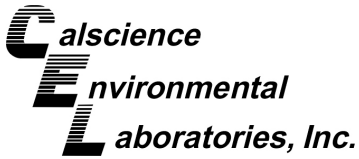
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	0.94	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	78	14-146		
p-Terphenyl-d14	114	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

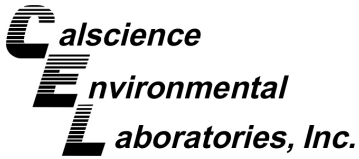
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 17:48	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.83	0.50	1	
PCB052	0.64	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.64	0.50	1	
PCB070	0.54	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.79	0.50	1	
PCB097	0.52	0.50	1	
PCB099	0.67	0.50	1	
PCB101	1.5	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.5	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.2	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.54	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

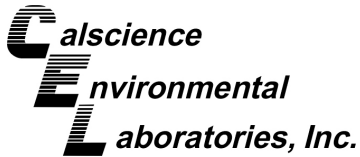
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.7	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	74	14-146		
p-Terphenyl-d14	109	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

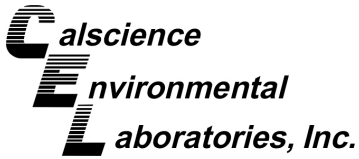
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 18:17	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

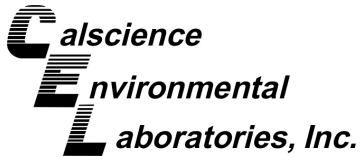
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	79	14-146		
p-Terphenyl-d14	105	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

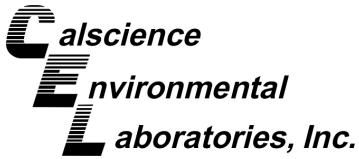
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 18:48	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

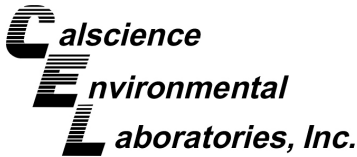
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	75	14-146		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

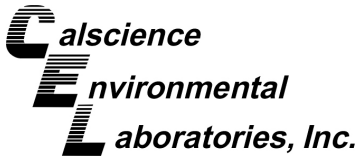
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 19:17	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.62	0.50	1	
PCB031	0.62	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.3	0.50	1	
PCB052	0.89	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.90	0.50	1	
PCB070	0.76	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	0.52	0.50	1	
PCB095	0.84	0.50	1	
PCB097	0.64	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.2	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.5	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.77	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

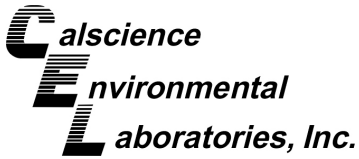
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.2	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	73	14-146		
p-Terphenyl-d14	106	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

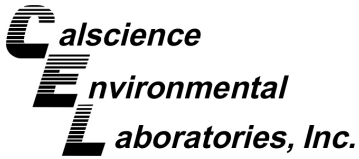
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 19:46	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

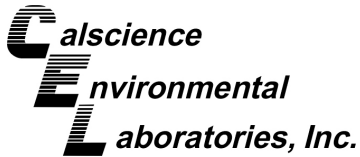
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	64	14-146		
p-Terphenyl-d14	87	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

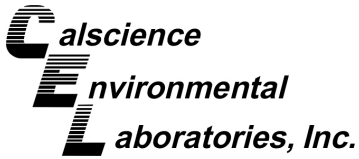
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 20:14	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	0.64	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.0	0.50	1	
PCB052	1.0	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.86	0.50	1	
PCB070	0.80	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.86	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.3	0.50	1	
PCB105	0.51	0.50	1	
PCB110	1.4	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.73	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

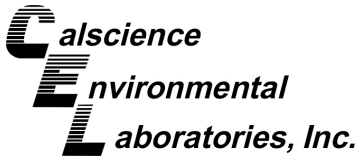
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.1	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	74	14-146		
p-Terphenyl-d14	107	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

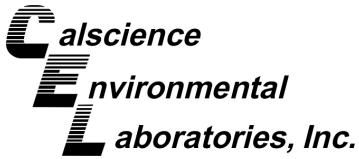
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 20:43	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.1	0.50	1	
PCB052	0.77	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.66	0.50	1	
PCB070	0.67	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.71	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.1	0.50	1	
PCB105	0.51	0.50	1	
PCB110	1.1	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.84	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.68	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

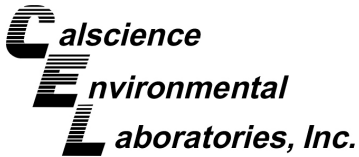
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	0.93	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	105	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

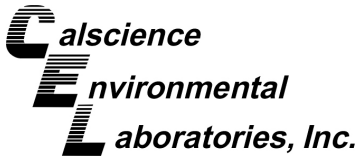
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 21:12	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.73	0.50	1	
PCB052	0.56	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.59	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.88	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.60	0.50	1	
PCB101	1.3	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.3	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.1	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.99	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

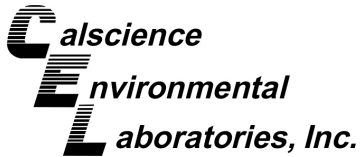
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.6	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	70	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

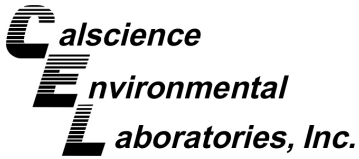
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 02:51	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.51	0.50	1	
PCB052	0.89	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.58	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.3	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.62	0.50	1	
PCB101	1.5	0.50	1	
PCB105	0.53	0.50	1	
PCB110	1.1	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.94	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.6	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.2	0.50	1	
PCB151	0.64	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

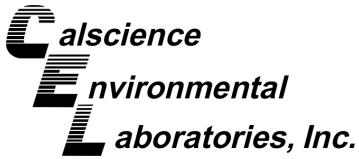
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	2.2	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.75	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.65	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	55	14-146		
p-Terphenyl-d14	86	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

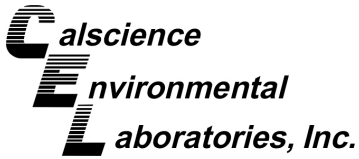
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/26/13 16:43	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.52	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	0.55	0.50	1	
PCB049	0.73	0.50	1	
PCB052	1.3	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.87	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.7	0.50	1	
PCB097	0.56	0.50	1	
PCB099	0.88	0.50	1	
PCB101	2.1	0.50	1	
PCB105	0.67	0.50	1	
PCB110	1.3	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.5	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	2.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.8	0.50	1	
PCB151	0.54	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

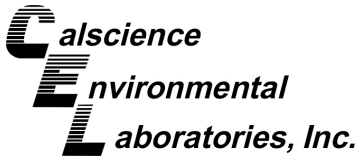
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	2.9	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	0.54	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	1.2	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	1.0	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	76	14-146		
p-Terphenyl-d14	88	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

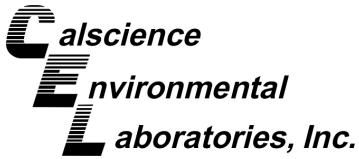
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 03:47	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	0.66	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.58	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.60	0.50	1	
PCB101	1.5	0.50	1	
PCB105	ND	0.50	1	
PCB110	0.95	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.87	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.6	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.1	0.50	1	
PCB151	0.57	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

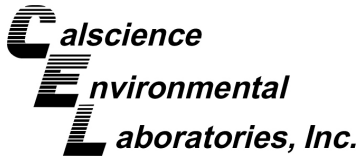
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	2.1	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.61	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.66	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	64	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

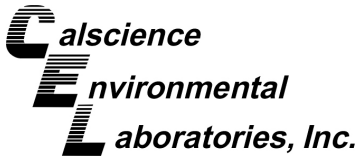
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 04:15	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

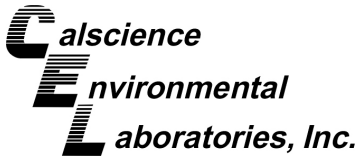
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	67	14-146		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

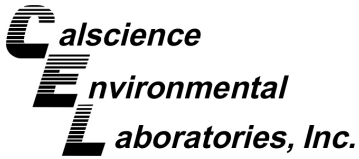
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 04:42	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.5	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.62	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.3	0.50	1	
PCB105	ND	0.50	1	
PCB110	0.95	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.88	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.85	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

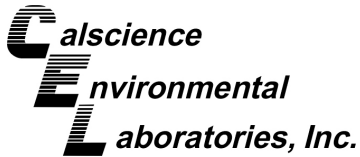
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.7	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.55	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.51	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	60	14-146		
p-Terphenyl-d14	90	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

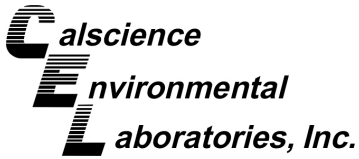
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 05:10	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

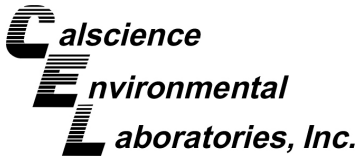
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	65	14-146		
p-Terphenyl-d14	95	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

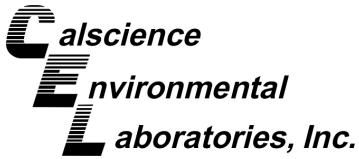
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 05:38	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	0.51	0.50	1	
PCB044	0.53	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.8	0.50	1	
PCB056	ND	0.50	1	
PCB060	0.66	0.50	1	
PCB066	0.73	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.5	0.50	1	
PCB097	0.57	0.50	1	
PCB099	0.67	0.50	1	
PCB101	1.8	0.50	1	
PCB105	0.53	0.50	1	
PCB110	1.6	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.7	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

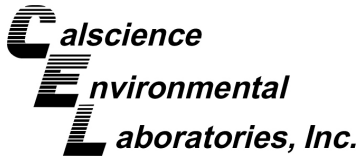
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	2.2	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.68	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.72	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	109	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

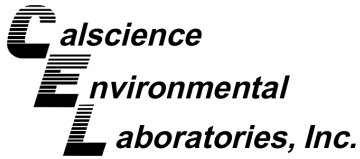
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 06:05	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.1	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.50	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.70	0.50	1	
PCB101	1.7	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.2	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.81	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.6	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.55	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

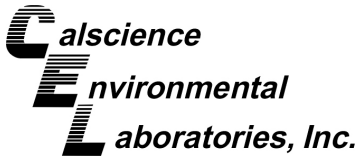
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	2.3	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.62	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.66	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	68	14-146		
p-Terphenyl-d14	101	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

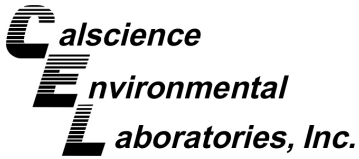
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 06:34	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

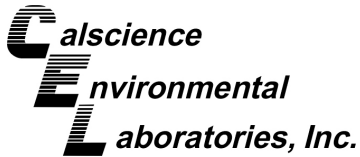
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	61	14-146		
p-Terphenyl-d14	91	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

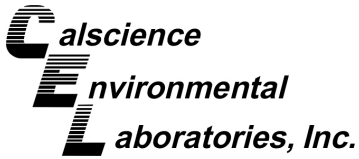
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 07:01	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

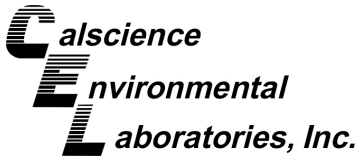
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	63	14-146		
p-Terphenyl-d14	90	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

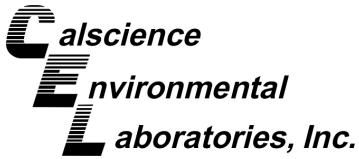
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 07:29	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.57	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	0.75	0.50	1	
PCB044	0.63	0.50	1	
PCB049	0.57	0.50	1	
PCB052	2.1	0.50	1	
PCB056	ND	0.50	1	
PCB060	0.69	0.50	1	
PCB066	0.79	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.3	0.50	1	
PCB097	0.53	0.50	1	
PCB099	0.71	0.50	1	
PCB101	2.1	0.50	1	
PCB105	0.57	0.50	1	
PCB110	1.7	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.82	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.91	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

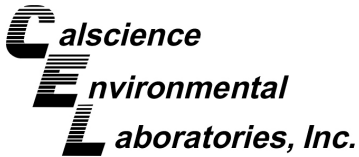
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.9	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.59	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	61	14-146		
p-Terphenyl-d14	91	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

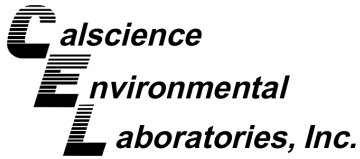
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/26/13 14:10	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

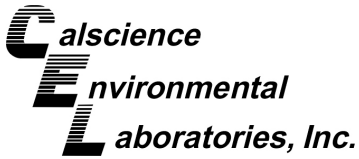
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	99	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

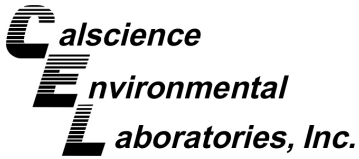
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 08:25	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.64	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.6	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.72	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.64	0.50	1	
PCB101	1.5	0.50	1	
PCB105	0.58	0.50	1	
PCB110	1.2	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.78	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.2	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.91	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.7	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.52	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	60	14-146		
p-Terphenyl-d14	84	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

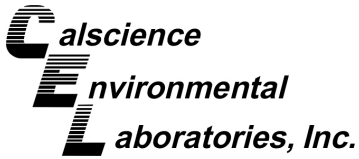
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 08:52	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	0.69	0.50	1	
PCB028	0.62	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	0.56	0.50	1	
PCB044	0.55	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.7	0.50	1	
PCB056	ND	0.50	1	
PCB060	0.62	0.50	1	
PCB066	0.77	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.4	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.69	0.50	1	
PCB101	1.8	0.50	1	
PCB105	0.56	0.50	1	
PCB110	1.7	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.87	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.51	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

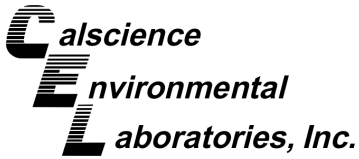
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	1.9	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.58	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	73	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

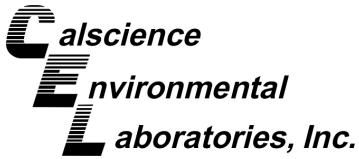
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 09:20	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.65	0.50	1	
PCB052	1.4	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.63	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.6	0.50	1	
PCB097	0.69	0.50	1	
PCB099	1.2	0.50	1	
PCB101	3.8	0.50	1	
PCB105	0.85	0.50	1	
PCB110	1.5	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.2	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	2.2	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.7	0.50	1	
PCB151	0.72	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

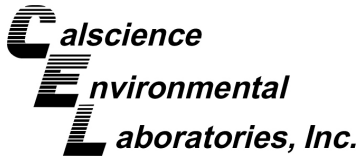
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	5.5	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.67	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	1.1	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	64	14-146		
p-Terphenyl-d14	90	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

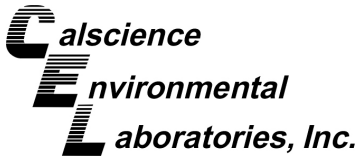
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-318-35	N/A	Soil	GC/MS HHH	08/16/13	08/23/13 13:49	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

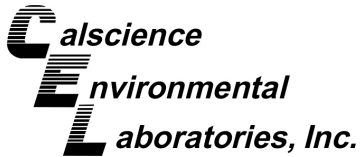
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	93	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

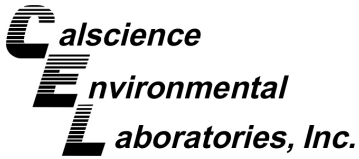
Page 63 of 64

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-318-36	N/A	Soil	GC/MS HHH	08/16/13	08/23/13 23:35	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

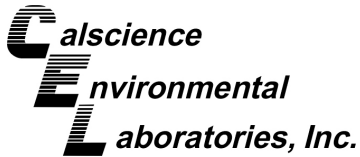
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	83	14-146		
p-Terphenyl-d14	117	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020

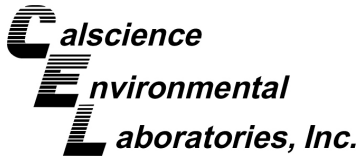
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>1C</b>	<b>Tissue</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 20:08</b>	<b>130815S01</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.207	12.50	16.17	104	16.36	105	80-120	1	0-20	
Cadmium	ND	12.50	13.83	111	13.20	106	80-120	5	0-20	
Chromium	1.059	12.50	14.79	110	13.61	100	80-120	8	0-20	
Copper	2.189	12.50	15.04	103	15.60	107	80-120	4	0-20	
Lead	0.4390	12.50	13.72	106	13.48	104	80-120	2	0-20	
Nickel	0.9137	12.50	14.61	110	13.49	101	80-120	8	0-20	
Selenium	0.3260	12.50	14.61	114	13.46	105	80-120	8	0-20	
Silver	ND	6.250	6.810	109	6.703	107	80-120	2	0-20	
Zinc	14.08	12.50	27.45	107	29.40	123	80-120	7	0-20	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>13-08-0763-6</b>	<b>Tissue</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/20/13 13:18</b>	<b>130815S02</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	36.17	12.50	49.47	106	46.88	86	80-120	5	0-20	
Cadmium	5.945	12.50	19.18	106	17.52	93	80-120	9	0-20	
Chromium	0.5405	12.50	13.27	102	12.71	97	80-120	4	0-20	
Copper	46.61	12.50	57.94	91	54.80	66	80-120	6	0-20	3
Lead	0.1250	12.50	13.44	106	12.34	98	80-120	9	0-20	
Nickel	1.428	12.50	14.69	106	14.07	101	80-120	4	0-20	
Selenium	0.7356	12.50	14.36	109	14.11	107	80-120	2	0-20	
Silver	2.163	6.250	9.815	122	8.306	98	80-120	17	0-20	3
Zinc	157.3	12.50	165.8	4X	154.2	4X	80-120	4X	0-20	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

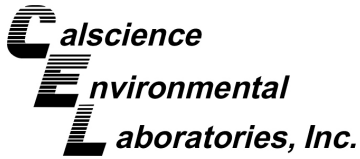
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>1C</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 17:30</b>	<b>130815S05</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.3196	64	0.1800	36	76-136	56	0-16	3,4



## Quality Control - Spike/Spike Duplicate

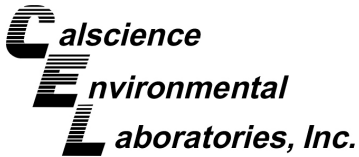
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>6W</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:28</b>	<b>130815S06</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.3870	77	0.4000	80	76-136	3	0-16	



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A

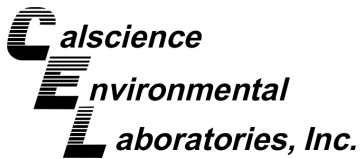
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument		Date Prepared		Date Analyzed		MS/MSD Batch Number	
<b>12C</b>	<b>Tissue</b>		<b>GC 51</b>		<b>08/16/13</b>		<b>08/24/13 15:14</b>		<b>130816S05</b>	
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	ND	5.000	4.722	94	4.821	96	50-135	2	0-25	
4,4'-DDE	4.323	5.000	10.86	131	11.02	134	50-135	2	0-25	
4,4'-DDT	ND	5.000	4.250	85	4.311	86	50-135	1	0-25	
Aldrin	ND	5.000	3.791	76	3.864	77	50-135	2	0-25	
Alpha Chlordane	ND	5.000	3.939	79	4.013	80	50-135	2	0-25	
Alpha-BHC	ND	5.000	3.815	76	3.909	78	50-135	2	0-25	
Beta-BHC	ND	5.000	4.226	85	4.393	88	50-135	4	0-25	
Delta-BHC	ND	5.000	4.243	85	4.326	87	50-135	2	0-25	
Dieldrin	ND	5.000	4.117	82	4.184	84	50-135	2	0-25	
Endosulfan I	ND	5.000	4.111	82	4.202	84	50-135	2	0-25	
Endosulfan II	ND	5.000	1.888	38	1.910	38	50-135	1	0-25	3
Endosulfan Sulfate	ND	5.000	1.191	24	1.207	24	50-135	1	0-25	3
Endrin	ND	5.000	4.030	81	4.073	81	50-135	1	0-25	
Endrin Aldehyde	ND	5.000	0.09250	2	0.07030	1	50-135	27	0-25	3,4
Endrin Ketone	ND	5.000	1.239	25	1.282	26	50-135	3	0-25	3
Gamma Chlordane	ND	5.000	3.643	73	3.633	73	50-135	0	0-25	
Gamma-BHC	ND	5.000	3.779	76	3.848	77	50-135	2	0-25	
Heptachlor	ND	5.000	3.912	78	3.957	79	50-135	1	0-25	
Heptachlor Epoxide	ND	5.000	4.320	86	4.406	88	50-135	2	0-25	
Methoxychlor	ND	5.000	3.329	67	3.404	68	50-135	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs

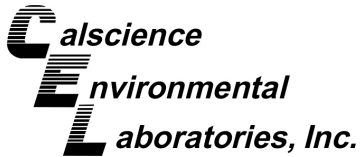
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>7C</b>	<b>Tissue</b>		<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/23/13 20:47</b>	<b>130816S01</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	24.22	100.0	90.36	66	92.61	68	40-160	2	0-20	
Acenaphthylene	ND	100.0	89.52	90	91.35	91	40-160	2	0-20	
Anthracene	ND	100.0	81.37	81	82.32	82	40-160	1	0-20	
Benzo (a) Anthracene	13.02	100.0	103.9	91	104.4	91	40-160	0	0-20	
Benzo (a) Pyrene	33.30	100.0	124.2	91	125.6	92	40-160	1	0-20	
Benzo (b) Fluoranthene	46.22	100.0	139.7	93	127.5	81	40-160	9	0-20	
Benzo (g,h,i) Perylene	ND	100.0	81.35	81	84.64	85	40-160	4	0-20	
Benzo (k) Fluoranthene	34.45	100.0	112.5	78	114.0	80	40-160	1	0-20	
Chrysene	21.20	100.0	102.2	81	101.6	80	40-160	1	0-20	
Dibenz (a,h) Anthracene	ND	100.0	90.76	91	92.85	93	40-160	2	0-20	
Fluoranthene	70.28	100.0	163.9	94	153.9	84	40-160	6	0-20	
Fluorene	ND	100.0	95.20	95	95.53	96	40-160	0	0-20	
Indeno (1,2,3-c,d) Pyrene	ND	100.0	109.3	109	111.1	111	40-160	2	0-20	
2-Methylnaphthalene	ND	100.0	97.15	97	98.38	98	40-160	1	0-20	
1-Methylnaphthalene	ND	100.0	88.22	88	96.03	96	40-160	8	0-20	
Naphthalene	ND	100.0	87.99	88	90.13	90	40-160	2	0-20	
Phenanthrene	ND	100.0	89.77	90	98.07	98	40-160	9	0-20	
Pyrene	201.5	100.0	304.7	103	275.4	74	40-160	10	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

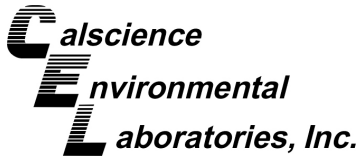
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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>4C</b>	<b>Tissue</b>		<b>GC/MS HHH</b>	<b>08/16/13</b>	<b>08/24/13 01:27</b>	<b>130816S03</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	50.00	44.79	90	44.26	89	50-150	1	0-30	
PCB018	ND	50.00	43.27	87	43.85	88	50-150	1	0-30	
PCB028	ND	50.00	43.77	88	43.90	88	50-150	0	0-30	
PCB044	ND	50.00	44.94	90	45.44	91	50-150	1	0-30	
PCB052	ND	50.00	40.74	81	41.14	82	50-150	1	0-30	
PCB066	ND	50.00	46.97	94	47.20	94	50-150	0	0-30	
PCB077	ND	50.00	45.51	91	45.95	92	50-150	1	0-30	
PCB101	ND	50.00	44.56	89	44.93	90	50-150	1	0-30	
PCB105	ND	50.00	44.75	90	44.92	90	50-150	0	0-30	
PCB118	ND	50.00	47.40	95	47.12	94	50-150	1	0-30	
PCB126	ND	50.00	43.51	87	43.83	88	50-150	1	0-30	
PCB128	ND	50.00	49.13	98	49.17	98	50-150	0	0-30	
PCB153	ND	50.00	44.28	89	44.49	89	50-150	0	0-30	
PCB170	ND	50.00	37.05	74	36.74	73	50-150	1	0-30	
PCB180	ND	50.00	43.91	88	43.67	87	50-150	1	0-30	
PCB187	ND	50.00	42.95	86	43.29	87	50-150	1	0-30	
PCB195	ND	50.00	44.34	89	43.37	87	50-150	2	0-30	
PCB206	ND	50.00	39.26	79	38.91	78	50-150	1	0-30	
PCB209	ND	50.00	44.41	89	43.36	87	50-150	2	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - PDS/PDSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>1C</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13 00:00</b>	<b>08/16/13 20:14</b>	<b>130815S01</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	3.207	12.50	15.76	100	75-125	
Cadmium	ND	12.50	13.02	104	75-125	
Chromium	1.059	12.50	14.02	104	75-125	
Copper	2.189	12.50	14.85	101	75-125	
Lead	0.4390	12.50	13.35	103	75-125	
Nickel	0.9137	12.50	14.19	106	75-125	
Selenium	0.3260	12.50	13.45	105	75-125	
Silver	ND	6.250	5.745	92	75-125	
Zinc	14.08	12.50	27.26	105	75-125	



## Quality Control - PDS/PDSD

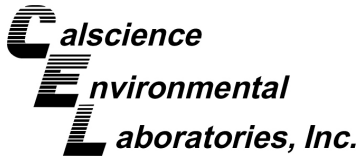
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>13-08-0763-6</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13 00:00</b>	<b>08/19/13 14:24</b>	<b>130815S02</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	36.17	12.50	45.75	77	75-125	
Cadmium	5.945	12.50	18.25	98	75-125	
Chromium	0.5405	12.50	13.49	104	75-125	
Copper	46.61	12.50	55.17	68	75-125	5
Lead	0.1250	12.50	13.02	103	75-125	
Nickel	1.428	12.50	15.11	109	75-125	
Selenium	0.7356	12.50	13.77	104	75-125	
Silver	2.163	6.250	7.465	85	75-125	
Zinc	157.3	12.50	137.5	4X	75-125	Q



## Quality Control - PDS/PDSD

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Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number			
<b>1C</b>	<b>Tissue</b>			<b>Mercury</b>	<b>08/15/13 00:00</b>	<b>08/20/13 13:39</b>	<b>130815S05</b>			
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>PDSD Conc.</u>	<u>PDSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.4606	92	0.4326	87	75-125	6	0-20	



## Quality Control - Sample Duplicate

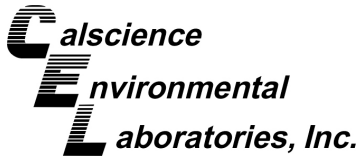
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: Berths 212-224 YTI Terminal

Page 1 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>1C</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13 00:00</b>	<b>08/17/13 16:45</b>	<b>D0817TSD3</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	14.30	15.50	8	0-10	



## Quality Control - Sample Duplicate

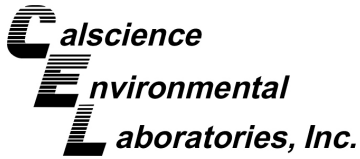
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>6W</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13 00:00</b>	<b>08/17/13 16:45</b>	<b>D0817TSD4</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	15.30	14.30	7	0-10	



## Quality Control - Sample Duplicate

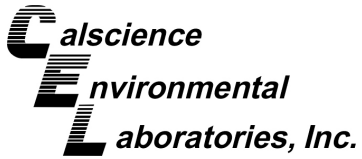
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: MeCl2 Ext. (NOAA 1993a)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>4C</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822D01</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.7100	0.7300	3	0-25	



## Quality Control - Sample Duplicate

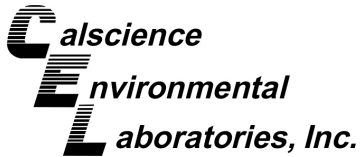
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: MeCl2 Ext. (NOAA 1993a)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13W</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822D02</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	1.340	1.300	3	0-25	



## Quality Control - LCS/LCSD

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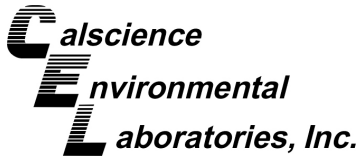
Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-258-20</b>	<b>Soil</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 20:05</b>	<b>130815L01T</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	11.95	96	12.32	99	80-120	3	0-20	
Cadmium	12.50	12.54	100	12.41	99	80-120	1	0-20	
Chromium	12.50	12.40	99	12.54	100	80-120	1	0-20	
Copper	12.50	12.54	100	13.37	107	80-120	6	0-20	
Lead	12.50	12.32	99	12.55	100	80-120	2	0-20	
Nickel	12.50	12.60	101	13.26	106	80-120	5	0-20	
Selenium	12.50	11.84	95	12.23	98	80-120	3	0-20	
Silver	6.250	5.612	90	5.777	92	80-120	3	0-20	
Zinc	12.50	13.18	105	13.41	107	80-120	2	0-20	





## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
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San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-258-21</b>	<b>Soil</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/19/13 20:46</b>	<b>130815L02T</b>			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Arsenic	12.50	12.95	104	12.85	103	80-120	1	0-20	
Cadmium	12.50	12.77	102	12.48	100	80-120	2	0-20	
Chromium	12.50	13.44	108	12.53	100	80-120	7	0-20	
Copper	12.50	13.06	104	13.83	111	80-120	6	0-20	
Lead	12.50	13.19	106	12.65	101	80-120	4	0-20	
Nickel	12.50	13.72	110	13.52	108	80-120	1	0-20	
Selenium	12.50	13.48	108	12.07	97	80-120	11	0-20	
Silver	6.250	5.528	88	5.637	90	80-120	2	0-20	
Zinc	12.50	12.87	103	14.19	114	80-120	10	0-20	



## Quality Control - LCS/LCSD

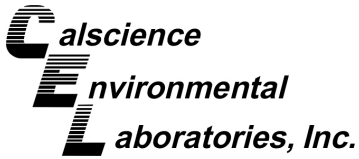
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID		Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
<b>099-12-409-46</b>		<b>Soil</b>		<b>Mercury</b>	<b>08/15/13</b>	<b>08/15/13 15:53</b>	<b>130815L05T</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.9197	110	0.8176	98	82-124	12	0-16	



Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
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 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

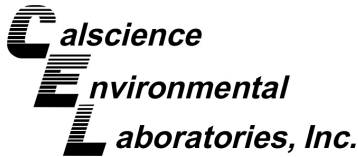
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
<b>099-12-409-47</b>	<b>Soil</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/15/13 15:56</b>	<b>130815L06T</b>				
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.9270	111	0.7970	95	82-124	15	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-294-22</b>	<b>Soil</b>			<b>GC 51</b>	<b>08/16/13</b>	<b>08/24/13 17:28</b>	<b>130816F05</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	4.391	88	4.396	88	50-135	36-149	0	0-25	
4,4'-DDE	5.000	4.522	90	4.544	91	50-135	36-149	0	0-25	
4,4'-DDT	5.000	4.422	88	4.451	89	50-135	36-149	1	0-25	
Aldrin	5.000	4.273	85	4.319	86	50-135	36-149	1	0-25	
Alpha Chlordane	5.000	4.316	86	4.345	87	50-135	36-149	1	0-25	
Alpha-BHC	5.000	4.086	82	4.188	84	50-135	36-149	2	0-25	
Beta-BHC	5.000	3.975	80	4.119	82	50-135	36-149	4	0-25	
Delta-BHC	5.000	4.175	84	4.228	85	50-135	36-149	1	0-25	
Dieldrin	5.000	4.418	88	4.450	89	50-135	36-149	1	0-25	
Endosulfan I	5.000	4.396	88	4.423	88	50-135	36-149	1	0-25	
Endosulfan II	5.000	4.404	88	4.393	88	50-135	36-149	0	0-25	
Endosulfan Sulfate	5.000	4.282	86	4.266	85	50-135	36-149	0	0-25	
Endrin	5.000	4.383	88	4.454	89	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	4.575	91	4.565	91	50-135	36-149	0	0-25	
Endrin Ketone	5.000	4.631	93	4.613	92	50-135	36-149	0	0-25	
Gamma Chlordane	5.000	4.189	84	4.208	84	50-135	36-149	0	0-25	
Gamma-BHC	5.000	4.220	84	4.240	85	50-135	36-149	0	0-25	
Heptachlor	5.000	4.308	86	4.373	87	50-135	36-149	2	0-25	
Heptachlor Epoxide	5.000	4.323	86	4.356	87	50-135	36-149	1	0-25	
Methoxychlor	5.000	4.712	94	4.704	94	50-135	36-149	0	0-25	

Total number of LCS compounds: 20

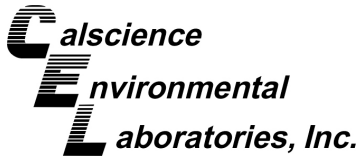
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-294-23</b>	<b>Soil</b>			<b>GC 51</b>	<b>08/16/13</b>	<b>08/24/13 17:56</b>	<b>130816F06</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	5.680	114	5.585	112	50-135	36-149	2	0-25	
4,4'-DDE	5.000	5.753	115	5.652	113	50-135	36-149	2	0-25	
4,4'-DDT	5.000	5.756	115	5.665	113	50-135	36-149	2	0-25	
Aldrin	5.000	5.520	110	5.438	109	50-135	36-149	2	0-25	
Alpha Chlordane	5.000	5.497	110	5.414	108	50-135	36-149	2	0-25	
Alpha-BHC	5.000	5.240	105	5.169	103	50-135	36-149	1	0-25	
Beta-BHC	5.000	5.236	105	5.186	104	50-135	36-149	1	0-25	
Delta-BHC	5.000	5.338	107	5.283	106	50-135	36-149	1	0-25	
Dieldrin	5.000	5.688	114	5.600	112	50-135	36-149	2	0-25	
Endosulfan I	5.000	5.621	112	5.535	111	50-135	36-149	2	0-25	
Endosulfan II	5.000	5.609	112	5.509	110	50-135	36-149	2	0-25	
Endosulfan Sulfate	5.000	5.553	111	5.474	109	50-135	36-149	1	0-25	
Endrin	5.000	5.631	113	5.547	111	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	5.903	118	5.816	116	50-135	36-149	1	0-25	
Endrin Ketone	5.000	6.083	122	6.002	120	50-135	36-149	1	0-25	
Gamma Chlordane	5.000	5.416	108	5.252	105	50-135	36-149	3	0-25	
Gamma-BHC	5.000	5.398	108	5.314	106	50-135	36-149	2	0-25	
Heptachlor	5.000	5.588	112	5.516	110	50-135	36-149	1	0-25	
Heptachlor Epoxide	5.000	5.530	111	5.451	109	50-135	36-149	1	0-25	
Methoxychlor	5.000	6.164	123	6.075	121	50-135	36-149	1	0-25	

Total number of LCS compounds: 20

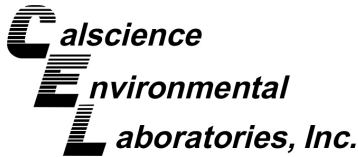
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-943-5</b>	<b>Soil</b>			<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/23/13 16:06</b>	<b>130816L01</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	117.6	118	115.9	116	48-108	38-118	1	0-11	ME
Acenaphthylene	100.0	92.32	92	89.31	89	40-160	20-180	3	0-20	
Anthracene	100.0	94.03	94	87.86	88	40-160	20-180	7	0-20	
Benzo (a) Anthracene	100.0	119.0	119	118.1	118	40-160	20-180	1	0-20	
Benzo (a) Pyrene	100.0	82.80	83	82.15	82	40-160	20-180	1	0-20	
Benzo (b) Fluoranthene	100.0	126.9	127	127.0	127	40-160	20-180	0	0-20	
Benzo (g,h,i) Perylene	100.0	108.2	108	106.9	107	40-160	20-180	1	0-20	
Benzo (k) Fluoranthene	100.0	137.1	137	135.9	136	40-160	20-180	1	0-20	
Chrysene	100.0	125.5	125	126.6	127	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	122.9	123	123.7	124	40-160	20-180	1	0-20	
Fluoranthene	100.0	132.3	132	124.2	124	40-160	20-180	6	0-20	
Fluorene	100.0	129.7	130	126.2	126	40-160	20-180	3	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	154.2	154	149.8	150	40-160	20-180	3	0-20	
2-Methylnaphthalene	100.0	131.8	132	134.2	134	40-160	20-180	2	0-20	
1-Methylnaphthalene	100.0	123.5	124	134.4	134	40-160	20-180	8	0-20	
Naphthalene	100.0	119.2	119	124.3	124	40-160	20-180	4	0-20	
Phenanthrene	100.0	128.0	128	119.2	119	40-160	20-180	7	0-20	
Pyrene	100.0	121.6	122	123.7	124	40-160	20-180	2	0-16	

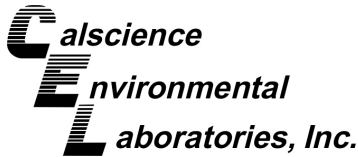
Total number of LCS compounds: 18

Total number of ME compounds: 1

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs

Project: Berths 212-224 YTI Terminal

Page 8 of 10

Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-943-6</b>	<b>Soil</b>			<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/26/13 13:12</b>	<b>130816L02</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	107.1	107	104.3	104	48-108	38-118	3	0-11	
Acenaphthylene	100.0	81.02	81	80.37	80	40-160	20-180	1	0-20	
Anthracene	100.0	75.37	75	73.43	73	40-160	20-180	3	0-20	
Benzo (a) Anthracene	100.0	104.2	104	101.6	102	40-160	20-180	3	0-20	
Benzo (a) Pyrene	100.0	72.43	72	69.39	69	40-160	20-180	4	0-20	
Benzo (b) Fluoranthene	100.0	115.0	115	106.6	107	40-160	20-180	8	0-20	
Benzo (g,h,i) Perylene	100.0	96.98	97	91.54	92	40-160	20-180	6	0-20	
Benzo (k) Fluoranthene	100.0	121.4	121	113.6	114	40-160	20-180	7	0-20	
Chrysene	100.0	107.9	108	106.3	106	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	111.9	112	106.6	107	40-160	20-180	5	0-20	
Fluoranthene	100.0	109.8	110	106.4	106	40-160	20-180	3	0-20	
Fluorene	100.0	113.0	113	105.9	106	40-160	20-180	6	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	138.1	138	127.0	127	40-160	20-180	8	0-20	
2-Methylnaphthalene	100.0	118.7	119	117.2	117	40-160	20-180	1	0-20	
1-Methylnaphthalene	100.0	117.7	118	111.0	111	40-160	20-180	6	0-20	
Naphthalene	100.0	107.0	107	105.6	106	40-160	20-180	1	0-20	
Phenanthrene	100.0	107.8	108	98.35	98	40-160	20-180	9	0-20	
Pyrene	100.0	104.6	105	105.4	105	40-160	20-180	1	0-16	

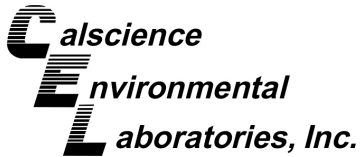
Total number of LCS compounds: 18

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

Page 9 of 10

Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-318-35</b>	<b>Soil</b>			<b>GC/MS HHH</b>	<b>08/16/13</b>	<b>08/23/13 21:41</b>	<b>130816F03</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	34.39	69	32.58	65	50-150	33-167	5	0-30	
PCB018	50.00	32.76	66	31.15	62	50-150	33-167	5	0-30	
PCB028	50.00	33.54	67	32.09	64	50-150	33-167	4	0-30	
PCB044	50.00	34.24	68	32.94	66	50-150	33-167	4	0-30	
PCB052	50.00	31.66	63	30.58	61	50-150	33-167	3	0-30	
PCB066	50.00	35.70	71	34.71	69	50-150	33-167	3	0-30	
PCB077	50.00	35.60	71	34.82	70	50-150	33-167	2	0-30	
PCB101	50.00	33.94	68	33.17	66	50-150	33-167	2	0-30	
PCB105	50.00	33.02	66	32.57	65	50-150	33-167	1	0-30	
PCB118	50.00	35.33	71	34.82	70	50-150	33-167	1	0-30	
PCB126	50.00	31.94	64	32.12	64	50-150	33-167	1	0-30	
PCB128	50.00	28.88	58	28.39	57	50-150	33-167	2	0-30	
PCB153	50.00	33.17	66	32.71	65	50-150	33-167	1	0-30	
PCB170	50.00	27.61	55	26.54	53	50-150	33-167	4	0-30	
PCB180	50.00	31.36	63	31.11	62	50-150	33-167	1	0-30	
PCB187	50.00	32.64	65	32.36	65	50-150	33-167	1	0-30	
PCB195	50.00	32.75	66	31.17	62	50-150	33-167	5	0-30	
PCB206	50.00	28.77	58	27.91	56	50-150	33-167	3	0-30	
PCB209	50.00	31.23	62	30.39	61	50-150	33-167	3	0-30	

Total number of LCS compounds: 19

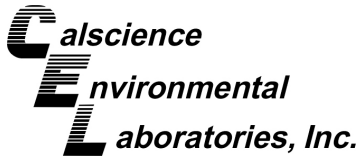
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

Page 10 of 10

Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-318-36</b>	<b>Soil</b>			<b>GC/MS HHH</b>	<b>08/16/13</b>	<b>08/23/13 22:38</b>	<b>130816F04</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	53.95	108	55.66	111	50-150	33-167	3	0-30	
PCB018	50.00	51.60	103	52.79	106	50-150	33-167	2	0-30	
PCB028	50.00	52.61	105	54.20	108	50-150	33-167	3	0-30	
PCB044	50.00	53.92	108	54.68	109	50-150	33-167	1	0-30	
PCB052	50.00	49.98	100	50.99	102	50-150	33-167	2	0-30	
PCB066	50.00	57.17	114	58.29	117	50-150	33-167	2	0-30	
PCB077	50.00	57.27	115	58.49	117	50-150	33-167	2	0-30	
PCB101	50.00	54.42	109	54.88	110	50-150	33-167	1	0-30	
PCB105	50.00	54.24	108	54.95	110	50-150	33-167	1	0-30	
PCB118	50.00	57.48	115	58.81	118	50-150	33-167	2	0-30	
PCB126	50.00	52.97	106	53.55	107	50-150	33-167	1	0-30	
PCB128	50.00	47.95	96	48.69	97	50-150	33-167	2	0-30	
PCB153	50.00	54.36	109	55.18	110	50-150	33-167	1	0-30	
PCB170	50.00	44.45	89	45.12	90	50-150	33-167	2	0-30	
PCB180	50.00	53.20	106	54.64	109	50-150	33-167	3	0-30	
PCB187	50.00	53.92	108	55.17	110	50-150	33-167	2	0-30	
PCB195	50.00	52.32	105	52.86	106	50-150	33-167	1	0-30	
PCB206	50.00	47.19	94	48.21	96	50-150	33-167	2	0-30	
PCB209	50.00	50.82	102	52.54	105	50-150	33-167	3	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 Limits

## Glossary of Terms and Qualifiers

Work Order: 13-08-0936

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
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.
BV	Sample received 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 Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
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.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq$  15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

**CHAIN OF CUSTODY RECORD**

DATE: 08/12/13

PAGE: 1 OF 3

7440 LINCOLN WAY  
GARDEN GROVE, CA 92841-1432  
TEL: (714) 895-5494 . FAX: (714) 894-7501

**Calscience Environmental Laboratories, Inc.**

LABORATORY CLIENT: <b>AMEC</b>		CLIENT PROJECT NAME / NUMBER: <b>Berths 212-224 YTI Terminal</b>		P.O. NO.: <b>1015101929</b>								
ADDRESS: <b>9210 Sky Park Ct # 200</b>		PROJECT CONTACT: <b>Barry Snyder, Tyler Huff</b>		QUOTE NO.:								
CITY: <b>San Diego, CA 92123</b>		SAMPLER(S) (SIGNATURE): 		LAB USE ONLY: <b>13-08-0936</b>								
TEL: (858) 300-4322		E-MAIL: tyler.huff@amec.com		E-MAIL: barry.snyder@amec.com								
TURNAROUND TIME: <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48HR <input type="checkbox"/> 72 HR <input type="checkbox"/> 5 DAYS <input checked="" type="checkbox"/> 10 DAYS		SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): <input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL / /		SPECIAL INSTRUCTIONS: Danielle Gonsman is PM; see attached sheet for additional information. Report results in wet and dry weight. Keep frozen. Only count/open cooler at Calscience Sample Receiving. Please report all applicable totals (i.e. PCBs, PAHs, etc.)								
LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	DATE	SAMPLING TIME	MATRIX	#Cont	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
1	1C	POLA - YTI Terminal	8/14/13	1500	Tissue	1	X	X	X	X	X	X
2	2C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
3	3C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
4	4C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
5	5C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
6	6C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
7	7C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
8	8C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
9	9C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
10	10C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
Relinquished by: (Signature) 							Date: 08/13/13		Time: 1435			
Relinquished by: (Signature) 							Date: 8/13/13		Time: 1850			
Relinquished by: (Signature) 							Date:		Time:			



# CHAIN OF CUSTODY RECORD

DATE: 08/12/13

PAGE: 3 OF 3

7440 LINCOLN WAY  
 GARDEN GROVE, CA 92841-1432  
 TEL: (714) 895-5494 . FAX: (714) 894-7501

**Calscience**  
**Environmental**  
**Laboratories, Inc.**

LABORATORY CLIENT: <b>AMEC</b>		CLIENT/PROJECT NAME / NUMBER: <b>Berths 212-224 YTI Terminal</b>		P.O. NO.: <b>1015101929</b>								
ADDRESS: <b>9210 Sky Park Ct # 200</b>		PROJECT CONTACT: <b>Barry Snyder, Tyler Huff</b>		QUOTE NO.:								
CITY: <b>San Diego, CA 92123</b>		SAMPLER(S): (SIGNATURE) 		LAB USE ONLY 08-0936								
TEL: <b>(858) 300-4322</b>		E-MAIL: <b>tyler.huff@amec.com</b>										
TURNAROUND TIME												
<input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48HR <input type="checkbox"/> 72 HR <input type="checkbox"/> 5 DAYS <input checked="" type="checkbox"/> 10 DAYS SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)												
<input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL / / SPECIAL INSTRUCTIONS Danielle Gonsman is PM; see attached sheet for additional information. Report results in wet and dry weight. Keep frozen. Only count/open cooler at Calscience Sample Receiving. Please report all applicable totals (i.e. PCBs, PAHs, etc.)												
LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
21	6W	POLA - YTI Terminal	8/12/13	1300	Tissue	1	X	X	X	X	X	X
22	7W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
23	8W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
24	9W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
25	10W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
26	11W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
27	12W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
28	13W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
29	14W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
30	15W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X
Relinquished by: (Signature) <i>Ashlene Ciber</i>							Date: 08/13/13 Time: 1435					
Relinquished by: (Signature) <i>Ashlene Ciber</i>							Date: 8/13/13 Time: 1850					
Relinquished by: (Signature)							Date:					

Table 4-2.  
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits <sup>a, b</sup>	Sediment Target Detection Limits <sup>a, b</sup>	Tissue Target Detection Limits <sup>a, b</sup>
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M <sup>c</sup>	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D <sup>c</sup>	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	N/A	N/A	0.1 %
TRPH	418.1M <sup>d</sup>	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B <sup>d</sup>	N/A	5.0 mg/kg	N/A
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS <sup>j</sup>	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM <sup>d</sup>	N/A	10 µg/kg	N/A
Organotins	Rice/Krone <sup>h</sup>	3.0 ng/L	3.0 µg/kg	N/A

## Notes:

- <sup>a</sup> Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.
- <sup>b</sup> Reporting limits provided by CalScience Environmental Laboratories, Inc.
- <sup>c</sup> Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.
- <sup>d</sup> USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.
- <sup>e</sup> 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.
- <sup>f</sup> Includes aldrin,  $\alpha$ -benzene hexachloride (BHC),  $\beta$ -BHC,  $\gamma$ -BHC (lindane),  $\delta$ -BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.
- <sup>g</sup> 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)
- <sup>h</sup> Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)
- <sup>i</sup> NOAA 1993
- <sup>j</sup> Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lambda, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin
- µg/kg - micrograms per kilogram (parts per billion)
- µg/L - micrograms per liter
- mg/kg - milligrams per kilogram (parts per million)
- mg/L - milligrams per liter
- ng/L - nanograms per liter
- N/A - not applicable
- PAH - polycyclic aromatic hydrocarbon
- PCB - polychlorinated biphenyl
- SM - Standard Methods
- SOP - standard operating procedure
- TPH - total petroleum hydrocarbons
- TRPH - total recoverable petroleum hydrocarbons

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: AMEC

DATE: 08/13/13

**TEMPERATURE:** Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °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: YS

**CUSTODY SEALS INTACT:**

Cooler     \_\_\_\_\_     No (Not Intact)     Not Present     N/A    Initial: YS

Sample     \_\_\_\_\_     No (Not Intact)     Not Present    Initial: YS

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfides <input type="checkbox"/> Dissolved Oxygen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/> <sup>PL</sup> 8/13/13	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

<sup>Tissue</sup>  
**Solid:**  4ozCGJ     8ozCGJ     16ozCGJ     Sleeve (\_\_\_\_)     EnCores®     TerraCores®     Z

**Water:**  VOA     VOA<sub>h</sub>     VOA<sub>na2</sub>     125AGB     125AGB<sub>h</sub>     125AGB<sub>p</sub>     1AGB     1AGB<sub>na2</sub>     1AGB<sub>s</sub>

500AGB     500AGJ     500AGJ<sub>s</sub>     250AGB     250CGB     250CGB<sub>s</sub>     1PB     1PB<sub>na</sub>     500PB

250PB     250PB<sub>n</sub>     125PB     125PB<sub>z</sub>na     100PJ     100PJ<sub>na2</sub>     \_\_\_\_\_     \_\_\_\_\_     \_\_\_\_\_

**Air:**     Tedlar®     Canister    **Other:**  \_\_\_\_\_    **Trip Blank Lot#:** \_\_\_\_\_    **Labeled/Checked by:** YS

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

**Preservative:** h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure zna: ZnAc<sub>2</sub>+NaOH f: Filtered    **Scanned by:** TN

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Supplemental Report 1



# CALSCIENCE

## WORK ORDER NUMBER: 13-08-0936

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** Berths 212-224 YTI Terminal

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

Approved for release on 08/29/2013 by:  
Danielle Gonsman  
Project Manager

ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.





Client Project Name: Berths 212-224 YTI Terminal  
Work Order Number: 13-08-0936

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## CASE NARRATIVE

**CalScience Work Order No.: 13-08-0936**  
**Project ID: Berths 212-224 YTI Terminal**

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

### ***Sample Condition on Receipt***

Thirty tissue samples were received for this project on August 13, 2013. 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 sample upon receipt at the laboratory was 1.4°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

### ***Sample Preparation***

The tissue samples were thawed and homogenized using a stainless steel blending device. The homogenization unit was thoroughly cleaned between the tissue samples. Samples were composited according the client's instructions listed on the COC.

After extractions, the tissue extracts were subjected to appropriate clean-up procedures. The samples were then analyzed in accordance with the instructions listed on the Chain of Custody for the following methods:

Total Solids by SM 2540B  
Percent Lipids by MeCl<sub>2</sub> Ext (NOAA 1993a)  
Trace Metals by EPA 6020/7471  
Chlorinated Pesticides by EPA 8081A  
PCB Congeners by EPA 8270C SIM  
PAHs by EPA 8270C SIM

### ***Data Summary***

#### Holding times

All holding times were met.

#### Blanks

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

### Reporting Limits

The Method Detection Limits were met.

### Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits with the following exception.

The Acenaphthene recovery was outside of standard control limits. However, the recovery was within the ME limits, therefore the results are released with no further action.

### Matrix Spikes

Matrix spiking was performed at the required frequencies for the tissues on project and non-project samples. All matrix spike parameters outside the acceptable control limits were noted below.

For Metals by EPA 6020, in one QC batch, the Zinc MSD recovery was above the control limits. In the second QC batch, the Copper and Silver MS/MSDs were outside the control limits and the Zinc sample concentration was over four times the spike level so the recovery could not be determined. Since all LCS/LCSD recoveries were acceptable, the data is released.

For Mercury by EPA 7471A, the recoveries in one MS/MSD pair was low outside of acceptance limits. The other MS/MSD pair was within acceptance limits and the LCS/LCSD recoveries were within acceptance limits.

Several of the Chlorinated Pesticides (by EPA 8081A) matrix spike and/or matrix spike duplicate recoveries were outside of acceptance limits. Since the LCS/LCSD recoveries were acceptable, the data is released.

### Surrogates

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

### Acronyms

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

**Work Order Narrative**

Work Order: 13-08-0936

Page 1 of 1

**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 08/13/13. They were assigned to Work Order 13-08-0936.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

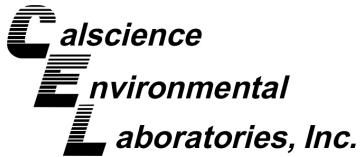
All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.



## Sample Summary

Client: AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

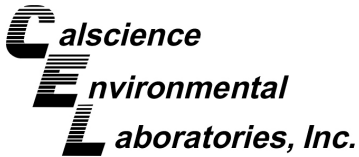
Work Order: 13-08-0936  
 Project Name: Berths 212-224 YTI Terminal  
 PO Number:  
 Date/Time Received: 08/13/13 18:50  
 Number of Containers: 30

Attn: Barry Snyder

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
1C	13-08-0936-1	08/10/13 15:00	1	Tissue
2C	13-08-0936-2	08/10/13 15:00	1	Tissue
3C	13-08-0936-3	08/10/13 15:00	1	Tissue
4C	13-08-0936-4	08/10/13 15:00	1	Tissue
5C	13-08-0936-5	08/10/13 15:00	1	Tissue
6C	13-08-0936-6	08/10/13 15:00	1	Tissue
7C	13-08-0936-7	08/10/13 15:00	1	Tissue
8C	13-08-0936-8	08/10/13 15:00	1	Tissue
9C	13-08-0936-9	08/10/13 15:00	1	Tissue
10C	13-08-0936-10	08/10/13 15:00	1	Tissue
11C	13-08-0936-11	08/10/13 15:00	1	Tissue
12C	13-08-0936-12	08/10/13 15:00	1	Tissue
13C	13-08-0936-13	08/10/13 15:00	1	Tissue
14C	13-08-0936-14	08/10/13 15:00	1	Tissue
15C	13-08-0936-15	08/10/13 15:00	1	Tissue
1W	13-08-0936-16	08/10/13 13:00	1	Tissue
2W	13-08-0936-17	08/10/13 13:00	1	Tissue
3W	13-08-0936-18	08/10/13 13:00	1	Tissue
4W	13-08-0936-19	08/10/13 13:00	1	Tissue
5W	13-08-0936-20	08/10/13 13:00	1	Tissue
6W	13-08-0936-21	08/10/13 13:00	1	Tissue
7W	13-08-0936-22	08/10/13 13:00	1	Tissue
8W	13-08-0936-23	08/10/13 13:00	1	Tissue
9W	13-08-0936-24	08/10/13 13:00	1	Tissue
10W	13-08-0936-25	08/10/13 13:00	1	Tissue
11W	13-08-0936-26	08/10/13 13:00	1	Tissue
12W	13-08-0936-27	08/10/13 13:00	1	Tissue
13W	13-08-0936-28	08/10/13 13:00	1	Tissue
14W	13-08-0936-29	08/10/13 13:00	1	Tissue
15W	13-08-0936-30	08/10/13 13:00	1	Tissue



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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

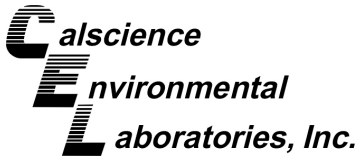
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.3	0.100		1		
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.3	0.100		1		
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.1	0.100		1		
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		12.8	0.100		1		
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.8	0.100		1		
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.8	0.100		1		
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.7	0.100		1		
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.9	0.100		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

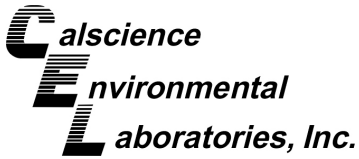
Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>9C</b>	<b>13-08-0936-9-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.4	0.100		1		
<b>10C</b>	<b>13-08-0936-10-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.5	0.100		1		
<b>11C</b>	<b>13-08-0936-11-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.0	0.100		1		
<b>12C</b>	<b>13-08-0936-12-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.7	0.100		1		
<b>13C</b>	<b>13-08-0936-13-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		13.7	0.100		1		
<b>14C</b>	<b>13-08-0936-14-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.0	0.100		1		
<b>15C</b>	<b>13-08-0936-15-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		14.0	0.100		1		
<b>1W</b>	<b>13-08-0936-16-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.2	0.100		1		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

Project: Berths 212-224 YTI Terminal

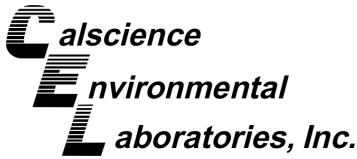
Page 3 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.6	0.100		1		
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB3
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.3	0.100		1		
6W	13-08-0936-21-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.3	0.100		1		
7W	13-08-0936-22-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		19.5	0.100		1		
8W	13-08-0936-23-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
9W	13-08-0936-24-A	08/10/13 13:00	Tissue	N/A	08/17/13	08/17/13 16:45	D0817TSB4
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.4	0.100		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: SM 2540 B (M)  
Units: %

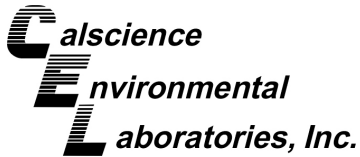
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10W</b>	<b>13-08-0936-25-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		15.4	0.100		1		
<b>11W</b>	<b>13-08-0936-26-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.9	0.100		1		
<b>12W</b>	<b>13-08-0936-27-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.2	0.100		1		
<b>13W</b>	<b>13-08-0936-28-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.7	0.100		1		
<b>14W</b>	<b>13-08-0936-29-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		17.1	0.100		1		
<b>15W</b>	<b>13-08-0936-30-A</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		16.9	0.100		1		
<b>Method Blank</b>	<b>099-05-019-2306</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB3</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		ND	0.100		1		
<b>Method Blank</b>	<b>099-05-019-2307</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>08/17/13</b>	<b>08/17/13 16:45</b>	<b>D0817TSB4</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Solids, Total		ND	0.100		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

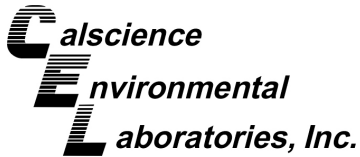
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.57	0.10		1		
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.60	0.10		1		
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.61	0.10		1		
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.71	0.10		1		
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.50	0.10		1		
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.65	0.10		1		
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.44	0.10		1		
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.55	0.10		1		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>9C</b>	<b>13-08-0936-9-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.60	0.10		1		
<b>10C</b>	<b>13-08-0936-10-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.62	0.10		1		
<b>11C</b>	<b>13-08-0936-11-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.55	0.10		1		
<b>12C</b>	<b>13-08-0936-12-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.28	0.10		1		
<b>13C</b>	<b>13-08-0936-13-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.53	0.10		1		
<b>14C</b>	<b>13-08-0936-14-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.50	0.10		1		
<b>15C</b>	<b>13-08-0936-15-B</b>	<b>08/10/13 15:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		0.47	0.10		1		
<b>1W</b>	<b>13-08-0936-16-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.6	0.10		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

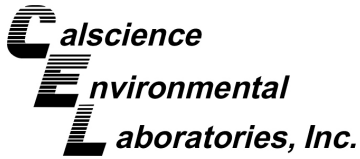
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.8	0.10		1		
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.6	0.10		1		
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.5	0.10		1		
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.2	0.10		1		
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.3	0.10		1		
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.5	0.10		1		
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	N/A	N/A	08/22/13 12:00	130822B02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: N/A  
Method: MeCl2 Ext. (NOAA 1993a)  
Units: %

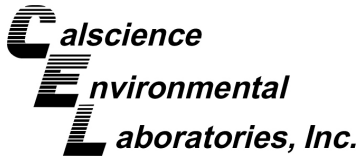
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>10W</b>	<b>13-08-0936-25-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		
<b>11W</b>	<b>13-08-0936-26-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.5	0.10		1		
<b>12W</b>	<b>13-08-0936-27-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.1	0.10		1		
<b>13W</b>	<b>13-08-0936-28-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.3	0.10		1		
<b>14W</b>	<b>13-08-0936-29-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.4	0.10		1		
<b>15W</b>	<b>13-08-0936-30-B</b>	<b>08/10/13 13:00</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		1.8	0.10		1		
<b>Method Blank</b>	<b>099-14-104-36</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B01</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		ND	0.10		1		
<b>Method Blank</b>	<b>099-14-104-37</b>	<b>N/A</b>	<b>Soil</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822B02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
% Lipids		ND	0.10		1		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:44	130815L01T

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

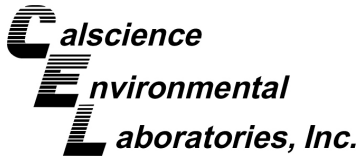
Parameter	Result	RL	DF	Qualifiers
Arsenic	22.4	0.699	1	
Cadmium	ND	0.699	1	
Chromium	7.41	0.140	1	
Copper	15.3	0.699	1	
Lead	3.07	0.699	1	
Nickel	6.39	0.699	1	
Selenium	2.28	0.699	1	
Silver	ND	0.699	1	
Zinc	98.5	6.99	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:47	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.3	0.699	1	
Cadmium	ND	0.699	1	
Chromium	2.74	0.140	1	
Copper	14.6	0.699	1	
Lead	3.23	0.699	1	
Nickel	3.69	0.699	1	
Selenium	2.18	0.699	1	
Silver	ND	0.699	1	
Zinc	87.2	6.99	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:50	130815L01T

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

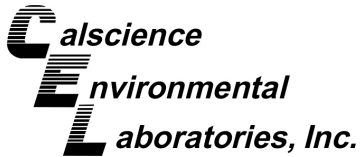
Parameter	Result	RL	DF	Qualifiers
Arsenic	19.0	0.709	1	
Cadmium	ND	0.709	1	
Chromium	2.96	0.142	1	
Copper	13.8	0.709	1	
Lead	2.53	0.709	1	
Nickel	3.14	0.709	1	
Selenium	1.68	0.709	1	
Silver	ND	0.709	1	
Zinc	93.7	7.09	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:53	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.2	0.781	1	
Cadmium	ND	0.781	1	
Chromium	1.27	0.156	1	
Copper	10.9	0.781	1	
Lead	1.07	0.781	1	
Nickel	2.94	0.781	1	
Selenium	2.06	0.781	1	
Silver	ND	0.781	1	
Zinc	89.3	7.81	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:56	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.3	0.725	1	
Cadmium	ND	0.725	1	
Chromium	1.64	0.145	1	
Copper	12.9	0.725	1	
Lead	2.27	0.725	1	
Nickel	2.54	0.725	1	
Selenium	1.39	0.725	1	
Silver	ND	0.725	1	
Zinc	92.4	7.25	1	

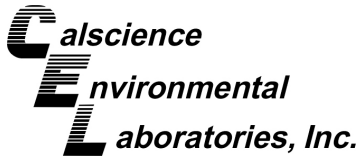
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 20:59	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	16.9	0.676	1	
Cadmium	ND	0.676	1	
Chromium	1.51	0.135	1	
Copper	9.24	0.676	1	
Lead	0.970	0.676	1	
Nickel	2.77	0.676	1	
Selenium	1.77	0.676	1	
Silver	ND	0.676	1	
Zinc	78.9	6.76	1	

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## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:02	130815L01T

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

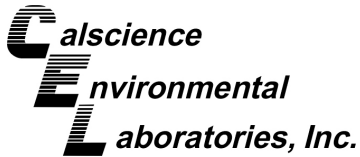
Parameter	Result	RL	DF	Qualifiers
Arsenic	18.6	0.730	1	
Cadmium	ND	0.730	1	
Chromium	1.32	0.146	1	
Copper	12.1	0.730	1	
Lead	2.07	0.730	1	
Nickel	2.23	0.730	1	
Selenium	1.65	0.730	1	
Silver	ND	0.730	1	
Zinc	91.8	7.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:05	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	14.7	0.629	1	
Cadmium	ND	0.629	1	
Chromium	1.70	0.126	1	
Copper	10.9	0.629	1	
Lead	1.81	0.629	1	
Nickel	2.54	0.629	1	
Selenium	1.99	0.629	1	
Silver	ND	0.629	1	
Zinc	70.7	6.29	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:08	130815L01T

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

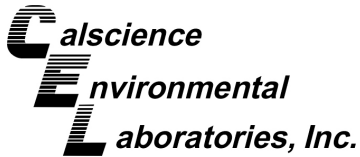
Parameter	Result	RL	DF	Qualifiers
Arsenic	17.2	0.649	1	
Cadmium	ND	0.649	1	
Chromium	1.12	0.130	1	
Copper	9.76	0.649	1	
Lead	1.04	0.649	1	
Nickel	2.45	0.649	1	
Selenium	1.88	0.649	1	
Silver	ND	0.649	1	
Zinc	80.3	6.49	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:11	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.9	0.690	1	
Cadmium	ND	0.690	1	
Chromium	1.38	0.138	1	
Copper	11.2	0.690	1	
Lead	1.19	0.690	1	
Nickel	2.75	0.690	1	
Selenium	1.90	0.690	1	
Silver	ND	0.690	1	
Zinc	80.3	6.90	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:20	130815L01T

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

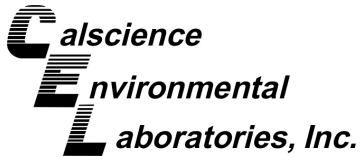
Parameter	Result	RL	DF	Qualifiers
Arsenic	16.1	0.714	1	
Cadmium	ND	0.714	1	
Chromium	1.38	0.143	1	
Copper	10.8	0.714	1	
Lead	2.19	0.714	1	
Nickel	2.05	0.714	1	
Selenium	1.61	0.714	1	
Silver	ND	0.714	1	
Zinc	82.2	7.14	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:23	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	15.7	0.730	1	
Cadmium	ND	0.730	1	
Chromium	1.15	0.146	1	
Copper	10.9	0.730	1	
Lead	1.06	0.730	1	
Nickel	2.44	0.730	1	
Selenium	1.66	0.730	1	
Silver	ND	0.730	1	
Zinc	70.2	7.30	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:26	130815L01T

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

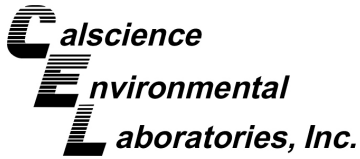
Parameter	Result	RL	DF	Qualifiers
Arsenic	18.3	0.730	1	
Cadmium	ND	0.730	1	
Chromium	1.77	0.146	1	
Copper	12.8	0.730	1	
Lead	2.63	0.730	1	
Nickel	2.72	0.730	1	
Selenium	1.84	0.730	1	
Silver	ND	0.730	1	
Zinc	89.9	7.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:29	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	18.7	0.667	1	
Cadmium	ND	0.667	1	
Chromium	1.23	0.133	1	
Copper	11.5	0.667	1	
Lead	1.95	0.667	1	
Nickel	2.59	0.667	1	
Selenium	1.35	0.667	1	
Silver	ND	0.667	1	
Zinc	81.9	6.67	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:32	130815L01T

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

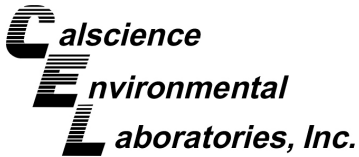
Parameter	Result	RL	DF	Qualifiers
Arsenic	17.1	0.714	1	
Cadmium	ND	0.714	1	
Chromium	1.92	0.143	1	
Copper	12.9	0.714	1	
Lead	2.45	0.714	1	
Nickel	2.42	0.714	1	
Selenium	1.55	0.714	1	
Silver	ND	0.714	1	
Zinc	85.9	7.14	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:35	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	16.0	0.617	1	
Cadmium	ND	0.617	1	
Chromium	6.65	0.123	1	
Copper	11.2	0.617	1	
Lead	ND	0.617	1	
Nickel	5.28	0.617	1	
Selenium	2.09	0.617	1	
Silver	ND	0.617	1	
Zinc	189	6.17	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:38	130815L01T

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

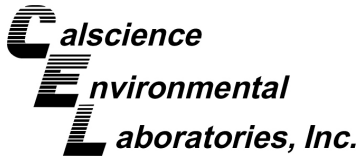
Parameter	Result	RL	DF	Qualifiers
Arsenic	14.9	0.585	1	
Cadmium	ND	0.585	1	
Chromium	2.05	0.117	1	
Copper	10.1	0.585	1	
Lead	ND	0.585	1	
Nickel	1.79	0.585	1	
Selenium	2.19	0.585	1	
Silver	ND	0.585	1	
Zinc	73.8	5.85	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:41	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.2	0.585	1	
Cadmium	ND	0.585	1	
Chromium	2.58	0.117	1	
Copper	9.19	0.585	1	
Lead	ND	0.585	1	
Nickel	2.14	0.585	1	
Selenium	1.72	0.585	1	
Silver	ND	0.585	1	
Zinc	110	5.85	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:44	130815L01T

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

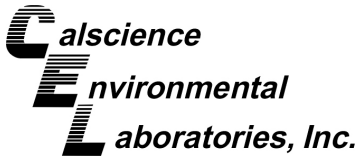
Parameter	Result	RL	DF	Qualifiers
Arsenic	13.2	0.568	1	
Cadmium	ND	0.568	1	
Chromium	0.970	0.114	1	
Copper	7.39	0.568	1	
Lead	ND	0.568	1	
Nickel	1.45	0.568	1	
Selenium	1.82	0.568	1	
Silver	ND	0.568	1	
Zinc	143	5.68	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 21:47	130815L01T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.5	0.613	1	
Cadmium	ND	0.613	1	
Chromium	1.49	0.123	1	
Copper	8.45	0.613	1	
Lead	ND	0.613	1	
Nickel	1.48	0.613	1	
Selenium	1.81	0.613	1	
Silver	ND	0.613	1	
Zinc	159	6.13	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:10	130815L02T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	15.7	0.654	1	
Cadmium	ND	0.654	1	
Chromium	1.22	0.131	1	
Copper	8.59	0.654	1	
Lead	ND	0.654	1	
Nickel	2.09	0.654	1	
Selenium	1.98	0.654	1	
Silver	ND	0.654	1	
Zinc	162	6.54	1	

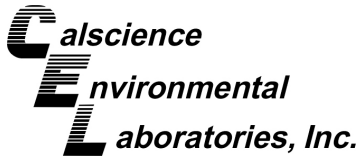
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:13	130815L02T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	9.74	0.513	1	
Cadmium	ND	0.513	1	
Chromium	0.659	0.103	1	
Copper	7.74	0.513	1	
Lead	ND	0.513	1	
Nickel	1.17	0.513	1	
Selenium	1.23	0.513	1	
Silver	ND	0.513	1	
Zinc	78.8	5.13	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:16	130815L02T

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

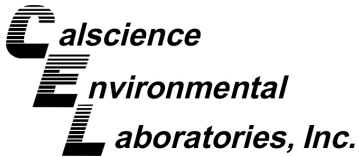
Parameter	Result	RL	DF	Qualifiers
Arsenic	14.0	0.585	1	
Cadmium	ND	0.585	1	
Chromium	1.16	0.117	1	
Copper	9.63	0.585	1	
Lead	ND	0.585	1	
Nickel	1.84	0.585	1	
Selenium	1.47	0.585	1	
Silver	ND	0.585	1	
Zinc	179	5.85	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:19	130815L02T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.6	0.610	1	
Cadmium	ND	0.610	1	
Chromium	0.806	0.122	1	
Copper	7.89	0.610	1	
Lead	ND	0.610	1	
Nickel	1.79	0.610	1	
Selenium	1.14	0.610	1	
Silver	ND	0.610	1	
Zinc	97.9	6.10	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:22	130815L02T

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

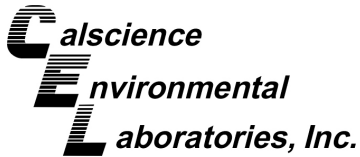
Parameter	Result	RL	DF	Qualifiers
Arsenic	13.1	0.649	1	
Cadmium	ND	0.649	1	
Chromium	0.609	0.130	1	
Copper	8.05	0.649	1	
Lead	ND	0.649	1	
Nickel	1.58	0.649	1	
Selenium	1.85	0.649	1	
Silver	ND	0.649	1	
Zinc	92.3	6.49	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:25	130815L02T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.1	0.592	1	
Cadmium	ND	0.592	1	
Chromium	1.76	0.118	1	
Copper	8.41	0.592	1	
Lead	ND	0.592	1	
Nickel	1.80	0.592	1	
Selenium	1.31	0.592	1	
Silver	ND	0.592	1	
Zinc	67.8	5.92	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:28	130815L02T

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

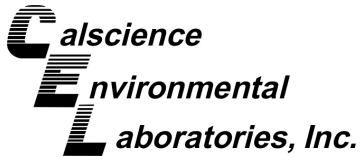
Parameter	Result	RL	DF	Qualifiers
Arsenic	13.4	0.617	1	
Cadmium	ND	0.617	1	
Chromium	1.42	0.123	1	
Copper	7.75	0.617	1	
Lead	ND	0.617	1	
Nickel	1.64	0.617	1	
Selenium	1.64	0.617	1	
Silver	ND	0.617	1	
Zinc	219	6.17	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:31	130815L02T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.8	0.599	1	
Cadmium	ND	0.599	1	
Chromium	0.939	0.120	1	
Copper	7.98	0.599	1	
Lead	ND	0.599	1	
Nickel	1.50	0.599	1	
Selenium	1.54	0.599	1	
Silver	ND	0.599	1	
Zinc	65.0	5.99	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:34	130815L02T

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

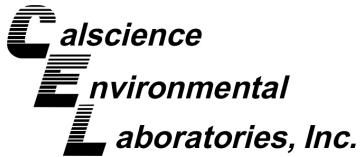
Parameter	Result	RL	DF	Qualifiers
Arsenic	12.7	0.585	1	
Cadmium	ND	0.585	1	
Chromium	0.620	0.117	1	
Copper	7.67	0.585	1	
Lead	ND	0.585	1	
Nickel	1.21	0.585	1	
Selenium	1.34	0.585	1	
Silver	ND	0.585	1	
Zinc	111	5.85	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	ICP/MS 03	08/15/13	08/16/13 22:37	130815L02T

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.6	0.592	1	
Cadmium	ND	0.592	1	
Chromium	0.713	0.118	1	
Copper	9.44	0.592	1	
Lead	ND	0.592	1	
Nickel	1.16	0.592	1	
Selenium	1.22	0.592	1	
Silver	ND	0.592	1	
Zinc	125	5.92	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-15-258-20</b>	<b>N/A</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 19:59</b>	<b>130815L01T</b>

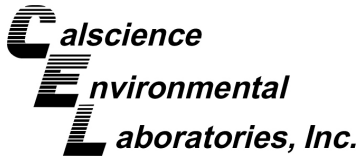
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-15-258-21</b>	<b>N/A</b>	<b>Soil</b>	<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 19:18</b>	<b>130815L02T</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:28	130815L05T

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0670	0.599	

2C	13-08-0936-2-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:35	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0670	0.599	

3C	13-08-0936-3-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:37	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0679	0.599	

4C	13-08-0936-4-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:39	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0748	0.599	

5C	13-08-0936-5-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:41	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

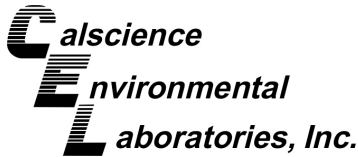
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0694	0.599	

6C	13-08-0936-6-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:43	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0647	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:46	130815L05T

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0699	0.599	

8C	13-08-0936-8-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:52	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0603	0.599	

9C	13-08-0936-9-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:55	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0622	0.599	

10C	13-08-0936-10-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:57	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0661	0.599	

11C	13-08-0936-11-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 17:59	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

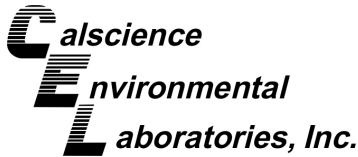
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0684	0.599	

12C	13-08-0936-12-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 18:01	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0699	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 18:03	130815L05T

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

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0699	0.599	

14C	13-08-0936-14-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 18:06	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0639	0.599	

15C	13-08-0936-15-B	08/10/13 15:00	Tissue	Mercury	08/15/13	08/19/13 18:08	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0684	0.599	

1W	13-08-0936-16-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:10	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0591	0.599	

2W	13-08-0936-17-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:12	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

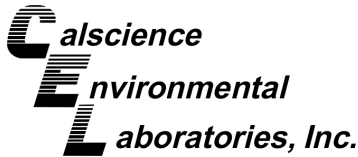
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:19	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:22	130815L05T

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

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0544	0.599	

5W	13-08-0936-20-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:24	130815L05T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0588	0.599	

6W	13-08-0936-21-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:26	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0626	0.599	

7W	13-08-0936-22-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:32	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0491	0.599	

8W	13-08-0936-23-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:35	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

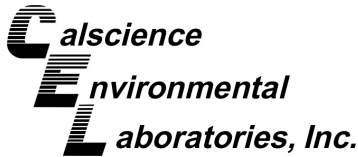
Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

9W	13-08-0936-24-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:37	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0584	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:39	130815L06T

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

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0622	0.599	

11W	13-08-0936-26-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:46	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0567	0.599	

12W	13-08-0936-27-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:48	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0591	0.599	

13W	13-08-0936-28-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:50	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0574	0.599	

14W	13-08-0936-29-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:53	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

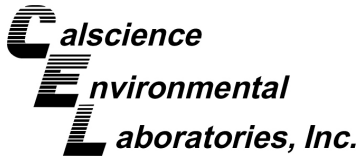
Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

15W	13-08-0936-30-B	08/10/13 13:00	Tissue	Mercury	08/15/13	08/19/13 18:55	130815L06T
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0567	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A  
 Units: mg/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-409-46	N/A	Soil	Mercury	08/15/13	08/15/13 15:51	130815L05T

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-409-47	N/A	Soil	Mercury	08/15/13	08/15/13 15:49	130815L06T

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00958	0.599	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

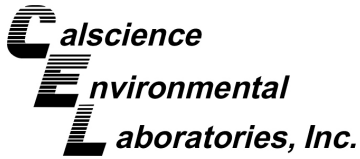
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:09	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.0	0.5	
2,4'-DDE	ND	7.0	0.5	
2,4'-DDT	ND	7.0	0.5	
4,4'-DDD	ND	7.0	0.5	
4,4'-DDT	ND	7.0	0.5	
Aldrin	ND	7.0	0.5	
Alpha Chlordane	ND	7.0	0.5	
Alpha-BHC	ND	7.0	0.5	
Beta-BHC	ND	7.0	0.5	
Delta-BHC	ND	7.0	0.5	
Dieldrin	ND	7.0	0.5	
Endosulfan I	ND	7.0	0.5	
Endosulfan II	ND	7.0	0.5	
Endosulfan Sulfate	ND	7.0	0.5	
Endrin	ND	7.0	0.5	
Endrin Aldehyde	ND	7.0	0.5	
Endrin Ketone	ND	7.0	0.5	
Gamma Chlordane	ND	7.0	0.5	
Gamma-BHC	ND	7.0	0.5	
Heptachlor	ND	7.0	0.5	
Heptachlor Epoxide	ND	7.0	0.5	
Methoxychlor	ND	7.0	0.5	
Chlordane	ND	70	0.5	
Cis-nonachlor	ND	7.0	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	7.0	0.5	
Oxychlordane	ND	7.0	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	89	50-135		
Dibutylchloroendate	79	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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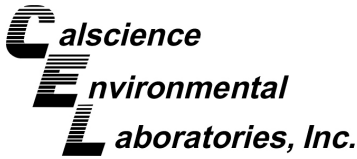
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 21:25	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	86	35	2.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135		
Dibutylchloroendate	79	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

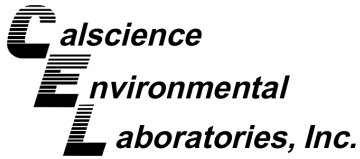
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:23	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	7.0	0.5	
2,4'-DDE	ND	7.0	0.5	
2,4'-DDT	ND	7.0	0.5	
4,4'-DDD	ND	7.0	0.5	
4,4'-DDT	ND	7.0	0.5	
Aldrin	ND	7.0	0.5	
Alpha Chlordane	ND	7.0	0.5	
Alpha-BHC	ND	7.0	0.5	
Beta-BHC	ND	7.0	0.5	
Delta-BHC	ND	7.0	0.5	
Dieldrin	ND	7.0	0.5	
Endosulfan I	ND	7.0	0.5	
Endosulfan II	ND	7.0	0.5	
Endosulfan Sulfate	ND	7.0	0.5	
Endrin	ND	7.0	0.5	
Endrin Aldehyde	ND	7.0	0.5	
Endrin Ketone	ND	7.0	0.5	
Gamma Chlordane	ND	7.0	0.5	
Gamma-BHC	ND	7.0	0.5	
Heptachlor	ND	7.0	0.5	
Heptachlor Epoxide	ND	7.0	0.5	
Methoxychlor	ND	7.0	0.5	
Chlordane	ND	70	0.5	
Cis-nonachlor	ND	7.0	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	7.0	0.5	
Oxychlordane	ND	7.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135		
Dibutylchloroendate	81	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

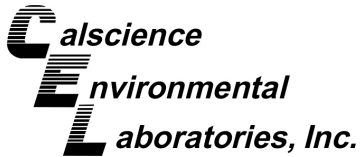
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 21:39	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	78	14	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	90	50-135		
Dibutylchloroendate	86	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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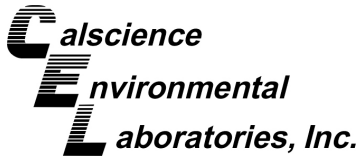
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:38	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.1	0.5	
2,4'-DDE	ND	7.1	0.5	
2,4'-DDT	ND	7.1	0.5	
4,4'-DDD	ND	7.1	0.5	
4,4'-DDT	ND	7.1	0.5	
Aldrin	ND	7.1	0.5	
Alpha Chlordane	ND	7.1	0.5	
Alpha-BHC	ND	7.1	0.5	
Beta-BHC	ND	7.1	0.5	
Delta-BHC	ND	7.1	0.5	
Dieldrin	ND	7.1	0.5	
Endosulfan I	ND	7.1	0.5	
Endosulfan II	ND	7.1	0.5	
Endosulfan Sulfate	ND	7.1	0.5	
Endrin	ND	7.1	0.5	
Endrin Aldehyde	ND	7.1	0.5	
Endrin Ketone	ND	7.1	0.5	
Gamma Chlordane	ND	7.1	0.5	
Gamma-BHC	ND	7.1	0.5	
Heptachlor	ND	7.1	0.5	
Heptachlor Epoxide	ND	7.1	0.5	
Methoxychlor	ND	7.1	0.5	
Chlordane	ND	7.1	0.5	
Cis-nonachlor	ND	7.1	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.1	0.5	
Oxychlordane	ND	7.1	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135		
Dibutylchloroendate	80	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

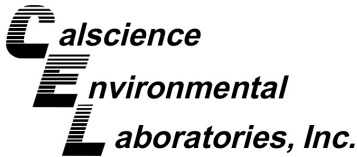
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 21:53	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	71	14	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	107	50-135		
Dibutylchloroendate	92	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

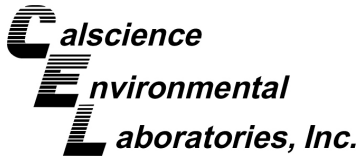
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 14:52	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.8	0.5	
2,4'-DDE	ND	7.8	0.5	
2,4'-DDT	ND	7.8	0.5	
4,4'-DDD	ND	7.8	0.5	
4,4'-DDT	ND	7.8	0.5	
Aldrin	ND	7.8	0.5	
Alpha Chlordane	ND	7.8	0.5	
Alpha-BHC	ND	7.8	0.5	
Beta-BHC	ND	7.8	0.5	
Delta-BHC	ND	7.8	0.5	
Dieldrin	ND	7.8	0.5	
Endosulfan I	ND	7.8	0.5	
Endosulfan II	ND	7.8	0.5	
Endosulfan Sulfate	ND	7.8	0.5	
Endrin	ND	7.8	0.5	
Endrin Aldehyde	ND	7.8	0.5	
Endrin Ketone	ND	7.8	0.5	
Gamma Chlordane	ND	7.8	0.5	
Gamma-BHC	ND	7.8	0.5	
Heptachlor	ND	7.8	0.5	
Heptachlor Epoxide	ND	7.8	0.5	
Methoxychlor	ND	7.8	0.5	
Chlordane	ND	7.8	0.5	
Cis-nonachlor	ND	7.8	0.5	
Toxaphene	ND	200	0.5	
Trans-nonachlor	ND	7.8	0.5	
Oxychlordane	ND	7.8	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	88	50-135		
Dibutylchloroendate	77	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

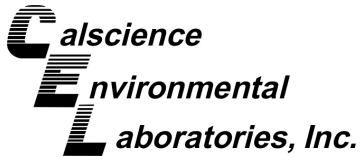
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:08	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	78	16	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	98	50-135		
Dibutylchloroendate	85	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

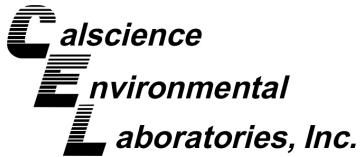
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:06	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.2	0.5	
2,4'-DDE	ND	7.2	0.5	
2,4'-DDT	ND	7.2	0.5	
4,4'-DDD	ND	7.2	0.5	
4,4'-DDE	40	7.2	0.5	
4,4'-DDT	ND	7.2	0.5	
Aldrin	ND	7.2	0.5	
Alpha Chlordane	ND	7.2	0.5	
Alpha-BHC	ND	7.2	0.5	
Beta-BHC	ND	7.2	0.5	
Delta-BHC	ND	7.2	0.5	
Dieldrin	ND	7.2	0.5	
Endosulfan I	ND	7.2	0.5	
Endosulfan II	ND	7.2	0.5	
Endosulfan Sulfate	ND	7.2	0.5	
Endrin	ND	7.2	0.5	
Endrin Aldehyde	ND	7.2	0.5	
Endrin Ketone	ND	7.2	0.5	
Gamma Chlordane	ND	7.2	0.5	
Gamma-BHC	ND	7.2	0.5	
Heptachlor	ND	7.2	0.5	
Heptachlor Epoxide	ND	7.2	0.5	
Methoxychlor	ND	7.2	0.5	
Chlordane	ND	72	0.5	
Cis-nonachlor	ND	7.2	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.2	0.5	
Oxychlordane	ND	7.2	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	82	50-135		
Dibutylchloroendate	82	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

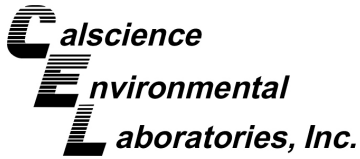
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:21	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.8	0.5	
2,4'-DDE	ND	6.8	0.5	
2,4'-DDT	ND	6.8	0.5	
4,4'-DDD	ND	6.8	0.5	
4,4'-DDT	ND	6.8	0.5	
Aldrin	ND	6.8	0.5	
Alpha Chlordane	ND	6.8	0.5	
Alpha-BHC	ND	6.8	0.5	
Beta-BHC	ND	6.8	0.5	
Delta-BHC	ND	6.8	0.5	
Dieldrin	ND	6.8	0.5	
Endosulfan I	ND	6.8	0.5	
Endosulfan II	ND	6.8	0.5	
Endosulfan Sulfate	ND	6.8	0.5	
Endrin	ND	6.8	0.5	
Endrin Aldehyde	ND	6.8	0.5	
Endrin Ketone	ND	6.8	0.5	
Gamma Chlordane	ND	6.8	0.5	
Gamma-BHC	ND	6.8	0.5	
Heptachlor	ND	6.8	0.5	
Heptachlor Epoxide	ND	6.8	0.5	
Methoxychlor	ND	6.8	0.5	
Chlordane	ND	68	0.5	
Cis-nonachlor	ND	6.8	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	6.8	0.5	
Oxychlordane	ND	6.8	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135		
Dibutylchloroendate	83	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

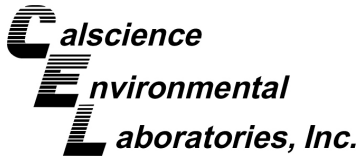
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:22	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	66	14	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	93	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

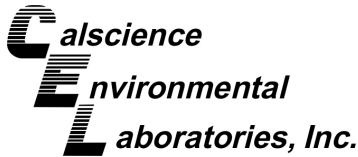
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:35	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	7.3	0.5	
2,4'-DDE	ND	7.3	0.5	
2,4'-DDT	ND	7.3	0.5	
4,4'-DDD	8.3	7.3	0.5	
4,4'-DDE	44	7.3	0.5	
4,4'-DDT	ND	7.3	0.5	
Aldrin	ND	7.3	0.5	
Alpha Chlordane	ND	7.3	0.5	
Alpha-BHC	ND	7.3	0.5	
Beta-BHC	ND	7.3	0.5	
Delta-BHC	ND	7.3	0.5	
Dieldrin	ND	7.3	0.5	
Endosulfan I	ND	7.3	0.5	
Endosulfan II	ND	7.3	0.5	
Endosulfan Sulfate	ND	7.3	0.5	
Endrin	ND	7.3	0.5	
Endrin Aldehyde	ND	7.3	0.5	
Endrin Ketone	ND	7.3	0.5	
Gamma Chlordane	ND	7.3	0.5	
Gamma-BHC	ND	7.3	0.5	
Heptachlor	ND	7.3	0.5	
Heptachlor Epoxide	ND	7.3	0.5	
Methoxychlor	ND	7.3	0.5	
Chlordane	ND	73	0.5	
Cis-nonachlor	ND	7.3	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.3	0.5	
Oxychlordane	ND	7.3	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	117	50-135		
Dibutylchloroendate	81	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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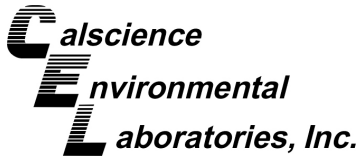
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 15:49	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.3	0.5	
2,4'-DDE	ND	6.3	0.5	
2,4'-DDT	ND	6.3	0.5	
4,4'-DDD	ND	6.3	0.5	
4,4'-DDT	ND	6.3	0.5	
Aldrin	ND	6.3	0.5	
Alpha Chlordane	ND	6.3	0.5	
Alpha-BHC	ND	6.3	0.5	
Beta-BHC	ND	6.3	0.5	
Delta-BHC	ND	6.3	0.5	
Dieldrin	ND	6.3	0.5	
Endosulfan I	ND	6.3	0.5	
Endosulfan II	ND	6.3	0.5	
Endosulfan Sulfate	ND	6.3	0.5	
Endrin	ND	6.3	0.5	
Endrin Aldehyde	ND	6.3	0.5	
Endrin Ketone	ND	6.3	0.5	
Gamma Chlordane	ND	6.3	0.5	
Gamma-BHC	ND	6.3	0.5	
Heptachlor	ND	6.3	0.5	
Heptachlor Epoxide	ND	6.3	0.5	
Methoxychlor	ND	6.3	0.5	
Chlordane	ND	63	0.5	
Cis-nonachlor	ND	6.3	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.3	0.5	
Oxychlordane	ND	6.3	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	84	50-135		
Dibutylchloroendate	78	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

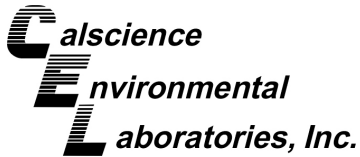
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:36	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	66	13	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	86	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

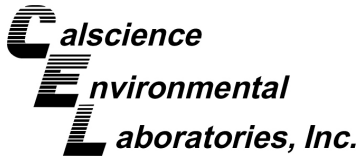
Page 15 of 41

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 16:04	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.5	0.5	
2,4'-DDE	ND	6.5	0.5	
2,4'-DDT	ND	6.5	0.5	
4,4'-DDD	ND	6.5	0.5	
4,4'-DDT	ND	6.5	0.5	
Aldrin	ND	6.5	0.5	
Alpha Chlordane	ND	6.5	0.5	
Alpha-BHC	ND	6.5	0.5	
Beta-BHC	ND	6.5	0.5	
Delta-BHC	ND	6.5	0.5	
Dieldrin	ND	6.5	0.5	
Endosulfan I	ND	6.5	0.5	
Endosulfan II	ND	6.5	0.5	
Endosulfan Sulfate	ND	6.5	0.5	
Endrin	ND	6.5	0.5	
Endrin Aldehyde	ND	6.5	0.5	
Endrin Ketone	ND	6.5	0.5	
Gamma Chlordane	ND	6.5	0.5	
Gamma-BHC	ND	6.5	0.5	
Heptachlor	ND	6.5	0.5	
Heptachlor Epoxide	ND	6.5	0.5	
Methoxychlor	ND	6.5	0.5	
Chlordane	ND	65	0.5	
Cis-nonachlor	ND	6.5	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.5	0.5	
Oxychlordane	ND	6.5	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	91	50-135		
Dibutylchloroendate	88	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

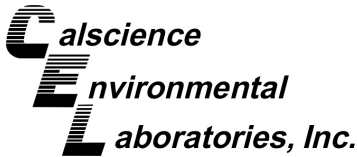
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 22:51	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	58	13	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	97	50-135		
Dibutylchloroendate	97	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

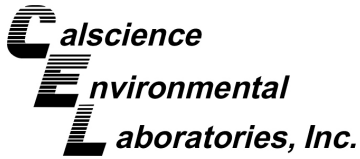
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 16:18	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.9	0.5	
2,4'-DDE	ND	6.9	0.5	
2,4'-DDT	ND	6.9	0.5	
4,4'-DDD	ND	6.9	0.5	
4,4'-DDT	ND	6.9	0.5	
Aldrin	ND	6.9	0.5	
Alpha Chlordane	ND	6.9	0.5	
Alpha-BHC	ND	6.9	0.5	
Beta-BHC	ND	6.9	0.5	
Delta-BHC	ND	6.9	0.5	
Dieldrin	ND	6.9	0.5	
Endosulfan I	ND	6.9	0.5	
Endosulfan II	ND	6.9	0.5	
Endosulfan Sulfate	ND	6.9	0.5	
Endrin	ND	6.9	0.5	
Endrin Aldehyde	ND	6.9	0.5	
Endrin Ketone	ND	6.9	0.5	
Gamma Chlordane	ND	6.9	0.5	
Gamma-BHC	ND	6.9	0.5	
Heptachlor	ND	6.9	0.5	
Heptachlor Epoxide	ND	6.9	0.5	
Methoxychlor	ND	6.9	0.5	
Chlordane	ND	69	0.5	
Cis-nonachlor	ND	6.9	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	6.9	0.5	
Oxychlordane	ND	6.9	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	90	50-135		
Dibutylchloroendate	88	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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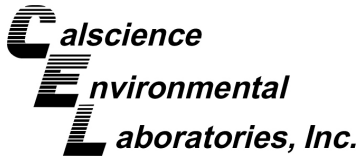
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 23:05	130816F05

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	86	14	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	101	50-135		
Dibutylchloredate	99	50-135		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

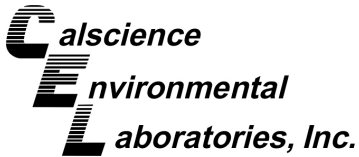
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 19:27	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.1	0.5	
2,4'-DDE	ND	7.1	0.5	
2,4'-DDT	ND	7.1	0.5	
4,4'-DDD	11	7.1	0.5	
4,4'-DDE	52	7.1	0.5	
4,4'-DDT	ND	7.1	0.5	
Aldrin	ND	7.1	0.5	
Alpha Chlordane	ND	7.1	0.5	
Alpha-BHC	ND	7.1	0.5	
Beta-BHC	ND	7.1	0.5	
Delta-BHC	ND	7.1	0.5	
Dieldrin	ND	7.1	0.5	
Endosulfan I	ND	7.1	0.5	
Endosulfan II	ND	7.1	0.5	
Endosulfan Sulfate	ND	7.1	0.5	
Endrin	ND	7.1	0.5	
Endrin Aldehyde	ND	7.1	0.5	
Endrin Ketone	ND	7.1	0.5	
Gamma Chlordane	ND	7.1	0.5	
Gamma-BHC	ND	7.1	0.5	
Heptachlor	ND	7.1	0.5	
Heptachlor Epoxide	ND	7.1	0.5	
Methoxychlor	ND	7.1	0.5	
Chlordane	ND	71	0.5	
Cis-nonachlor	ND	7.1	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.1	0.5	
Oxychlordane	ND	7.1	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	93	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

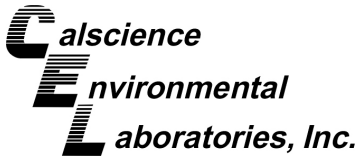
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/23/13 19:41	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.3	0.5	
2,4'-DDE	ND	7.3	0.5	
2,4'-DDT	ND	7.3	0.5	
4,4'-DDD	ND	7.3	0.5	
4,4'-DDE	32	7.3	0.5	
4,4'-DDT	ND	7.3	0.5	
Aldrin	ND	7.3	0.5	
Alpha Chlordane	ND	7.3	0.5	
Alpha-BHC	ND	7.3	0.5	
Beta-BHC	ND	7.3	0.5	
Delta-BHC	ND	7.3	0.5	
Dieldrin	ND	7.3	0.5	
Endosulfan I	ND	7.3	0.5	
Endosulfan II	ND	7.3	0.5	
Endosulfan Sulfate	ND	7.3	0.5	
Endrin	ND	7.3	0.5	
Endrin Aldehyde	ND	7.3	0.5	
Endrin Ketone	ND	7.3	0.5	
Gamma Chlordane	ND	7.3	0.5	
Gamma-BHC	ND	7.3	0.5	
Heptachlor	ND	7.3	0.5	
Heptachlor Epoxide	ND	7.3	0.5	
Methoxychlor	ND	7.3	0.5	
Chlordane	ND	73	0.5	
Cis-nonachlor	ND	7.3	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.3	0.5	
Oxychlordane	ND	7.3	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	82	50-135		
Dibutylchloroendate	76	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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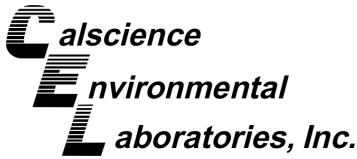
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Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.3	0.5	
2,4'-DDE	ND	7.3	0.5	
2,4'-DDT	ND	7.3	0.5	
4,4'-DDD	ND	7.3	0.5	
4,4'-DDE	52	7.3	0.5	
4,4'-DDT	ND	7.3	0.5	
Aldrin	ND	7.3	0.5	
Alpha Chlordane	ND	7.3	0.5	
Alpha-BHC	ND	7.3	0.5	
Beta-BHC	ND	7.3	0.5	
Delta-BHC	ND	7.3	0.5	
Dieldrin	ND	7.3	0.5	
Endosulfan I	ND	7.3	0.5	
Endosulfan II	ND	7.3	0.5	
Endosulfan Sulfate	ND	7.3	0.5	
Endrin	ND	7.3	0.5	
Endrin Aldehyde	ND	7.3	0.5	
Endrin Ketone	ND	7.3	0.5	
Gamma Chlordane	ND	7.3	0.5	
Gamma-BHC	ND	7.3	0.5	
Heptachlor	ND	7.3	0.5	
Heptachlor Epoxide	ND	7.3	0.5	
Methoxychlor	ND	7.3	0.5	
Chlordane	ND	73	0.5	
Cis-nonachlor	ND	7.3	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.3	0.5	
Oxychlordane	ND	7.3	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	90	50-135		
Dibutylchloroendate	70	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

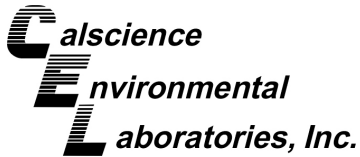
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/24/13 11:11	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.7	0.5	
2,4'-DDE	ND	6.7	0.5	
2,4'-DDT	ND	6.7	0.5	
4,4'-DDD	ND	6.7	0.5	
4,4'-DDE	44	6.7	0.5	
4,4'-DDT	ND	6.7	0.5	
Aldrin	ND	6.7	0.5	
Alpha Chlordane	ND	6.7	0.5	
Alpha-BHC	ND	6.7	0.5	
Beta-BHC	ND	6.7	0.5	
Delta-BHC	ND	6.7	0.5	
Dieldrin	ND	6.7	0.5	
Endosulfan I	ND	6.7	0.5	
Endosulfan II	ND	6.7	0.5	
Endosulfan Sulfate	ND	6.7	0.5	
Endrin	ND	6.7	0.5	
Endrin Aldehyde	ND	6.7	0.5	
Endrin Ketone	ND	6.7	0.5	
Gamma Chlordane	ND	6.7	0.5	
Gamma-BHC	ND	6.7	0.5	
Heptachlor	ND	6.7	0.5	
Heptachlor Epoxide	ND	6.7	0.5	
Methoxychlor	ND	6.7	0.5	
Chlordane	ND	67	0.5	
Cis-nonachlor	ND	6.7	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	6.7	0.5	
Oxychlordane	ND	6.7	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	75	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

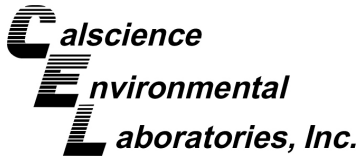
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC 51	08/16/13	08/24/13 11:26	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.1	0.5	
2,4'-DDE	ND	7.1	0.5	
2,4'-DDT	ND	7.1	0.5	
4,4'-DDD	ND	7.1	0.5	
4,4'-DDT	ND	7.1	0.5	
Aldrin	ND	7.1	0.5	
Alpha Chlordane	ND	7.1	0.5	
Alpha-BHC	ND	7.1	0.5	
Beta-BHC	ND	7.1	0.5	
Delta-BHC	ND	7.1	0.5	
Dieldrin	ND	7.1	0.5	
Endosulfan I	ND	7.1	0.5	
Endosulfan II	ND	7.1	0.5	
Endosulfan Sulfate	ND	7.1	0.5	
Endrin	ND	7.1	0.5	
Endrin Aldehyde	ND	7.1	0.5	
Endrin Ketone	ND	7.1	0.5	
Gamma Chlordane	ND	7.1	0.5	
Gamma-BHC	ND	7.1	0.5	
Heptachlor	ND	7.1	0.5	
Heptachlor Epoxide	ND	7.1	0.5	
Methoxychlor	ND	7.1	0.5	
Chlordane	ND	7.1	0.5	
Cis-nonachlor	ND	7.1	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.1	0.5	
Oxychlordane	ND	7.1	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	74	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: Berths 212-224 YTI Terminal

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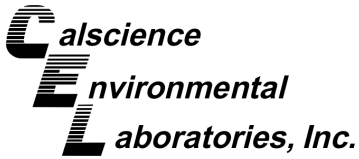
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Comment(s): - Results are reported on a dry weight basis.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	75	14	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135		
Dibutylchloroendate	74	50-135		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

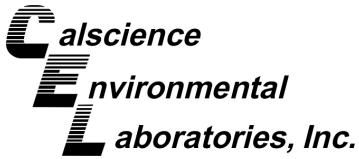
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 11:40	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.2	0.5	
2,4'-DDE	ND	6.2	0.5	
2,4'-DDT	ND	6.2	0.5	
4,4'-DDD	ND	6.2	0.5	
4,4'-DDE	24	6.2	0.5	
4,4'-DDT	ND	6.2	0.5	
Aldrin	ND	6.2	0.5	
Alpha Chlordane	ND	6.2	0.5	
Alpha-BHC	ND	6.2	0.5	
Beta-BHC	ND	6.2	0.5	
Delta-BHC	ND	6.2	0.5	
Dieldrin	ND	6.2	0.5	
Endosulfan I	ND	6.2	0.5	
Endosulfan II	ND	6.2	0.5	
Endosulfan Sulfate	ND	6.2	0.5	
Endrin	ND	6.2	0.5	
Endrin Aldehyde	ND	6.2	0.5	
Endrin Ketone	ND	6.2	0.5	
Gamma Chlordane	ND	6.2	0.5	
Gamma-BHC	ND	6.2	0.5	
Heptachlor	ND	6.2	0.5	
Heptachlor Epoxide	ND	6.2	0.5	
Methoxychlor	ND	6.2	0.5	
Chlordane	ND	62	0.5	
Cis-nonachlor	ND	6.2	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.2	0.5	
Oxychlordane	ND	6.2	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	88	50-135		
Dibutylchloroendate	89	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

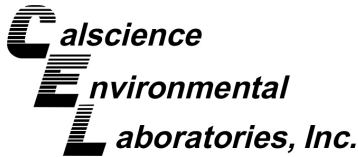
Page 26 of 41

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 11:54	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	27	5.8	0.5	
4,4'-DDT	28	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.8	0.5	
Oxychlordane	ND	5.8	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	88	50-135		
Dibutylchloroendate	77	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

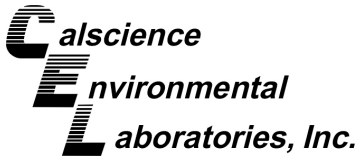
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:08	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	17	5.8	0.5	
4,4'-DDT	ND	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.8	0.5	
Oxychlordane	ND	5.8	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	87	50-135		
Dibutylchloroendate	91	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

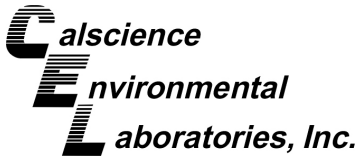
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:23	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.7	0.5	
2,4'-DDE	ND	5.7	0.5	
2,4'-DDT	ND	5.7	0.5	
4,4'-DDD	ND	5.7	0.5	
4,4'-DDE	9.9	5.7	0.5	
4,4'-DDT	ND	5.7	0.5	
Aldrin	ND	5.7	0.5	
Alpha Chlordane	ND	5.7	0.5	
Alpha-BHC	ND	5.7	0.5	
Beta-BHC	ND	5.7	0.5	
Delta-BHC	ND	5.7	0.5	
Dieldrin	ND	5.7	0.5	
Endosulfan I	ND	5.7	0.5	
Endosulfan II	ND	5.7	0.5	
Endosulfan Sulfate	ND	5.7	0.5	
Endrin	ND	5.7	0.5	
Endrin Aldehyde	ND	5.7	0.5	
Endrin Ketone	ND	5.7	0.5	
Gamma Chlordane	ND	5.7	0.5	
Gamma-BHC	ND	5.7	0.5	
Heptachlor	ND	5.7	0.5	
Heptachlor Epoxide	ND	5.7	0.5	
Methoxychlor	ND	5.7	0.5	
Chlordane	ND	5.7	0.5	
Cis-nonachlor	ND	5.7	0.5	
Toxaphene	ND	140	0.5	
Trans-nonachlor	ND	5.7	0.5	
Oxychlordane	ND	5.7	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135		
Dibutylchloroendate	80	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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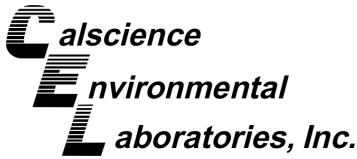
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:37	130816F05

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.1	0.5	
2,4'-DDE	ND	6.1	0.5	
2,4'-DDT	ND	6.1	0.5	
4,4'-DDD	ND	6.1	0.5	
4,4'-DDE	16	6.1	0.5	
4,4'-DDT	ND	6.1	0.5	
Aldrin	ND	6.1	0.5	
Alpha Chlordane	ND	6.1	0.5	
Alpha-BHC	ND	6.1	0.5	
Beta-BHC	ND	6.1	0.5	
Delta-BHC	ND	6.1	0.5	
Dieldrin	ND	6.1	0.5	
Endosulfan I	ND	6.1	0.5	
Endosulfan II	ND	6.1	0.5	
Endosulfan Sulfate	ND	6.1	0.5	
Endrin	ND	6.1	0.5	
Endrin Aldehyde	ND	6.1	0.5	
Endrin Ketone	ND	6.1	0.5	
Gamma Chlordane	ND	6.1	0.5	
Gamma-BHC	ND	6.1	0.5	
Heptachlor	ND	6.1	0.5	
Heptachlor Epoxide	ND	6.1	0.5	
Methoxychlor	ND	6.1	0.5	
Chlordane	ND	61	0.5	
Cis-nonachlor	ND	6.1	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.1	0.5	
Oxychlordane	ND	6.1	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135		
Dibutylchloroendate	71	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

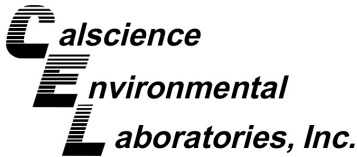
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 12:51	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.5	0.5	
2,4'-DDE	ND	6.5	0.5	
2,4'-DDT	ND	6.5	0.5	
4,4'-DDD	ND	6.5	0.5	
4,4'-DDE	7.6	6.5	0.5	
4,4'-DDT	ND	6.5	0.5	
Aldrin	ND	6.5	0.5	
Alpha Chlordane	ND	6.5	0.5	
Alpha-BHC	ND	6.5	0.5	
Beta-BHC	ND	6.5	0.5	
Delta-BHC	ND	6.5	0.5	
Dieldrin	ND	6.5	0.5	
Endosulfan I	ND	6.5	0.5	
Endosulfan II	ND	6.5	0.5	
Endosulfan Sulfate	ND	6.5	0.5	
Endrin	ND	6.5	0.5	
Endrin Aldehyde	ND	6.5	0.5	
Endrin Ketone	ND	6.5	0.5	
Gamma Chlordane	ND	6.5	0.5	
Gamma-BHC	ND	6.5	0.5	
Heptachlor	ND	6.5	0.5	
Heptachlor Epoxide	ND	6.5	0.5	
Methoxychlor	ND	6.5	0.5	
Chlordane	ND	65	0.5	
Cis-nonachlor	ND	6.5	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.5	0.5	
Oxychlordane	ND	6.5	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	89	50-135		
Dibutylchloroendate	76	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

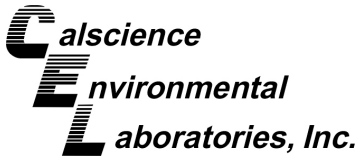
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:06	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.1	0.5	
2,4'-DDE	ND	5.1	0.5	
2,4'-DDT	ND	5.1	0.5	
4,4'-DDD	ND	5.1	0.5	
4,4'-DDE	16	5.1	0.5	
4,4'-DDT	ND	5.1	0.5	
Aldrin	ND	5.1	0.5	
Alpha Chlordane	ND	5.1	0.5	
Alpha-BHC	ND	5.1	0.5	
Beta-BHC	ND	5.1	0.5	
Delta-BHC	ND	5.1	0.5	
Dieldrin	ND	5.1	0.5	
Endosulfan I	ND	5.1	0.5	
Endosulfan II	ND	5.1	0.5	
Endosulfan Sulfate	ND	5.1	0.5	
Endrin	ND	5.1	0.5	
Endrin Aldehyde	ND	5.1	0.5	
Endrin Ketone	ND	5.1	0.5	
Gamma Chlordane	ND	5.1	0.5	
Gamma-BHC	ND	5.1	0.5	
Heptachlor	ND	5.1	0.5	
Heptachlor Epoxide	ND	5.1	0.5	
Methoxychlor	ND	5.1	0.5	
Chlordane	ND	51	0.5	
Cis-nonachlor	ND	5.1	0.5	
Toxaphene	ND	130	0.5	
Trans-nonachlor	5.2	5.1	0.5	
Oxychlordane	ND	5.1	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	103	50-135		
Dibutylchloroendate	90	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

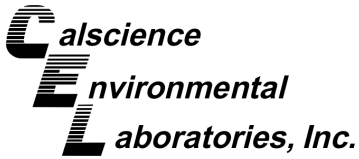
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:20	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	16	5.8	0.5	
4,4'-DDT	ND	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	6.8	5.8	0.5	
Oxychlordane	ND	5.8	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	108	50-135		
Dibutylchloroendate	98	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

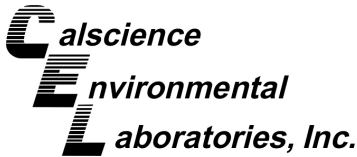
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:34	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.1	0.5	
2,4'-DDE	ND	6.1	0.5	
2,4'-DDT	ND	6.1	0.5	
4,4'-DDD	ND	6.1	0.5	
4,4'-DDE	10	6.1	0.5	
4,4'-DDT	ND	6.1	0.5	
Aldrin	ND	6.1	0.5	
Alpha Chlordane	ND	6.1	0.5	
Alpha-BHC	ND	6.1	0.5	
Beta-BHC	ND	6.1	0.5	
Delta-BHC	ND	6.1	0.5	
Dieldrin	ND	6.1	0.5	
Endosulfan I	ND	6.1	0.5	
Endosulfan II	ND	6.1	0.5	
Endosulfan Sulfate	ND	6.1	0.5	
Endrin	ND	6.1	0.5	
Endrin Aldehyde	ND	6.1	0.5	
Endrin Ketone	ND	6.1	0.5	
Gamma Chlordane	ND	6.1	0.5	
Gamma-BHC	ND	6.1	0.5	
Heptachlor	ND	6.1	0.5	
Heptachlor Epoxide	ND	6.1	0.5	
Methoxychlor	ND	6.1	0.5	
Chlordane	ND	61	0.5	
Cis-nonachlor	ND	6.1	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.1	0.5	
Oxychlordane	ND	6.1	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	99	50-135		
Dibutylchloroendate	97	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

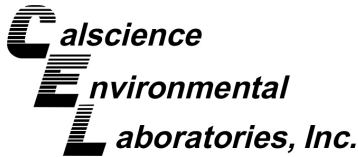
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 13:48	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.5	0.5	
2,4'-DDE	ND	6.5	0.5	
2,4'-DDT	ND	6.5	0.5	
4,4'-DDD	ND	6.5	0.5	
4,4'-DDE	12	6.5	0.5	
4,4'-DDT	ND	6.5	0.5	
Aldrin	ND	6.5	0.5	
Alpha Chlordane	ND	6.5	0.5	
Alpha-BHC	ND	6.5	0.5	
Beta-BHC	ND	6.5	0.5	
Delta-BHC	ND	6.5	0.5	
Dieldrin	ND	6.5	0.5	
Endosulfan I	ND	6.5	0.5	
Endosulfan II	ND	6.5	0.5	
Endosulfan Sulfate	ND	6.5	0.5	
Endrin	ND	6.5	0.5	
Endrin Aldehyde	ND	6.5	0.5	
Endrin Ketone	ND	6.5	0.5	
Gamma Chlordane	ND	6.5	0.5	
Gamma-BHC	ND	6.5	0.5	
Heptachlor	ND	6.5	0.5	
Heptachlor Epoxide	ND	6.5	0.5	
Methoxychlor	ND	6.5	0.5	
Chlordane	ND	65	0.5	
Cis-nonachlor	ND	6.5	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.5	0.5	
Oxychlordane	ND	6.5	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	85	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

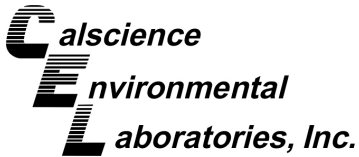
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:03	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.9	0.5	
2,4'-DDE	ND	5.9	0.5	
2,4'-DDT	ND	5.9	0.5	
4,4'-DDD	ND	5.9	0.5	
4,4'-DDE	22	5.9	0.5	
4,4'-DDT	ND	5.9	0.5	
Aldrin	ND	5.9	0.5	
Alpha Chlordane	ND	5.9	0.5	
Alpha-BHC	ND	5.9	0.5	
Beta-BHC	ND	5.9	0.5	
Delta-BHC	ND	5.9	0.5	
Dieldrin	ND	5.9	0.5	
Endosulfan I	ND	5.9	0.5	
Endosulfan II	ND	5.9	0.5	
Endosulfan Sulfate	ND	5.9	0.5	
Endrin	ND	5.9	0.5	
Endrin Aldehyde	ND	5.9	0.5	
Endrin Ketone	ND	5.9	0.5	
Gamma Chlordane	ND	5.9	0.5	
Gamma-BHC	ND	5.9	0.5	
Heptachlor	ND	5.9	0.5	
Heptachlor Epoxide	ND	5.9	0.5	
Methoxychlor	ND	5.9	0.5	
Chlordane	ND	59	0.5	
Cis-nonachlor	ND	5.9	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.9	0.5	
Oxychlordane	ND	5.9	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	97	50-135		
Dibutylchloroendate	83	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

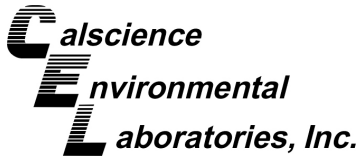
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:17	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.2	0.5	
2,4'-DDE	ND	6.2	0.5	
2,4'-DDT	ND	6.2	0.5	
4,4'-DDD	ND	6.2	0.5	
4,4'-DDE	ND	6.2	0.5	
4,4'-DDT	ND	6.2	0.5	
Aldrin	ND	6.2	0.5	
Alpha Chlordane	ND	6.2	0.5	
Alpha-BHC	ND	6.2	0.5	
Beta-BHC	ND	6.2	0.5	
Delta-BHC	ND	6.2	0.5	
Dieldrin	ND	6.2	0.5	
Endosulfan I	ND	6.2	0.5	
Endosulfan II	ND	6.2	0.5	
Endosulfan Sulfate	ND	6.2	0.5	
Endrin	ND	6.2	0.5	
Endrin Aldehyde	ND	6.2	0.5	
Endrin Ketone	ND	6.2	0.5	
Gamma Chlordane	ND	6.2	0.5	
Gamma-BHC	ND	6.2	0.5	
Heptachlor	ND	6.2	0.5	
Heptachlor Epoxide	ND	6.2	0.5	
Methoxychlor	ND	6.2	0.5	
Chlordane	ND	62	0.5	
Cis-nonachlor	ND	6.2	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.2	0.5	
Oxychlordane	ND	6.2	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135		
Dibutylchloroendate	67	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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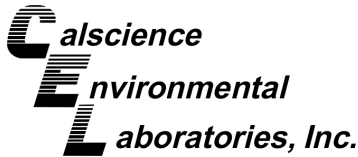
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:31	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.0	0.5	
2,4'-DDE	ND	6.0	0.5	
2,4'-DDT	ND	6.0	0.5	
4,4'-DDD	ND	6.0	0.5	
4,4'-DDE	16	6.0	0.5	
4,4'-DDT	ND	6.0	0.5	
Aldrin	ND	6.0	0.5	
Alpha Chlordane	ND	6.0	0.5	
Alpha-BHC	ND	6.0	0.5	
Beta-BHC	ND	6.0	0.5	
Delta-BHC	ND	6.0	0.5	
Dieldrin	ND	6.0	0.5	
Endosulfan I	ND	6.0	0.5	
Endosulfan II	ND	6.0	0.5	
Endosulfan Sulfate	ND	6.0	0.5	
Endrin	ND	6.0	0.5	
Endrin Aldehyde	ND	6.0	0.5	
Endrin Ketone	ND	6.0	0.5	
Gamma Chlordane	ND	6.0	0.5	
Gamma-BHC	ND	6.0	0.5	
Heptachlor	ND	6.0	0.5	
Heptachlor Epoxide	ND	6.0	0.5	
Methoxychlor	ND	6.0	0.5	
Chlordane	ND	60	0.5	
Cis-nonachlor	ND	6.0	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.0	0.5	
Oxychlordane	ND	6.0	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	94	50-135		
Dibutylchloroendate	63	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

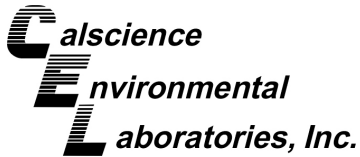
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 14:45	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	18	5.8	0.5	
4,4'-DDT	ND	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.8	0.5	
Oxychlordane	ND	5.8	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	93	50-135		
Dibutylchloroendate	75	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

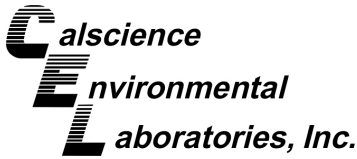
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	GC 51	08/16/13	08/24/13 15:00	130816F06

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

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.9	0.5	
2,4'-DDE	ND	5.9	0.5	
2,4'-DDT	ND	5.9	0.5	
4,4'-DDD	ND	5.9	0.5	
4,4'-DDE	20	5.9	0.5	
4,4'-DDT	ND	5.9	0.5	
Aldrin	ND	5.9	0.5	
Alpha Chlordane	ND	5.9	0.5	
Alpha-BHC	ND	5.9	0.5	
Beta-BHC	ND	5.9	0.5	
Delta-BHC	ND	5.9	0.5	
Dieldrin	ND	5.9	0.5	
Endosulfan I	ND	5.9	0.5	
Endosulfan II	ND	5.9	0.5	
Endosulfan Sulfate	ND	5.9	0.5	
Endrin	ND	5.9	0.5	
Endrin Aldehyde	ND	5.9	0.5	
Endrin Ketone	ND	5.9	0.5	
Gamma Chlordane	ND	5.9	0.5	
Gamma-BHC	ND	5.9	0.5	
Heptachlor	ND	5.9	0.5	
Heptachlor Epoxide	ND	5.9	0.5	
Methoxychlor	ND	5.9	0.5	
Chlordane	ND	59	0.5	
Cis-nonachlor	ND	5.9	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.9	0.5	
Oxychlordane	ND	5.9	0.5	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135		
Dibutylchloroendate	56	50-135		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-294-22	N/A	Soil	GC 51	08/16/13	08/23/13 13:55	130816F05

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	105	50-135	
Dibutylchloroendate	102	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

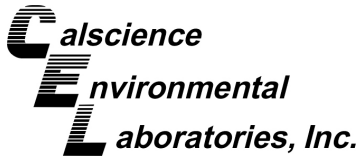
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-294-23	N/A	Soil	GC 51	08/16/13	08/24/13 10:43	130816F06

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2,4,5,6-Tetrachloro-m-Xylene	121	50-135		
Dibutylchloroendate	105	50-135		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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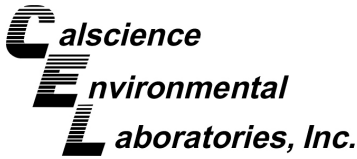
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 13:27	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	70	1	
Acenaphthylene	ND	70	1	
Anthracene	ND	70	1	
Benzo (a) Anthracene	ND	70	1	
Benzo (a) Pyrene	210	70	1	
Benzo (b) Fluoranthene	320	70	1	
Benzo (e) Pyrene	210	70	1	
Benzo (g,h,i) Perylene	ND	70	1	
Benzo (k) Fluoranthene	230	70	1	
Biphenyl	ND	70	1	
Chrysene	87	70	1	
Dibenz (a,h) Anthracene	ND	70	1	
2,6-Dimethylnaphthalene	ND	70	1	
Fluoranthene	ND	70	1	
Fluorene	ND	70	1	
Indeno (1,2,3-c,d) Pyrene	ND	70	1	
2-Methylnaphthalene	ND	70	1	
1-Methylnaphthalene	ND	70	1	
1-Methylphenanthrene	ND	70	1	
Naphthalene	ND	70	1	
Perylene	ND	70	1	
Phenanthrene	ND	70	1	
Pyrene	120	70	1	
1,6,7-Trimethylnaphthalene	ND	70	1	
Dibenzothiophene	ND	70	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	110	14-146		
Nitrobenzene-d5	97	18-162		
p-Terphenyl-d14	138	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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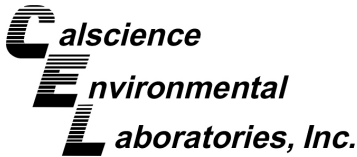
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 13:53	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	70	1	
Acenaphthylene	ND	70	1	
Anthracene	ND	70	1	
Benzo (a) Anthracene	ND	70	1	
Benzo (a) Pyrene	190	70	1	
Benzo (b) Fluoranthene	300	70	1	
Benzo (e) Pyrene	180	70	1	
Benzo (g,h,i) Perylene	ND	70	1	
Benzo (k) Fluoranthene	200	70	1	
Biphenyl	ND	70	1	
Chrysene	73	70	1	
Dibenz (a,h) Anthracene	ND	70	1	
2,6-Dimethylnaphthalene	ND	70	1	
Fluoranthene	ND	70	1	
Fluorene	ND	70	1	
Indeno (1,2,3-c,d) Pyrene	ND	70	1	
2-Methylnaphthalene	ND	70	1	
1-Methylnaphthalene	ND	70	1	
1-Methylphenanthrene	ND	70	1	
Naphthalene	ND	70	1	
Perylene	ND	70	1	
Phenanthrene	ND	70	1	
Pyrene	130	70	1	
1,6,7-Trimethylnaphthalene	ND	70	1	
Dibenzothiophene	ND	70	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	100	14-146		
Nitrobenzene-d5	88	18-162		
p-Terphenyl-d14	118	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

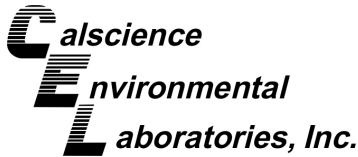
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 14:20	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	71	1	
Acenaphthylene	ND	71	1	
Anthracene	ND	71	1	
Benzo (a) Anthracene	ND	71	1	
Benzo (a) Pyrene	150	71	1	
Benzo (b) Fluoranthene	250	71	1	
Benzo (e) Pyrene	160	71	1	
Benzo (g,h,i) Perylene	ND	71	1	
Benzo (k) Fluoranthene	180	71	1	
Biphenyl	ND	71	1	
Chrysene	ND	71	1	
Dibenz (a,h) Anthracene	ND	71	1	
2,6-Dimethylnaphthalene	ND	71	1	
Fluoranthene	ND	71	1	
Fluorene	ND	71	1	
Indeno (1,2,3-c,d) Pyrene	ND	71	1	
2-Methylnaphthalene	ND	71	1	
1-Methylnaphthalene	ND	71	1	
1-Methylphenanthrene	ND	71	1	
Naphthalene	ND	71	1	
Perylene	ND	71	1	
Phenanthrene	ND	71	1	
Pyrene	110	71	1	
1,6,7-Trimethylnaphthalene	ND	71	1	
Dibenzothiophene	ND	71	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	99	14-146		
Nitrobenzene-d5	105	18-162		
p-Terphenyl-d14	116	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 14:46	130816L01

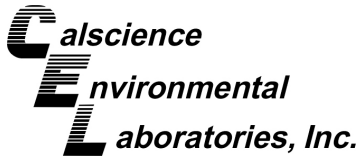
Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	78	1	
Acenaphthylene	ND	78	1	
Anthracene	ND	78	1	
Benzo (a) Anthracene	ND	78	1	
Benzo (a) Pyrene	ND	78	1	
Benzo (b) Fluoranthene	ND	78	1	
Benzo (e) Pyrene	ND	78	1	
Benzo (g,h,i) Perylene	ND	78	1	
Benzo (k) Fluoranthene	ND	78	1	
Biphenyl	ND	78	1	
Chrysene	ND	78	1	
Dibenz (a,h) Anthracene	ND	78	1	
2,6-Dimethylnaphthalene	ND	78	1	
Fluoranthene	ND	78	1	
Fluorene	ND	78	1	
Indeno (1,2,3-c,d) Pyrene	ND	78	1	
2-Methylnaphthalene	ND	78	1	
1-Methylnaphthalene	ND	78	1	
1-Methylphenanthrene	ND	78	1	
Naphthalene	ND	78	1	
Perylene	ND	78	1	
Phenanthrene	ND	78	1	
Pyrene	ND	78	1	
1,6,7-Trimethylnaphthalene	ND	78	1	
Dibenzothiophene	ND	78	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	96	14-146		
Nitrobenzene-d5	97	18-162		
p-Terphenyl-d14	114	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

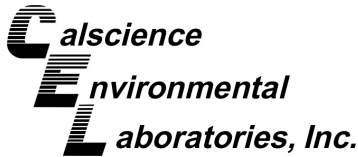
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 15:12	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	72	1	
Acenaphthylene	ND	72	1	
Anthracene	ND	72	1	
Benzo (a) Anthracene	89	72	1	
Benzo (a) Pyrene	210	72	1	
Benzo (b) Fluoranthene	300	72	1	
Benzo (e) Pyrene	200	72	1	
Benzo (g,h,i) Perylene	ND	72	1	
Benzo (k) Fluoranthene	200	72	1	
Biphenyl	ND	72	1	
Chrysene	130	72	1	
Dibenz (a,h) Anthracene	ND	72	1	
2,6-Dimethylnaphthalene	ND	72	1	
Fluoranthene	460	72	1	
Fluorene	ND	72	1	
Indeno (1,2,3-c,d) Pyrene	ND	72	1	
2-Methylnaphthalene	ND	72	1	
1-Methylnaphthalene	ND	72	1	
1-Methylphenanthrene	ND	72	1	
Naphthalene	ND	72	1	
Perylene	ND	72	1	
Phenanthrene	ND	72	1	
Pyrene	1300	72	1	
1,6,7-Trimethylnaphthalene	ND	72	1	
Dibenzothiophene	ND	72	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	94	14-146		
Nitrobenzene-d5	81	18-162		
p-Terphenyl-d14	107	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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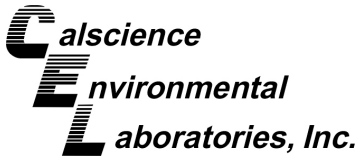
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 15:39	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	68	1	
Acenaphthylene	ND	68	1	
Anthracene	ND	68	1	
Benzo (a) Anthracene	ND	68	1	
Benzo (a) Pyrene	ND	68	1	
Benzo (b) Fluoranthene	ND	68	1	
Benzo (e) Pyrene	ND	68	1	
Benzo (g,h,i) Perylene	ND	68	1	
Benzo (k) Fluoranthene	ND	68	1	
Biphenyl	ND	68	1	
Chrysene	ND	68	1	
Dibenz (a,h) Anthracene	ND	68	1	
2,6-Dimethylnaphthalene	ND	68	1	
Fluoranthene	ND	68	1	
Fluorene	ND	68	1	
Indeno (1,2,3-c,d) Pyrene	ND	68	1	
2-Methylnaphthalene	ND	68	1	
1-Methylnaphthalene	ND	68	1	
1-Methylphenanthrene	ND	68	1	
Naphthalene	ND	68	1	
Perylene	ND	68	1	
Phenanthrene	ND	68	1	
Pyrene	ND	68	1	
1,6,7-Trimethylnaphthalene	ND	68	1	
Dibenzothiophene	ND	68	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	111	14-146		
Nitrobenzene-d5	103	18-162		
p-Terphenyl-d14	128	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

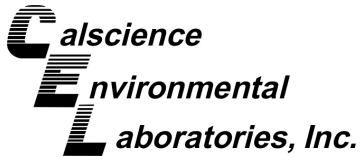
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 18:09	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	180	73	1	
Acenaphthylene	ND	73	1	
Anthracene	ND	73	1	
Benzo (a) Anthracene	95	73	1	
Benzo (a) Pyrene	240	73	1	
Benzo (b) Fluoranthene	340	73	1	
Benzo (e) Pyrene	230	73	1	
Benzo (g,h,i) Perylene	ND	73	1	
Benzo (k) Fluoranthene	250	73	1	
Biphenyl	ND	73	1	
Chrysene	150	73	1	
Dibenz (a,h) Anthracene	ND	73	1	
2,6-Dimethylnaphthalene	ND	73	1	
Fluoranthene	510	73	1	
Fluorene	ND	73	1	
Indeno (1,2,3-c,d) Pyrene	ND	73	1	
2-Methylnaphthalene	ND	73	1	
1-Methylnaphthalene	ND	73	1	
1-Methylphenanthrene	ND	73	1	
Naphthalene	ND	73	1	
Perylene	ND	73	1	
Phenanthrene	ND	73	1	
Pyrene	1500	73	1	
1,6,7-Trimethylnaphthalene	ND	73	1	
Dibenzothiophene	ND	73	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	102	14-146		
Nitrobenzene-d5	96	18-162		
p-Terphenyl-d14	125	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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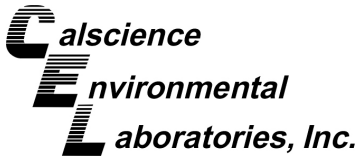
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8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 18:35	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	63	1	
Acenaphthylene	ND	63	1	
Anthracene	ND	63	1	
Benzo (a) Anthracene	ND	63	1	
Benzo (a) Pyrene	140	63	1	
Benzo (b) Fluoranthene	220	63	1	
Benzo (e) Pyrene	140	63	1	
Benzo (g,h,i) Perylene	ND	63	1	
Benzo (k) Fluoranthene	160	63	1	
Biphenyl	ND	63	1	
Chrysene	ND	63	1	
Dibenz (a,h) Anthracene	ND	63	1	
2,6-Dimethylnaphthalene	ND	63	1	
Fluoranthene	ND	63	1	
Fluorene	ND	63	1	
Indeno (1,2,3-c,d) Pyrene	ND	63	1	
2-Methylnaphthalene	ND	63	1	
1-Methylnaphthalene	ND	63	1	
1-Methylphenanthrene	ND	63	1	
Naphthalene	ND	63	1	
Perylene	ND	63	1	
Phenanthrene	ND	63	1	
Pyrene	95	63	1	
1,6,7-Trimethylnaphthalene	ND	63	1	
Dibenzothiophene	ND	63	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	95	14-146		
Nitrobenzene-d5	86	18-162		
p-Terphenyl-d14	115	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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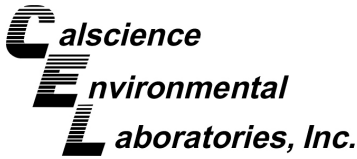
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 19:02	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	65	1	
Acenaphthylene	ND	65	1	
Anthracene	ND	65	1	
Benzo (a) Anthracene	ND	65	1	
Benzo (a) Pyrene	ND	65	1	
Benzo (b) Fluoranthene	ND	65	1	
Benzo (e) Pyrene	ND	65	1	
Benzo (g,h,i) Perylene	ND	65	1	
Benzo (k) Fluoranthene	ND	65	1	
Biphenyl	ND	65	1	
Chrysene	ND	65	1	
Dibenz (a,h) Anthracene	ND	65	1	
2,6-Dimethylnaphthalene	ND	65	1	
Fluoranthene	ND	65	1	
Fluorene	ND	65	1	
Indeno (1,2,3-c,d) Pyrene	ND	65	1	
2-Methylnaphthalene	ND	65	1	
1-Methylnaphthalene	ND	65	1	
1-Methylphenanthrene	ND	65	1	
Naphthalene	ND	65	1	
Perylene	ND	65	1	
Phenanthrene	ND	65	1	
Pyrene	ND	65	1	
1,6,7-Trimethylnaphthalene	ND	65	1	
Dibenzothiophene	ND	65	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	103	14-146		
Nitrobenzene-d5	119	18-162		
p-Terphenyl-d14	115	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

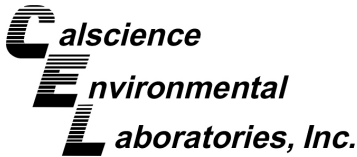
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 19:28	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	69	1	
Acenaphthylene	ND	69	1	
Anthracene	ND	69	1	
Benzo (a) Anthracene	ND	69	1	
Benzo (a) Pyrene	ND	69	1	
Benzo (b) Fluoranthene	ND	69	1	
Benzo (e) Pyrene	ND	69	1	
Benzo (g,h,i) Perylene	ND	69	1	
Benzo (k) Fluoranthene	ND	69	1	
Biphenyl	ND	69	1	
Chrysene	ND	69	1	
Dibenz (a,h) Anthracene	ND	69	1	
2,6-Dimethylnaphthalene	ND	69	1	
Fluoranthene	ND	69	1	
Fluorene	ND	69	1	
Indeno (1,2,3-c,d) Pyrene	ND	69	1	
2-Methylnaphthalene	ND	69	1	
1-Methylnaphthalene	ND	69	1	
1-Methylphenanthrene	ND	69	1	
Naphthalene	ND	69	1	
Perylene	ND	69	1	
Phenanthrene	ND	69	1	
Pyrene	ND	69	1	
1,6,7-Trimethylnaphthalene	ND	69	1	
Dibenzothiophene	ND	69	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	106	14-146		
Nitrobenzene-d5	114	18-162		
p-Terphenyl-d14	120	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

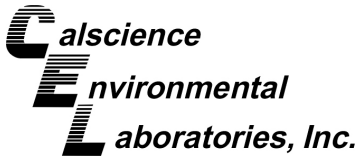
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 19:54	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	71	1	
Acenaphthylene	ND	71	1	
Anthracene	100	71	1	
Benzo (a) Anthracene	150	71	1	
Benzo (a) Pyrene	350	71	1	
Benzo (b) Fluoranthene	480	71	1	
Benzo (e) Pyrene	330	71	1	
Benzo (g,h,i) Perylene	ND	71	1	
Benzo (k) Fluoranthene	360	71	1	
Biphenyl	ND	71	1	
Chrysene	240	71	1	
Dibenz (a,h) Anthracene	ND	71	1	
2,6-Dimethylnaphthalene	ND	71	1	
Fluoranthene	830	71	1	
Fluorene	ND	71	1	
Indeno (1,2,3-c,d) Pyrene	ND	71	1	
2-Methylnaphthalene	ND	71	1	
1-Methylnaphthalene	ND	71	1	
1-Methylphenanthrene	ND	71	1	
Naphthalene	ND	71	1	
Perylene	94	71	1	
Phenanthrene	ND	71	1	
Pyrene	2200	71	1	
1,6,7-Trimethylnaphthalene	ND	71	1	
Dibenzothiophene	ND	71	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	122	14-146		
Nitrobenzene-d5	120	18-162		
p-Terphenyl-d14	143	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 20:21	130816L01

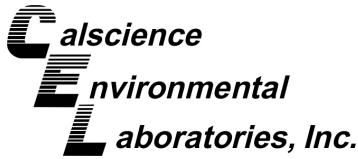
Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	73	1	
Acenaphthylene	ND	73	1	
Anthracene	ND	73	1	
Benzo (a) Anthracene	ND	73	1	
Benzo (a) Pyrene	ND	73	1	
Benzo (b) Fluoranthene	ND	73	1	
Benzo (e) Pyrene	ND	73	1	
Benzo (g,h,i) Perylene	ND	73	1	
Benzo (k) Fluoranthene	ND	73	1	
Biphenyl	ND	73	1	
Chrysene	ND	73	1	
Dibenz (a,h) Anthracene	ND	73	1	
2,6-Dimethylnaphthalene	ND	73	1	
Fluoranthene	ND	73	1	
Fluorene	ND	73	1	
Indeno (1,2,3-c,d) Pyrene	ND	73	1	
2-Methylnaphthalene	ND	73	1	
1-Methylnaphthalene	ND	73	1	
1-Methylphenanthrene	ND	73	1	
Naphthalene	ND	73	1	
Perylene	ND	73	1	
Phenanthrene	ND	73	1	
Pyrene	ND	73	1	
1,6,7-Trimethylnaphthalene	ND	73	1	
Dibenzothiophene	ND	73	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	96	14-146		
Nitrobenzene-d5	80	18-162		
p-Terphenyl-d14	112	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

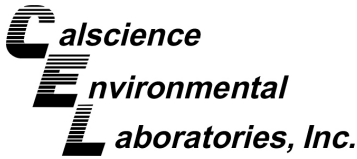
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 20:47	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	73	1	
Acenaphthylene	ND	73	1	
Anthracene	88	73	1	
Benzo (a) Anthracene	130	73	1	
Benzo (a) Pyrene	320	73	1	
Benzo (b) Fluoranthene	450	73	1	
Benzo (e) Pyrene	310	73	1	
Benzo (g,h,i) Perylene	ND	73	1	
Benzo (k) Fluoranthene	330	73	1	
Biphenyl	ND	73	1	
Chrysene	200	73	1	
Dibenz (a,h) Anthracene	ND	73	1	
2,6-Dimethylnaphthalene	ND	73	1	
Fluoranthene	790	73	1	
Fluorene	ND	73	1	
Indeno (1,2,3-c,d) Pyrene	ND	73	1	
2-Methylnaphthalene	ND	73	1	
1-Methylnaphthalene	ND	73	1	
1-Methylphenanthrene	ND	73	1	
Naphthalene	ND	73	1	
Perylene	90	73	1	
Phenanthrene	ND	73	1	
Pyrene	2200	73	1	
1,6,7-Trimethylnaphthalene	ND	73	1	
Dibenzothiophene	ND	73	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	117	14-146		
Nitrobenzene-d5	112	18-162		
p-Terphenyl-d14	136	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

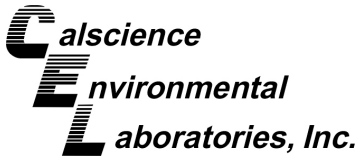
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 21:13	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	67	1	
Acenaphthylene	ND	67	1	
Anthracene	ND	67	1	
Benzo (a) Anthracene	93	67	1	
Benzo (a) Pyrene	240	67	1	
Benzo (b) Fluoranthene	340	67	1	
Benzo (e) Pyrene	230	67	1	
Benzo (g,h,i) Perylene	ND	67	1	
Benzo (k) Fluoranthene	250	67	1	
Biphenyl	ND	67	1	
Chrysene	150	67	1	
Dibenz (a,h) Anthracene	ND	67	1	
2,6-Dimethylnaphthalene	ND	67	1	
Fluoranthene	550	67	1	
Fluorene	ND	67	1	
Indeno (1,2,3-c,d) Pyrene	ND	67	1	
2-Methylnaphthalene	ND	67	1	
1-Methylnaphthalene	ND	67	1	
1-Methylphenanthrene	ND	67	1	
Naphthalene	ND	67	1	
Perylene	69	67	1	
Phenanthrene	ND	67	1	
Pyrene	1500	67	1	
1,6,7-Trimethylnaphthalene	ND	67	1	
Dibenzothiophene	ND	67	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	111	14-146		
Nitrobenzene-d5	109	18-162		
p-Terphenyl-d14	127	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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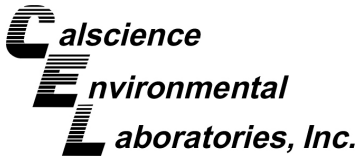
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC/MS AAA	08/16/13	08/23/13 21:40	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	71	1	
Acenaphthylene	ND	71	1	
Anthracene	ND	71	1	
Benzo (a) Anthracene	ND	71	1	
Benzo (a) Pyrene	150	71	1	
Benzo (b) Fluoranthene	230	71	1	
Benzo (e) Pyrene	150	71	1	
Benzo (g,h,i) Perylene	ND	71	1	
Benzo (k) Fluoranthene	180	71	1	
Biphenyl	ND	71	1	
Chrysene	ND	71	1	
Dibenz (a,h) Anthracene	ND	71	1	
2,6-Dimethylnaphthalene	ND	71	1	
Fluoranthene	ND	71	1	
Fluorene	ND	71	1	
Indeno (1,2,3-c,d) Pyrene	ND	71	1	
2-Methylnaphthalene	ND	71	1	
1-Methylnaphthalene	ND	71	1	
1-Methylphenanthrene	ND	71	1	
Naphthalene	ND	71	1	
Perylene	ND	71	1	
Phenanthrene	ND	71	1	
Pyrene	98	71	1	
1,6,7-Trimethylnaphthalene	ND	71	1	
Dibenzothiophene	ND	71	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	102	14-146		
Nitrobenzene-d5	89	18-162		
p-Terphenyl-d14	119	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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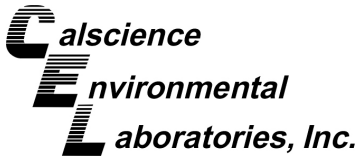
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 22:06	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	62	1	
Acenaphthylene	ND	62	1	
Anthracene	ND	62	1	
Benzo (a) Anthracene	ND	62	1	
Benzo (a) Pyrene	ND	62	1	
Benzo (b) Fluoranthene	ND	62	1	
Benzo (e) Pyrene	ND	62	1	
Benzo (g,h,i) Perylene	ND	62	1	
Benzo (k) Fluoranthene	ND	62	1	
Biphenyl	ND	62	1	
Chrysene	ND	62	1	
Dibenz (a,h) Anthracene	ND	62	1	
2,6-Dimethylnaphthalene	ND	62	1	
Fluoranthene	ND	62	1	
Fluorene	ND	62	1	
Indeno (1,2,3-c,d) Pyrene	ND	62	1	
2-Methylnaphthalene	ND	62	1	
1-Methylnaphthalene	ND	62	1	
1-Methylphenanthrene	ND	62	1	
Naphthalene	ND	62	1	
Perylene	ND	62	1	
Phenanthrene	ND	62	1	
Pyrene	ND	62	1	
1,6,7-Trimethylnaphthalene	ND	62	1	
Dibenzothiophene	ND	62	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	98	14-146		
Nitrobenzene-d5	81	18-162		
p-Terphenyl-d14	112	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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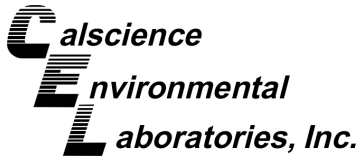
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 22:32	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	ND	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	ND	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	ND	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	ND	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	ND	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	94	14-146		
Nitrobenzene-d5	70	18-162		
p-Terphenyl-d14	105	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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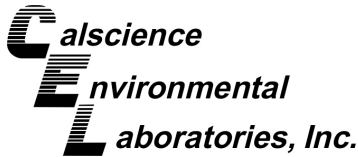
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3W	13-08-0936-18-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 22:59	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	ND	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	ND	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	ND	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	ND	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	ND	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	116	14-146		
Nitrobenzene-d5	105	18-162		
p-Terphenyl-d14	132	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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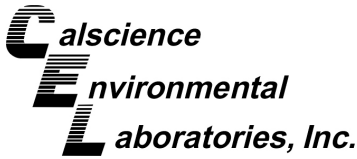
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 23:25	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	57	1	
Acenaphthylene	ND	57	1	
Anthracene	ND	57	1	
Benzo (a) Anthracene	ND	57	1	
Benzo (a) Pyrene	ND	57	1	
Benzo (b) Fluoranthene	ND	57	1	
Benzo (e) Pyrene	ND	57	1	
Benzo (g,h,i) Perylene	ND	57	1	
Benzo (k) Fluoranthene	ND	57	1	
Biphenyl	ND	57	1	
Chrysene	ND	57	1	
Dibenz (a,h) Anthracene	ND	57	1	
2,6-Dimethylnaphthalene	ND	57	1	
Fluoranthene	ND	57	1	
Fluorene	ND	57	1	
Indeno (1,2,3-c,d) Pyrene	ND	57	1	
2-Methylnaphthalene	ND	57	1	
1-Methylnaphthalene	ND	57	1	
1-Methylphenanthrene	ND	57	1	
Naphthalene	ND	57	1	
Perylene	ND	57	1	
Phenanthrene	ND	57	1	
Pyrene	ND	57	1	
1,6,7-Trimethylnaphthalene	ND	57	1	
Dibenzothiophene	ND	57	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	110	14-146		
Nitrobenzene-d5	79	18-162		
p-Terphenyl-d14	124	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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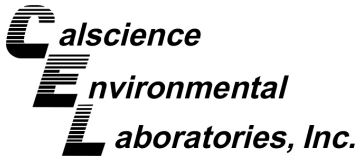
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5W	13-08-0936-20-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/23/13 23:51	130816L01

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	61	1	
Acenaphthylene	ND	61	1	
Anthracene	ND	61	1	
Benzo (a) Anthracene	ND	61	1	
Benzo (a) Pyrene	ND	61	1	
Benzo (b) Fluoranthene	ND	61	1	
Benzo (e) Pyrene	62	61	1	
Benzo (g,h,i) Perylene	ND	61	1	
Benzo (k) Fluoranthene	ND	61	1	
Biphenyl	ND	61	1	
Chrysene	ND	61	1	
Dibenz (a,h) Anthracene	ND	61	1	
2,6-Dimethylnaphthalene	ND	61	1	
Fluoranthene	230	61	1	
Fluorene	ND	61	1	
Indeno (1,2,3-c,d) Pyrene	ND	61	1	
2-Methylnaphthalene	ND	61	1	
1-Methylnaphthalene	ND	61	1	
1-Methylphenanthrene	ND	61	1	
Naphthalene	ND	61	1	
Perylene	ND	61	1	
Phenanthrene	ND	61	1	
Pyrene	470	61	1	
1,6,7-Trimethylnaphthalene	ND	61	1	
Dibenzothiophene	ND	61	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	94	14-146		
Nitrobenzene-d5	72	18-162		
p-Terphenyl-d14	103	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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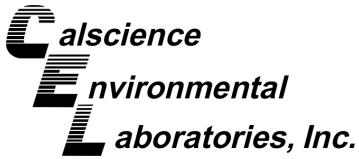
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6W	13-08-0936-21-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 00:18	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	65	1	
Acenaphthylene	ND	65	1	
Anthracene	ND	65	1	
Benzo (a) Anthracene	ND	65	1	
Benzo (a) Pyrene	ND	65	1	
Benzo (b) Fluoranthene	ND	65	1	
Benzo (e) Pyrene	ND	65	1	
Benzo (g,h,i) Perylene	ND	65	1	
Benzo (k) Fluoranthene	ND	65	1	
Biphenyl	ND	65	1	
Chrysene	ND	65	1	
Dibenz (a,h) Anthracene	ND	65	1	
2,6-Dimethylnaphthalene	ND	65	1	
Fluoranthene	ND	65	1	
Fluorene	ND	65	1	
Indeno (1,2,3-c,d) Pyrene	ND	65	1	
2-Methylnaphthalene	ND	65	1	
1-Methylnaphthalene	ND	65	1	
1-Methylphenanthrene	ND	65	1	
Naphthalene	ND	65	1	
Perylene	ND	65	1	
Phenanthrene	ND	65	1	
Pyrene	ND	65	1	
1,6,7-Trimethylnaphthalene	ND	65	1	
Dibenzothiophene	ND	65	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	104	14-146		
Nitrobenzene-d5	76	18-162		
p-Terphenyl-d14	117	34-148		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

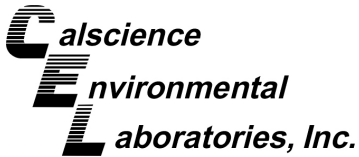
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 00:44	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	59	51	1	
Acenaphthylene	ND	51	1	
Anthracene	ND	51	1	
Benzo (a) Anthracene	ND	51	1	
Benzo (a) Pyrene	ND	51	1	
Benzo (b) Fluoranthene	ND	51	1	
Benzo (e) Pyrene	ND	51	1	
Benzo (g,h,i) Perylene	ND	51	1	
Benzo (k) Fluoranthene	ND	51	1	
Biphenyl	ND	51	1	
Chrysene	ND	51	1	
Dibenz (a,h) Anthracene	ND	51	1	
2,6-Dimethylnaphthalene	ND	51	1	
Fluoranthene	98	51	1	
Fluorene	ND	51	1	
Indeno (1,2,3-c,d) Pyrene	ND	51	1	
2-Methylnaphthalene	ND	51	1	
1-Methylnaphthalene	ND	51	1	
1-Methylphenanthrene	ND	51	1	
Naphthalene	ND	51	1	
Perylene	ND	51	1	
Phenanthrene	ND	51	1	
Pyrene	190	51	1	
1,6,7-Trimethylnaphthalene	ND	51	1	
Dibenzothiophene	ND	51	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	101	14-146		
Nitrobenzene-d5	70	18-162		
p-Terphenyl-d14	113	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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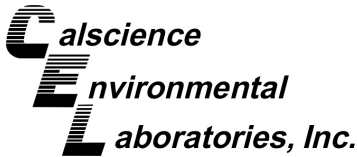
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8W	13-08-0936-23-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 01:10	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	ND	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	ND	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	ND	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	65	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	ND	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	136	14-146		
Nitrobenzene-d5	101	18-162		
p-Terphenyl-d14	147	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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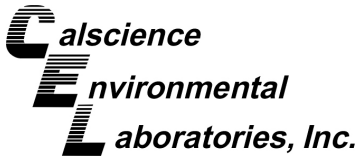
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 01:36	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	61	1	
Acenaphthylene	ND	61	1	
Anthracene	ND	61	1	
Benzo (a) Anthracene	ND	61	1	
Benzo (a) Pyrene	ND	61	1	
Benzo (b) Fluoranthene	ND	61	1	
Benzo (e) Pyrene	ND	61	1	
Benzo (g,h,i) Perylene	ND	61	1	
Benzo (k) Fluoranthene	ND	61	1	
Biphenyl	ND	61	1	
Chrysene	ND	61	1	
Dibenz (a,h) Anthracene	ND	61	1	
2,6-Dimethylnaphthalene	ND	61	1	
Fluoranthene	ND	61	1	
Fluorene	ND	61	1	
Indeno (1,2,3-c,d) Pyrene	ND	61	1	
2-Methylnaphthalene	ND	61	1	
1-Methylnaphthalene	ND	61	1	
1-Methylphenanthrene	ND	61	1	
Naphthalene	ND	61	1	
Perylene	ND	61	1	
Phenanthrene	ND	61	1	
Pyrene	ND	61	1	
1,6,7-Trimethylnaphthalene	ND	61	1	
Dibenzothiophene	ND	61	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	107	14-146		
Nitrobenzene-d5	78	18-162		
p-Terphenyl-d14	120	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

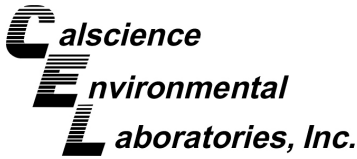
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 02:03	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	65	1	
Acenaphthylene	ND	65	1	
Anthracene	ND	65	1	
Benzo (a) Anthracene	ND	65	1	
Benzo (a) Pyrene	ND	65	1	
Benzo (b) Fluoranthene	ND	65	1	
Benzo (e) Pyrene	ND	65	1	
Benzo (g,h,i) Perylene	ND	65	1	
Benzo (k) Fluoranthene	ND	65	1	
Biphenyl	ND	65	1	
Chrysene	ND	65	1	
Dibenz (a,h) Anthracene	ND	65	1	
2,6-Dimethylnaphthalene	ND	65	1	
Fluoranthene	ND	65	1	
Fluorene	ND	65	1	
Indeno (1,2,3-c,d) Pyrene	ND	65	1	
2-Methylnaphthalene	ND	65	1	
1-Methylnaphthalene	ND	65	1	
1-Methylphenanthrene	ND	65	1	
Naphthalene	ND	65	1	
Perylene	ND	65	1	
Phenanthrene	ND	65	1	
Pyrene	ND	65	1	
1,6,7-Trimethylnaphthalene	ND	65	1	
Dibenzothiophene	ND	65	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	126	14-146		
Nitrobenzene-d5	101	18-162		
p-Terphenyl-d14	141	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

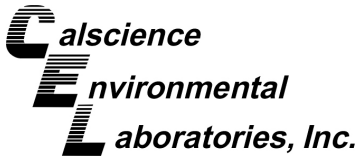
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 02:29	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	68	59	1	
Acenaphthylene	ND	59	1	
Anthracene	ND	59	1	
Benzo (a) Anthracene	ND	59	1	
Benzo (a) Pyrene	ND	59	1	
Benzo (b) Fluoranthene	80	59	1	
Benzo (e) Pyrene	89	59	1	
Benzo (g,h,i) Perylene	ND	59	1	
Benzo (k) Fluoranthene	69	59	1	
Biphenyl	ND	59	1	
Chrysene	86	59	1	
Dibenz (a,h) Anthracene	ND	59	1	
2,6-Dimethylnaphthalene	ND	59	1	
Fluoranthene	410	59	1	
Fluorene	ND	59	1	
Indeno (1,2,3-c,d) Pyrene	ND	59	1	
2-Methylnaphthalene	ND	59	1	
1-Methylnaphthalene	ND	59	1	
1-Methylphenanthrene	ND	59	1	
Naphthalene	ND	59	1	
Perylene	ND	59	1	
Phenanthrene	ND	59	1	
Pyrene	850	59	1	
1,6,7-Trimethylnaphthalene	ND	59	1	
Dibenzothiophene	ND	59	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	113	14-146		
Nitrobenzene-d5	84	18-162		
p-Terphenyl-d14	122	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

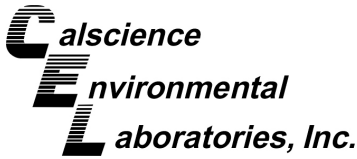
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 02:55	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	62	1	
Acenaphthylene	ND	62	1	
Anthracene	ND	62	1	
Benzo (a) Anthracene	ND	62	1	
Benzo (a) Pyrene	ND	62	1	
Benzo (b) Fluoranthene	ND	62	1	
Benzo (e) Pyrene	ND	62	1	
Benzo (g,h,i) Perylene	ND	62	1	
Benzo (k) Fluoranthene	ND	62	1	
Biphenyl	ND	62	1	
Chrysene	ND	62	1	
Dibenz (a,h) Anthracene	ND	62	1	
2,6-Dimethylnaphthalene	ND	62	1	
Fluoranthene	ND	62	1	
Fluorene	ND	62	1	
Indeno (1,2,3-c,d) Pyrene	ND	62	1	
2-Methylnaphthalene	ND	62	1	
1-Methylnaphthalene	ND	62	1	
1-Methylphenanthrene	ND	62	1	
Naphthalene	ND	62	1	
Perylene	ND	62	1	
Phenanthrene	ND	62	1	
Pyrene	ND	62	1	
1,6,7-Trimethylnaphthalene	ND	62	1	
Dibenzothiophene	ND	62	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	91	14-146		
Nitrobenzene-d5	77	18-162		
p-Terphenyl-d14	103	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 03:21	130816L02

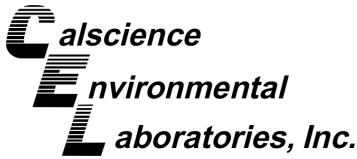
Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	60	1	
Acenaphthylene	ND	60	1	
Anthracene	62	60	1	
Benzo (a) Anthracene	ND	60	1	
Benzo (a) Pyrene	ND	60	1	
Benzo (b) Fluoranthene	62	60	1	
Benzo (e) Pyrene	77	60	1	
Benzo (g,h,i) Perylene	ND	60	1	
Benzo (k) Fluoranthene	66	60	1	
Biphenyl	ND	60	1	
Chrysene	69	60	1	
Dibenz (a,h) Anthracene	ND	60	1	
2,6-Dimethylnaphthalene	60	60	1	
Fluoranthene	290	60	1	
Fluorene	ND	60	1	
Indeno (1,2,3-c,d) Pyrene	ND	60	1	
2-Methylnaphthalene	ND	60	1	
1-Methylnaphthalene	ND	60	1	
1-Methylphenanthrene	ND	60	1	
Naphthalene	ND	60	1	
Perylene	ND	60	1	
Phenanthrene	ND	60	1	
Pyrene	530	60	1	
1,6,7-Trimethylnaphthalene	ND	60	1	
Dibenzothiophene	ND	60	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	113	14-146		
Nitrobenzene-d5	88	18-162		
p-Terphenyl-d14	130	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

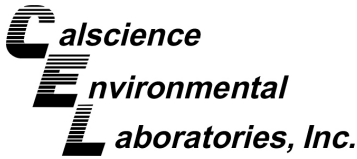
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 03:48	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	71	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	64	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	270	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	ND	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	560	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	113	14-146		
Nitrobenzene-d5	102	18-162		
p-Terphenyl-d14	126	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

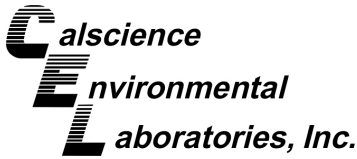
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	GC/MS AAA	08/16/13	08/24/13 04:14	130816L02

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

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	59	1	
Acenaphthylene	ND	59	1	
Anthracene	ND	59	1	
Benzo (a) Anthracene	ND	59	1	
Benzo (a) Pyrene	ND	59	1	
Benzo (b) Fluoranthene	ND	59	1	
Benzo (e) Pyrene	ND	59	1	
Benzo (g,h,i) Perylene	ND	59	1	
Benzo (k) Fluoranthene	ND	59	1	
Biphenyl	ND	59	1	
Chrysene	ND	59	1	
Dibenz (a,h) Anthracene	ND	59	1	
2,6-Dimethylnaphthalene	ND	59	1	
Fluoranthene	ND	59	1	
Fluorene	ND	59	1	
Indeno (1,2,3-c,d) Pyrene	ND	59	1	
2-Methylnaphthalene	ND	59	1	
1-Methylnaphthalene	ND	59	1	
1-Methylphenanthrene	ND	59	1	
Naphthalene	ND	59	1	
Perylene	ND	59	1	
Phenanthrene	ND	59	1	
Pyrene	ND	59	1	
1,6,7-Trimethylnaphthalene	ND	59	1	
Dibenzothiophene	ND	59	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
2-Fluorobiphenyl	103	14-146		
Nitrobenzene-d5	89	18-162		
p-Terphenyl-d14	117	34-148		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

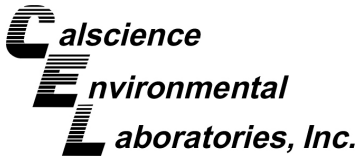
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-943-5	N/A	Soil	GC/MS AAA	08/16/13	08/23/13 11:15	130816L01

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	108	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	128	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

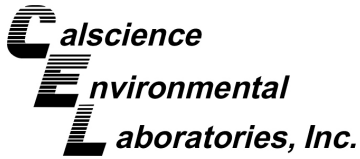
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-943-6	N/A	Soil	GC/MS AAA	08/16/13	08/23/13 16:05	130816L02

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	84	18-162	
p-Terphenyl-d14	106	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

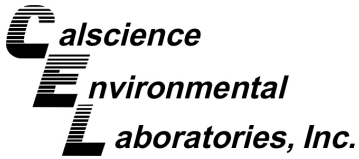
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	13-08-0936-1-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 14:18	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.5	1	
PCB008	ND	3.5	1	
PCB018	ND	3.5	1	
PCB028	3.6	3.5	1	
PCB031	ND	3.5	1	
PCB033	ND	3.5	1	
PCB037	ND	3.5	1	
PCB044	ND	3.5	1	
PCB049	7.5	3.5	1	
PCB052	5.6	3.5	1	
PCB056	ND	3.5	1	
PCB060	ND	3.5	1	
PCB066	5.7	3.5	1	
PCB070	5.3	3.5	1	
PCB074	ND	3.5	1	
PCB077	ND	3.5	1	
PCB081	ND	3.5	1	
PCB087	3.9	3.5	1	
PCB095	8.4	3.5	1	
PCB097	5.1	3.5	1	
PCB099	5.9	3.5	1	
PCB101	12	3.5	1	
PCB105	4.1	3.5	1	
PCB110	12	3.5	1	
PCB114	ND	3.5	1	
PCB118	11	3.5	1	
PCB119	ND	3.5	1	
PCB123	ND	3.5	1	
PCB126	ND	3.5	1	
PCB128	4.0	3.5	1	
PCB132	ND	3.5	1	
PCB138/158	14	7.0	1	
PCB141	ND	3.5	1	
PCB149	10	3.5	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

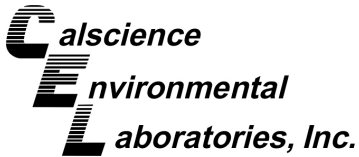
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	4.8	3.5	1	
PCB153	17	3.5	1	
PCB156	ND	3.5	1	
PCB157	ND	3.5	1	
PCB167	ND	3.5	1	
PCB168	ND	3.5	1	
PCB169	ND	3.5	1	
PCB170	ND	3.5	1	
PCB174	ND	3.5	1	
PCB177	ND	3.5	1	
PCB180	4.8	3.5	1	
PCB183	ND	3.5	1	
PCB184	ND	3.5	1	
PCB187	ND	3.5	1	
PCB189	ND	3.5	1	
PCB194	ND	3.5	1	
PCB195	ND	3.5	1	
PCB200	ND	3.5	1	
PCB201	ND	3.5	1	
PCB203	ND	3.5	1	
PCB206	ND	3.5	1	
PCB209	ND	3.5	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	100	14-146		
p-Terphenyl-d14	117	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

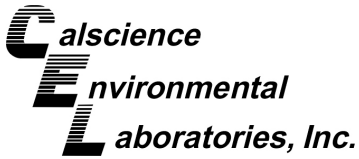
Page 3 of 64

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	13-08-0936-2-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 14:48	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.5	1	
PCB008	ND	3.5	1	
PCB018	ND	3.5	1	
PCB028	ND	3.5	1	
PCB031	ND	3.5	1	
PCB033	ND	3.5	1	
PCB037	ND	3.5	1	
PCB044	ND	3.5	1	
PCB049	6.0	3.5	1	
PCB052	4.4	3.5	1	
PCB056	ND	3.5	1	
PCB060	ND	3.5	1	
PCB066	4.3	3.5	1	
PCB070	4.1	3.5	1	
PCB074	ND	3.5	1	
PCB077	ND	3.5	1	
PCB081	ND	3.5	1	
PCB087	ND	3.5	1	
PCB095	6.8	3.5	1	
PCB097	4.2	3.5	1	
PCB099	4.8	3.5	1	
PCB101	9.8	3.5	1	
PCB105	3.9	3.5	1	
PCB110	10	3.5	1	
PCB114	ND	3.5	1	
PCB118	8.7	3.5	1	
PCB119	ND	3.5	1	
PCB123	ND	3.5	1	
PCB126	ND	3.5	1	
PCB128	ND	3.5	1	
PCB132	ND	3.5	1	
PCB138/158	10	7.0	1	
PCB141	ND	3.5	1	
PCB149	8.1	3.5	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

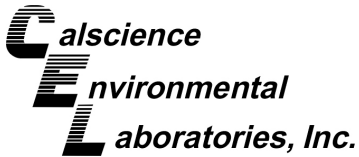
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.7	3.5	1	
PCB153	13	3.5	1	
PCB156	ND	3.5	1	
PCB157	ND	3.5	1	
PCB167	ND	3.5	1	
PCB168	ND	3.5	1	
PCB169	ND	3.5	1	
PCB170	ND	3.5	1	
PCB174	ND	3.5	1	
PCB177	ND	3.5	1	
PCB180	3.9	3.5	1	
PCB183	ND	3.5	1	
PCB184	ND	3.5	1	
PCB187	ND	3.5	1	
PCB189	ND	3.5	1	
PCB194	ND	3.5	1	
PCB195	ND	3.5	1	
PCB200	ND	3.5	1	
PCB201	ND	3.5	1	
PCB203	ND	3.5	1	
PCB206	ND	3.5	1	
PCB209	ND	3.5	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	98	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	13-08-0936-3-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 15:18	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.5	1	
PCB008	ND	3.5	1	
PCB018	ND	3.5	1	
PCB028	ND	3.5	1	
PCB031	ND	3.5	1	
PCB033	ND	3.5	1	
PCB037	ND	3.5	1	
PCB044	ND	3.5	1	
PCB049	4.5	3.5	1	
PCB052	3.7	3.5	1	
PCB056	ND	3.5	1	
PCB060	ND	3.5	1	
PCB066	4.1	3.5	1	
PCB070	3.7	3.5	1	
PCB074	ND	3.5	1	
PCB077	ND	3.5	1	
PCB081	ND	3.5	1	
PCB087	ND	3.5	1	
PCB095	5.7	3.5	1	
PCB097	ND	3.5	1	
PCB099	3.6	3.5	1	
PCB101	8.0	3.5	1	
PCB105	ND	3.5	1	
PCB110	8.1	3.5	1	
PCB114	ND	3.5	1	
PCB118	7.4	3.5	1	
PCB119	ND	3.5	1	
PCB123	ND	3.5	1	
PCB126	ND	3.5	1	
PCB128	3.6	3.5	1	
PCB132	ND	3.5	1	
PCB138/158	9.8	7.1	1	
PCB141	ND	3.5	1	
PCB149	7.1	3.5	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

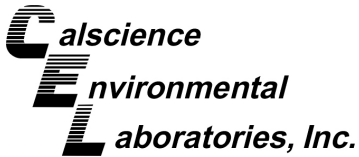
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.8	3.5	1	
PCB153	11	3.5	1	
PCB156	ND	3.5	1	
PCB157	ND	3.5	1	
PCB167	ND	3.5	1	
PCB168	ND	3.5	1	
PCB169	ND	3.5	1	
PCB170	ND	3.5	1	
PCB174	ND	3.5	1	
PCB177	ND	3.5	1	
PCB180	3.8	3.5	1	
PCB183	ND	3.5	1	
PCB184	ND	3.5	1	
PCB187	ND	3.5	1	
PCB189	ND	3.5	1	
PCB194	ND	3.5	1	
PCB195	ND	3.5	1	
PCB200	ND	3.5	1	
PCB201	ND	3.5	1	
PCB203	ND	3.5	1	
PCB206	ND	3.5	1	
PCB209	ND	3.5	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

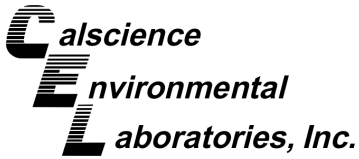
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	13-08-0936-4-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 15:48	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.9	1	
PCB008	ND	3.9	1	
PCB018	ND	3.9	1	
PCB028	ND	3.9	1	
PCB031	ND	3.9	1	
PCB033	ND	3.9	1	
PCB037	ND	3.9	1	
PCB044	ND	3.9	1	
PCB049	ND	3.9	1	
PCB052	ND	3.9	1	
PCB056	ND	3.9	1	
PCB060	ND	3.9	1	
PCB066	ND	3.9	1	
PCB070	ND	3.9	1	
PCB074	ND	3.9	1	
PCB077	ND	3.9	1	
PCB081	ND	3.9	1	
PCB087	ND	3.9	1	
PCB095	ND	3.9	1	
PCB097	ND	3.9	1	
PCB099	ND	3.9	1	
PCB101	ND	3.9	1	
PCB105	ND	3.9	1	
PCB110	ND	3.9	1	
PCB114	ND	3.9	1	
PCB118	ND	3.9	1	
PCB119	ND	3.9	1	
PCB123	ND	3.9	1	
PCB126	ND	3.9	1	
PCB128	ND	3.9	1	
PCB132	ND	3.9	1	
PCB138/158	ND	7.8	1	
PCB141	ND	3.9	1	
PCB149	ND	3.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

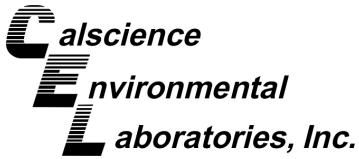
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.9	1	
PCB153	ND	3.9	1	
PCB156	ND	3.9	1	
PCB157	ND	3.9	1	
PCB167	ND	3.9	1	
PCB168	ND	3.9	1	
PCB169	ND	3.9	1	
PCB170	ND	3.9	1	
PCB174	ND	3.9	1	
PCB177	ND	3.9	1	
PCB180	ND	3.9	1	
PCB183	ND	3.9	1	
PCB184	ND	3.9	1	
PCB187	ND	3.9	1	
PCB189	ND	3.9	1	
PCB194	ND	3.9	1	
PCB195	ND	3.9	1	
PCB200	ND	3.9	1	
PCB201	ND	3.9	1	
PCB203	ND	3.9	1	
PCB206	ND	3.9	1	
PCB209	ND	3.9	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	84	14-146		
p-Terphenyl-d14	111	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

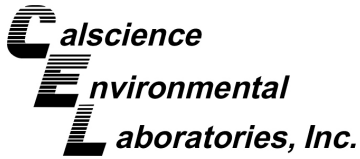
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	13-08-0936-5-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 16:17	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	6.4	3.6	1	
PCB052	5.5	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	4.6	3.6	1	
PCB070	4.8	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	5.5	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	6.8	3.6	1	
PCB105	ND	3.6	1	
PCB110	7.2	3.6	1	
PCB114	ND	3.6	1	
PCB118	5.5	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.2	1	
PCB141	ND	3.6	1	
PCB149	3.7	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

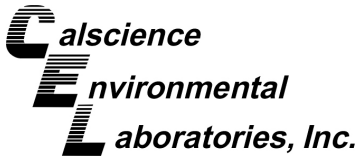
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.6	1	
PCB153	6.5	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	99	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

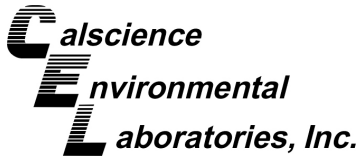
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	13-08-0936-6-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 16:47	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.4	1	
PCB008	ND	3.4	1	
PCB018	ND	3.4	1	
PCB028	ND	3.4	1	
PCB031	ND	3.4	1	
PCB033	ND	3.4	1	
PCB037	ND	3.4	1	
PCB044	ND	3.4	1	
PCB049	ND	3.4	1	
PCB052	ND	3.4	1	
PCB056	ND	3.4	1	
PCB060	ND	3.4	1	
PCB066	ND	3.4	1	
PCB070	ND	3.4	1	
PCB074	ND	3.4	1	
PCB077	ND	3.4	1	
PCB081	ND	3.4	1	
PCB087	ND	3.4	1	
PCB095	ND	3.4	1	
PCB097	ND	3.4	1	
PCB099	ND	3.4	1	
PCB101	ND	3.4	1	
PCB105	ND	3.4	1	
PCB110	ND	3.4	1	
PCB114	ND	3.4	1	
PCB118	ND	3.4	1	
PCB119	ND	3.4	1	
PCB123	ND	3.4	1	
PCB126	ND	3.4	1	
PCB128	ND	3.4	1	
PCB132	ND	3.4	1	
PCB138/158	ND	6.8	1	
PCB141	ND	3.4	1	
PCB149	ND	3.4	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

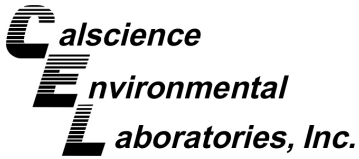
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.4	1	
PCB153	ND	3.4	1	
PCB156	ND	3.4	1	
PCB157	ND	3.4	1	
PCB167	ND	3.4	1	
PCB168	ND	3.4	1	
PCB169	ND	3.4	1	
PCB170	ND	3.4	1	
PCB174	ND	3.4	1	
PCB177	ND	3.4	1	
PCB180	ND	3.4	1	
PCB183	ND	3.4	1	
PCB184	ND	3.4	1	
PCB187	ND	3.4	1	
PCB189	ND	3.4	1	
PCB194	ND	3.4	1	
PCB195	ND	3.4	1	
PCB200	ND	3.4	1	
PCB201	ND	3.4	1	
PCB203	ND	3.4	1	
PCB206	ND	3.4	1	
PCB209	ND	3.4	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	69	14-146		
p-Terphenyl-d14	92	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

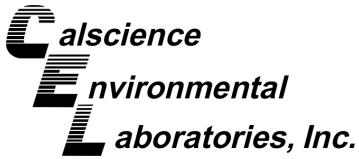
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	13-08-0936-7-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 17:18	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	4.0	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	7.5	3.6	1	
PCB052	4.9	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	4.6	3.6	1	
PCB070	5.2	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	4.7	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	7.4	3.6	1	
PCB105	4.2	3.6	1	
PCB110	7.6	3.6	1	
PCB114	ND	3.6	1	
PCB118	6.7	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.3	1	
PCB141	ND	3.6	1	
PCB149	4.2	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

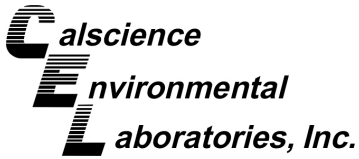
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.6	1	
PCB153	6.9	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	78	14-146		
p-Terphenyl-d14	114	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

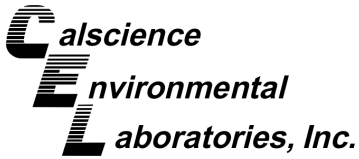
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	13-08-0936-8-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 17:48	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	5.2	3.1	1	
PCB052	4.0	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	4.0	3.1	1	
PCB070	3.4	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	5.0	3.1	1	
PCB097	3.3	3.1	1	
PCB099	4.2	3.1	1	
PCB101	9.2	3.1	1	
PCB105	ND	3.1	1	
PCB110	9.5	3.1	1	
PCB114	ND	3.1	1	
PCB118	7.6	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	8.7	6.3	1	
PCB141	ND	3.1	1	
PCB149	6.3	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3540C  
 Method: EPA 8270C SIM PCB Congeners  
 Units: ug/kg

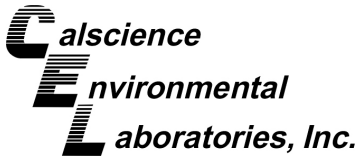
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.4	3.1	1	
PCB153	11	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	ND	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	ND	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	74	14-146		
p-Terphenyl-d14	109	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

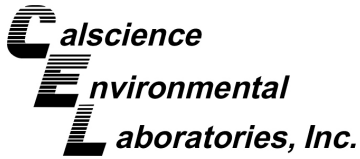
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	13-08-0936-9-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 18:17	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.2	1	
PCB008	ND	3.2	1	
PCB018	ND	3.2	1	
PCB028	ND	3.2	1	
PCB031	ND	3.2	1	
PCB033	ND	3.2	1	
PCB037	ND	3.2	1	
PCB044	ND	3.2	1	
PCB049	ND	3.2	1	
PCB052	ND	3.2	1	
PCB056	ND	3.2	1	
PCB060	ND	3.2	1	
PCB066	ND	3.2	1	
PCB070	ND	3.2	1	
PCB074	ND	3.2	1	
PCB077	ND	3.2	1	
PCB081	ND	3.2	1	
PCB087	ND	3.2	1	
PCB095	ND	3.2	1	
PCB097	ND	3.2	1	
PCB099	ND	3.2	1	
PCB101	ND	3.2	1	
PCB105	ND	3.2	1	
PCB110	ND	3.2	1	
PCB114	ND	3.2	1	
PCB118	ND	3.2	1	
PCB119	ND	3.2	1	
PCB123	ND	3.2	1	
PCB126	ND	3.2	1	
PCB128	ND	3.2	1	
PCB132	ND	3.2	1	
PCB138/158	ND	6.5	1	
PCB141	ND	3.2	1	
PCB149	ND	3.2	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

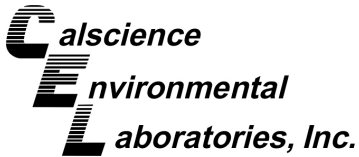
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.2	1	
PCB153	ND	3.2	1	
PCB156	ND	3.2	1	
PCB157	ND	3.2	1	
PCB167	ND	3.2	1	
PCB168	ND	3.2	1	
PCB169	ND	3.2	1	
PCB170	ND	3.2	1	
PCB174	ND	3.2	1	
PCB177	ND	3.2	1	
PCB180	ND	3.2	1	
PCB183	ND	3.2	1	
PCB184	ND	3.2	1	
PCB187	ND	3.2	1	
PCB189	ND	3.2	1	
PCB194	ND	3.2	1	
PCB195	ND	3.2	1	
PCB200	ND	3.2	1	
PCB201	ND	3.2	1	
PCB203	ND	3.2	1	
PCB206	ND	3.2	1	
PCB209	ND	3.2	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	79	14-146		
p-Terphenyl-d14	105	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

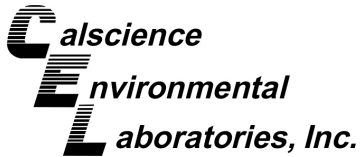
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	13-08-0936-10-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 18:48	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.4	1	
PCB008	ND	3.4	1	
PCB018	ND	3.4	1	
PCB028	ND	3.4	1	
PCB031	ND	3.4	1	
PCB033	ND	3.4	1	
PCB037	ND	3.4	1	
PCB044	ND	3.4	1	
PCB049	ND	3.4	1	
PCB052	ND	3.4	1	
PCB056	ND	3.4	1	
PCB060	ND	3.4	1	
PCB066	ND	3.4	1	
PCB070	ND	3.4	1	
PCB074	ND	3.4	1	
PCB077	ND	3.4	1	
PCB081	ND	3.4	1	
PCB087	ND	3.4	1	
PCB095	ND	3.4	1	
PCB097	ND	3.4	1	
PCB099	ND	3.4	1	
PCB101	ND	3.4	1	
PCB105	ND	3.4	1	
PCB110	ND	3.4	1	
PCB114	ND	3.4	1	
PCB118	ND	3.4	1	
PCB119	ND	3.4	1	
PCB123	ND	3.4	1	
PCB126	ND	3.4	1	
PCB128	ND	3.4	1	
PCB132	ND	3.4	1	
PCB138/158	ND	6.9	1	
PCB141	ND	3.4	1	
PCB149	ND	3.4	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

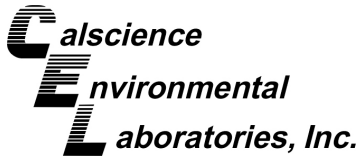
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.4	1	
PCB153	ND	3.4	1	
PCB156	ND	3.4	1	
PCB157	ND	3.4	1	
PCB167	ND	3.4	1	
PCB168	ND	3.4	1	
PCB169	ND	3.4	1	
PCB170	ND	3.4	1	
PCB174	ND	3.4	1	
PCB177	ND	3.4	1	
PCB180	ND	3.4	1	
PCB183	ND	3.4	1	
PCB184	ND	3.4	1	
PCB187	ND	3.4	1	
PCB189	ND	3.4	1	
PCB194	ND	3.4	1	
PCB195	ND	3.4	1	
PCB200	ND	3.4	1	
PCB201	ND	3.4	1	
PCB203	ND	3.4	1	
PCB206	ND	3.4	1	
PCB209	ND	3.4	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	75	14-146		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

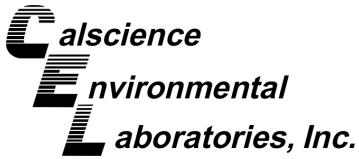
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	13-08-0936-11-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 19:17	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	4.4	3.6	1	
PCB031	4.5	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	9.5	3.6	1	
PCB052	6.3	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	6.4	3.6	1	
PCB070	5.4	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	3.7	3.6	1	
PCB095	6.0	3.6	1	
PCB097	4.6	3.6	1	
PCB099	ND	3.6	1	
PCB101	8.9	3.6	1	
PCB105	ND	3.6	1	
PCB110	11	3.6	1	
PCB114	ND	3.6	1	
PCB118	7.4	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.1	1	
PCB141	ND	3.6	1	
PCB149	5.5	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

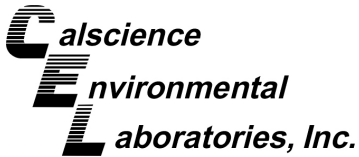
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.6	1	
PCB153	8.2	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	73	14-146		
p-Terphenyl-d14	106	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	13-08-0936-12-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 19:46	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	ND	3.6	1	
PCB052	ND	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	ND	3.6	1	
PCB070	ND	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	ND	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	ND	3.6	1	
PCB105	ND	3.6	1	
PCB110	ND	3.6	1	
PCB114	ND	3.6	1	
PCB118	ND	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.3	1	
PCB141	ND	3.6	1	
PCB149	ND	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

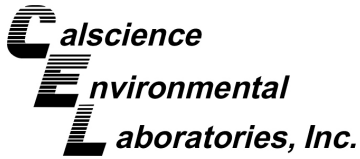
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.6	1	
PCB153	ND	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	64	14-146		
p-Terphenyl-d14	87	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

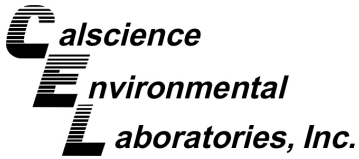
Page 25 of 64

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	13-08-0936-13-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 20:14	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	4.7	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	7.5	3.6	1	
PCB052	7.4	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	6.3	3.6	1	
PCB070	5.8	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	6.3	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	9.2	3.6	1	
PCB105	3.7	3.6	1	
PCB110	10	3.6	1	
PCB114	ND	3.6	1	
PCB118	7.5	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.3	1	
PCB141	ND	3.6	1	
PCB149	5.3	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

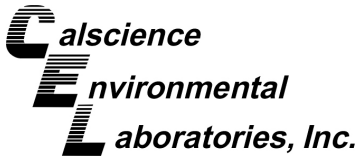
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.6	1	
PCB153	7.9	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	74	14-146		
p-Terphenyl-d14	107	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

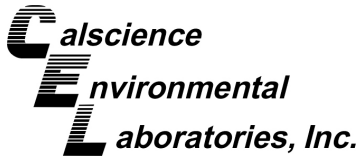
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	13-08-0936-14-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 20:43	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.3	1	
PCB008	ND	3.3	1	
PCB018	ND	3.3	1	
PCB028	ND	3.3	1	
PCB031	ND	3.3	1	
PCB033	ND	3.3	1	
PCB037	ND	3.3	1	
PCB044	ND	3.3	1	
PCB049	7.0	3.3	1	
PCB052	5.1	3.3	1	
PCB056	ND	3.3	1	
PCB060	ND	3.3	1	
PCB066	4.4	3.3	1	
PCB070	4.5	3.3	1	
PCB074	ND	3.3	1	
PCB077	ND	3.3	1	
PCB081	ND	3.3	1	
PCB087	ND	3.3	1	
PCB095	4.8	3.3	1	
PCB097	ND	3.3	1	
PCB099	ND	3.3	1	
PCB101	7.2	3.3	1	
PCB105	3.4	3.3	1	
PCB110	7.1	3.3	1	
PCB114	ND	3.3	1	
PCB118	5.6	3.3	1	
PCB119	ND	3.3	1	
PCB123	ND	3.3	1	
PCB126	ND	3.3	1	
PCB128	ND	3.3	1	
PCB132	ND	3.3	1	
PCB138/158	ND	6.7	1	
PCB141	ND	3.3	1	
PCB149	4.6	3.3	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

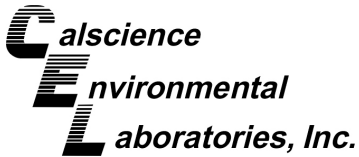
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.3	1	
PCB153	6.2	3.3	1	
PCB156	ND	3.3	1	
PCB157	ND	3.3	1	
PCB167	ND	3.3	1	
PCB168	ND	3.3	1	
PCB169	ND	3.3	1	
PCB170	ND	3.3	1	
PCB174	ND	3.3	1	
PCB177	ND	3.3	1	
PCB180	ND	3.3	1	
PCB183	ND	3.3	1	
PCB184	ND	3.3	1	
PCB187	ND	3.3	1	
PCB189	ND	3.3	1	
PCB194	ND	3.3	1	
PCB195	ND	3.3	1	
PCB200	ND	3.3	1	
PCB201	ND	3.3	1	
PCB203	ND	3.3	1	
PCB206	ND	3.3	1	
PCB209	ND	3.3	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	105	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

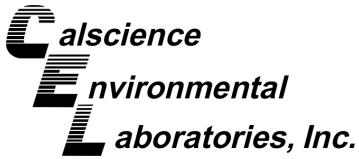
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	13-08-0936-15-B	08/10/13 15:00	Tissue	GC/MS HHH	08/16/13	08/23/13 21:12	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	5.2	3.6	1	
PCB052	4.0	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	4.2	3.6	1	
PCB070	ND	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	6.3	3.6	1	
PCB097	ND	3.6	1	
PCB099	4.3	3.6	1	
PCB101	9.0	3.6	1	
PCB105	ND	3.6	1	
PCB110	9.2	3.6	1	
PCB114	ND	3.6	1	
PCB118	7.6	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	9.6	7.1	1	
PCB141	ND	3.6	1	
PCB149	7.1	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

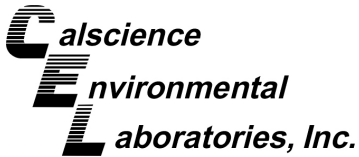
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.6	1	
PCB153	11	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	70	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	13-08-0936-16-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 02:51	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	3.1	3.1	1	
PCB052	5.5	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	3.6	3.1	1	
PCB070	ND	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	7.8	3.1	1	
PCB097	ND	3.1	1	
PCB099	3.8	3.1	1	
PCB101	9.0	3.1	1	
PCB105	3.3	3.1	1	
PCB110	6.7	3.1	1	
PCB114	ND	3.1	1	
PCB118	5.8	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	10	6.2	1	
PCB141	ND	3.1	1	
PCB149	7.6	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

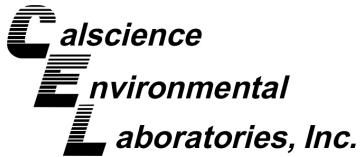
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	4.0	3.1	1	
PCB153	13	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	4.6	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	4.0	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	55	14-146		
p-Terphenyl-d14	86	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

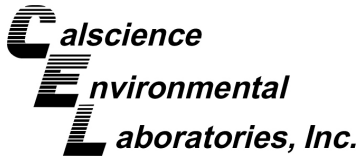
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	13-08-0936-17-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/26/13 16:43	130816F03

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	ND	2.9	1	
PCB028	3.0	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	ND	2.9	1	
PCB044	3.2	2.9	1	
PCB049	4.3	2.9	1	
PCB052	7.6	2.9	1	
PCB056	ND	2.9	1	
PCB060	ND	2.9	1	
PCB066	5.1	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	10	2.9	1	
PCB097	3.2	2.9	1	
PCB099	5.1	2.9	1	
PCB101	12	2.9	1	
PCB105	3.9	2.9	1	
PCB110	7.4	2.9	1	
PCB114	ND	2.9	1	
PCB118	8.7	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	14	5.8	1	
PCB141	ND	2.9	1	
PCB149	10	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

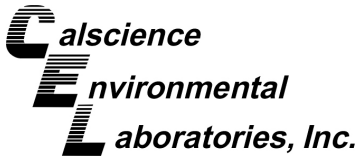
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.2	2.9	1	
PCB153	17	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	3.2	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	6.8	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	5.9	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	76	14-146		
p-Terphenyl-d14	88	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

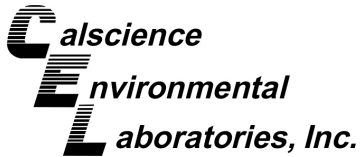
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	13-08-0936-18-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 03:47	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	ND	2.9	1	
PCB028	ND	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	ND	2.9	1	
PCB044	ND	2.9	1	
PCB049	ND	2.9	1	
PCB052	3.8	2.9	1	
PCB056	ND	2.9	1	
PCB060	ND	2.9	1	
PCB066	3.4	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	6.8	2.9	1	
PCB097	ND	2.9	1	
PCB099	3.5	2.9	1	
PCB101	8.5	2.9	1	
PCB105	ND	2.9	1	
PCB110	5.5	2.9	1	
PCB114	ND	2.9	1	
PCB118	5.1	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	9.4	5.8	1	
PCB141	ND	2.9	1	
PCB149	6.6	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

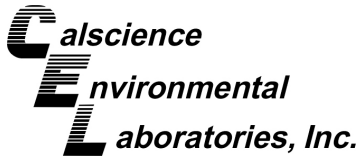
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.4	2.9	1	
PCB153	12	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	ND	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	3.5	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	3.9	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	64	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

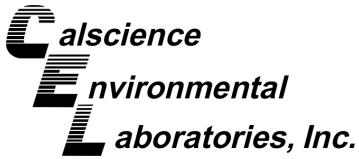
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	13-08-0936-19-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 04:15	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.8	1	
PCB008	ND	2.8	1	
PCB018	ND	2.8	1	
PCB028	ND	2.8	1	
PCB031	ND	2.8	1	
PCB033	ND	2.8	1	
PCB037	ND	2.8	1	
PCB044	ND	2.8	1	
PCB049	ND	2.8	1	
PCB052	ND	2.8	1	
PCB056	ND	2.8	1	
PCB060	ND	2.8	1	
PCB066	ND	2.8	1	
PCB070	ND	2.8	1	
PCB074	ND	2.8	1	
PCB077	ND	2.8	1	
PCB081	ND	2.8	1	
PCB087	ND	2.8	1	
PCB095	ND	2.8	1	
PCB097	ND	2.8	1	
PCB099	ND	2.8	1	
PCB101	ND	2.8	1	
PCB105	ND	2.8	1	
PCB110	ND	2.8	1	
PCB114	ND	2.8	1	
PCB118	ND	2.8	1	
PCB119	ND	2.8	1	
PCB123	ND	2.8	1	
PCB126	ND	2.8	1	
PCB128	ND	2.8	1	
PCB132	ND	2.8	1	
PCB138/158	ND	5.7	1	
PCB141	ND	2.8	1	
PCB149	ND	2.8	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

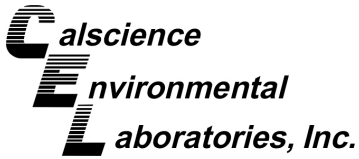
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	2.8	1	
PCB153	ND	2.8	1	
PCB156	ND	2.8	1	
PCB157	ND	2.8	1	
PCB167	ND	2.8	1	
PCB168	ND	2.8	1	
PCB169	ND	2.8	1	
PCB170	ND	2.8	1	
PCB174	ND	2.8	1	
PCB177	ND	2.8	1	
PCB180	ND	2.8	1	
PCB183	ND	2.8	1	
PCB184	ND	2.8	1	
PCB187	ND	2.8	1	
PCB189	ND	2.8	1	
PCB194	ND	2.8	1	
PCB195	ND	2.8	1	
PCB200	ND	2.8	1	
PCB201	ND	2.8	1	
PCB203	ND	2.8	1	
PCB206	ND	2.8	1	
PCB209	ND	2.8	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	67	14-146		
p-Terphenyl-d14	103	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

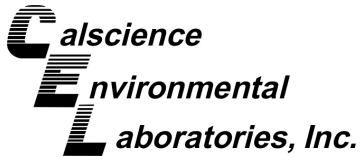
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	13-08-0936-20-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 04:42	130816F03

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	ND	3.1	1	
PCB052	9.2	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	3.8	3.1	1	
PCB070	ND	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	7.5	3.1	1	
PCB097	ND	3.1	1	
PCB099	ND	3.1	1	
PCB101	8.0	3.1	1	
PCB105	ND	3.1	1	
PCB110	5.8	3.1	1	
PCB114	ND	3.1	1	
PCB118	5.4	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	7.8	6.1	1	
PCB141	ND	3.1	1	
PCB149	5.2	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

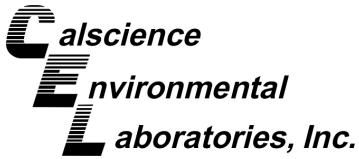
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.1	1	
PCB153	10	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	3.4	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	3.1	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	60	14-146		
p-Terphenyl-d14	90	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

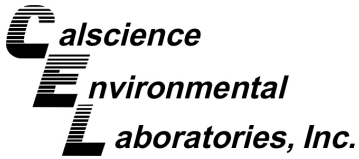
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	13-08-0936-21-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 05:10	130816F04

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.3	1	
PCB008	ND	3.3	1	
PCB018	ND	3.3	1	
PCB028	ND	3.3	1	
PCB031	ND	3.3	1	
PCB033	ND	3.3	1	
PCB037	ND	3.3	1	
PCB044	ND	3.3	1	
PCB049	ND	3.3	1	
PCB052	ND	3.3	1	
PCB056	ND	3.3	1	
PCB060	ND	3.3	1	
PCB066	ND	3.3	1	
PCB070	ND	3.3	1	
PCB074	ND	3.3	1	
PCB077	ND	3.3	1	
PCB081	ND	3.3	1	
PCB087	ND	3.3	1	
PCB095	ND	3.3	1	
PCB097	ND	3.3	1	
PCB099	ND	3.3	1	
PCB101	ND	3.3	1	
PCB105	ND	3.3	1	
PCB110	ND	3.3	1	
PCB114	ND	3.3	1	
PCB118	ND	3.3	1	
PCB119	ND	3.3	1	
PCB123	ND	3.3	1	
PCB126	ND	3.3	1	
PCB128	ND	3.3	1	
PCB132	ND	3.3	1	
PCB138/158	ND	6.5	1	
PCB141	ND	3.3	1	
PCB149	ND	3.3	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

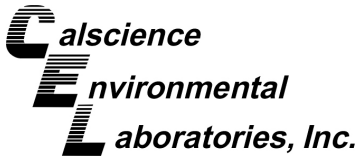
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.3	1	
PCB153	ND	3.3	1	
PCB156	ND	3.3	1	
PCB157	ND	3.3	1	
PCB167	ND	3.3	1	
PCB168	ND	3.3	1	
PCB169	ND	3.3	1	
PCB170	ND	3.3	1	
PCB174	ND	3.3	1	
PCB177	ND	3.3	1	
PCB180	ND	3.3	1	
PCB183	ND	3.3	1	
PCB184	ND	3.3	1	
PCB187	ND	3.3	1	
PCB189	ND	3.3	1	
PCB194	ND	3.3	1	
PCB195	ND	3.3	1	
PCB200	ND	3.3	1	
PCB201	ND	3.3	1	
PCB203	ND	3.3	1	
PCB206	ND	3.3	1	
PCB209	ND	3.3	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	65	14-146		
p-Terphenyl-d14	95	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

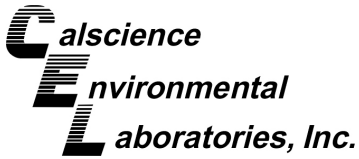
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	13-08-0936-22-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 05:38	130816F04

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	2.6	1	
PCB008	ND	2.6	1	
PCB018	ND	2.6	1	
PCB028	ND	2.6	1	
PCB031	ND	2.6	1	
PCB033	ND	2.6	1	
PCB037	2.6	2.6	1	
PCB044	2.7	2.6	1	
PCB049	ND	2.6	1	
PCB052	9.3	2.6	1	
PCB056	ND	2.6	1	
PCB060	3.4	2.6	1	
PCB066	3.8	2.6	1	
PCB070	ND	2.6	1	
PCB074	ND	2.6	1	
PCB077	ND	2.6	1	
PCB081	ND	2.6	1	
PCB087	ND	2.6	1	
PCB095	7.7	2.6	1	
PCB097	2.9	2.6	1	
PCB099	3.4	2.6	1	
PCB101	9.0	2.6	1	
PCB105	2.7	2.6	1	
PCB110	8.0	2.6	1	
PCB114	ND	2.6	1	
PCB118	5.1	2.6	1	
PCB119	ND	2.6	1	
PCB123	ND	2.6	1	
PCB126	ND	2.6	1	
PCB128	ND	2.6	1	
PCB132	ND	2.6	1	
PCB138/158	8.6	5.1	1	
PCB141	ND	2.6	1	
PCB149	5.2	2.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

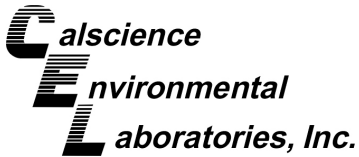
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	2.6	1	
PCB153	11	2.6	1	
PCB156	ND	2.6	1	
PCB157	ND	2.6	1	
PCB167	ND	2.6	1	
PCB168	ND	2.6	1	
PCB169	ND	2.6	1	
PCB170	ND	2.6	1	
PCB174	ND	2.6	1	
PCB177	ND	2.6	1	
PCB180	3.5	2.6	1	
PCB183	ND	2.6	1	
PCB184	ND	2.6	1	
PCB187	3.7	2.6	1	
PCB189	ND	2.6	1	
PCB194	ND	2.6	1	
PCB195	ND	2.6	1	
PCB200	ND	2.6	1	
PCB201	ND	2.6	1	
PCB203	ND	2.6	1	
PCB206	ND	2.6	1	
PCB209	ND	2.6	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	109	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

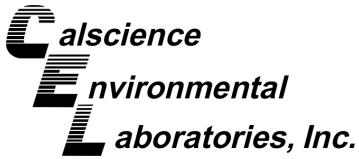
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	13-08-0936-23-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 06:05	130816F04

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	ND	2.9	1	
PCB028	ND	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	ND	2.9	1	
PCB044	ND	2.9	1	
PCB049	ND	2.9	1	
PCB052	6.5	2.9	1	
PCB056	ND	2.9	1	
PCB060	ND	2.9	1	
PCB066	3.0	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	6.8	2.9	1	
PCB097	ND	2.9	1	
PCB099	4.1	2.9	1	
PCB101	10	2.9	1	
PCB105	ND	2.9	1	
PCB110	6.9	2.9	1	
PCB114	ND	2.9	1	
PCB118	4.8	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	9.4	5.8	1	
PCB141	ND	2.9	1	
PCB149	6.1	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

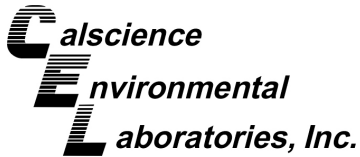
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.2	2.9	1	
PCB153	13	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	ND	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	3.6	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	3.8	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	68	14-146		
p-Terphenyl-d14	101	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

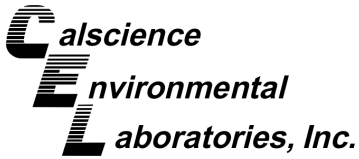
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	13-08-0936-24-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 06:34	130816F04

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	ND	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	ND	3.0	1	
PCB044	ND	3.0	1	
PCB049	ND	3.0	1	
PCB052	ND	3.0	1	
PCB056	ND	3.0	1	
PCB060	ND	3.0	1	
PCB066	ND	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	ND	3.0	1	
PCB097	ND	3.0	1	
PCB099	ND	3.0	1	
PCB101	ND	3.0	1	
PCB105	ND	3.0	1	
PCB110	ND	3.0	1	
PCB114	ND	3.0	1	
PCB118	ND	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	ND	6.1	1	
PCB141	ND	3.0	1	
PCB149	ND	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

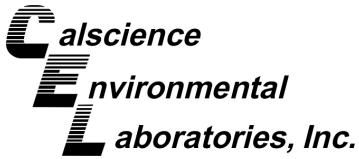
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.0	1	
PCB153	ND	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	ND	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	ND	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	61	14-146		
p-Terphenyl-d14	91	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

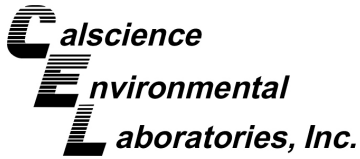
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	13-08-0936-25-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 07:01	130816F04

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.2	1	
PCB008	ND	3.2	1	
PCB018	ND	3.2	1	
PCB028	ND	3.2	1	
PCB031	ND	3.2	1	
PCB033	ND	3.2	1	
PCB037	ND	3.2	1	
PCB044	ND	3.2	1	
PCB049	ND	3.2	1	
PCB052	ND	3.2	1	
PCB056	ND	3.2	1	
PCB060	ND	3.2	1	
PCB066	ND	3.2	1	
PCB070	ND	3.2	1	
PCB074	ND	3.2	1	
PCB077	ND	3.2	1	
PCB081	ND	3.2	1	
PCB087	ND	3.2	1	
PCB095	ND	3.2	1	
PCB097	ND	3.2	1	
PCB099	ND	3.2	1	
PCB101	ND	3.2	1	
PCB105	ND	3.2	1	
PCB110	ND	3.2	1	
PCB114	ND	3.2	1	
PCB118	ND	3.2	1	
PCB119	ND	3.2	1	
PCB123	ND	3.2	1	
PCB126	ND	3.2	1	
PCB128	ND	3.2	1	
PCB132	ND	3.2	1	
PCB138/158	ND	6.5	1	
PCB141	ND	3.2	1	
PCB149	ND	3.2	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

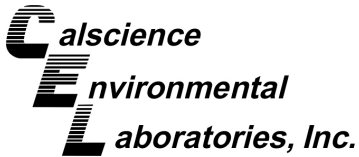
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.2	1	
PCB153	ND	3.2	1	
PCB156	ND	3.2	1	
PCB157	ND	3.2	1	
PCB167	ND	3.2	1	
PCB168	ND	3.2	1	
PCB169	ND	3.2	1	
PCB170	ND	3.2	1	
PCB174	ND	3.2	1	
PCB177	ND	3.2	1	
PCB180	ND	3.2	1	
PCB183	ND	3.2	1	
PCB184	ND	3.2	1	
PCB187	ND	3.2	1	
PCB189	ND	3.2	1	
PCB194	ND	3.2	1	
PCB195	ND	3.2	1	
PCB200	ND	3.2	1	
PCB201	ND	3.2	1	
PCB203	ND	3.2	1	
PCB206	ND	3.2	1	
PCB209	ND	3.2	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	63	14-146		
p-Terphenyl-d14	90	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

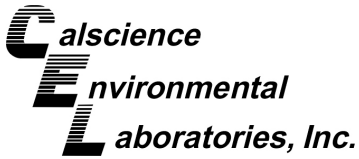
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	13-08-0936-26-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 07:29	130816F04

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	3.4	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	4.4	3.0	1	
PCB044	3.7	3.0	1	
PCB049	3.3	3.0	1	
PCB052	13	3.0	1	
PCB056	ND	3.0	1	
PCB060	4.1	3.0	1	
PCB066	4.7	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	7.8	3.0	1	
PCB097	3.1	3.0	1	
PCB099	4.2	3.0	1	
PCB101	12	3.0	1	
PCB105	3.4	3.0	1	
PCB110	9.9	3.0	1	
PCB114	ND	3.0	1	
PCB118	4.8	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	7.9	5.9	1	
PCB141	ND	3.0	1	
PCB149	5.4	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

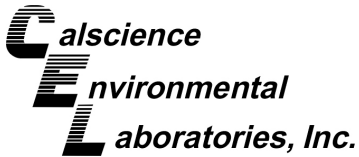
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.0	1	
PCB153	11	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	ND	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	3.5	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	61	14-146		
p-Terphenyl-d14	91	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	13-08-0936-27-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/26/13 14:10	130816F04

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	ND	3.1	1	
PCB052	ND	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	ND	3.1	1	
PCB070	ND	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	ND	3.1	1	
PCB097	ND	3.1	1	
PCB099	ND	3.1	1	
PCB101	ND	3.1	1	
PCB105	ND	3.1	1	
PCB110	ND	3.1	1	
PCB114	ND	3.1	1	
PCB118	ND	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	ND	6.2	1	
PCB141	ND	3.1	1	
PCB149	ND	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

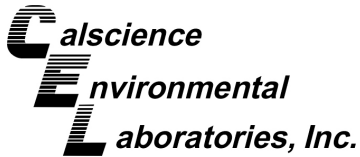
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.1	1	
PCB153	ND	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	ND	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	ND	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	99	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

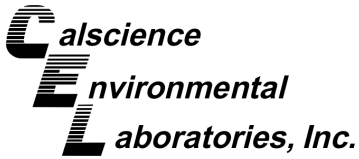
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	13-08-0936-28-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 08:25	130816F04

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	3.8	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	ND	3.0	1	
PCB044	ND	3.0	1	
PCB049	ND	3.0	1	
PCB052	9.6	3.0	1	
PCB056	ND	3.0	1	
PCB060	ND	3.0	1	
PCB066	4.3	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	7.4	3.0	1	
PCB097	ND	3.0	1	
PCB099	3.8	3.0	1	
PCB101	9.0	3.0	1	
PCB105	3.5	3.0	1	
PCB110	7.2	3.0	1	
PCB114	ND	3.0	1	
PCB118	4.7	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	7.0	6.0	1	
PCB141	ND	3.0	1	
PCB149	5.4	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

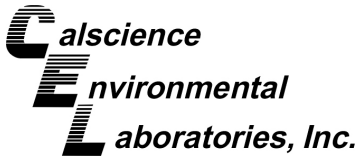
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	3.0	1	
PCB153	10	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	ND	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	3.1	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	60	14-146		
p-Terphenyl-d14	84	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

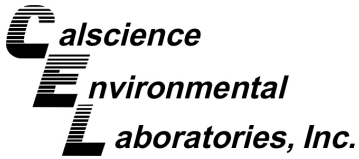
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	13-08-0936-29-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 08:52	130816F04

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

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	4.0	2.9	1	
PCB028	3.6	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	3.3	2.9	1	
PCB044	3.2	2.9	1	
PCB049	ND	2.9	1	
PCB052	9.7	2.9	1	
PCB056	ND	2.9	1	
PCB060	3.7	2.9	1	
PCB066	4.5	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	8.3	2.9	1	
PCB097	ND	2.9	1	
PCB099	4.0	2.9	1	
PCB101	10	2.9	1	
PCB105	3.3	2.9	1	
PCB110	9.7	2.9	1	
PCB114	ND	2.9	1	
PCB118	5.1	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	7.8	5.8	1	
PCB141	ND	2.9	1	
PCB149	5.9	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

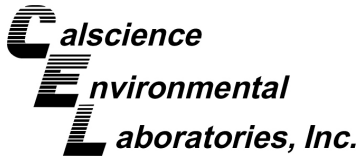
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	3.0	2.9	1	
PCB153	11	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	ND	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	ND	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	3.4	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	73	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

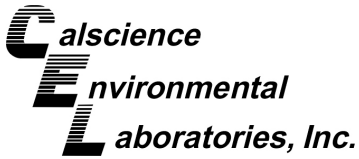
Page 59 of 64

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	13-08-0936-30-B	08/10/13 13:00	Tissue	GC/MS HHH	08/16/13	08/24/13 09:20	130816F04

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

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	ND	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	ND	3.0	1	
PCB044	ND	3.0	1	
PCB049	3.9	3.0	1	
PCB052	8.1	3.0	1	
PCB056	ND	3.0	1	
PCB060	ND	3.0	1	
PCB066	3.7	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	9.2	3.0	1	
PCB097	4.1	3.0	1	
PCB099	7.2	3.0	1	
PCB101	22	3.0	1	
PCB105	5.0	3.0	1	
PCB110	8.8	3.0	1	
PCB114	ND	3.0	1	
PCB118	7.0	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	13	5.9	1	
PCB141	ND	3.0	1	
PCB149	9.9	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: Berths 212-224 YTI Terminal

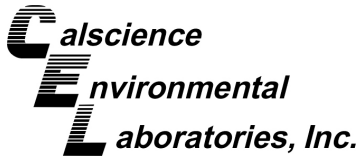
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	4.3	3.0	1	
PCB153	33	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	4.0	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	6.2	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	64	14-146		
p-Terphenyl-d14	90	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

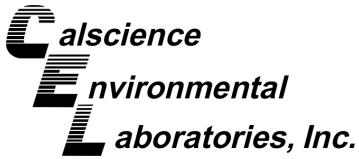
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-318-35	N/A	Soil	GC/MS HHH	08/16/13	08/23/13 13:49	130816F03

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

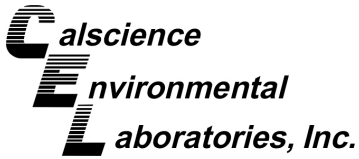
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	93	14-146		
p-Terphenyl-d14	102	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

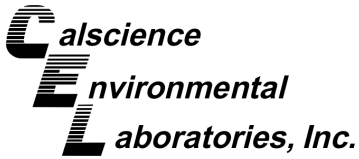
Project: Berths 212-224 YTI Terminal

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-318-36	N/A	Soil	GC/MS HHH	08/16/13	08/23/13 23:35	130816F04

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

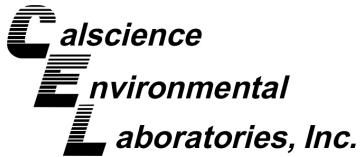
Project: Berths 212-224 YTI Terminal

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
2-Fluorobiphenyl	83	14-146		
p-Terphenyl-d14	117	34-148		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020

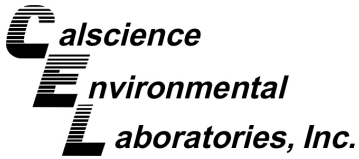
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>1C</b>	<b>Tissue</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 20:08</b>	<b>130815S01</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.207	12.50	16.17	104	16.36	105	80-120	1	0-20	
Cadmium	ND	12.50	13.83	111	13.20	106	80-120	5	0-20	
Chromium	1.059	12.50	14.79	110	13.61	100	80-120	8	0-20	
Copper	2.189	12.50	15.04	103	15.60	107	80-120	4	0-20	
Lead	0.4390	12.50	13.72	106	13.48	104	80-120	2	0-20	
Nickel	0.9137	12.50	14.61	110	13.49	101	80-120	8	0-20	
Selenium	0.3260	12.50	14.61	114	13.46	105	80-120	8	0-20	
Silver	ND	6.250	6.810	109	6.703	107	80-120	2	0-20	
Zinc	14.08	12.50	27.45	107	29.40	123	80-120	7	0-20	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



**Quality Control - Spike/Spike Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3050B  
 Method: EPA 6020

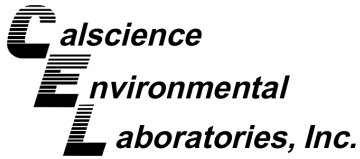
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>13-08-0763-6</b>	<b>Tissue</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/20/13 13:18</b>	<b>130815S02</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	36.17	12.50	49.47	106	46.88	86	80-120	5	0-20	
Cadmium	5.945	12.50	19.18	106	17.52	93	80-120	9	0-20	
Chromium	0.5405	12.50	13.27	102	12.71	97	80-120	4	0-20	
Copper	46.61	12.50	57.94	91	54.80	66	80-120	6	0-20	3
Lead	0.1250	12.50	13.44	106	12.34	98	80-120	9	0-20	
Nickel	1.428	12.50	14.69	106	14.07	101	80-120	4	0-20	
Selenium	0.7356	12.50	14.36	109	14.11	107	80-120	2	0-20	
Silver	2.163	6.250	9.815	122	8.306	98	80-120	17	0-20	3
Zinc	157.3	12.50	165.8	4X	154.2	4X	80-120	4X	0-20	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

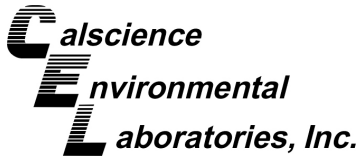
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>1C</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 17:30</b>	<b>130815S05</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.3196	64	0.1800	36	76-136	56	0-16	3,4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

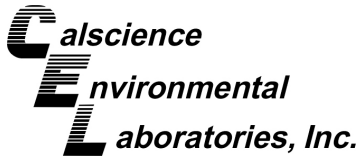
Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>6W</b>	<b>Tissue</b>	<b>Mercury</b>	<b>08/15/13</b>	<b>08/19/13 18:28</b>	<b>130815S06</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.3870	77	0.4000	80	76-136	3	0-16	





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A

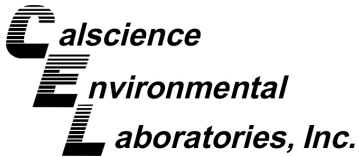
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>12C</b>	<b>Tissue</b>		<b>GC 51</b>	<b>08/16/13</b>	<b>08/24/13 15:14</b>	<b>130816S05</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	ND	5.000	4.722	94	4.821	96	50-135	2	0-25	
4,4'-DDE	4.323	5.000	10.86	131	11.02	134	50-135	2	0-25	
4,4'-DDT	ND	5.000	4.250	85	4.311	86	50-135	1	0-25	
Aldrin	ND	5.000	3.791	76	3.864	77	50-135	2	0-25	
Alpha Chlordane	ND	5.000	3.939	79	4.013	80	50-135	2	0-25	
Alpha-BHC	ND	5.000	3.815	76	3.909	78	50-135	2	0-25	
Beta-BHC	ND	5.000	4.226	85	4.393	88	50-135	4	0-25	
Delta-BHC	ND	5.000	4.243	85	4.326	87	50-135	2	0-25	
Dieldrin	ND	5.000	4.117	82	4.184	84	50-135	2	0-25	
Endosulfan I	ND	5.000	4.111	82	4.202	84	50-135	2	0-25	
Endosulfan II	ND	5.000	1.888	38	1.910	38	50-135	1	0-25	3
Endosulfan Sulfate	ND	5.000	1.191	24	1.207	24	50-135	1	0-25	3
Endrin	ND	5.000	4.030	81	4.073	81	50-135	1	0-25	
Endrin Aldehyde	ND	5.000	0.09250	2	0.07030	1	50-135	27	0-25	3,4
Endrin Ketone	ND	5.000	1.239	25	1.282	26	50-135	3	0-25	3
Gamma Chlordane	ND	5.000	3.643	73	3.633	73	50-135	0	0-25	
Gamma-BHC	ND	5.000	3.779	76	3.848	77	50-135	2	0-25	
Heptachlor	ND	5.000	3.912	78	3.957	79	50-135	1	0-25	
Heptachlor Epoxide	ND	5.000	4.320	86	4.406	88	50-135	2	0-25	
Methoxychlor	ND	5.000	3.329	67	3.404	68	50-135	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs

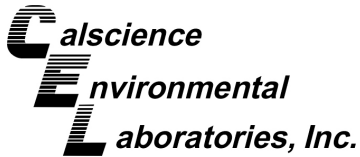
Project: Berths 212-224 YTI Terminal

Page 6 of 7

Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>7C</b>	<b>Tissue</b>		<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/23/13 20:47</b>	<b>130816S01</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	24.22	100.0	90.36	66	92.61	68	40-160	2	0-20	
Acenaphthylene	ND	100.0	89.52	90	91.35	91	40-160	2	0-20	
Anthracene	ND	100.0	81.37	81	82.32	82	40-160	1	0-20	
Benzo (a) Anthracene	13.02	100.0	103.9	91	104.4	91	40-160	0	0-20	
Benzo (a) Pyrene	33.30	100.0	124.2	91	125.6	92	40-160	1	0-20	
Benzo (b) Fluoranthene	46.22	100.0	139.7	93	127.5	81	40-160	9	0-20	
Benzo (g,h,i) Perylene	ND	100.0	81.35	81	84.64	85	40-160	4	0-20	
Benzo (k) Fluoranthene	34.45	100.0	112.5	78	114.0	80	40-160	1	0-20	
Chrysene	21.20	100.0	102.2	81	101.6	80	40-160	1	0-20	
Dibenz (a,h) Anthracene	ND	100.0	90.76	91	92.85	93	40-160	2	0-20	
Fluoranthene	70.28	100.0	163.9	94	153.9	84	40-160	6	0-20	
Fluorene	ND	100.0	95.20	95	95.53	96	40-160	0	0-20	
Indeno (1,2,3-c,d) Pyrene	ND	100.0	109.3	109	111.1	111	40-160	2	0-20	
2-Methylnaphthalene	ND	100.0	97.15	97	98.38	98	40-160	1	0-20	
1-Methylnaphthalene	ND	100.0	88.22	88	96.03	96	40-160	8	0-20	
Naphthalene	ND	100.0	87.99	88	90.13	90	40-160	2	0-20	
Phenanthrene	ND	100.0	89.77	90	98.07	98	40-160	9	0-20	
Pyrene	201.5	100.0	304.7	103	275.4	74	40-160	10	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>4C</b>	<b>Tissue</b>		<b>GC/MS HHH</b>	<b>08/16/13</b>	<b>08/24/13 01:27</b>	<b>130816S03</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	50.00	44.79	90	44.26	89	50-150	1	0-30	
PCB018	ND	50.00	43.27	87	43.85	88	50-150	1	0-30	
PCB028	ND	50.00	43.77	88	43.90	88	50-150	0	0-30	
PCB044	ND	50.00	44.94	90	45.44	91	50-150	1	0-30	
PCB052	ND	50.00	40.74	81	41.14	82	50-150	1	0-30	
PCB066	ND	50.00	46.97	94	47.20	94	50-150	0	0-30	
PCB077	ND	50.00	45.51	91	45.95	92	50-150	1	0-30	
PCB101	ND	50.00	44.56	89	44.93	90	50-150	1	0-30	
PCB105	ND	50.00	44.75	90	44.92	90	50-150	0	0-30	
PCB118	ND	50.00	47.40	95	47.12	94	50-150	1	0-30	
PCB126	ND	50.00	43.51	87	43.83	88	50-150	1	0-30	
PCB128	ND	50.00	49.13	98	49.17	98	50-150	0	0-30	
PCB153	ND	50.00	44.28	89	44.49	89	50-150	0	0-30	
PCB170	ND	50.00	37.05	74	36.74	73	50-150	1	0-30	
PCB180	ND	50.00	43.91	88	43.67	87	50-150	1	0-30	
PCB187	ND	50.00	42.95	86	43.29	87	50-150	1	0-30	
PCB195	ND	50.00	44.34	89	43.37	87	50-150	2	0-30	
PCB206	ND	50.00	39.26	79	38.91	78	50-150	1	0-30	
PCB209	ND	50.00	44.41	89	43.36	87	50-150	2	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - PDS/PDSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3050B  
 Method: EPA 6020

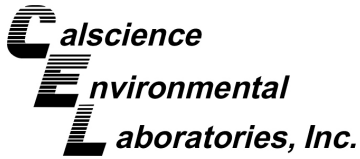
Project: Berths 212-224 YTI Terminal

Page 1 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>1C</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13 00:00</b>	<b>08/16/13 20:14</b>	<b>130815S01</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	3.207	12.50	15.76	100	75-125	
Cadmium	ND	12.50	13.02	104	75-125	
Chromium	1.059	12.50	14.02	104	75-125	
Copper	2.189	12.50	14.85	101	75-125	
Lead	0.4390	12.50	13.35	103	75-125	
Nickel	0.9137	12.50	14.19	106	75-125	
Selenium	0.3260	12.50	13.45	105	75-125	
Silver	ND	6.250	5.745	92	75-125	
Zinc	14.08	12.50	27.26	105	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - PDS/PDSD

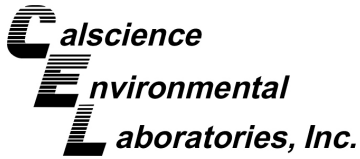
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Page 2 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>13-08-0763-6</b>	<b>Tissue</b>	<b>ICP/MS 03</b>	<b>08/15/13 00:00</b>	<b>08/19/13 14:24</b>	<b>130815S02</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	36.17	12.50	45.75	77	75-125	
Cadmium	5.945	12.50	18.25	98	75-125	
Chromium	0.5405	12.50	13.49	104	75-125	
Copper	46.61	12.50	55.17	68	75-125	5
Lead	0.1250	12.50	13.02	103	75-125	
Nickel	1.428	12.50	15.11	109	75-125	
Selenium	0.7356	12.50	13.77	104	75-125	
Silver	2.163	6.250	7.465	85	75-125	
Zinc	157.3	12.50	137.5	4X	75-125	Q



## Quality Control - PDS/PDSD

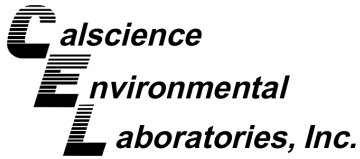
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number			
<b>1C</b>	<b>Tissue</b>			<b>Mercury</b>	<b>08/15/13 00:00</b>	<b>08/20/13 13:39</b>	<b>130815S05</b>			
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>PDSD Conc.</u>	<u>PDSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.4606	92	0.4326	87	75-125	6	0-20	



## Quality Control - Sample Duplicate

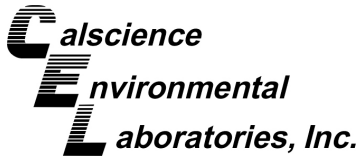
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>1C</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13 00:00</b>	<b>08/17/13 16:45</b>	<b>D0817TSD3</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	14.30	15.50	8	0-10	



## Quality Control - Sample Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

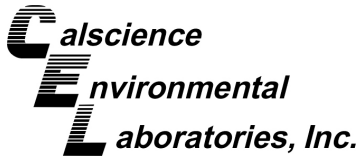
Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>6W</b>	<b>Tissue</b>	<b>N/A</b>	<b>08/17/13 00:00</b>	<b>08/17/13 16:45</b>	<b>D0817TSD4</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	15.30	14.30	7	0-10	





## Quality Control - Sample Duplicate

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: MeCl2 Ext. (NOAA 1993a)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>4C</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822D01</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.7100	0.7300	3	0-25	



## Quality Control - Sample Duplicate

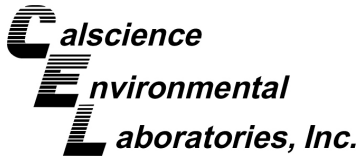
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: N/A  
 Method: MeCl2 Ext. (NOAA 1993a)

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13W</b>	<b>Tissue</b>	<b>N/A</b>	<b>N/A</b>	<b>08/22/13 12:00</b>	<b>130822D02</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	1.340	1.300	3	0-25	



## Quality Control - LCS/LCSD

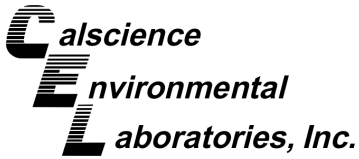
AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3050B  
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID		Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
<b>099-15-258-20</b>		<b>Soil</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/16/13 20:05</b>	<b>130815L01T</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Arsenic	12.50	11.95	96	12.32	99	80-120	3	0-20	
Cadmium	12.50	12.54	100	12.41	99	80-120	1	0-20	
Chromium	12.50	12.40	99	12.54	100	80-120	1	0-20	
Copper	12.50	12.54	100	13.37	107	80-120	6	0-20	
Lead	12.50	12.32	99	12.55	100	80-120	2	0-20	
Nickel	12.50	12.60	101	13.26	106	80-120	5	0-20	
Selenium	12.50	11.84	95	12.23	98	80-120	3	0-20	
Silver	6.250	5.612	90	5.777	92	80-120	3	0-20	
Zinc	12.50	13.18	105	13.41	107	80-120	2	0-20	



Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 3050B  
 Method: EPA 6020

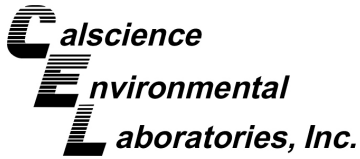
Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-258-21</b>	<b>Soil</b>		<b>ICP/MS 03</b>	<b>08/15/13</b>	<b>08/19/13 20:46</b>	<b>130815L02T</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.95	104	12.85	103	80-120	1	0-20	
Cadmium	12.50	12.77	102	12.48	100	80-120	2	0-20	
Chromium	12.50	13.44	108	12.53	100	80-120	7	0-20	
Copper	12.50	13.06	104	13.83	111	80-120	6	0-20	
Lead	12.50	13.19	106	12.65	101	80-120	4	0-20	
Nickel	12.50	13.72	110	13.52	108	80-120	1	0-20	
Selenium	12.50	13.48	108	12.07	97	80-120	11	0-20	
Silver	6.250	5.528	88	5.637	90	80-120	2	0-20	
Zinc	12.50	12.87	103	14.19	114	80-120	10	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

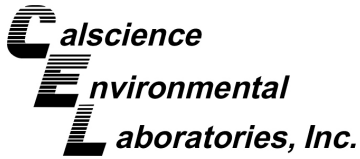
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID		Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
<b>099-12-409-46</b>		<b>Soil</b>		<b>Mercury</b>	<b>08/15/13</b>	<b>08/15/13 15:53</b>	<b>130815L05T</b>		
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.9197	110	0.8176	98	82-124	12	0-16	



## Quality Control - LCS/LCSD

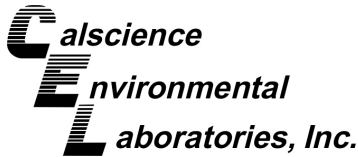
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 08/13/13  
 Work Order: 13-08-0936  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-12-409-47</b>	<b>Soil</b>		<b>Mercury</b>	<b>08/15/13</b>	<b>08/15/13 15:56</b>	<b>130815L06T</b>			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.9270	111	0.7970	95	82-124	15	0-16	



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-294-22</b>	<b>Soil</b>			<b>GC 51</b>	<b>08/16/13</b>	<b>08/24/13 17:28</b>	<b>130816F05</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	4.391	88	4.396	88	50-135	36-149	0	0-25	
4,4'-DDE	5.000	4.522	90	4.544	91	50-135	36-149	0	0-25	
4,4'-DDT	5.000	4.422	88	4.451	89	50-135	36-149	1	0-25	
Aldrin	5.000	4.273	85	4.319	86	50-135	36-149	1	0-25	
Alpha Chlordane	5.000	4.316	86	4.345	87	50-135	36-149	1	0-25	
Alpha-BHC	5.000	4.086	82	4.188	84	50-135	36-149	2	0-25	
Beta-BHC	5.000	3.975	80	4.119	82	50-135	36-149	4	0-25	
Delta-BHC	5.000	4.175	84	4.228	85	50-135	36-149	1	0-25	
Dieldrin	5.000	4.418	88	4.450	89	50-135	36-149	1	0-25	
Endosulfan I	5.000	4.396	88	4.423	88	50-135	36-149	1	0-25	
Endosulfan II	5.000	4.404	88	4.393	88	50-135	36-149	0	0-25	
Endosulfan Sulfate	5.000	4.282	86	4.266	85	50-135	36-149	0	0-25	
Endrin	5.000	4.383	88	4.454	89	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	4.575	91	4.565	91	50-135	36-149	0	0-25	
Endrin Ketone	5.000	4.631	93	4.613	92	50-135	36-149	0	0-25	
Gamma Chlordane	5.000	4.189	84	4.208	84	50-135	36-149	0	0-25	
Gamma-BHC	5.000	4.220	84	4.240	85	50-135	36-149	0	0-25	
Heptachlor	5.000	4.308	86	4.373	87	50-135	36-149	2	0-25	
Heptachlor Epoxide	5.000	4.323	86	4.356	87	50-135	36-149	1	0-25	
Methoxychlor	5.000	4.712	94	4.704	94	50-135	36-149	0	0-25	

Total number of LCS compounds: 20

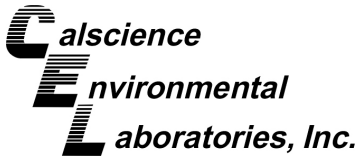
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3545  
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-294-23</b>	<b>Soil</b>			<b>GC 51</b>	<b>08/16/13</b>	<b>08/24/13 17:56</b>	<b>130816F06</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	5.680	114	5.585	112	50-135	36-149	2	0-25	
4,4'-DDE	5.000	5.753	115	5.652	113	50-135	36-149	2	0-25	
4,4'-DDT	5.000	5.756	115	5.665	113	50-135	36-149	2	0-25	
Aldrin	5.000	5.520	110	5.438	109	50-135	36-149	2	0-25	
Alpha Chlordane	5.000	5.497	110	5.414	108	50-135	36-149	2	0-25	
Alpha-BHC	5.000	5.240	105	5.169	103	50-135	36-149	1	0-25	
Beta-BHC	5.000	5.236	105	5.186	104	50-135	36-149	1	0-25	
Delta-BHC	5.000	5.338	107	5.283	106	50-135	36-149	1	0-25	
Dieldrin	5.000	5.688	114	5.600	112	50-135	36-149	2	0-25	
Endosulfan I	5.000	5.621	112	5.535	111	50-135	36-149	2	0-25	
Endosulfan II	5.000	5.609	112	5.509	110	50-135	36-149	2	0-25	
Endosulfan Sulfate	5.000	5.553	111	5.474	109	50-135	36-149	1	0-25	
Endrin	5.000	5.631	113	5.547	111	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	5.903	118	5.816	116	50-135	36-149	1	0-25	
Endrin Ketone	5.000	6.083	122	6.002	120	50-135	36-149	1	0-25	
Gamma Chlordane	5.000	5.416	108	5.252	105	50-135	36-149	3	0-25	
Gamma-BHC	5.000	5.398	108	5.314	106	50-135	36-149	2	0-25	
Heptachlor	5.000	5.588	112	5.516	110	50-135	36-149	1	0-25	
Heptachlor Epoxide	5.000	5.530	111	5.451	109	50-135	36-149	1	0-25	
Methoxychlor	5.000	6.164	123	6.075	121	50-135	36-149	1	0-25	

Total number of LCS compounds: 20

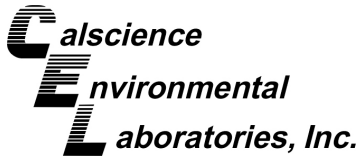
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-943-5</b>	<b>Soil</b>			<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/23/13 16:06</b>	<b>130816L01</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	117.6	118	115.9	116	48-108	38-118	1	0-11	ME
Acenaphthylene	100.0	92.32	92	89.31	89	40-160	20-180	3	0-20	
Anthracene	100.0	94.03	94	87.86	88	40-160	20-180	7	0-20	
Benzo (a) Anthracene	100.0	119.0	119	118.1	118	40-160	20-180	1	0-20	
Benzo (a) Pyrene	100.0	82.80	83	82.15	82	40-160	20-180	1	0-20	
Benzo (b) Fluoranthene	100.0	126.9	127	127.0	127	40-160	20-180	0	0-20	
Benzo (g,h,i) Perylene	100.0	108.2	108	106.9	107	40-160	20-180	1	0-20	
Benzo (k) Fluoranthene	100.0	137.1	137	135.9	136	40-160	20-180	1	0-20	
Chrysene	100.0	125.5	125	126.6	127	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	122.9	123	123.7	124	40-160	20-180	1	0-20	
Fluoranthene	100.0	132.3	132	124.2	124	40-160	20-180	6	0-20	
Fluorene	100.0	129.7	130	126.2	126	40-160	20-180	3	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	154.2	154	149.8	150	40-160	20-180	3	0-20	
2-Methylnaphthalene	100.0	131.8	132	134.2	134	40-160	20-180	2	0-20	
1-Methylnaphthalene	100.0	123.5	124	134.4	134	40-160	20-180	8	0-20	
Naphthalene	100.0	119.2	119	124.3	124	40-160	20-180	4	0-20	
Phenanthrene	100.0	128.0	128	119.2	119	40-160	20-180	7	0-20	
Pyrene	100.0	121.6	122	123.7	124	40-160	20-180	2	0-16	

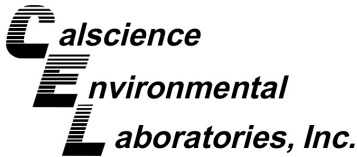
Total number of LCS compounds: 18

Total number of ME compounds: 1

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PAHs

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-15-943-6</b>	<b>Soil</b>			<b>GC/MS AAA</b>	<b>08/16/13</b>	<b>08/26/13 13:12</b>	<b>130816L02</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	107.1	107	104.3	104	48-108	38-118	3	0-11	
Acenaphthylene	100.0	81.02	81	80.37	80	40-160	20-180	1	0-20	
Anthracene	100.0	75.37	75	73.43	73	40-160	20-180	3	0-20	
Benzo (a) Anthracene	100.0	104.2	104	101.6	102	40-160	20-180	3	0-20	
Benzo (a) Pyrene	100.0	72.43	72	69.39	69	40-160	20-180	4	0-20	
Benzo (b) Fluoranthene	100.0	115.0	115	106.6	107	40-160	20-180	8	0-20	
Benzo (g,h,i) Perylene	100.0	96.98	97	91.54	92	40-160	20-180	6	0-20	
Benzo (k) Fluoranthene	100.0	121.4	121	113.6	114	40-160	20-180	7	0-20	
Chrysene	100.0	107.9	108	106.3	106	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	111.9	112	106.6	107	40-160	20-180	5	0-20	
Fluoranthene	100.0	109.8	110	106.4	106	40-160	20-180	3	0-20	
Fluorene	100.0	113.0	113	105.9	106	40-160	20-180	6	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	138.1	138	127.0	127	40-160	20-180	8	0-20	
2-Methylnaphthalene	100.0	118.7	119	117.2	117	40-160	20-180	1	0-20	
1-Methylnaphthalene	100.0	117.7	118	111.0	111	40-160	20-180	6	0-20	
Naphthalene	100.0	107.0	107	105.6	106	40-160	20-180	1	0-20	
Phenanthrene	100.0	107.8	108	98.35	98	40-160	20-180	9	0-20	
Pyrene	100.0	104.6	105	105.4	105	40-160	20-180	1	0-16	

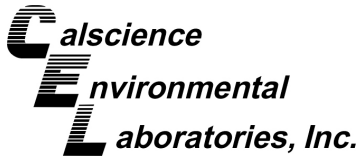
Total number of LCS compounds: 18

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-318-35</b>	<b>Soil</b>			<b>GC/MS HHH</b>	<b>08/16/13</b>	<b>08/23/13 21:41</b>	<b>130816F03</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	34.39	69	32.58	65	50-150	33-167	5	0-30	
PCB018	50.00	32.76	66	31.15	62	50-150	33-167	5	0-30	
PCB028	50.00	33.54	67	32.09	64	50-150	33-167	4	0-30	
PCB044	50.00	34.24	68	32.94	66	50-150	33-167	4	0-30	
PCB052	50.00	31.66	63	30.58	61	50-150	33-167	3	0-30	
PCB066	50.00	35.70	71	34.71	69	50-150	33-167	3	0-30	
PCB077	50.00	35.60	71	34.82	70	50-150	33-167	2	0-30	
PCB101	50.00	33.94	68	33.17	66	50-150	33-167	2	0-30	
PCB105	50.00	33.02	66	32.57	65	50-150	33-167	1	0-30	
PCB118	50.00	35.33	71	34.82	70	50-150	33-167	1	0-30	
PCB126	50.00	31.94	64	32.12	64	50-150	33-167	1	0-30	
PCB128	50.00	28.88	58	28.39	57	50-150	33-167	2	0-30	
PCB153	50.00	33.17	66	32.71	65	50-150	33-167	1	0-30	
PCB170	50.00	27.61	55	26.54	53	50-150	33-167	4	0-30	
PCB180	50.00	31.36	63	31.11	62	50-150	33-167	1	0-30	
PCB187	50.00	32.64	65	32.36	65	50-150	33-167	1	0-30	
PCB195	50.00	32.75	66	31.17	62	50-150	33-167	5	0-30	
PCB206	50.00	28.77	58	27.91	56	50-150	33-167	3	0-30	
PCB209	50.00	31.23	62	30.39	61	50-150	33-167	3	0-30	

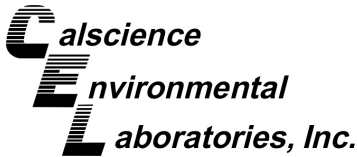
Total number of LCS compounds: 19

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 Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 08/13/13  
Work Order: 13-08-0936  
Preparation: EPA 3540C  
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-318-36</b>	<b>Soil</b>			<b>GC/MS HHH</b>	<b>08/16/13</b>	<b>08/23/13 22:38</b>	<b>130816F04</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	53.95	108	55.66	111	50-150	33-167	3	0-30	
PCB018	50.00	51.60	103	52.79	106	50-150	33-167	2	0-30	
PCB028	50.00	52.61	105	54.20	108	50-150	33-167	3	0-30	
PCB044	50.00	53.92	108	54.68	109	50-150	33-167	1	0-30	
PCB052	50.00	49.98	100	50.99	102	50-150	33-167	2	0-30	
PCB066	50.00	57.17	114	58.29	117	50-150	33-167	2	0-30	
PCB077	50.00	57.27	115	58.49	117	50-150	33-167	2	0-30	
PCB101	50.00	54.42	109	54.88	110	50-150	33-167	1	0-30	
PCB105	50.00	54.24	108	54.95	110	50-150	33-167	1	0-30	
PCB118	50.00	57.48	115	58.81	118	50-150	33-167	2	0-30	
PCB126	50.00	52.97	106	53.55	107	50-150	33-167	1	0-30	
PCB128	50.00	47.95	96	48.69	97	50-150	33-167	2	0-30	
PCB153	50.00	54.36	109	55.18	110	50-150	33-167	1	0-30	
PCB170	50.00	44.45	89	45.12	90	50-150	33-167	2	0-30	
PCB180	50.00	53.20	106	54.64	109	50-150	33-167	3	0-30	
PCB187	50.00	53.92	108	55.17	110	50-150	33-167	2	0-30	
PCB195	50.00	52.32	105	52.86	106	50-150	33-167	1	0-30	
PCB206	50.00	47.19	94	48.21	96	50-150	33-167	2	0-30	
PCB209	50.00	50.82	102	52.54	105	50-150	33-167	3	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 Limits

## Glossary of Terms and Qualifiers

Work Order: 13-08-0936

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
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.
BV	Sample received 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 Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
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.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.


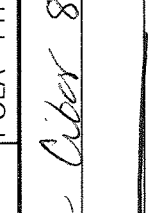
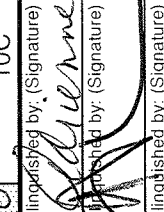
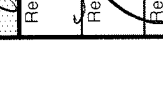
**CHAIN OF CUSTODY RECORD**

DATE: 08/12/13

PAGE: 1 OF 3

7440 LINCOLN WAY  
GARDEN GROVE, CA 92841-1432  
TEL: (714) 895-5494 . FAX: (714) 894-7501

**Calscience Environmental Laboratories, Inc.**

LABORATORY CLIENT: <b>AMEC</b>		CLIENT PROJECT NAME / NUMBER: <b>Berths 212-224 YTI Terminal</b>		P.O. NO.: <b>1015101929</b>									
ADDRESS: <b>9210 Sky Park Ct # 200</b>		PROJECT CONTACT: <b>Barry Snyder, Tyler Huff</b>		QUOTE NO.:									
CITY: <b>San Diego, CA 92123</b>		SAMPLER(S) (SIGNATURE) 		<b>LAB USE ONLY</b> <b>13-08-0936</b>									
TEL: (858) 300-4322		E-MAIL: <a href="mailto:tyler.huff@amec.com">tyler.huff@amec.com</a>											
TURNAROUND TIME: <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48HR <input type="checkbox"/> 72 HR <input type="checkbox"/> 5 DAYS <input checked="" type="checkbox"/> 10 DAYS		SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): <input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL / /											
SPECIAL INSTRUCTIONS: Danielle Gonsman is PM; see attached sheet for additional information. Report results in wet and dry weight. Keep frozen. Only count/open cooler at Calscience Sample Receiving. Please report all applicable totals (i.e. PCBs, PAHs, etc.)													
LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	DATE	SAMPLING TIME	Matrix	#Cont	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners	
1	1C	POLA - YTI Terminal	8/14/13	1500	Tissue	1	X	X	X	X	X	X	
2	2C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
3	3C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
4	4C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
5	5C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
6	6C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
7	7C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
8	8C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
9	9C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
10	10C	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	
Relinquished by: (Signature) 							Date: 08/13/13						Time: 1435
Relinquished by: (Signature) 							Date: 8/13/13						Time: 1850
Relinquished by: (Signature) 							Date:						Time:



# CHAIN OF CUSTODY RECORD

DATE: 08/12/13

PAGE: 3 OF 3

7440 LINCOLN WAY  
GARDEN GROVE, CA 92841-1432  
TEL: (714) 895-5494 . FAX: (714) 894-7501



LABORATORY CLIENT: <b>AMEC</b>		CLIENT PROJECT NAME / NUMBER: <b>Berths 212-224 YTI Terminal</b>		P.O. NO.: <b>1015101929</b>																	
ADDRESS: <b>9210 Sky Park Ct # 200</b>		PROJECT CONTACT: <b>Barry Snyder, Tyler Huff</b>		QUOTE NO.:																	
CITY: <b>San Diego, CA 92123</b>		SAMPLER(S): (SIGNATURE) 		LAB USE ONLY 08-0936																	
TEL: (858) 300-4322		E-MAIL: tyler.huff@amec.com		E-MAIL: barry.snyder@amec.com																	
TURNAROUND TIME <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48HR <input type="checkbox"/> 72 HR <input type="checkbox"/> 5 DAYS <input checked="" type="checkbox"/> 10 DAYS		<p><input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL / /</p> <p>SPECIAL INSTRUCTIONS Danielle Gonsman is PM; see attached sheet for additional information. Report results in wet and dry weight. Keep frozen. Only count/open cooler at Calscience Sample Receiving. Please report all applicable totals (i.e. PCBs, PAHs, etc.)</p>																			
LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING		Matrix	#Cont	REQUESTED ANALYSIS														
			DATE	TIME			Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners									
21	6W	POLA - YTI Terminal	8/12/13	1300	Tissue	1	X	X	X	X	X	X	X								
22	7W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
23	8W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
24	9W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
25	10W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
26	11W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
27	12W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
28	13W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
29	14W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
30	15W	POLA - YTI Terminal			Tissue	1	X	X	X	X	X	X	X								
Relinquished by: (Signature) 			DATE: 8/13/13		TIME: 1435		Date: 08/13/13		Time: 1435		Date: 8/13/13		Time: 1850		Date:		Time:				
Relinquished by: (Signature)			DATE: 8/13/13		TIME: 1850		Date:		Time:		Date:		Time:		Date:		Time:				
Relinquished by: (Signature)			DATE:		TIME:		Date:		Time:		Date:		Time:		Date:		Time:				



**Table 4-2.**  
**Chemical Analyses for Elutriate, Sediment and Tissue Samples**

Analyte	Analysis Method	Elutriate Target Detection Limits <sup>a, b</sup>	Sediment Target Detection Limits <sup>a, b</sup>	Tissue Target Detection Limits <sup>a, b</sup>
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M <sup>c</sup>	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D <sup>c</sup>	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	N/A	N/A	0.1 %
TRPH	418.1M <sup>d</sup>	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B <sup>d</sup>	N/A	5.0 mg/kg	N/A
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS <sup>j</sup>	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM <sup>d</sup>	N/A	10 µg/kg	N/A
Organotins	Rice/Krone <sup>h</sup>	3.0 ng/L	3.0 µg/kg	N/A

## Notes:

- <sup>a</sup> Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.
- <sup>b</sup> Reporting limits provided by CalScience Environmental Laboratories, Inc.
- <sup>c</sup> Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.
- <sup>d</sup> USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.
- <sup>e</sup> 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.
- <sup>f</sup> Includes aldrin, α-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.
- <sup>g</sup> 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)
- <sup>h</sup> Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)
- <sup>i</sup> NOAA 1993
- <sup>j</sup> Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lambda, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin
- µg/kg - micrograms per kilogram (parts per billion)
- µg/L - micrograms per liter
- mg/kg - milligrams per kilogram (parts per million)
- mg/L - milligrams per liter
- ng/L - nanograms per liter
- N/A - not applicable
- PAH - polycyclic aromatic hydrocarbon
- PCB - polychlorinated biphenyl
- SM - Standard Methods
- SOP - standard operating procedure
- TPH - total petroleum hydrocarbons
- TRPH - total recoverable petroleum hydrocarbons

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: AMEC

DATE: 08/13/13

**TEMPERATURE:** Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °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: YS

**CUSTODY SEALS INTACT:**

Cooler     \_\_\_\_\_     No (Not Intact)     Not Present     N/A    Initial: YS

Sample     \_\_\_\_\_     No (Not Intact)     Not Present    Initial: YS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfides <input type="checkbox"/> Dissolved Oxygen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/> <sup>PL</sup> 8/13/13	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

<sup>Tissue</sup>  
**Solid:**  4ozCGJ     8ozCGJ     16ozCGJ     Sleeve (\_\_\_\_)     EnCores®     TerraCores®     Z

**Water:**  VOA     VOA<sub>h</sub>     VOA<sub>na2</sub>     125AGB     125AGB<sub>h</sub>     125AGB<sub>p</sub>     1AGB     1AGB<sub>na2</sub>     1AGB<sub>s</sub>

500AGB     500AGJ     500AGJ<sub>s</sub>     250AGB     250CGB     250CGB<sub>s</sub>     1PB     1PB<sub>na</sub>     500PB

250PB     250PB<sub>n</sub>     125PB     125PB<sub>z</sub>na     100PJ     100PJ<sub>na2</sub>     \_\_\_\_\_     \_\_\_\_\_     \_\_\_\_\_

**Air:**     Tedlar®     Canister    **Other:**  \_\_\_\_\_    **Trip Blank Lot#:** \_\_\_\_\_    **Labeled/Checked by:** YS

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

**Preservative:** h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure zna: ZnAc<sub>2</sub>+NaOH f: Filtered    **Scanned by:** TN

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Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



## **APPENDIX F**

### **NOVEMBER 2013 CSTF MEETING MINUTES**

Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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Southern California Dredged Material Management Team (SC-DMMT)  
November 20, 2013  
Draft Meeting Notes

**I. Participating Agencies /Attendees:**

- a. Cori Farrar (USACE – Regulatory)
- b. Daniel Swenson (USACE – Regulatory)
- c. Brianne McGuffie (USACE-Regulatory)
- d. Antal Szijj<sup>†</sup> (USACE – Regulatory)
- e. John Markham<sup>†</sup> (USACE – Regulatory)
- f. Theresa Stevens (USACE – Regulatory)
- g. Larry Smith (USACE – Planning)
- h. Kirk Brus (USACE – Planning)
- i. Kenneth Wong (USACE – Planning)
- j. Blake Horita (USACE – Planning)
- k. Jim Fields (USACE – Planning)
- l. Jeffrey Devine (USACE – Geology Section)
- m. Allan Ota<sup>†</sup> (USEPA Region 9)
- n. Bill Paznokas<sup>†</sup> (CA-DFW)
- o. Michael Lyons (RWQCB – Los Angeles)
- p. Mark Adelson<sup>†</sup> (RWQCB – Santa Ana)
- q. Jack Gregg<sup>†</sup> (CCC)
- r. Larry Simone<sup>†</sup> (CCC)
- s. Carol Roberts<sup>†</sup> (USFWS)
- t. Loni Adams<sup>†</sup> (CDFW)
- u. Matt Arms<sup>†</sup> (Port of Long Beach)
- v. Kat Prickett (POLA)
- w. Rachel McPherson (POLA)
- x. Kathryn Curtis (POLA)
- y. Carlos Quintana (POLA)
- z. Ed Han (POLA)
- aa. David Walsh (POLA)
- bb. Barry Snyder (AMEC)
- cc. Tyler Huff (AMEC)
- dd. Janna Watanabe (POLB)
- ee. James Vernon (POLB)
- ff. Chris Miller (City of Newport Beach)
- gg. Doug West (City of Newport Beach)
- hh. Chris Osuch (Anchor QEA)
- ii. Adam Gale (Anchor QEA)
- jj. Susan Brodeur (County of Orange)
- kk. Kim Garvey (Moffatt and Nichol)

<sup>†</sup> **participating via teleconference.**

**II. Announcements:** None.

**III. Project Review and Determinations**

**a. NRG Intake Structure Demolition Project (Port of Long Beach, PM John Markham):**

**i. Corps (Regulatory) comments:**

1. What is potential source of high mercury levels? The Port stated high mercury levels (and other contaminants) are observed most often in portions of the Port that have not been dredged in recent years and that have poorer tidal circulation such as dead-end slips.

**ii. Corps (Planning) comments:**

1. None.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. None.

**v. EPA comments:**

1. Where in the cores was mercury identified? The Port stated there was little stratification of cores or pockets of differential material to suggest a possible concentration of mercury; rather, it was distributed through the cores;
2. Why was barium at such high levels (505 mg/kg in dry weight composite sample, and 422 ug/L in composite elutriate)? Similar to the mercury findings, the Port stated this is likely legacy (older) contamination, as this site has not been dredged for years. The adjacent Pier S site was used as an oil and gas processing facility from the 1930s to 2000, and between 1951 to 1969 was used for disposal of oil and gas drilling waste in shallow impounds, or “sumps.” This adjacent land use may be responsible in part for the elevated mercury and barium levels.
3. No objections to this proposal.

**vi. Cal DFW comments:**

1. There is a large population of lobsters surrounding and within the intake, but given the dredge method (clamshell) the lobsters will likely vacate the area.
2. No objections to this proposal.

**vii. Port of Long Beach comments:**

1. Estimated volume is 3,500 cubic yards, to be removed using clamshell, temporarily stockpiled upon Pier S or other contained upland location in Port to dewater, and then transported to an upland landfill rather than to Middle Harbor fill areas as previously proposed. Intake structure would be demolished and removed in early 2014;
2. Test sediments contained some trace metals and total PCB congeners above ERL guidelines, and mercury above ERM guidelines (~1.5 x ERM) throughout all samples. In addition, the site water and effluent elutriate tests show very few detectable chemicals of potential concern, and show that the analytes that are above ERLs are not seen in significant quantities in the elutriate sample, indicating that the analytes are non-soluble.

**b. Phase I of the POLB Maintenance Dredging Project (Port of Long Beach, PM: John Markham):**

**i. Corps (Regulatory) comments:**

1. No objections to this proposal.

**ii. Corps (Planning) comments:**

1. None.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. None.

**v. EPA comments:**

1. Were Z-layer samples taken at the Pier J Turning Basin site? If so, were these analyzed? The Port stated that Z-layer samples were collected from each station within the Pier J Turning Basin, but were not analyzed. The samples were archived should further investigation be necessary;
2. No objections to this proposal.

**vi. Cal DFW comments:**

1. No objections to this proposal.

**vii. CCC comments:**

1. No objections to this proposal.

**c. Regional General Permit 54** – To Review Results of Sampling & Analysis (PM: Cori Farrar): Attended by Chris Miller, City of Newport; Doug West, Newport Harbor Commission; Chris Osuch, Adam Gale, Shelley Anghera<sup>†</sup>, Jack Malone<sup>†</sup>, Steve Capellino<sup>†</sup> of Anchor QEA (City of Newport Beach):

**i. Corps (Regulatory) comments:**

1. Sought clarification of dredging area and requested that figures clearly show delineate bulkhead to pierhead lines.
2. Suggested table a more in-depth discussion of z-layer for another call to address CDFW and other agencies' concerns.
3. Confirmed testing of grain size would occur at each project site to determine suitability for beach or ocean disposal.
4. Clarified that in the mapped "green" areas, the proposed RGP would restrict dredging to -7 ft MLLW with 1 ft overdredge; boat dock owners would need to apply for an standard individual permit if seek greater dredge depths.
5. Composite core at 4-12 shows elevated [Hg], applicant could do more testing and may find it is suitable for ocean disposal or not and would they dispose of it at a landfill? What about trying to get rid of hot spots of contamination?
6. Suitability for beach nourishment is pending grain size analysis for any given site, and further consideration is needed given exceedences of ERMs for [Hg] at COMP-5 and [DDE] at COMP-3: more testing or more restrictions would be required.
7. Composite samples allow for testing at lower cost and are faster than Tier III testing on individual cores; however, new areas that haven't been dredged before are showing exceedences in ERLs and ERMS; Corps and EPA may require further testing depending on results of Tier III analysis in order to determine suitability for beach nourishment.
8. Requested and received confirmed from EPA that the determination of sediment suitability for offshore disposal has been made and concur with proposed areas and procedures outlined in SAR.
9. Additional safeguards in the form of further testing at the site level in certain areas is likely the way to handle elevated concentrations and beach nourishment.
10. Mention of Public Notice and EFH coordination for regulatory SIP process.

**ii. Corps (Planning) comments:**



1. In response to CDFW comment 1, indicated the absence of burrowing shrimp in Newport Bay due to high silt content of sediments.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. Want to ensure concentrations of metals at lower depths would be known to avoid new exposures of potential hot spots
2. Questioned z-layer analysis in areas with higher contaminant levels but received answer that those areas of concern were excluded

**v. EPA comments:**

1. Need to clarify that target dredge depth for areas where results indicated -8 MLLW to -12 MLLW had elevated levels of certain contaminants, ocean disposal would only be approved for dredging to -7 MLLW with overdepth of  $\leq$  1ft (would leave approx. 6" coverage) under proposed RGP54 unless further site-specific characterization and further determination of suitability.
2. Re: z-layer discussion, explained there is an evolving program in San Francisco Bay where NOAA through EFH consultation has focused on z-layer habitat as related to federally listed species; cautioned that z-layer suitability could arise as an emerging issue in SoCal, depending on location, species, and in cases with evidence of historical contamination of deeper layers of sediments that could be daylighted through dredging that haven't previously been exposed; this issue is one separate from the determination of sediment suitability for ocean disposal.
3. Sought confirmation that grain size is tested at the site level.
4. In reference to Corps-RG comment 5 and Other comment 4, clarified the key is that there is only 1 core in the area and if proposed to dredge deeper, higher resolution. sampling (areal and vertical samples) would be needed
5. Confirmed that in mapped "green" areas, sediments -8 ft MLLW (-7 ft MLLW and 1 ft overdredge) were characterized and are suitable for ocean disposal.
6. Beneficial reuse would need to consider human exposure thresholds.

**vi. CDFW comments:**

1. In referred to areas dredged to -8 MLLW (see EPA comment 1), concerned about potential exposure of organisms to elevated contaminants; asked if that would be covered by Regional Board; expressed concern about exposures of burrowing shrimp or other benthic organisms to contaminants since they can burrow 2 to 3 ft below the surface; concerned that organisms would be exposed to potentially contaminated surface and layers not normally exposed to. [CDFW will investigate further whether shrimp are present in the Bay.]
2. CDFW would look closely at any impacts to the beach through sand replenishment activities.

**vii. CCC comments:**

1. In mapped “green” areas, would prefer to exclude the area from the RGP or to restrict to -6 ft MLLW plus 1 ft overdredge.
2. Expressed concern about -7 ft MLLW plus 1 ft overdredge and wanted to follow-up internally with that depth due to z-layer discussion.

**viii. Other (Anchor and City) comments:**

1. Anchor Q.E.A: concerned about need to develop a remediation-type strategy for surface layer, i.e., z-layer left after dredging even if it relatively clean.
2. City: At private boat docks, it is not the City’s responsibility to remove the sediments.
3. City: in reference to CCC comment 1, -7 ft MLLW plus 1 ft overdredge is an established program under RGP 54
4. City: in reference to Corps-RG comment/question 5, City doesn’t know what any given marina or boat dock owner would do; they may choose to dredge to the RGP-allowed depth of -7 ft MLLW plus 1 ft overdredge.
5. Anchor: in ref. to Corps-RG comment 7, ERMs don’t directly relate to human health for determining suitability for beach disposal. Contaminant patterns and distribution of contaminants and broader scale is role of compositing scheme for RGP; expected exceedance of [Hg] to be okay if  $\leq 1.0$  mg/kg threshold from EPA; grain size testing at site is used as smaller spatial scale to determine if site-specific sediments meet requirements for beach nourishment.
6. City will review RGP 54 and will propose procedures for accommodating uncertainty in sediment data as want to maximize ability to accommodate beach replenishment.

**d. Sunset/Huntington Harbour Maintenance Dredging and Waterline Installation Project (County of Orange and City of Huntington Beach):**

**i. Corps (Regulatory) comments:**

1. Re: EPA comment 2: SC-DMMT Draft SAP Guidelines specify that known sources of contaminants should be indicated on figures and considered in strategy
2. Re: CDFW comment 1: Please delineate all areas of concern on a figure and send it to everyone in this SC-DMMT session
3. The selection of the contaminants for Tier III will be made after results of bulk chemistry, etc. are provided to the Corps and EPA and other programs
4. Need to archive cores for chemistry composites in case additional testing of cores is required; composites are not always sufficient for making determinations for disposal options
5. If ERM's and ERL's or SQGs for human exposure are exceeded, need to do a more focused analysis; Tier III testing scheme will be based on results of Tier II analysis and volumes of material proposed for disposal
6. Re: Other Comment 3: the DMMT will look at where the sources are located to determine appropriateness of composite proposal

**ii. Corps (Planning) comments:**

1. Re: the waterline areas, if the proposal is to just sidecast the trench material and then return it to fill in trench, then testing may not be necessary.
2. Re: Regulatory comment 3: Preliminary results will be distributed to the SC-DMMT

**iii. USFWS comments:**

1. Following the meeting, Carol Roberts of the USFWS reviewed and commented on the SAP:
  - a. For purposes of clarification, the composite samples that undergo chemical analysis should be representative of the individual cores from which they are derived, from the mudline down to the bottom of the overdredge depth. Adequate material should be collected from each individual site to provide for the collection of that composite sample as well as to archive enough material for subsequent physical and chemical analyses on an individual basis, as appropriate.

b. The Service supports analysis of polychlorinated biphenyls (PCBs) as both Arochlors and congeners (as currently called for in the SAP) because the results generated have independent utility important for assessing the material disposal options, particularly in regards to placing material on the SBNWR. Over the course of the many projects discussed on Wednesday, there was discussion suggesting only Arochlor analysis was required, but both are important in this instance.

c. As additional contaminants are evaluated, we have growing concern about the presence of polybrominated diphenyl ethers (PBDEs). Because analysis for these constituents would be helpful in making a determination of the appropriateness of placing materials on the SBNWR, they should be considered for inclusion in the list of chemicals for analysis.

d. Some of the Laboratory Reporting Limits are elevated relative to thresholds of concern for fish and wildlife. We ask that all estimated values below those reporting limits be provided in the results for our consideration, as the Method Detection Limits identified appear to address our concerns in this regard.

e. The SAP indicated that the results will be used to evaluate the biological importance of the potentially bioaccumulative contaminants. The Service has staff capable of assisting in making this determination for fish and wildlife, and we would appreciate receiving the results for review in this context.

f. To further enhance the ability to determine the appropriateness of placing dredged materials on the SBNWR, sampling and analysis of representative material from the receiving area would be appropriate (as is done for ocean disposal). Kirk Gilligan, Refuge Manager, can provide additional guidance on this aspect.

**iv. RWQCB comments:**

1. WDR may be required not just a 401 certification; target sampling to fulfill requirements of WDR.

**v. EPA comments:**

1. Not comfortable with composite strategy; need to separate Bolsa Channel and Marina area. Only if grain size and chemistry were similar and had same sediment source, would compositing be okay.
2. Inquired about land uses around entrance channel; SAP figures need to show locations of storm drains and fuel dock; need to understand the way sediments settle out. Please revise figure or and a new one to SAP.
3. Need to check in with SC-DMMT or at least Corps and EPA (copy CCC) for approval before compositing SH/BC and ST for Tier III analysis.
4. RE: Corps PD comment 1: confirmed that if just sidecasting with dredge, unless there is known contamination, testing is not necessary.

**vi. CDFW comments:**

1. Concerned about eelgrass and area next to refuge due to possible impacts to sensitive habitats; want to see avoidance of impacts to sensitive habitats if possible; noted that near Warner Bridge, there are remnant mudflats of concern and she will share via email.
2. RE: Corps PD comment 1 and EPA comment 4: the drainage area for the harbor is Wintersburg Channel and is urban with sources of contaminants, so DFW wants the trench sediments tested.

**vii. CCC comments:**

1. Concerned about boats and bottom paint contamination in marina.
2. Concerned for Tier II testing the compositing SH/BC-1 & 2 with SH/BC-3 & 4 because of potential sources of contaminants.

**viii. Other comments:**

1. Moffatt & Nichol RE: EPA comment 1: for 2001 project, in 1997/1998 the SAP was similar to what is being proposed and ultimately combined for Tier III.
2. Moffatt & Nichol RE: EPA comment 4: confirmed the plan is to trench within 100 ft swath and expect only 3 inches of material below -10 ft MLLW; acknowledge they may not need testing, but will test because want flexibility in disposal options for remaining dredged sediments.
3. Moffatt & Nichol: will provide figure(s) with storm drain outlet information and a memo clarifying individual analysis and how they made the preliminary determination to lump SH/BC 1-4 together.

e. **Berths 212-224 Yusen Container Terminal Improvements Project (Port of Los Angeles, Theresa Stevens):** Summary-Approximately 27,000 cy of material [total] would be dredged. Approximately 21,000 cy of dredging at Area A would deepen Berths 214-216 to -53 feet MLLW, and approximately 6,000 cy of maintenance dredging at Area B would restore the depth at Berths 217-220 to -47 feet MLLW; Area A cores were about 9 feet long and Area B cores were about 4 feet long; an additional 2 feet of overdredge depth would occur in both dredging areas. Based on composited sediment test results showing some exceedence of ERLs and no exceedence of ERMs, low potential for bioaccumulation, the Port has suggested all the material is suitable for ocean disposal at LA-2.

**i. Corps (Regulatory) comments:**

1. Stevens-Could Area A sediments be handled separately so that top layer unsuitable material is disposed at the CDF and suitable clay material is disposed at LA-2?

**ii. Corps (Planning) comments:**

1. Smith-Chemical test data needs to be presented in the body of the SAPR, not in an appendix.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. Lyons-Same comment as Stevens above regarding surface sediments. Board is not likely to approve of LA-2 disposal. Port asked if top layer of Area A were taken to CDF and clay in Area A was not contaminated, would the Board approve Area A and Area B disposal @ LA-2. Lyons-no for Area B due to ERL exceedence; if EPA issued a suitability determination, Board may still not allow LA-2 disposal; recommended retesting A and B sediments to be sure bottom layer is clean. Does EPA have no concerns about bioaccumulation evidence in clam and amphipod tests? Ports need to regroup and figure out Regional Sediment Management, and until this is done, Ports will be held to a higher standard.

**v. EPA comments:**

1. Ota-EPA disagrees that area A and B sediments have similar chemistry, and disagrees with the consultants' suitability determination for area A based on amphipod survivorship being approximately 20% less than area B, differences in pyrethroid and PCB levels; for OD Area B sediments are suitable, Area A sediments not suitable based

on composite results; recommend retesting upper and lower layers of Area A and manage the material separately; confirmatory testing-rerun Tier 2 chemistry, metals, PCBs, pyrethroids, PAHs.

**vi. Other comments:**

1. The material in Area A had approximately 2 feet of unconsolidated material on top of a clay deposit below. Amphipod test results for Area A may be a result of the species preference for larger grain size sediment (i.e., not clay). Port concerned about LA-2 no longer being available as a matter of policy, even though it has not officially been closed by EPA; and the inconsistency between Regional Boards.

**f. Berth 24 Cabrillo Beach Boat Launch Ramp Maintenance Dredging Project (Port of Los Angeles, Theresa Stevens):** Summary-based on test results showing the material is primarily silt and not compatible with Cabrillo beach sand, the Port proposes to dispose of the material in the Berths 243-245 Confined Disposal Facility (CDF).

**i. Corps (Regulatory) comments:**

1. Swenson-There is no “rule of thumb” policy on percentage of sand when beach nourishment is proposed, rather dredge and receiver sites must have compatible grain size distributions.
2. SAP approved during April 2013 DMMT but not beach compatible.

**ii. Corps (Planning) comments:**

1. Smith-Chemical test data needs to be presented in the body of the SAPR, not in an appendix.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. Lyons-RWQCB needs eelgrass mitigation plan or something from NMFS as to Port approach in order to take the item to the Board.

**v. EPA comments:**

1. None.

**vi. Cal DFW comments:**

1. Adams: If eelgrass transplants are used for eelgrass mitigation, DFW approval letter is required.

**vii. Other (POLA) comments:**

1. In Table 3-1, Grain Size results, highlight Total Silt and Clay and Total Sand rows to avoid confusion on percentage totals.
2. In Tables 3-2 and 3-3, provide individual analytes, not just total chemicals (e.g., individual PCB congeners analyzed as well as Total PCBs)
3. CSTF approves of disposal of the sediment at the Berths 243-245 CDF.
4. POLA plans to bring final permit for to the Water Board in March 2014.
5. No agency objections.

**g. Morro Bay Harbor Sampling Analysis Plan Report (Kirk Brus):**

The SAPR Report and Suitability Determination w/Appendices were provided to the SC-DMMT for review and comment on Friday, November 15, 2013.

**i. Corps (Regulatory) comments:**

1. Dan Swenson communicated as a general comment, for the future, that the existing Morro Bay placement dredged material area Figure/Map in the Slide 2 Power Point, also identified as Figure 1 (Location of Morro Bay Harbor and Receiving Beaches), page 4, in the SAPR Report, be shown more clearly the location of the dredged material areas, by enlarging the Figure 1 placement dredged material areas, and/or using polygons to identify these areas, for example. The USACE concurred that Figure 1, page 4 of the SAPR Report, correctly identified the approximate location of the two, placement of dredged material areas, and that Figure 1, page 4 of the SAPR Report, would be enlarged to see more clearly the approximate location of the placement dredged material areas on the Figure 1.

Postscript to November 20, 2013 SC-DMMT meeting:

Figure 10 on page 25 of the SAPR report shows a Plan Sheet generated from the USACE LAD on the location of the Primary Placement Area Nearshore immediately off of Montana De Oro State Beach and the Alternate Placement Area in the surf zone along Morro Strand State Beach. The USACE will enlarge this Plan Sheet on Figure 10 to more



clearly show both Placement Dredged Material Areas from this Plan Sheet.

**ii. Corps (Planning) comments:**

1. Larry Smith (USACE-Planning) communicated that the Figures 2 thru 9 in the SAPR report show the vibracore sampling locations were difficult to read relative to the boundaries of the Composite Areas probably due to the bathymetry lines/layer. The USACE concurred and responded that it would provide Figures clearly showing the boundaries of all of the Composite Areas relative to the location of the vibracore sample locations.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. Peter stated that the PowerPoint Slide 2, Morro Bay Placement Dredge Material Areas Figure, that the arrow identifying the nearshore area off of Montana De Oro State Beach was actually a rocky reef habitat area, and that the arrow need to be higher up to identify the nearshore area off of Montana De Oro State Beach. Kirk Brus (USACE LAD) responded that Figure 1 (Location of Morro Bay Harbor and Receiving Beaches), page 4, in the SAPR Report, correctly identified the approximate location of the two, placement of dredged material areas, the nearshore area off of Montana De Oro State Beach with the arrow higher up, and that the PowerPoint Slide 2 Figure had a problem with the resolution including the arrow approximating the location of the nearshore area off of Montana De Oro State. Kirk Brus also communicated that there are 2 placement of dredged material areas for Morro Bay, the nearshore placement dredged material area off of Montana De Oro State Beach is the primary, placement dredged material area, and that Morro Strand State Beach is the alternate. It was also communicated that depending on the type of dredge and what dredge areas have to be dredged annually in Morro Bay determines the placement dredged material area, and Kirk reminded everyone the dredging occurs annually in Morro Bay. Typically, when a hopper dredge is used in Morro Bay, material is placed in the nearshore off of Montana De Oro State Beach, and typically when a hydraulic dredge with a pipeline (to transport dredged material from a dredge area to its placement dredged material area, sometimes also referred

to as receiver beach, disposal area or discharge point) is used in Morro Bay, material is placed on Morro Strand State Beach.

2. Peter Von Langen communicated he remembered seeing a pipeline on Morro Strand State Beach during 2010. USACE concurred that a hydraulic dredge discharges material using a pipeline was used during a part of the 2010 dredging in Morro Bay, and typically almost all of the pipeline is placed on the dry part of the beach.

**v. EPA comments:**

1. Allan Ota (USEPA, Region 9) asked about a few of the vibracores test results listed in Table 10 (Vibracore Sample Location Gradation Test Results for Specific Sample Depth Intervals Collected Below Project Depth or Overdepth, Morro Bay Harbor 2013 Sediment Investigations), and communicated that vibracore location MBHVC13-20 (Classification: Lean Clay with Sand (CL): LL=39, PL=19) in Area E – Navy Channel and vibracore location MBHVC13-23 (Classification: Sandy Lean Clay with Sand (CL): LL=37, PL=18) in Area F-Morro Channel, appeared not to support the 2013 summary discussion on the Suitability Determination or the SAPR Report results discussion on the sediment grain size. Jeffrey Devine (USACE-Engineering) responded that these 2 vibracores test results are below the overdepth, and that Table 10 (and any other appropriate Table in the SAPR report and Appendices) would be updated/corrected to clearly identify the location of the gradation test results relative to the vibracore sample location, and the Corps responded that these tables would be updated. Allan Ota acknowledged the response provided by Corps.

**vi. Cal DFW comments:**

1. Loni Adams (California DFW) asked where is the dredged material placed on Morro Strand State Beach and how often is Morro Strand State Beach is used as a placement dredged material area, as there had been an initial discussion prior about the surf zone. The USACE responded that the dredged material would be placed on the dry part of Morro Strand State Beach. Loni communicated that the pismo clams can exist in the surf zone, and she wanted to know the volume of sediment that is placed on Morro Strand State Beach. Kirk Brus cited Table 3, page 11, of the SAPR report, that the most recent and previous

years dredged placement on Morro Strand State Beach was in year (late) 2009 thru (early) 2010 with a dredged volume of 135,170 cubic yards (CY) using a hydraulic dredge with a pipeline, and in year (late) 2001 thru (early) 2002 with a dredged volume of 211,500 CY using a hydraulic dredge with a pipeline, and that once every 6 to 8 years Morro Strand State Beach is utilized as a placement dredged material area.

2. Loni Adams asked if CEQA document would also be part of the USACE 6 year NEPA Environmental Assessment (EA) for Morro Bay Harbor maintenance dredging. Kenneth Wong (USACE-Planning) responded that there would not be CEQA document accompanying the USACE 6 year NEPA EA. Loni stated that she wanted to make sure that her agency received the USACE 6 year NEPA EA for Morro Bay Harbor maintenance dredging for review and comment. Kirk Brus responded and asked for clarification who would be the California DFW reviewer of the USACE 6 year NEPA EA as it was Kirk's understanding that Eric Wilkens (California DFW) is the representative for the region that covers Morro Bay based on current and previous coordination. Loni Adams responded that Eric Wilkens is the California DFW who represents the area covered by Morro Bay, and that Eric was tied up during the November 20, 2013, SC-DMMT presentation and was not able to participate. Kirk Brus responded that he would continue to coordinate with Eric Wilkens including the distribution of the USACE 6 year NEPA EA for Morro bay Harbor maintenance dredging when it is ready for distribution.

Postscript to November 20, 2013 SC-DMMT meeting:

The USACE wants to make a correction about the statement and discussion on the placement dredged material area on Morro Strand State Beach during the November 20, 2013 SC-DMMT meeting. Upon further investigation, the Corps actually discharges dredged material in the surf zone along Morro Strand State Beach in past dredging events when Morro Strand State Beach is utilized, approximately once every 6 to 8 years.

**vii. CCC comments:** None.

**h. Los Angeles River Estuary SAP (Ken Wong):**

**i. Corps (Regulatory) comments:**

1. D. Swenson: Submit draft SAP to Dan Swenson by 1st week of December for circulation. Make edits and finalize through email. Arrange for conference call as necessary. Finalize SAP by end of 2nd week in December.
2. D. Swenson: break project maps into three components A, B, and C and improve bathymetry.

**ii. Corps (Planning) comments:**

1. K. Wong: Provided pre draft SAP presentation. Failed toxicity w/ minimal ERL/ERM exceedences a historical problem with sediments.
2. K. Wong: Response to EPA#1. Chem panel will include pyrethroids per DMMT meeting on July 26, 2013.
3. J. Fields: Response to EPA#2: major storm drains upstream of project area (perhaps show larger vicinity maps with indicating large storm drains).
4. L. Smith: Response to USFWS #2: Past sampling results show homogeneity throughout all samples within area B.
5. L. Smith: drop Aroclors from chemistry panel.

**iii. USFWS comments:**

1. C. Roberts: suggested breaking area B into two composites (1 from marina to bridge, 1 from bridge to downstream terminus of area B).

**iv. RWQCB comments:**

1. None.

**v. EPA comments:**

1. Ota: recommend adding pyrethroids to chemistry panel.
2. Ota: Need to show storm drains. Area B may need samples and plot contamination.
3. Ota: (Per Corps Regulatory # 1) will review draft SAP and provide input on sampling locations, compositing, etc.
4. Concerned about composite testing, especially in area B.

**vi. Other comments:**

1. None.

**i. North Energy Island Borrow Pit Cap Demonstration Project (Larry Smith):**

**i. Corps (Regulatory) comments:**

1. None.

**ii. Corps (Planning) comments:**

1. Monitoring was conducted in October 2013 as part of the CSTF aquatic disposal/capping demonstration project. The demonstration project was constructed in 2001, so this year represents a 12-year monitoring event. The last previous monitoring event was in year 5 (2006). Lab work associated with the monitoring (sediment chemistry and benthic community analysis) is ongoing. Highlights from the field include a slight decrease in the cap thickness, a large increase in the new sediment layer on top of the cap, and an apparent reduction in benthic community both on the cap and in nearby unfilled borrow pit area relative to the adjacent bench. Monitoring reports will be distributed to the CSTF when available.

**iii. USFWS comments:**

1. None.

**iv. RWQCB comments:**

1. None.

**v. EPA comments:**

1. None.

**vi. Other comments:**

1. None.

**IV. Other issues:** none.



Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



## **APPENDIX G**

### **JANUARY 2014 CSTF MEETING MINUTES AND AMEC MEMORANDUM REPORT**

Port of Los Angeles  
Final Sediment Characterization Report  
Berths 212–224 YTI Container Terminal Improvements Project  
Los Angeles Harbor  
AMEC Project No. 1315102710  
May 2014



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Southern California Dredged Material Management Team (SC-DMMT)  
January 22, 2014  
Draft Meeting Notes

**I. Participating Agencies /Attendees:**

- a. *Theresa Stevens (USACE-Regulatory)*
- b. *John Markham (USACE-Regulatory)*
- c. *Daniel Swenson (USACE-Regulatory)*
- d. *Robert Smith<sup>†</sup> (USACE-Regulatory)*
- e. *Crystal Huerta (USACE-Regulatory)*
- f. *Joe Ryan (USACE-ED)*
- g. *Larry Smith (USACE-Planning)*
- h. *Jeffrey Devein (USACE – Geotech.)*
- i. *Jim Fields (USACE – PPMD)*
- j. *Ken Wong (USACE-PPMD)*
- k. *Kirk Brus (USACE-Planning)*
- l. *Blake Horita (USACE-PPMD)*
- m. *Allan Ota<sup>†</sup> (USEPA Region 9)*
- n. *Bill Paznokas<sup>†</sup> (CA-DFW)*
- o. *Michael Lyons<sup>†</sup> (RWQCB – Los Angeles)*
- p. *Peter Von Langen (RWQCB-Central Coast)*
- q. *Ken Kronschnabl (Contractor, Kennetics)*
- r. *Rachel McPherson (POLA/YTI)*
- s. *Kathryn Kurtis (POLA/YTI)*
- t. *Barry Snyder (AMEC)*
- u. *Laura Masterson (POLA)*
- v. *Alan Monji<sup>†</sup> (RWQCB, San Diego)*
- w. *Lock Dreizler<sup>†</sup> (Port of San Luis Harbor District)*
- x. *Fred Steiner<sup>†</sup> (?)*
- y. *Carol Roberts<sup>†</sup> (USFWS)*
- z. *Jason Conder (POLA Everport)*
- aa. *David Moore (POLA Everport)*
- bb. *Melissa Grover (POLA Everport)*
- cc. *Shelly Anghera (Anchor QEA)*
- dd. *Chris Osuch (Anchor QEA)*
- ee. *Tom Mathews (CAA Planning Inc)*
- ff. *Paul Grdner (Newfields)*
- gg. *Gerry Salas (USACE-Regulatory)*
- hh. *Janna Watanabe (POLB)*

**† participating via teleconference.**

## II. Announcements:

- a. **Upcoming SC-DMMT meeting coordinator rotations:**
  - i. Bonnie Rogers Feb-Mar,
  - ii. Brianne McGuffie Apr-May,
  - iii. Gerardo Salas Jun-Jul,
  - iv. Steve Estes Aug-Sep.
  
- b. **Please review the times for your project. If you think you need more or less time, please contact agenda POC ASAP.**
  - i. Default time is 45 minutes.
  - ii. Projects generally requiring less time: small number of samples, small dredging area, intended discharge/disposal is CDF or landfill, projects where sampling results resulted in no SQG exceedances.
  - iii. Projects generally requiring more time: very large number of samples, very large dredging area(s), intended discharge/disposal is beach nourishment or offshore disposal site and many ERLS, any ERMs, or other SQGs are exceeded.
  - iv. New agenda request format:
    1. Project name:
    2. Applicant:
    3. Project Type (Regulatory/Navigation):
    4. Meeting Type (DMMT/CSTF):
    5. Purpose/Topic (e.g., SAP, SAPR and/or suitability determination):
    6. Presentation (y/n):
    7. **Time requested: \_\_\_ minutes**
  
- c. **Please use the following subject line for agenda requests:**
  - i. "SC-DMMT AGENDA REQUEST: [project name]..."

## III. Project Review and Determinations

- a. **#1 Berths 212-224 Yusen Container Terminal Improvements Project (Theresa Stevens):** Summary by POLA: As a result of the EPA's and RWQCB's recommendation at the November 20, 2013 SC-CSTF/DMMT meeting, the clay, or "bottom" portion of Composite Area A was retested for PAHs, PCB Congeners, Chlorinated Pesticides, Metals and Pyrethroids. Barry Snyder of AMEC presented the results of the retest. The retested material was entirely free of all PCB Congeners, all Chlorinated Pesticides (including DDTs), and Pyrethroids above the reporting limit. Only one Pyrethroid (Permethrin-Cis/Trans) was detected, but it was reported as an estimated value (i.e. J-flagged) because it was detected below the reporting limit. It was noted by Mr. Snyder that the detection of this low level of Permethrin-Cis/Trans might be attributed to

lab contamination. Based on the low levels of metal and organic contaminants observed, the fact that only three ERL exceedances were observed (no ERM exceedances), and the low potential for bioaccumulation, confirms that the Composite Area A bottom layer is composed of native clay material. The Port recommended that the Composite Area A bottom layer and the all the Composite Area B material meets the suitability requirements for ocean disposal at LA-2. In addition, the Port recommended that the remaining upper unconsolidated material from Composite Area A (the top 2-foot layer) be placed in the Berth 243-245 Confined Disposal Facility (CDF).

**i. Corps (Regulatory) comments:**

1. Corps regulatory division staff (Swenson) concerned about inconsistent decision making between Regional Boards with respect to ocean disposal. Corps PM (Stevens) asked EPA if a future ocean disposal approval letter would be forthcoming if the material was deemed suitable for ocean disposal.
2. Corps asked why the Permethrin finding was erroneous and Barry said: It would be highly unlikely to detect pyrethroid pesticides in sediment and not also see DDT/DDE, since DDT/DDE are ubiquitous throughout the Port. DDT/DDE was in common use before synthetic pyrethroid pesticides were developed. DDE was even observed within the LA-2 reference sediments for this project. Based upon these observations, it is likely that the Permethrin observed at low levels in the Composite Area A clay layer is due to lab contamination.

**ii. Corps (Planning) comments:**

1. Larry asked if there was retesting of grain size analysis for the clay/bottom material? Barry replied there was not because 1) the material had been frozen (which affects the particle size characteristics of a sample) and 2) there was not sufficient material remaining following the chemical tests to conduct the grain size test. Barry indicated that there are very good pictures of the consistency of the clay material included in the appendix of the draft report.

**iii. USFWS comments:**

1. None.

**iv. CDFW comments:**

1. Asked when the EIR/EIS will be out and whether EPA would comment; Allan Ota affirmed he would comment.

**v. RWQCB comments:**

1. Michael Lyons indicated the material was suitable for ocean disposal on technical grounds but reiterated that this would make no difference to the Regional Board. In response to the Corps concerns about the lack of consistency in decision making among different Regions, which usually get elevated by the Corps to the State Board, Michael indicated the State Board has no authority over appointed reps in the Region.

**vi. EPA comments:**

1. EPA staff agreed that the stratified test results showed that some of the sediment was suitable for ocean disposal and agreed an approval letter may be forthcoming but this would be completed at the end of the Corps permit process.

**vii. Other comments:**

1. The Port staff asked everyone to provide a suitability determination for the re-tested material and also reminded the group that the CSTF was formed to address “contaminated” sediments, not sediments that test clean. This fact seems to have been forgotten amid the political agendas of the RWQCB board members and Heal the Bay which have resulted in all dredged material being placed in the CDF recently rather than clean material being taken to LA-2.
2. Dan Swensen suggested that the Port contact the Coastal Commission to get their input since they were unable to participate in this meeting.
3. The EIR/S will be available for public review in April or May.

**viii. Conclusions:**

1. All CSTF agencies present at the meeting concurred that the bottom portion of Area A and the entirety of Area B were suitable for LA-2 disposal. The Port confirmed that the top (approximately 2 feet) portion of Area A would be disposed of in the Berths 243-245 approved CDF.
2. The Port subsequently contacted the Coastal Commission, who was not present at this CSTF meeting, and they concurred with the suitability determination made at the meeting via email (sent January 29, 2014 by Larry Simon).

**b. #2 Berths 226-236 Everport Container Terminal Improvements Project (Theresa Stevens):**

- i. Corps (Regulatory) comments:**
  - 1. Corps PM asked the group to provide comments today, and asked if a revised SAP (using strikeout/underline) could be reviewed via email in lieu of returning to next months' meeting.
  - 2. Corps suggested reaching out to CCC on project.
  
- ii. Corps (Planning) comments:**
  - 1. None
  
- iii. USFWS comments:**
  - 1. None
  
- iv. CDFW comments:**
  - 1. Agreed to email review of revised SAP.
  - 2. Bill-Regarding z-layer samples asked the Port to archive not only the z-layer composite samples but also the z-layer samples from individual core locations.
  - 3. David Moore pointed out that it was possible z-layer samples would not be collected at every location due to refusal.
  
- v. RWQCB comments:**
  - 1. Agreed to email review of revised SAP.
  
- vi. EPA comments:**
  - 1. Agreed to email review of revised SAP. Requested a change to the title of the report to reflect the berths that would be dredged rather than the entire terminal. Applicant also agreed to check on location of storm drains.
  - 2. Allen- the SAP is straightforward, although inclusion of the Berth 229 maintenance dredging area with the Berths 232-228 dredging was odd, but he understood that because the volume was so small it made sense to combine with one of the adjacent areas. He noted that the chemistry Table 4 needed to include selenium and silver, as well as pyrethroids.
  - 3. Dan Swenson will send ENVIRON the latest draft SAP guidelines that include the latest list of recommended analytes including the specific pyrethroids to be evaluated.
  
- vii. Other comments:**
  - 1. Dan Swenson suggested that the Port contact the CCC to get their input on the SAP, since they were unable to participate in this meeting.

2. The Port will contact the CCC for their input, and make the following changes to the SAP: (1) include storm drain locations on a map and determine whether any of the proposed sampling locations needed to be shifted accordingly, (2) clarify in the SAP text that both individual and composite z-layer samples will be archived, (3) selenium, silver, and the appropriate pyrethroids will be added to the analyte list in the SAP. The Port will then submit a revised SAP (redlined to highlight the changes) for final agency review and concurrence via email.
3. The CCC subsequently concurred with the other agencies regarding the SAP comments (see attached email).

**c. #3 Alamitos Bay Marine Basins 2 and 3 Maintenance Dredging (Brianne McGuffie):**

**i. Corps (Regulatory) comments:**

1. Corps requested a copy of the tissue analyte list that Anchor QEA will be sending to EPA (slide 10 of presentation).  
Response: a copy will be provided to the Corps.
2. Corps permit does not specify how much material per basin, but just specifies a total amount of cubic yards for combined basins (i.e. Basins 1-7).
3. Are the proposed sampling locations the same as the 2007 sampling event?

Response: some points overlap but not all of them. There are more sampling points currently proposed.

Response: EPA will need to view the color-coded change in sedimentation map that Anchor QEA will be sending out before determining if sampling locations are sufficient.

**ii. Corps (Planning) comments:**

1. To EPA: do we really need the full Tier III testing again since the area was already fully tested in April 2007 and approved by EPA for LA-2 disposal in 2008?

Response: if the bathymetry hasn't changed much it's possible to just do sediment chemistry analysis and based on those results decide whether further Tier III testing is appropriate.

**iii. USFWS comments:**

1. N/A

**iv. CDFW comments:**

1. N/A

**v. RWQCB comments:**

1. Ok with holding off on Tier III testing, however, cannot increase the dredge volumes of the basins (i.e. increasing Basin 2 from 89900 to 96000 cy). If you want to modify the permit it will be very difficult to get approval again to go to LA-2, as previous approval was granted very reluctantly.

Response from QEA: The City will be notified that they cannot exceed the 89,900 cy for basin 2, as specified in their RWQCB permit.

2. Does the City plan on completing this work prior to the expiration of the RWQCB permit, which expires in October 2015? It would be wise to do so in order to ensure disposal LA-2.

**vi. EPA comments:**

1. Keep in mind that additional testing may still be required depending on the new chemistry results.
2. Is there a fuel dock or storm drains present?

Response: There is a fuel dock between Basins 1 and 2; B2DU1-02 sampling point is the closest sampling point available. There is also a pump-out station on the fuel dock.

**vii. Anchor QEA comments:**

1. The color-coded map depicting changes in bathymetry will be emailed to the DMMT, along with an updated SAP with a revised Table 7 to include pyrethroids, and an explanation of the new plan to proceed with Tier II testing and reserve Tier III testing for later, if it ends up being required.

Comment: The City of Long Beach concurs with the phased testing approach of Anchor QEA.

**d. #4 City of Newport Beach and Irvine Company (Robert Smith):**

**i. Corps (Regulatory) comments:**

1. Were there any culverts and if so, please show them.
2. Where is the grain size data and was there any grain size envelopes available?
3. Is there an upper silty sand layer in Area A near Area B that may be related to the Area B amphipod mortality?
4. Can the SAP be revised to discuss the compositing issues that were discussed.
5. Is the material going to nearshore or beach sites? If so the Corps would need to approve the nearshore or beach grain size and other data.

**ii. Corps (Planning) comments:**

1. None

**iii. USFWS comments:**

1. None

**iv. CDFW comments:**

1. None

**v. RWQCB comments:**

1. None

**vi. EPA comments:**

1. Suggested memo about additional testing and odor and Corps suggested revised SAPR.

**vii. Other comments:**

1. Note there are no ERM exceedances, but zero percent bioassay survival in Area B.
2. Note that material from Area A could go to LA-3 while material from Area B is not suitable for off-shore disposal.

**e. #5 Port San Luis Maintenance Dredging and District Maintenance (Crystal Huerta):**

**i. Corps (Regulatory) comments:**

1. Presented the Sediment Sampling and Analysis Report dated November 15, 2013.
2. No organo-pesticides or PAH's were detected in any of the samples. The samples were also free of sulfides. All samples are characterized as coarse to medium grained sand with fines ranging from 1.4-4.1% when six sites were tested in 2009 results were similar at all the six sites with the percentage of fines ranging from 0.1-5.4%.
3. The Corps has no objections to re-authorizing the permit.



4. Coastal Commission was not on the call therefore the Corps will check and make sure that they are satisfied with these SAP results.
5. (Dan Swenson) wanted to know the location of the grain size discussion and what the fate of the material is.

**ii. Corps (Planning) comments:**

1. No additional comments.

**iii. USFWS comments:**

1. No additional comments.

**iv. CDFW comments:**

1. (Bill Paznokas) Make sure the proposed project would avoid eelgrass. No additional comments.

**v. RWQCB comments:**

1. (Michael Lyons) Not concerned. No additional comments.

**vi. EPA comments:**

1. (Allen Ota) Communicated that 250,000 CY seemed excessive for an annual maximum. Expressed curiosity of the volume limits and the historical need of this annual maximum.
2. Did not have further concerns and feels that the sand is clean.

**vii. Other comments:**

1. (Lock Dreizler-Permittee)-In response to Dan Swenson's comments stated that there is no more build up than erosion and that the fate of the material stays within the crane with a versatile pump.
2. Applicant noted they have been in contact with CCC.

**f. #6 Pier T, Pier S, Back Channel and Turning Basin SAP (John Markham):**

**i. Corps (Regulatory) comments:**

1. Dredge Locations:
  - a. Western Anchorage: Was the Western Anchorage site described in Middle Harbor presentation characterized previously? It is not described in the SAP under review. Response (Port): Recent report prepared by AMEC in 2012, SAP approved in (date TBD). Material seems to be suitable for CDF

disposal/re-use, but the results of the SAPR will be presented in a future DMMT/CSTF meeting

- b. Pier T: Good to have a color contour for amount of cut. Response (Port): See figure 2. This distinction may not be very visible in this case due to steep slopes and amount of cut. Also see table 7 for locations for mudline elevations, which vary from -48.5 MLLW to -53 MLLW and average ~ -51.5 MLLW.
  - c. Pier S: All sediment cores within channel are in approximately same line, as opposed to (standard) randomized locations throughout dredge units. Response: for desired (longer) length of the cores (15-20 feet) and steepness of slopes, they had to remain at these locations.
  - d. Back Channel & Back Channel Turning Basin: Has the Port identified any major storm drains or discharge pipes? Response: Yes, but not on diagrams. No obvious locations to focus sampling sites. Port could revise or add a figure that represents the larger stormwater outfalls & discharge pipes (e.g., outfalls).
2. Disposal locations:
    - a. Temporary Aquatic Storage: Why is bioaccumulation testing not proposed, as it will likely sit for months or years, and bioaccumulation testing itself only requires a 25-day period. Response: The CSTF/DMMT SAP Guidelines do not require this. However, this is a requirement of the new Regional Board permit for 5-year maintenance dredging. At Corps, Regional Board, and USEPA request, the Port will revise SAP to add bioaccumulation testing for temporary aquatic storage.
  3. No objections to SAP, but revised SAP should be distributed to CSTF/DMMT prior to implementation.

**ii. Corps (Planning) comments:**

1. Dredge Locations:
  - a. Pier S: Yellow area that represents side slopes, for example, south of PS-DU-01, side slope is in water, so why is there is no core in this location. Response: given the steepness of side slopes, coring of in-water slope is too difficult.
  - b. Back Channel & Back Channel Turning Basin: Figure 8, BC-DU-02 contains no cores in water on

slope, which could be missing important data points (reiterated by EPA). Response: Port will revise sampling locations to add sampling of side slopes (which are to be excavated) for Back Channel and BC Turning Basin.

**iii. USFWS comments:**

1. No comments recorded.

**iv. CDFW comments:**

1. Disposal Locations:
  - a. Temporary Aquatic Storage: Where are the proposed locations of Temporary Aquatic Storage areas, other than Western Anchorage? Response: Port will revise SAP accordingly.
  - b. No objections to SAP.

**v. RWQCB comments:**

1. Disposal Locations:
  - a. Temporary Aquatic Disposal Site: The new Regional Board permit for 5-year maintenance dredging requires bioaccumulation testing for these proposed disposal/storage sites. At Corps, Regional Board, and USEPA request, the Port will revise SAP to add bioaccumulation testing for temporary aquatic storage
  - b. No objections to SAP, but revised SAP should be distributed to CSTF/DMMT prior to implementation.

**vi. EPA comments:**

1. Dredge Locations:
  - a. Pier T: In Middle Harbor presentation, the dimensions of Slides 3 and 4 do not seem consistent, 1 of them seems inaccurate. Response: Port agrees, but it is likely due to differing scale of aerials.
  - b. Pier T: Dredging proposed here is for “deepening”, and therefore is occurring predominantly in native material? Response: Yes, except where wharf/bulkhead was previously installed along Pier T face.
  - c. Pier T: Figure 11 (testing flow chart for Pier T) is incorrect. If fail Phase II BP testing and Tissue chemistry, then must return to TTLC comparison or

Phase II EET and SET chemistry. Response: Port will revise accordingly.

- d. Pier S: Did overlying fill layer located on slope or uplands come from a land source? Response: Yes, but the thickness, sediment quality, and soil profile are to be determined through testing.
- e. Pier S: No objections to use of this excavated (upland) material within MH CDF area. Response: Comment noted.
- f. Back Channel & BC Turning Basin: Comparing MH presentation & this SAP: Presentation (slide 7) indicates that MH East Basin Part 1 requires 2 million cy, whereas SAP speaks of 1 million cy needed. Which of these is correct? In addition, LA-2 has 1 million cy per year volume capacity (2005), therefore LA-3 would need to be proposed. Response: Port is over-sampling in order to have material available at these various disposal locations as needed, and thus their estimates may not be consistent. Latter comment noted.
- g. Back Channel & BC Turning Basin: Figures 7 through 10: Revise sampling locations to add sampling within side slopes where dredging is proposed (blue hatched and gold hatched areas). Response: Port will revise accordingly, at request of Corps Planning and EPA.
- h. Injection of deep soil cement occurs prior to dredging itself? In the water; i.e., in direct contact with marine environment? Response: Yes. Port will send description to CSTF/DMMT, including potential interaction with the marine environment.

- 2. No objections to SAP, but revised SAP should be distributed to CSTF/DMMT prior to implementation.

**vii. POLA comments:**

- 1. Middle Harbor fill project update (see presentation)
  - a. MH Fill Sequence: Slip 1 → Pier E Extension → East Basin Part 1 → East Basin Part 2
  - b. Slip 1 nearly complete, including surcharge/cap layer; material re-used from various sources, including Port and third parties.
  - c. East Basin Part 1: Between 1-2,000,000 cy of fill material needed, including surcharge/cap
    - i. Source of fill may come from Pier S, Back Channel & Back Channel Turning Basin,

Pier T and Pier T Entrance Channel, and Western Anchorage site = total 3.7 million cy available.

- ii. See slide for East Basin Part 1 tentative fill plan.
  - d. East Basin Part 2: amount of fill material TBD
2. Pier T & Entrance Channel (see presentation)
- a. Dredging at this potential borrow site is planned along Berths T132-140 and the West Basin Approach Channel to a depth of -55 feet mean lower low water (MLLW), plus 2 feet of allowable overdepth. The proposed area to be dredged has been sectioned into 11 dredge units (DUs) for the purpose of sampling and analysis activities (see SAP Figure 2).
  - b. The total volume of proposed dredged material is estimated to be 934,000 cy, consisting of 485,000 cy above design depth and 449,000 cy of allowable overdepth.
  - c. The SAP also provides a summary of prior sediment investigations at Pier T, Pier S, and Back Channel & Back Channel Turning Basin.
3. Pier S
- a. The Pier S project includes widening the Cerritos Channel. The wharf area includes a long submerged slope where a portion has been topped with clean imported soil to allow access to the site during previous improvements activities. Investigations require land-based borings through fill soil to historically subaqueous sediments that were covered during development of Pier S. Dredging and/or excavation are planned at Pier S to a depth of -52 feet MLLW, plus 2 feet of allowable overdepth. The proposed area to be dredged and/or excavated has been sectioned into seven DUs for the purpose of sampling and analysis activities (Figure 3). Five DUs are located within Cerritos Channel and two DUs are located along the shoreline of Pier S. A typical cross section at Pier S is presented on Figure 4.
  - b. The total volume of proposed dredged and/or excavated material is estimated to be 502,000 cy, consisting of 464,000 cy above project depth and 38,000 cy of allowable overdepth. Volume

estimates for landside DUs (PS-DU06 and PS-DU07) does not include the overlying fill soil that was previously placed at this location; this material will be beneficially reused at upland Port locations unless the CSTF/DMMT approves re-use at Middle Harbor.

4. Back Channel & BC Turning Basin:

- a. Dredging is planned within the Back Channel and Turning Basin to a depth of -52 feet MLLW, plus 2 feet of allowable overdepth. The proposed area to be dredged has been sectioned into four DUs.
- b. The total volume of proposed dredged material is estimated to be 178,000 cy, consisting of 151,000 cy above project depth and 27,000 cy of allowable overdepth.

**g. #7 Morro Bay Harbor (Blake Horita and Kirk Brus):**

**i. Corps (Regulatory) comments:**

1. None

**ii. Corps (Planning) comments:**

1. None

**iii. USFWS comments:**

1. None

**iv. CDFW comments:**

1. Though not directly related to the 2013 Morro Bay Harbor federal Final SAPR and Suitability Determination Report, and Appendices, Bill asked if the maintenance dredging has affects on the birds (e.g., western snowy plover) or vegetation (e. g., eelgrass) in Morro Bay. As the CDFW point of contact (POC) Eric Wilkins (CDFW) who covers the Morro Bay area was on the SC-DMMT monthly meeting by teleconference, Eric responded that the timing of the maintenance dredging (e.g., when the dredging occurs) determines which species (birds) or plants (eelgrass) could be affected, and Eric said he would have to research further on the species in the Morro Bay area. The Corps response about the CDFW discussion on species and the potential affect from Morro Bay Harbor federal maintenance dredging project would be discussed in the new 6 year Environmental Assessment (EA) for Morro Bay Harbor (federal) maintenance dredging project, and that

Eric Wilkins (CDFW) is on the mailing distribution for review of the new 6 year draft EA when the new 6 year EA is ready for dissemination.

2. Bill Paznokas communicated that he had no problems with the Final SAP, 2013 Morro Bay Harbor federal Final SAPR and Suitability Determination Report, and Appendices.

**v. RWQCB comments:**

1. Though not directly related to the 2013 SAPR and Suitability Report, Peter Von Langen (Central Coast Water Quality Control Board) said that when the previous placement dredged material was piped onto Morro Strand State Beach, the public complained about an odor.

**\*Post January 22, 2014 SC-DMMT monthly meeting:**

The Corps response to Peter Von Langen's request, the Corps would work with the local sponsor, Morro Bay Harbor District, on putting up a sign, or sending out a notice to the public, that dredged material is being placed at Morro Strand State Beach through a pipeline.

**vi. EPA comments:**

1. Allan Ota (USEPA) was not able to participate in the phone call so he relayed his comments to Dan Swenson and Larry Smith. Allan's comments were on 2 separate cores, -20 and -23, in Table 10 of the 2013 Report. It should be noted these comments were previously provided during the November 20, 2013 SC-DMMT meeting.

**\*Post January 22, 2014 SC-DMMT monthly meeting:**

As a followup from the January 22, 2014, SC-DMMT meeting Kirk Brus incorporation Allan Ota's comments into the 2013 Final SAPR and Suitability Report.

The Corps incorporated Allan Ota's review comments on Table 10. Test results in Table 10 are below project depth overdepths (also referred to as advanced maintenance depths) that WILL NOT be dredged as part of the Corps dredging project. The new discussion about cores -20 and -23 in Table 10 is located under Section 5.0, Discussion, on page 63, in the 2013 Morro Bay Harbor (federal) Final SAPR and Suitability Determination Report.

Table 9 was also updated (2013 Morro Bay Sieve Analysis Data above Project or Overdredge Depth For Each

Individual Cores) to show data and the project depth that WILL be dredged by the Corps dredging project. This updated discussion for Table 9 is located under Section 5.0, Discussion, on page 63, in the 2013 Final SAPR and Suitability Report.

**vii. Other comments:**

1. Kirk Brus discussed the previous November 20, 2013 review comments from the SC-DMMT on the 2013 Morro Bay Harbor (federal) Final SAPR and Suitability Determination Report and its Appendices, and provided Corps responses and an explanation how each comment had been resolved. As there were no new review comments, Kirk Brus asked to finalize the documents.

**IV. Other issues:**

- a. Finalization of SPL SAP/SAPR guidelines including database submittal requirement:
  - i. See documents regarding on-going effort to consolidate sediment testing data in a centralized database across multiple Corps districts (SAGA).
  - ii. Final data schema expected in 1-2 months.
  - iii. Website including mapping interface expected in approx. 9 months.
  - iv. Would allow labs to submit their data and agencies to export data.
  - v. Plan: finalize guidelines with requirement to submit data using SAGA templates until SAGA interface operational, then to submit directly through SAGA. Prior data submittals will be loaded at that time.
- b. Demo requested, but not available at this time.
- c. Question: how will it be funded? [query pending with SAGA staff].





**Memo**

To **Port of Los Angeles** AMEC File no **1315102710**  
From **Tyler Huff, AMEC** cc  
Tel **(858) 300-4322**  
Fax **(858) 300-4301**  
Date **14 January 2014**

**Subject Addendum Report of Action Directives from November 2013 CSTF meeting Berths 212-224 Yusen Container Terminal Improvements Project (Port of Los Angeles)**

**Original Notes from Dan Swenson (Army Corps of Engineers)(ACOE)) at the November 22, 2013 CSTF (Contaminated Sediment Task Force) Meeting and Port of Los Angeles (POLA) response to comments:**

**1. Berths 212-224 Yusen Container Terminal Improvements Project (Port of Los Angeles, Theresa Stevens):**

Summary-Approximately 27,000 cubic yards [cy] of material [total] would be dredged. Approximately 21,000 cy of dredging at Area A would deepen Berths 214-216 to -53 feet MLLW, and approximately 6,000 cy of maintenance dredging at Area B would restore the depth at Berths 217-220 to -47 feet MLLW; Area A cores were about 9 feet long and Area B cores were about 4 feet long; an additional 2 feet of overdredge depth would occur in both dredging areas. Based on composited sediment test results showing some exceedence of ERLs and no exceedence of ERMs, low potential for bioaccumulation, the Port had originally suggested all the material is suitable for ocean disposal at LA-2. The CSTF participant comments are incorporated below.

**i. Corps (Regulatory) comments:**

**Q:** Stevens-Could Area A sediments be handled separately so that top layer unsuitable material is disposed at the CDF and suitable clay material is disposed at LA-2?

**A:** Yes. The unconsolidated top 2 feet of Area A is now being proposed for placement at the Port's agency-approved Confined Disposal Facility (CDF), located at Berths 243-245. The remaining 'bottom' clay material below 2 feet elevation in the Area A dredge footprint is requested for approval for placement at the LA-2 Ocean Dredged Material Disposal Site (ODMDS). POLA Engineering considers this bottom clay sediment to be native material. The volume breakdown of this unconsolidated 'top' layer in Area A to the 'bottom' clay layer is approximately 25% upper layer to the 75% lower layer. This is approximately



5,200 cubic yards of unconsolidated 'top' sediment to be placed within the Berths 243-245 CDF, and approximately 15,800 cubic yards of 'bottom' clay material to be placed at the LA-2 ODMDs. Chemistry results conducted on the 'bottom' clay material are presented later in the table at the end of this addendum report and are referred to as "Composite A – Bottom".

**ii. Corps (Planning) comments:**

**Q:** Smith-Complete chemical test data needs to be presented in the body of the SAPR, not in an appendix.

**A:** Please see the attached revised chemistry results table at the end of this addendum report which now contains the complete list of chemical analyses conducted on the Berths 212-224 sediment composite samples. Previously included in the SAPR's Appendix C as Table C-1, the table now replaces "Table 3-2 Sediment Chemistry Results Summary" in the body of the SAPR.

**iii. USFWS comments:**

**Q:** None.

**A:** None

**iv. RWQCB comments:**

**Q:** Lyons-Same comment as Stevens above regarding surface sediments. Board is not likely to approve of LA-2 disposal. Port asked if top layer of Area A were taken to CDF and clay in Area A was not contaminated, would the Board approve Area A and Area B disposal @ LA-2. Lyons-no for Area B due to ERL exceedence; if EPA issued a suitability determination, Board may still not allow LA-2 disposal; recommended retesting A and B sediments to be sure bottom layer is clean. Does EPA have no concerns about bioaccumulation evidence in clam and amphipod tests? Ports need to regroup and figure out Regional Sediment Management, and until this is done, Ports will be held to a higher standard.

**A:** The CSTF needs to address the question of suitability determination and the Port Of Los Angeles will follow up with the RWQCB regarding use of LA-2.

**v. EPA comments:**

**Q:** Ota-EPA disagrees that Area A and B sediments have similar chemistry, and disagrees with the consultants' suitability determination for Area A based on amphipod survivorship being approximately 20% less than Area B, differences in pyrethroid and PCB levels; for OD (Ocean Disposal) Area B sediments are suitable, Area A sediments not suitable based on



composite results; recommend retesting upper and lower layers of Area A and manage the material separately; confirmatory testing-rerun Tier 2 chemistry, metals, PCBs, pyrethroids, PAHs.

- A:** At EPA's recommendation, a new sediment composite was created for confirmatory testing using all of the available "bottom" sediment archives from individual cores in Area A. The original Area A composite sample was composed of both top and bottom sections. This new Area A "bottom" composite was tested for the EPA requested chemistry (i.e. PAHs, PCB Congeners, Chlorinated Pesticides, Metals, and Pyrethroids). The tested chemicals were found in considerably reduced levels when compared to the original Area A composite test results. The tested Area A "bottom" composite was entirely free of all PCB Congeners, all Chlorinated Pesticides (including all DDTs), and entirely free of Pyrethroids above the reporting limit. The only reported pyrethroid in the original Area A composite sample, Permethrin-Cis/Trans, was not detected above the reporting limit of 1.4 µg/kg in the Area A "bottom" composite. The metals tested were at a similar or reduced level when compared to the original Area A composite. Napthalene was the only PAH seen above its ERL threshold in this Area A "bottom" composite, but was not detected in any of the earlier tested sediments. A tabular comparison of chemicals levels in both the Composite A – Bottom and the previously tested sediments is located at the end of this addendum report.

**Other comments:**

- Q:** The material in Area A had approximately 2 feet of unconsolidated material on top of a clay deposit below. Amphipod test results for Area A may be a result of the species preference for larger grain size sediment (i.e., not clay). Port concerned about LA-2 no longer being available as a matter of policy, even though it has not officially been closed by EPA; and the inconsistency between Regional Boards.
- A:** Regarding Amphipod test results for Area A, and the species preference for larger grain size sediment (i.e. not clay) is a documented confounding factor related to the elevated fraction of clay in the sample. The amphipod *Eohaustorius estuarius* is native to sandy habitats and has been found to be negatively affected by samples with an elevated fraction of fine sediments, in particular clay. This was discussed at length in the SAPR. Since the November CSTF meeting, no additional Amphipod testing has been performed. The CSTF will give concurrence on the suitability determination and the Port of Los Angeles will coordinate with the RWQCB separately.



In conclusion, Port of Los Angeles Staff recommends that based on the low levels of chemicals observed in the confirmation testing results of the Area A "bottom" sediments, the CSTF approves the native material beneath the unconsolidated top layer in Area A for ocean disposal at the LA-2 ODMDS. The top two feet of sediment within the Area A footprint will be placed in the Berths 243-245 CDF. During the November 2013 CSTF meeting, general consensus was that the sediments within the Area B footprint were suitable for ocean disposal. Port of Los Angeles Staff requests confirmation of that disposal determination.

Port of Los Angeles  
Addendum Report of Action Directives from  
November 2013 CSTF meeting  
Berths 212-224 Yusen Container Terminal Improvements Project  
AMEC Project No. 1315102710  
14 January 2014



## **REVISED SEDIMENT CHEMISTRY TABULAR RESULTS**

**Berths 212-224 YTI - Additional Sediment Chemistry Testing Summary**

Draft Port of Los Angeles Maintenance Dredging Project - Berths 212-224 (YTI)									
Analytical Method	Compound Name	Type	ERL	ERM	Units	Reference	Composite A - Bottom	Composite A	Composite B
SM 2540 B (M)	Solids, Total	General Chemistry	-	-	%	71.1	73.5	72.9	66.4
EPA 9060A	Total Organic Carbon	General Chemistry	-	-	%	0.77	NT	0.71	0.87
SM 4500-NH3 B/C (M)	Total Ammonia	General Chemistry	-	-	mg/kg	3.2	NT	7.7	2.1
EPA 376.2M	Total Sulfides	General Chemistry	-	-	mg/kg	0.7	NT	41	3.3
EPA 376.2M	Soluble Sulfides	General Chemistry	-	-	mg/kg	ND < 0.1	NT	ND < 0.10	ND < 0.10
EPA 6020	Arsenic	Metals	8.2	70	mg/kg	2.86	6.35	8.77	8.44
EPA 6020	Cadmium	Metals	1.2	9.6	mg/kg	0.195	0.383	0.471	0.423
EPA 6020	Chromium	Metals	81	370	mg/kg	21.3	33.7	35.2	32.9
EPA 6020	Copper	Metals	34	270	mg/kg	10.4	48.8	60.1	54.5
EPA 6020	Lead	Metals	46.7	218	mg/kg	5.37	11.1	27.7	25.7
EPA 7471A	Mercury	Metals	0.15	0.71	mg/kg	ND < 0.0282	0.110	0.217	0.171
EPA 6020	Nickel	Metals	20.9	51.6	mg/kg	10.9	28.5	27.3	22.4
EPA 6020	Selenium	Metals	-	-	mg/kg	0.322	0.339	0.237	0.415
EPA 6020	Silver	Metals	1.0	3.7	mg/kg	0.176	0.112 J	0.183	0.219
EPA 6020	Zinc	Metals	150	410	mg/kg	46.5	85.8	112	112
EPA 8015B(M)	C6	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C7	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C8	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C9-C10	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C11-C12	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C13-C14	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C15-C16	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C17-C18	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C19-C20	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C21-C22	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C23-C24	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C25-C28	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C29-C32	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C33-C36	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C37-C40	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	11
EPA 8015B(M)	C41-C44	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C6-C44 TPH	TPH	-	-	mg/kg	ND < 7	NT	ND < 6.9	24
EPA 418.1M	TRPH	TRPH	-	-	mg/kg	18	NT	65	38
EPA 8270C SIM	Naphthalene	PAH	160	2100	µg/kg	ND < 14	410	ND < 14	ND < 15
EPA 8270C SIM	Acenaphthylene	PAH	44	640	µg/kg	ND < 14	4 J	15	15
EPA 8270C SIM	Acenaphthene	PAH	16	500	µg/kg	ND < 14	11 J	ND < 14	ND < 15
EPA 8270C SIM	Fluorene	PAH	19	540	µg/kg	ND < 14	ND < 14	ND < 14	ND < 15
EPA 8270C SIM	Phenanthrene	PAH	240	1500	µg/kg	ND < 14	11 J	17	16
EPA 8270C SIM	Fluoranthene	PAH	600	5100	µg/kg	ND < 14	7.3 J	70	27
EPA 8270C SIM	Pyrene	PAH	665	2600	µg/kg	ND < 14	23	220	52
EPA 8270C SIM	Benzo (a) Anthracene	PAH	261	1600	µg/kg	ND < 14	4.3 J	27	26
EPA 8270C SIM	Chrysene	PAH	384	2800	µg/kg	ND < 14	3.7 J	48	46
EPA 8270C SIM	Benzo (k) Fluoranthene	PAH	-	-	µg/kg	ND < 14	7.6 J	82	100
EPA 8270C SIM	Benzo (b) Fluoranthene	PAH	-	-	µg/kg	ND < 14	8.8 J	100	130
EPA 8270C SIM	Benzo (a) Pyrene	PAH	430	1600	µg/kg	ND < 14	9.2 J	80	100
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	PAH	-	-	µg/kg	ND < 14	5.9 J	42	61
EPA 8270C SIM	Dibenzo (a,h) Anthracene	PAH	63.4	260	µg/kg	ND < 14	ND < 14	ND < 14	16
EPA 8270C SIM	Benzo (g,h,i) Perylene	PAH	-	-	µg/kg	ND < 14	5.8 J	48	68
	Total Detectable PAHs	PAH	4022	44792	µg/kg	ND	512	749	657
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	3.1
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	2.0	20	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	2.2	27	µg/kg	2.6	ND < 1.4	3.1	12
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	1	7	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Total Detectable DDTs	Chlorinated Pesticides	1.58	46.1	µg/kg	2.6	ND < 1.4	3.1	15.1
EPA 8081A	Aldrin	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Beta-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Chlordane	Chlorinated Pesticides	0.5	6.0	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Delta-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Dieldrin	Chlorinated Pesticides	0.02	8.0	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan I	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan II	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor epoxide	Chlorinated Pesticides	-	-	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Toxaphene	Chlorinated Pesticides	-	-	µg/kg	ND < 28	ND < 27	ND < 27	ND < 30
EPA 8270C SIM PCB Congeners	PCB018	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	0.86
EPA 8270C SIM PCB Congeners	PCB028	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB037	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB044	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB049	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	2.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB052	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	2.4	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB066	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	0.85	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB070	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	0.82	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB074	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB077	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB081	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB087	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB099	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB101	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	2.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB105	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB110	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB114	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB118	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB119	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB123	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB126	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB128	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB138/158	PCB Congeners	-	-	µg/kg	ND < 1.4	ND < 1.4	3.2	ND < 1.5
EPA 8270C SIM PCB Congeners	PCB149	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	4.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB151	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB153	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	4.3	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB156	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB157	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	0.91	ND < 0.75

## Berths 212-224 YTI - Additional Sediment Chemistry Testing Summary

Draft Port of Los Angeles Maintenance Dredging Project - Berths 212-224 (YTI)									
Analytical Method	Compound Name	Type	ERL	ERM	Units	Reference	Composite A - Bottom	Composite A	Composite B
EPA 8270C SIM PCB Congeners	PCB167	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB168	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB169	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB170	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB177	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB180	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	3.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB183	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB187	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	2.0	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB189	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB194	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB201	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB206	PCB Congeners	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
	Total Detectable PCBs	PCB Congeners	<b>22.7</b>	<b>180</b>	µg/kg	ND	ND	<b>38.44</b>	0.86
EPA 8270D (M)/TQ/EI	Allethrin (Bioallethrin)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	0.41 J	0.22 J
EPA 8270D (M)/TQ/EI	Cyfluthrin-beta (Baythroid)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cylothrin-Lamba	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Deltamethrin (Decamethrin)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	-	-	µg/kg	ND < 0.70	0.055 J	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenpropathrin (Danitol)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Permethrin - Cis/Trans	Pyrethroids	-	-	µg/kg	ND < 1.4	0.27 J	4.5	2.2
EPA 8270D (M)/TQ/EI	Sumithrin (Phenothrin)	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tralomethrin	Pyrethroids	-	-	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
Organotins By Krone et al.	Dibutyltin	Organotins	-	-	µg/kg	ND < 4.2	NT	0.72	14
Organotins By Krone et al.	Monobutyltin	Organotins	-	-	µg/kg	ND < 4.2	NT	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tetrabutyltin	Organotins	-	-	µg/kg	ND < 4.2	NT	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tributyltin	Organotins	-	-	µg/kg	ND < 4.2	NT	19	11
EPA 8270 SIM	2,4,5-Trichlorophenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4,6-Trichlorophenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dichlorophenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dimethylphenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dinitrophenol	Phenols	-	-	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	2-Chlorophenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2-Methylphenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2-Nitrophenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	3/4-Methylphenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	4,6-Dinitro-2-Methylphenol	Phenols	-	-	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	4-Chloro-3-Methylphenol	Phenols	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	4-Nitrophenol	Phenols	-	-	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	Pentachlorophenol	Phenols	-	-	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	Phenol	Phenols	-	-	µg/kg	33	NT	ND < 14	ND < 15
EPA 8270 SIM	Bis(2-Ethylhexyl) Phthalate	Phthalates	-	-	µg/kg	14	NT	170	270
EPA 8270 SIM	Butyl Benzyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	NT	47	52
EPA 8270 SIM	Diethyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	Dimethyl Phthalate	Phthalates	-	-	µg/kg	210	NT	ND < 14	ND < 15
EPA 8270 SIM	Di-n-Butyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	NT	15	ND < 15
EPA 8270 SIM	Di-n-Octyl Phthalate	Phthalates	-	-	µg/kg	ND < 14	NT	ND < 14	ND < 15

Notes:

mg - milligram

kg - kilogram

J - concentrations greater than or equal to MDL but less than RL

ND - Non Detect

PAH - Polycyclic aromatic hydrocarbon

PCB - Polychlorinated biphenyl

TPH - Total petroleum hydrocarbons

TRPH - Total recoverable petroleum hydrocarbons

ERL - Effects Range Low

ERM - Effects Range Median

NT - Not Tested

Results are presented in dry weight

**Red Font** indicates value higher than ERL

**Red Underlined Font** indicates value higher than ERM

Port of Los Angeles  
Addendum Report of Action Directives from  
November 2013 CSTF meeting  
Berths 212-224 Yusen Container Terminal Improvements Project  
AMEC Project No. 1315102710  
14 January 2014



**COMPOSITE AREA A-BOTTOM  
SEDIMENT CHEMISTRY LABORATORY REPORT**





# CALSCIENCE

## WORK ORDER NUMBER: 13-12-0007

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** AMEC Environment & Infrastructure

**Client Project Name:** POLA YTI Additional Testing

**Attention:** Tyler Huff  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Approved for release on 12/16/2013 by:  
Danielle Gonsman  
Project Manager

ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



Client Project Name: POLA YTI Additional Testing  
Work Order Number: 13-12-0007

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## CASE NARRATIVE

**CalScience Work Order No.: 13-12-0007**  
**Project Name: POLA YTI Additional Testing**

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

### ***Sample Condition on Receipt***

Two sediment samples were received for this project on June 3 and June 4, 2013. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures and kept frozen. The temperature of the samples upon receipt at the laboratory were 3.1 and 0.4°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored frozen pending chemistry testing in accordance with the Chain of Custody documents.

### ***Tests Performed***

Total Solids by SM 2540B  
PAHs by EPA 8270C SIM  
PCB Congeners by EPA 8270C SIM  
Chlorinated Pesticides by EPA 8081A  
Trace Metals by EPA 6020/7471A  
Pyrethroids by EPA 8270D (M)/TQ/EI

### ***Data Summary***

The sample results and reporting limits were dry weight corrected.

At client request the sampled were thawed All sediment samples were homogenized prior to preparation and analysis.

### **Holding times**

All holding times were met unless otherwise noted. The sediment samples were stored frozen (-20°C) upon receipt at the lab, prior to the EPA holding time expiration. CalScience follows standard industry practice and the Puget Sound protocol for holding times in sediment samples, which states holding time 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 time

### Calibration

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

### Reporting Limits

All Method Detection Limits were met. The 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 with the exception of a trace amount of Fenvalerate/Esfenvalerate in the Pyrethroid Method Blank. The data has been flagged with a "B".

### Laboratory Control Samples

Laboratory Control Sample (LCS) analyses were 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 project and non-project samples. All parameters for the matrix spikes were within the established control limits with the following exceptions.

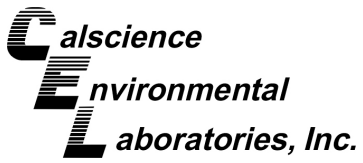
For the Pyrethroids by EPA 8270D (M)/TQ/EI the Fluvalinate and lambda-Cyhalotrin MS/MSD recoveries were outside of established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS recoveries and RPDs were in control.

For the Pesticides by EPA 8081A the Endrin Aldehyde MS/MSD recoveries and Heptachlor MSD recovery and RPD were outside of established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS recoveries were in control.

For the PAHs by EPA 8270C SIM the Naphthalene MS/MSD recoveries were low outside of established control limits. Note that the sample contained Naphthalene at three times the spike level. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS recoveries were in control.

### Surrogates

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



Acronyms

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

**Condition Upon Receipt:**

Samples were received under Chain of Custody (COC) on 12/02/13. They were assigned to Work Order 13-12-0007.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

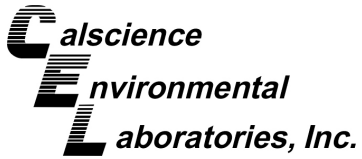
Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: [http://www.calscience.com/PDF/New\\_York.pdf](http://www.calscience.com/PDF/New_York.pdf)

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

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

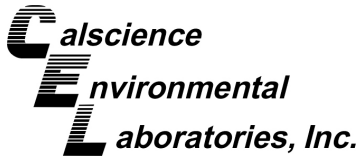


## Sample Summary

Client: AMEC Environment & Infrastructure	Work Order: 13-12-0007
9210 Sky Park Court, Suite 200	Project Name: POLA YTI Additional Testing
San Diego, CA 92123-4302	PO Number:
	Date/Time Received: 12/02/13 10:07
	Number of Containers: 3

Attn: Tyler Huff

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
A2-B	13-12-0007-1	06/03/13 10:40	1	Sediment
A5-B	13-12-0007-2	06/04/13 08:19	1	Sediment
COMP (A2-B, A5-B)	13-12-0007-3	06/03/13 00:00	1	Sediment



## Analytical Report

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 12/02/13  
 Work Order: 13-12-0007  
 Preparation: N/A  
 Method: SM 2540 B (M)  
 Units: %

Project: POLA YTI Additional Testing

Page 1 of 1

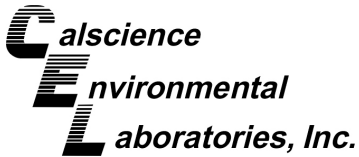
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>COMP (A2-B, A5-B)</b>	<b>13-12-0007-3-A</b>	<b>06/03/13 00:00</b>	<b>Sediment</b>	<b>N/A</b>	<b>12/03/13</b>	<b>12/03/13 21:00</b>	<b>D1203TSB1</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Solids, Total	73.5	0.100	1	

<b>Method Blank</b>	<b>099-05-019-2429</b>	<b>N/A</b>	<b>Solid</b>	<b>N/A</b>	<b>12/03/13</b>	<b>12/03/13 21:00</b>	<b>D1203TSB1</b>
---------------------	------------------------	------------	--------------	------------	-----------------	---------------------------	------------------

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Solids, Total	ND	0.100	1	





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA YTI Additional Testing

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	13-12-0007-3-A	06/03/13 00:00	Sediment	GCTQ 1	12/04/13	12/05/13 20:26	131204L01

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

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.68	0.35	1	
Bifenthrin	ND	0.68	0.13	1	
Cyfluthrin	ND	0.68	0.12	1	
Cypermethrin	ND	0.68	0.094	1	
Deltamethrin/Tralomethrin	ND	0.68	0.28	1	
Fenpropathrin	ND	0.68	0.049	1	
Fenvalerate/Esfenvalerate	0.055	0.68	0.049	1	B,J
Fluvalinate	ND	0.68	0.078	1	
Permethrin (cis/trans)	0.27	1.4	0.15	1	J
Phenothrin	ND	0.68	0.093	1	
Resmethrin/Bioresmethrin	ND	0.68	0.13	1	
Tetramethrin	ND	0.68	0.052	1	
lambda-Cyhalothrin	ND	0.68	0.059	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
trans-Permethrin(C13)	70	25-200			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI  
Units: ug/kg

Project: POLA YTI Additional Testing

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-403-49	N/A	Sediment	GCTQ 1	12/04/13	12/05/13 19:50	131204L01

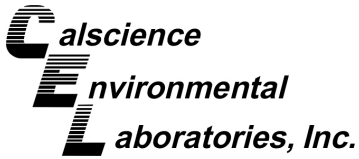
Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.50	0.26	1	
Bifenthrin	ND	0.50	0.094	1	
Cyfluthrin	ND	0.50	0.085	1	
Cypermethrin	ND	0.50	0.069	1	
Deltamethrin/Tralomethrin	ND	0.50	0.21	1	
Fenpropathrin	ND	0.50	0.036	1	
Fenvalerate/Esfenvalerate	0.059	0.50	0.036	1	J
Fluvalinate	ND	0.50	0.057	1	
Permethrin (cis/trans)	ND	1.0	0.11	1	
Phenothrin	ND	0.50	0.069	1	
Resmethrin/Bioresmethrin	ND	0.50	0.092	1	
Tetramethrin	ND	0.50	0.038	1	
lambda-Cyhalothrin	ND	0.50	0.044	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	79	25-200	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3050B  
Method: EPA 6020  
Units: mg/kg

Project: POLA YTI Additional Testing

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	13-12-0007-3-A	06/03/13 00:00	Sediment	ICP/MS 03	12/02/13	12/03/13 21:34	131202L03E

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

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	6.35	0.136	0.119	1	
Cadmium	0.383	0.136	0.0779	1	
Chromium	33.7	0.136	0.0844	1	
Copper	48.8	0.136	0.0570	1	
Lead	11.1	0.136	0.0897	1	
Nickel	28.5	0.136	0.0689	1	
Selenium	0.339	0.136	0.0994	1	
Silver	0.112	0.136	0.0426	1	J
Zinc	85.8	1.36	1.08	1	

Method Blank	099-15-254-171	N/A	Solid	ICP/MS 03	12/02/13	12/03/13 21:24	131202L03E
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Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	ND	0.100	0.0873	1	
Cadmium	ND	0.100	0.0572	1	
Chromium	ND	0.100	0.0621	1	
Copper	ND	0.100	0.0419	1	
Lead	ND	0.100	0.0659	1	
Nickel	ND	0.100	0.0506	1	
Selenium	ND	0.100	0.0731	1	
Silver	ND	0.100	0.0313	1	
Zinc	ND	1.00	0.795	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 7471A Total  
Method: EPA 7471A  
Units: mg/kg

Project: POLA YTI Additional Testing

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	13-12-0007-3-A	06/03/13 00:00	Sediment	Mercury	12/02/13	12/03/13 12:35	131202L04E

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

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.110	0.0273	0.00800	1	

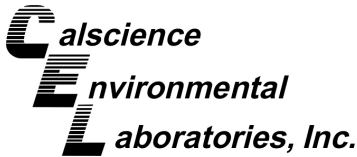
Method Blank	099-12-452-434	N/A	Solid	Mercury	12/02/13	12/02/13 11:50	131202L04E

Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.0200	0.00588	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA YTI Additional Testing

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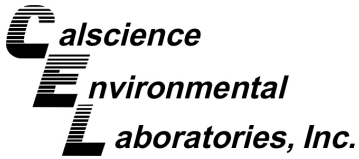
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	13-12-0007-3-A	06/03/13 00:00	Sediment	GC 51	12/03/13	12/07/13 12:17	131203L06

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

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	1.4	0.43	1	
Alpha-BHC	ND	1.4	0.44	1	
Beta-BHC	ND	1.4	0.36	1	
Delta-BHC	ND	1.4	0.35	1	
Gamma-BHC	ND	1.4	0.47	1	
Chlordane	ND	14	4.4	1	
Dieldrin	ND	1.4	0.45	1	
Trans-nonachlor	ND	1.4	0.39	1	
2,4'-DDD	ND	1.4	0.46	1	
2,4'-DDE	ND	1.4	0.42	1	
2,4'-DDT	ND	1.4	0.41	1	
4,4'-DDD	ND	1.4	0.43	1	
4,4'-DDE	ND	1.4	0.41	1	
4,4'-DDT	ND	1.4	0.46	1	
Endosulfan I	ND	1.4	0.36	1	
Endosulfan II	ND	1.4	0.38	1	
Endosulfan Sulfate	ND	1.4	0.46	1	
Endrin	ND	1.4	0.49	1	
Endrin Aldehyde	ND	1.4	0.33	1	
Endrin Ketone	ND	1.4	0.47	1	
Heptachlor	ND	1.4	0.44	1	
Heptachlor Epoxide	ND	1.4	0.48	1	
Methoxychlor	ND	1.4	0.44	1	
Toxaphene	ND	27	8.6	1	
Alpha Chlordane	ND	1.4	0.44	1	
Gamma Chlordane	ND	1.4	0.43	1	
Cis-nonachlor	ND	1.4	0.40	1	
Oxychlordane	ND	1.4	0.38	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
2,4,5,6-Tetrachloro-m-Xylene	83	50-130			
Decachlorobiphenyl	83	50-130			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: POLA YTI Additional Testing

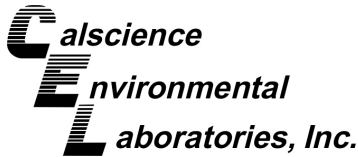
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-858-239	N/A	Solid	GC 51	12/03/13	12/07/13 11:19	131203L06

Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	1.0	0.31	1	
Alpha-BHC	ND	1.0	0.32	1	
Beta-BHC	ND	1.0	0.26	1	
Delta-BHC	ND	1.0	0.26	1	
Gamma-BHC	ND	1.0	0.35	1	
Chlordane	ND	10	3.3	1	
Dieldrin	ND	1.0	0.33	1	
Trans-nonachlor	ND	1.0	0.29	1	
2,4'-DDD	ND	1.0	0.34	1	
2,4'-DDE	ND	1.0	0.31	1	
2,4'-DDT	ND	1.0	0.30	1	
4,4'-DDD	ND	1.0	0.32	1	
4,4'-DDE	ND	1.0	0.30	1	
4,4'-DDT	ND	1.0	0.33	1	
Endosulfan I	ND	1.0	0.26	1	
Endosulfan II	ND	1.0	0.28	1	
Endosulfan Sulfate	ND	1.0	0.34	1	
Endrin	ND	1.0	0.36	1	
Endrin Aldehyde	ND	1.0	0.24	1	
Endrin Ketone	ND	1.0	0.35	1	
Heptachlor	ND	1.0	0.32	1	
Heptachlor Epoxide	ND	1.0	0.36	1	
Methoxychlor	ND	1.0	0.32	1	
Toxaphene	ND	20	6.3	1	
Alpha Chlordane	ND	1.0	0.32	1	
Gamma Chlordane	ND	1.0	0.32	1	
Cis-nonachlor	ND	1.0	0.29	1	
Oxychlordane	ND	1.0	0.28	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2,4,5,6-Tetrachloro-m-Xylene	112	50-130			
Decachlorobiphenyl	104	50-130			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: POLA YTI Additional Testing

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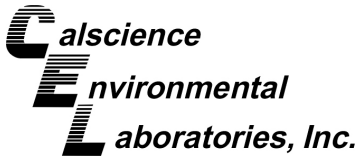
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	13-12-0007-3-A	06/03/13 00:00	Sediment	GC/MS AAA	12/05/13	12/06/13 14:30	131205L01

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

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acenaphthene	11	14	2.4	1	J
Acenaphthylene	4.0	14	2.1	1	J
Anthracene	3.4	14	1.1	1	J
Benzo (a) Anthracene	4.3	14	2.1	1	J
Benzo (a) Pyrene	9.2	14	1.4	1	J
Benzo (b) Fluoranthene	8.8	14	1.4	1	J
Benzo (e) Pyrene	ND	14	13	1	
Benzo (g,h,i) Perylene	5.8	14	1.3	1	J
Benzo (k) Fluoranthene	7.6	14	1.9	1	J
Biphenyl	ND	14	7.5	1	
Chrysene	3.7	14	1.6	1	J
Dibenz (a,h) Anthracene	ND	14	1.4	1	
2,6-Dimethylnaphthalene	ND	14	8.3	1	
Fluoranthene	7.3	14	1.3	1	J
Fluorene	ND	14	2.0	1	
Indeno (1,2,3-c,d) Pyrene	5.9	14	1.4	1	J
2-Methylnaphthalene	8.7	14	2.5	1	J
1-Methylnaphthalene	6.3	14	2.7	1	J
1-Methylphenanthrene	ND	14	9.0	1	
Naphthalene	410	14	4.1	1	
Perylene	19	14	13	1	
Phenanthrene	11	14	1.4	1	J
Pyrene	23	14	1.3	1	
1,6,7-Trimethylnaphthalene	ND	14	7.7	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
2-Fluorobiphenyl	90	14-146			
Nitrobenzene-d5	101	18-162			
p-Terphenyl-d14	107	34-148			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PAHs  
Units: ug/kg

Project: POLA YTI Additional Testing

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-097-116	N/A	Solid	GC/MS AAA	12/05/13	12/06/13 11:23	131205L01

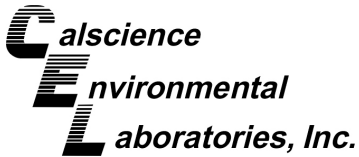
Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acenaphthene	ND	10	1.8	1	
Acenaphthylene	ND	10	1.5	1	
Anthracene	ND	10	0.81	1	
Benzo (a) Anthracene	ND	10	1.6	1	
Benzo (a) Pyrene	ND	10	1.0	1	
Benzo (b) Fluoranthene	ND	10	1.0	1	
Benzo (e) Pyrene	ND	10	9.5	1	
Benzo (g,h,i) Perylene	ND	10	0.94	1	
Benzo (k) Fluoranthene	ND	10	1.4	1	
Biphenyl	ND	10	5.5	1	
Chrysene	ND	10	1.2	1	
Dibenz (a,h) Anthracene	ND	10	1.0	1	
2,6-Dimethylnaphthalene	ND	10	6.1	1	
Fluoranthene	ND	10	0.98	1	
Fluorene	ND	10	1.5	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1.1	1	
2-Methylnaphthalene	ND	10	1.8	1	
1-Methylnaphthalene	ND	10	2.0	1	
1-Methylphenanthrene	ND	10	6.6	1	
Naphthalene	ND	10	3.0	1	
Perylene	ND	10	9.8	1	
Phenanthrene	ND	10	1.0	1	
Pyrene	ND	10	0.99	1	
1,6,7-Trimethylnaphthalene	ND	10	5.6	1	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
2-Fluorobiphenyl	87	14-146			
Nitrobenzene-d5	80	18-162			
p-Terphenyl-d14	103	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.





## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: POLA YTI Additional Testing

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	13-12-0007-3-A	06/03/13 00:00	Sediment	GC/MS HHH	12/08/13	12/11/13 13:12	131208L04

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

- Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB003	ND	0.68	0.16	1	
PCB008	ND	0.68	0.12	1	
PCB018	ND	0.68	0.21	1	
PCB028	ND	0.68	0.14	1	
PCB031	ND	0.68	0.16	1	
PCB033	ND	0.68	0.15	1	
PCB037	ND	0.68	0.18	1	
PCB044	ND	0.68	0.18	1	
PCB049	ND	0.68	0.16	1	
PCB052	ND	0.68	0.13	1	
PCB056	ND	0.68	0.19	1	
PCB060	ND	0.68	0.14	1	
PCB066	ND	0.68	0.12	1	
PCB070	ND	0.68	0.11	1	
PCB074	ND	0.68	0.13	1	
PCB077	ND	0.68	0.13	1	
PCB081	ND	0.68	0.17	1	
PCB087	ND	0.68	0.14	1	
PCB095	ND	0.68	0.23	1	
PCB097	ND	0.68	0.19	1	
PCB099	ND	0.68	0.12	1	
PCB101	ND	0.68	0.11	1	
PCB105	ND	0.68	0.14	1	
PCB110	ND	0.68	0.14	1	
PCB114	ND	0.68	0.14	1	
PCB118	ND	0.68	0.18	1	
PCB119	ND	0.68	0.12	1	
PCB123	ND	0.68	0.12	1	
PCB126	ND	0.68	0.19	1	
PCB128	ND	0.68	0.14	1	
PCB132	ND	0.68	0.23	1	
PCB138/158	ND	1.4	0.28	1	
PCB141	ND	0.68	0.15	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

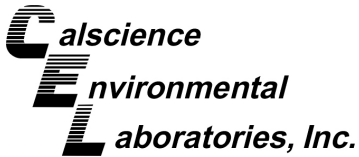
Project: POLA YTI Additional Testing

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB149	ND	0.68	0.12	1	
PCB151	ND	0.68	0.14	1	
PCB153	ND	0.68	0.14	1	
PCB156	ND	0.68	0.13	1	
PCB157	ND	0.68	0.13	1	
PCB167	ND	0.68	0.14	1	
PCB168	ND	0.68	0.12	1	
PCB169	ND	0.68	0.11	1	
PCB170	ND	0.68	0.13	1	
PCB174	ND	0.68	0.15	1	
PCB177	ND	0.68	0.17	1	
PCB180	ND	0.68	0.083	1	
PCB183	ND	0.68	0.15	1	
PCB184	ND	0.68	0.076	1	
PCB187	ND	0.68	0.14	1	
PCB189	ND	0.68	0.12	1	
PCB194	ND	0.68	0.13	1	
PCB195	ND	0.68	0.072	1	
PCB200	ND	0.68	0.13	1	
PCB201	ND	0.68	0.077	1	
PCB203	ND	0.68	0.15	1	
PCB206	ND	0.68	0.11	1	
PCB209	ND	0.68	0.15	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	68	50-125			
p-Terphenyl-d14	85	50-125			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

Project: POLA YTI Additional Testing

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-341-143	N/A	Solid	GC/MS HHH	12/08/13	12/11/13 11:47	131208L04

Comment(s): - Results were evaluated to the MDL (DL), concentrations  $\geq$  to the MDL (DL) but  $<$  RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB003	ND	0.50	0.12	1	
PCB008	ND	0.50	0.085	1	
PCB018	ND	0.50	0.16	1	
PCB028	ND	0.50	0.099	1	
PCB031	ND	0.50	0.12	1	
PCB033	ND	0.50	0.11	1	
PCB037	ND	0.50	0.13	1	
PCB044	ND	0.50	0.13	1	
PCB049	ND	0.50	0.12	1	
PCB052	ND	0.50	0.097	1	
PCB056	ND	0.50	0.14	1	
PCB060	ND	0.50	0.11	1	
PCB066	ND	0.50	0.091	1	
PCB070	ND	0.50	0.082	1	
PCB074	ND	0.50	0.094	1	
PCB077	ND	0.50	0.097	1	
PCB081	ND	0.50	0.12	1	
PCB087	ND	0.50	0.10	1	
PCB095	ND	0.50	0.17	1	
PCB097	ND	0.50	0.14	1	
PCB099	ND	0.50	0.085	1	
PCB101	ND	0.50	0.081	1	
PCB105	ND	0.50	0.10	1	
PCB110	ND	0.50	0.10	1	
PCB114	ND	0.50	0.10	1	
PCB118	ND	0.50	0.13	1	
PCB119	ND	0.50	0.087	1	
PCB123	ND	0.50	0.087	1	
PCB126	ND	0.50	0.14	1	
PCB128	ND	0.50	0.10	1	
PCB132	ND	0.50	0.17	1	
PCB138/158	ND	1.0	0.20	1	
PCB141	ND	0.50	0.11	1	
PCB149	ND	0.50	0.089	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners  
Units: ug/kg

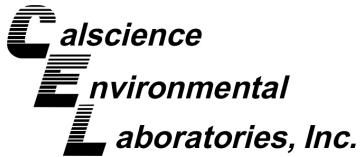
Project: POLA YTI Additional Testing

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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB151	ND	0.50	0.10	1	
PCB153	ND	0.50	0.10	1	
PCB156	ND	0.50	0.098	1	
PCB157	ND	0.50	0.096	1	
PCB167	ND	0.50	0.10	1	
PCB168	ND	0.50	0.086	1	
PCB169	ND	0.50	0.082	1	
PCB170	ND	0.50	0.093	1	
PCB174	ND	0.50	0.11	1	
PCB177	ND	0.50	0.12	1	
PCB180	ND	0.50	0.061	1	
PCB183	ND	0.50	0.11	1	
PCB184	ND	0.50	0.056	1	
PCB187	ND	0.50	0.10	1	
PCB189	ND	0.50	0.086	1	
PCB194	ND	0.50	0.096	1	
PCB195	ND	0.50	0.053	1	
PCB200	ND	0.50	0.093	1	
PCB201	ND	0.50	0.057	1	
PCB203	ND	0.50	0.11	1	
PCB206	ND	0.50	0.083	1	
PCB209	ND	0.50	0.11	1	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	52	50-125			
p-Terphenyl-d14	59	50-125			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

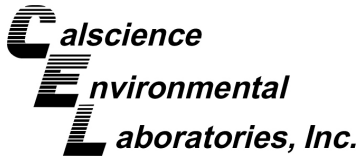
Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>COMP (A2-B, A5-B)</b>	<b>Sediment</b>	<b>GCTQ 1</b>	<b>12/04/13</b>	<b>12/05/13 21:03</b>	<b>131204S01</b>					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.890	38	2.143	43	25-200	13	0-30	
Bifenthrin	ND	5.000	3.016	60	3.530	71	25-200	16	0-30	
Cyfluthrin	ND	5.000	1.573	31	1.942	39	25-200	21	0-30	
Cypermethrin	ND	5.000	1.308	26	1.643	33	25-200	23	0-30	
Deltamethrin/Tralomethrin	ND	5.000	1.353	27	1.653	33	25-200	20	0-30	
Fenpropathrin	ND	5.000	2.131	43	2.648	53	25-200	22	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	2.485	25	3.301	33	25-200	28	0-30	
Fluvalinate	ND	5.000	0.9103	18	1.073	21	20-200	16	0-30	3
Permethrin (cis/trans)	ND	5.000	3.513	70	4.053	81	25-200	14	0-30	
Phenothrin	ND	5.000	4.793	96	5.297	106	25-200	10	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.369	87	5.355	107	25-200	20	0-30	
Tetramethrin	ND	5.000	3.013	60	3.685	74	25-200	20	0-30	
lambda-Cyhalothrin	ND	5.000	1.185	24	1.350	27	25-200	13	0-30	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

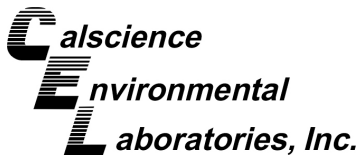
AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3050B  
Method: EPA 6020

Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
<b>13-12-0002-1</b>	<b>Filter</b>		<b>ICP/MS 03</b>	<b>12/02/13</b>	<b>12/02/13 19:37</b>	<b>131202S03</b>				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	ND	600.0	634.8	106	603.3	101	80-120	5	0-20	
Cadmium	ND	600.0	628.7	105	615.1	103	80-120	2	0-20	
Chromium	ND	600.0	620.1	103	612.5	102	80-120	1	0-20	
Copper	437.4	600.0	1126	115	1072	106	80-120	5	0-20	
Lead	56.37	600.0	661.2	101	637.7	97	80-120	4	0-20	
Nickel	ND	600.0	569.7	95	558.7	93	80-120	2	0-20	
Selenium	14.20	600.0	677.4	111	649.5	106	80-120	4	0-20	
Silver	ND	300.0	317.6	106	306.3	102	80-120	4	0-20	
Zinc	201.7	600.0	863.3	110	856.7	109	80-120	1	0-20	



**Quality Control - Spike/Spike Duplicate**

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 12/02/13  
 Work Order: 13-12-0007  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

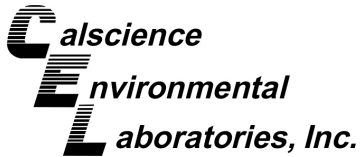
Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
<b>13-11-2207-1</b>	<b>Solid</b>	<b>Mercury</b>	<b>12/02/13</b>	<b>12/02/13 17:43</b>	<b>131202S04</b>					
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.8350	0.7802	93	0.7988	96	71-137	2	0-14	

Return to Contents 

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8081A

Project: POLA YTI Additional Testing

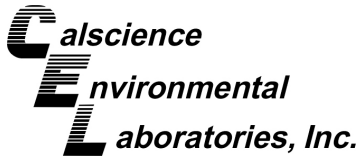
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
COMP (A2-B, A5-B)	Sediment	GC 51	12/03/13	12/07/13 11:48	131203S06					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	4.427	89	3.865	77	50-135	14	0-25	
Alpha-BHC	ND	5.000	4.765	95	4.142	83	50-135	14	0-25	
Beta-BHC	ND	5.000	4.151	83	3.566	71	50-135	15	0-25	
Delta-BHC	ND	5.000	4.107	82	3.328	67	50-135	21	0-25	
Gamma-BHC	ND	5.000	4.682	94	4.058	81	50-135	14	0-25	
Dieldrin	ND	5.000	4.573	91	4.018	80	50-135	13	0-25	
4,4'-DDD	ND	5.000	4.780	96	4.194	84	50-135	13	0-25	
4,4'-DDE	ND	5.000	4.759	95	4.270	85	50-135	11	0-25	
4,4'-DDT	ND	5.000	4.509	90	3.981	80	50-135	12	0-25	
Endosulfan I	ND	5.000	4.165	83	3.445	69	50-135	19	0-25	
Endosulfan II	ND	5.000	3.784	76	3.211	64	50-135	16	0-25	
Endosulfan Sulfate	ND	5.000	4.288	86	3.645	73	50-135	16	0-25	
Endrin	ND	5.000	4.715	94	4.124	82	50-135	13	0-25	
Endrin Aldehyde	ND	5.000	0.1250	2	0.1132	2	50-135	10	0-25	3
Endrin Ketone	ND	5.000	4.614	92	3.889	78	50-135	17	0-25	
Heptachlor	ND	5.000	4.000	80	2.075	41	50-135	63	0-25	3,4
Heptachlor Epoxide	ND	5.000	4.408	88	3.834	77	50-135	14	0-25	
Methoxychlor	ND	5.000	4.516	90	3.767	75	50-135	18	0-25	
Alpha Chlordane	ND	5.000	4.594	92	4.021	80	50-135	13	0-25	
Gamma Chlordane	ND	5.000	4.466	89	4.005	80	50-135	11	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PAHs

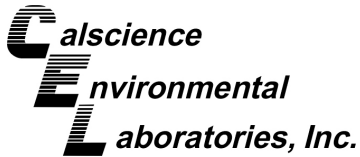
Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix		Instrument		Date Prepared	Date Analyzed	MS/MSD Batch Number			
COMP (A2-B, A5-B)	Sediment		GC/MS AAA		12/05/13	12/06/13 14:53	131205S01			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	ND	100.0	82.72	83	88.75	89	40-160	7	0-20	
Acenaphthylene	ND	100.0	81.00	81	86.52	87	40-160	7	0-20	
Anthracene	ND	100.0	75.38	75	79.70	80	40-160	6	0-20	
Benzo (a) Anthracene	ND	100.0	83.48	83	89.44	89	40-160	7	0-20	
Benzo (a) Pyrene	ND	100.0	85.79	86	90.76	91	40-160	6	0-20	
Benzo (b) Fluoranthene	ND	100.0	83.67	84	89.43	89	40-160	7	0-20	
Benzo (g,h,i) Perylene	ND	100.0	62.73	63	66.40	66	40-160	6	0-20	
Benzo (k) Fluoranthene	ND	100.0	77.12	77	82.37	82	40-160	7	0-20	
Chrysene	ND	100.0	77.30	77	82.49	82	40-160	6	0-20	
Dibenz (a,h) Anthracene	ND	100.0	64.66	65	68.52	69	40-160	6	0-20	
Fluoranthene	ND	100.0	79.17	79	83.57	84	40-160	5	0-20	
Fluorene	ND	100.0	81.01	81	86.28	86	40-160	6	0-20	
Indeno (1,2,3-c,d) Pyrene	ND	100.0	82.05	82	86.58	87	40-160	5	0-20	
2-Methylnaphthalene	ND	100.0	91.03	91	98.01	98	40-160	7	0-20	
1-Methylnaphthalene	ND	100.0	82.79	83	86.48	86	40-160	4	0-20	
Naphthalene	304.1	100.0	95.13	0	101.5	0	40-160	6	0-20	3
Phenanthrene	ND	100.0	81.90	82	87.05	87	40-160	6	0-20	
Pyrene	16.71	100.0	92.37	76	97.90	81	40-160	6	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

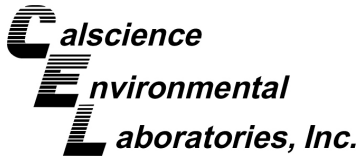
Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number					
COMP (A2-B, A5-B)	Sediment	GC/MS HHH	12/08/13	12/11/13 13:49	131208S04					
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	25.00	25.41	102	26.44	106	50-125	4	0-30	
PCB018	ND	25.00	24.23	97	25.64	103	50-125	6	0-30	
PCB028	ND	25.00	25.30	101	26.23	105	50-125	4	0-30	
PCB044	ND	25.00	23.70	95	24.29	97	50-125	2	0-30	
PCB052	ND	25.00	23.58	94	25.35	101	50-125	7	0-30	
PCB066	ND	25.00	23.55	94	24.71	99	50-125	5	0-30	
PCB077	ND	25.00	24.11	96	25.27	101	50-125	5	0-30	
PCB101	ND	25.00	22.89	92	23.89	96	50-125	4	0-30	
PCB105	ND	25.00	22.44	90	23.36	93	50-125	4	0-30	
PCB118	ND	25.00	25.55	102	26.28	105	50-125	3	0-30	
PCB126	ND	25.00	22.57	90	23.48	94	50-125	4	0-30	
PCB128	ND	25.00	20.41	82	21.58	86	50-125	6	0-30	
PCB153	ND	25.00	21.51	86	22.56	90	50-125	5	0-30	
PCB170	ND	25.00	22.08	88	23.52	94	50-125	6	0-30	
PCB180	ND	25.00	21.96	88	23.43	94	50-125	7	0-30	
PCB187	ND	25.00	20.95	84	22.12	88	50-125	5	0-30	
PCB195	ND	25.00	24.45	98	25.83	103	50-125	5	0-30	
PCB206	ND	25.00	24.74	99	26.71	107	50-125	8	0-30	
PCB209	ND	25.00	26.23	105	27.94	112	50-125	6	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - PDS/PDSD

AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 12/02/13  
 Work Order: 13-12-0007  
 Preparation: EPA 3050B  
 Method: EPA 6020

Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
<b>13-12-0002-1</b>	<b>Filter</b>	<b>ICP/MS 03</b>	<b>12/02/13 00:00</b>	<b>12/02/13 19:43</b>	<b>131202S03</b>	
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	ND	600.0	610.1	102	75-125	
Cadmium	ND	600.0	602.3	100	75-125	
Chromium	ND	600.0	629.4	105	75-125	
Copper	437.4	600.0	1065	105	75-125	
Lead	56.37	600.0	643.6	98	75-125	
Nickel	ND	600.0	588.6	98	75-125	
Selenium	14.20	600.0	618.1	101	75-125	
Silver	ND	300.0	255.1	85	75-125	
Zinc	201.7	600.0	852.0	108	75-125	



## Quality Control - Sample Duplicate

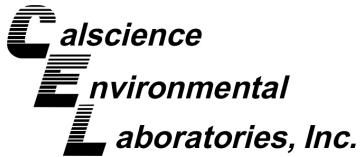
AMEC Environment & Infrastructure  
 9210 Sky Park Court, Suite 200  
 San Diego, CA 92123-4302

Date Received: 12/02/13  
 Work Order: 13-12-0007  
 Preparation: N/A  
 Method: SM 2540 B (M)

Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
<b>13-12-0001-1</b>	<b>Sediment</b>	<b>N/A</b>	<b>12/03/13 00:00</b>	<b>12/03/13 21:00</b>	<b>D1203TSD1</b>
<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	45.00	45.60	1	0-10	



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3540C  
Method: EPA 8270D (M)/TQ/EI

Project: POLA YTI Additional Testing

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Quality Control Sample ID		Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
<b>099-14-403-49</b>		<b>Sediment</b>	<b>GCTQ 1</b>	<b>12/04/13</b>	<b>12/05/13 18:37</b>	<b>131204L01</b>				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Allethrin	5.000	4.961	99	4.878	98	25-200	0-229	2	0-30	
Bifenthrin	5.000	5.058	101	4.677	94	25-200	0-229	8	0-30	
Cyfluthrin	5.000	3.131	63	2.940	59	25-200	0-229	6	0-30	
Cypermethrin	5.000	3.406	68	3.111	62	25-200	0-229	9	0-30	
Deltamethrin/Tralomethrin	5.000	3.299	66	3.280	66	25-200	0-229	1	0-30	
Fenpropathrin	5.000	4.295	86	3.799	76	25-200	0-229	12	0-30	
Fenvalerate/Esfenvalerate	10.00	5.923	59	5.364	54	25-200	0-229	10	0-30	
Fluvalinate	5.000	2.501	50	2.137	43	20-200	0-230	16	0-30	
Permethrin (cis/trans)	5.000	4.143	83	4.062	81	25-200	0-229	2	0-30	
Phenothrin	5.000	6.492	130	6.303	126	25-200	0-229	3	0-30	
Resmethrin/Bioresmethrin	5.000	5.336	107	5.357	107	25-200	0-229	0	0-30	
Tetramethrin	5.000	3.854	77	3.677	74	25-200	0-229	5	0-30	
lambda-Cyhalothrin	5.000	3.146	63	2.847	57	25-200	0-229	10	0-30	

Total number of LCS compounds: 13

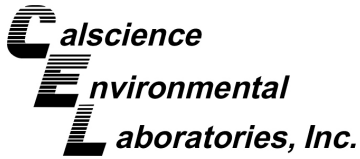
Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

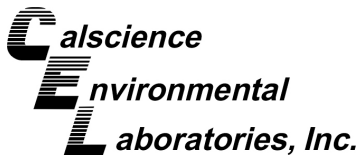
AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3050B  
Method: EPA 6020

Project: POLA YTI Additional Testing

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Quality Control Sample ID		Matrix		Instrument		Date Prepared		Date Analyzed		LCS/LCSD Batch Number
<b>099-15-254-171</b>		<b>Solid</b>		<b>ICP/MS 03</b>		<b>12/02/13</b>		<b>12/03/13 21:28</b>		<b>131202L03E</b>
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>	
Arsenic	25.00	25.78	103	25.68	103	80-120	0	0-20		
Cadmium	25.00	26.38	106	25.80	103	80-120	2	0-20		
Chromium	25.00	27.30	109	26.87	107	80-120	2	0-20		
Copper	25.00	28.74	115	28.21	113	80-120	2	0-20		
Lead	25.00	25.12	100	25.03	100	80-120	0	0-20		
Nickel	25.00	25.99	104	25.83	103	80-120	1	0-20		
Selenium	25.00	25.73	103	24.63	99	80-120	4	0-20		
Silver	12.50	11.26	90	11.19	89	80-120	1	0-20		
Zinc	25.00	27.92	112	27.96	112	80-120	0	0-20		



Quality Control - LCS/LCSD

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 San Diego, CA 92123-4302

Date Received: 12/02/13  
 Work Order: 13-12-0007  
 Preparation: EPA 7471A Total  
 Method: EPA 7471A

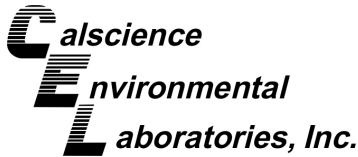
Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
<b>099-12-452-434</b>	<b>Solid</b>	<b>Mercury</b>	<b>12/02/13</b>	<b>12/04/13 10:55</b>	<b>131202L04E</b>				
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.8143	98	0.8201	98	82-124	1	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8081A

Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-12-858-239</b>	<b>Solid</b>			<b>GC 51</b>	<b>12/03/13</b>	<b>12/07/13 11:34</b>	<b>131203L06</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Aldrin	5.000	4.165	83	4.053	81	50-135	36-149	3	0-25	
Alpha-BHC	5.000	4.449	89	4.005	80	50-135	36-149	11	0-25	
Beta-BHC	5.000	3.808	76	3.969	79	50-135	36-149	4	0-25	
Delta-BHC	5.000	4.168	83	4.003	80	50-135	36-149	4	0-25	
Gamma-BHC	5.000	4.405	88	4.091	82	50-135	36-149	7	0-25	
Dieldrin	5.000	4.228	85	4.164	83	50-135	36-149	2	0-25	
4,4'-DDD	5.000	4.403	88	4.344	87	50-135	36-149	1	0-25	
4,4'-DDE	5.000	4.344	87	4.261	85	50-135	36-149	2	0-25	
4,4'-DDT	5.000	4.247	85	4.125	83	50-135	36-149	3	0-25	
Endosulfan I	5.000	4.332	87	4.252	85	50-135	36-149	2	0-25	
Endosulfan II	5.000	4.302	86	4.199	84	50-135	36-149	2	0-25	
Endosulfan Sulfate	5.000	4.106	82	4.015	80	50-135	36-149	2	0-25	
Endrin	5.000	2.558	51	2.607	52	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	4.701	94	4.729	95	50-135	36-149	1	0-25	
Endrin Ketone	5.000	5.026	101	4.915	98	50-135	36-149	2	0-25	
Heptachlor	5.000	4.312	86	4.166	83	50-135	36-149	3	0-25	
Heptachlor Epoxide	5.000	3.918	78	3.926	79	50-135	36-149	0	0-25	
Methoxychlor	5.000	4.084	82	4.105	82	50-135	36-149	1	0-25	
Alpha Chlordane	5.000	4.216	84	4.130	83	50-135	36-149	2	0-25	
Gamma Chlordane	5.000	4.133	83	3.988	80	50-135	36-149	4	0-25	

Total number of LCS compounds: 20

Total number of ME compounds: 0

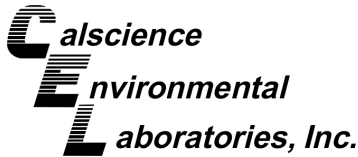
Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits





## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PAHs

Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
<b>099-14-097-116</b>	<b>Solid</b>		<b>GC/MS AAA</b>	<b>12/05/13</b>	<b>12/06/13 11:47</b>	<b>131205L01</b>				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	80.08	80	76.62	77	48-108	38-118	4	0-11	
Acenaphthylene	100.0	76.94	77	70.25	70	40-160	20-180	9	0-20	
Anthracene	100.0	76.77	77	73.33	73	40-160	20-180	5	0-20	
Benzo (a) Anthracene	100.0	87.32	87	77.47	77	40-160	20-180	12	0-20	
Benzo (a) Pyrene	100.0	93.68	94	85.28	85	40-160	20-180	9	0-20	
Benzo (b) Fluoranthene	100.0	90.89	91	74.02	74	40-160	20-180	20	0-20	
Benzo (g,h,i) Perylene	100.0	75.40	75	61.43	61	40-160	20-180	20	0-20	
Benzo (k) Fluoranthene	100.0	102.3	102	87.51	88	40-160	20-180	16	0-20	
Chrysene	100.0	83.37	83	73.17	73	40-160	20-180	13	0-20	
Dibenz (a,h) Anthracene	100.0	85.85	86	71.61	72	40-160	20-180	18	0-20	
Fluoranthene	100.0	96.58	97	81.29	81	40-160	20-180	17	0-20	
Fluorene	100.0	94.30	94	81.63	82	40-160	20-180	14	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	100.4	100	86.51	87	40-160	20-180	15	0-20	
2-Methylnaphthalene	100.0	75.10	75	86.43	86	40-160	20-180	14	0-20	
1-Methylnaphthalene	100.0	84.30	84	82.55	83	40-160	20-180	2	0-20	
Naphthalene	100.0	73.66	74	75.02	75	40-160	20-180	2	0-20	
Phenanthrene	100.0	82.55	83	70.61	71	40-160	20-180	16	0-20	
Pyrene	100.0	85.49	85	74.53	75	40-160	20-180	14	0-16	

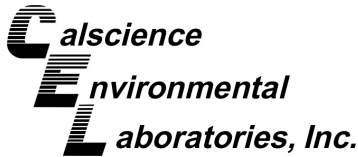
Total number of LCS compounds: 18

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits



## Quality Control - LCS/LCSD

AMEC Environment & Infrastructure  
9210 Sky Park Court, Suite 200  
San Diego, CA 92123-4302

Date Received: 12/02/13  
Work Order: 13-12-0007  
Preparation: EPA 3545  
Method: EPA 8270C SIM PCB Congeners

Project: POLA YTI Additional Testing

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Quality Control Sample ID	Matrix			Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
<b>099-14-341-143</b>	<b>Solid</b>			<b>GC/MS HHH</b>	<b>12/08/13</b>	<b>12/11/13 10:51</b>	<b>131208L04</b>			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	25.00	18.44	74	20.01	80	50-125	38-138	8	0-30	
PCB018	25.00	17.68	71	19.89	80	50-125	38-138	12	0-30	
PCB028	25.00	17.58	70	19.93	80	50-125	38-138	13	0-30	
PCB044	25.00	17.72	71	19.92	80	50-125	38-138	12	0-30	
PCB052	25.00	16.80	67	19.10	76	50-125	38-138	13	0-30	
PCB066	25.00	17.61	70	19.80	79	50-125	38-138	12	0-30	
PCB077	25.00	17.96	72	20.70	83	50-125	38-138	14	0-30	
PCB101	25.00	17.35	69	19.69	79	50-125	38-138	13	0-30	
PCB105	25.00	17.15	69	19.15	77	50-125	38-138	11	0-30	
PCB118	25.00	19.22	77	21.49	86	50-125	38-138	11	0-30	
PCB126	25.00	17.14	69	19.05	76	50-125	38-138	11	0-30	
PCB128	25.00	16.45	66	18.32	73	50-125	38-138	11	0-30	
PCB153	25.00	16.72	67	18.80	75	50-125	38-138	12	0-30	
PCB170	25.00	16.13	65	18.32	73	50-125	38-138	13	0-30	
PCB180	25.00	17.15	69	19.09	76	50-125	38-138	11	0-30	
PCB187	25.00	16.54	66	18.45	74	50-125	38-138	11	0-30	
PCB195	25.00	17.27	69	19.63	79	50-125	38-138	13	0-30	
PCB206	25.00	17.07	68	19.22	77	50-125	38-138	12	0-30	
PCB209	25.00	17.85	71	19.97	80	50-125	38-138	11	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 Limits

## Glossary of Terms and Qualifiers

Work Order: 13-12-0007

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<u>Qualifiers</u>	<u>Definition</u>
*	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSO or PES/PESO associated with this batch of samples was out of control due to suspected matrix interference.
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.
BV	Sample received 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.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
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.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

**Danielle Gonsman**

---

**From:** Huff, Tyler [tyler.huff@amec.com]  
**Sent:** Tuesday, November 26, 2013 5:36 PM  
**To:** Danielle Gonsman  
**Cc:** Snyder, Barry; Gobbi, Kimbrie  
**Subject:** FW: POLA YTI Additional Testing information  
**Attachments:** Nov13\_Further\_tests\_POLA YTI\_957175.pdf

Hi Danielle,

As we discussed on the phone today, we are going to go ahead and create a single composite to test from two of the frozen YTI archives. This is under CEL quote **957175** (attached):

**\*\*NOTE:** We discussed that because of the time to thaw / non 'rush' of this with the thanksgiving holiday, you may wish to wait until Monday 12/2 to pull from the freezer and get started\*\*

1. Pull from the freezer the following two 8oz jarred samples:

A2-B - This is on work order # 13-06-0079, Item # 8 (6/3/13 @ 1040).

A5-B - This is on work order # 13-06-0204, item # 3 (6/4/13 @ 0819).

2. While trying to take only what is 'needed' for total testing, create a composite from taking equal portions of A2-B and A5-B and homogenize and create a new test composite to test for:

PAHs (Please also report Total High PAH, Total Low PAH, and Total PAH) - EPA 8270C SIM  
 PCB Congeners (Please report Total PCBs) - EPA 8270C SIM PCB Congeners  
 Report Total DDTs (and all individual DDD/DDE/DDT 2,4'- and 4,4'- portions) - EPA 8081A  
 Pyrethroids - EPA 8270D (M)/TQ/EI  
 Metals - EPA 6020  
 Total Solids (to allow for Dry Weight reporting) – SM 2540 B

Standard Turnaround Time. Results in Dry Weight. J flag estimate any values between RL and MDL.

3. Please have the chemist try and only take what is needed (these are 8 oz jars) and retain any excess for any further additional testing if it comes to that.

4. Please let me know if there are any questions. Like we discussed, if it is easier to just wait till Monday 12/2 because of the holiday, that is fine. Thanks.

Tyler

---

**From:** McPherson, Rachel [<mailto:RMcPherson@portia.org>]  
**Sent:** Tuesday, November 26, 2013 10:05 AM  
**To:** Huff, Tyler  
**Cc:** Curtis, Kathryn; Snyder, Barry  
**Subject:** RE: POLA YTI Additional Testing information

Hi Tyler and Barry,

As we discussed on the phone and as you outlined in this email, please go ahead and run the samples as a composite of the two remaining cores.

Thanks! Happy Thanksgiving and Hanukkah! (Thanksgivikkah)  
Rachel

---

**From:** Huff, Tyler [<mailto:tyler.huff@amec.com>]  
**Sent:** Monday, November 25, 2013 9:45 AM  
**To:** McPherson, Rachel  
**Cc:** Curtis, Kathryn; Snyder, Barry  
**Subject:** POLA YTI Additional Testing information

Hi Rachel,

As requested, we have asked the Laboratory to prepare a quote to test the archives we have of the 'bottom' / clay-like portion from Composite A at YTI for the analytes that the CSTF requested. We have two samples archived of this 'bottom' clay material The samples are:

- A2-B (3.4 - 7.5 feet) "clay with silt"
- A5-B (1.8 to 7.8 feet) "clay with silt"

The testing will cost \$1,034 / sample and we wish to test two (2) samples. We have budget left in the original project budget to cover this.

They will test for:

- PAHs - EPA 8270C SIM
- PCB Congeners - EPA 8270C SIM PCB Congeners
- Total DDTs (and all individual DDD/DDE/DDT 2,4'- and 4,4'- portions) - EPA 8081A
- Pyrethroids - EPA 8270D (M)/TQ/EI
- Metals - EPA 6020
- Total Solids (to allow for Dry Weight reporting) – SM 2540 B

Standard Turnaround Time. Results in Dry Weight. J flag estimate any values between RL and MDL.

Please let me know if you approve and if so, we will direct the lab to pull the samples from the freezer and start the analysis. There will be some delay with the thanksgiving shut-down but we could get the results to you soon / prepare an amendment / CSTF response by the next CSTF meeting.

Please let me know if you approve. Thank you!

Tyler

\*\*\*\*\*

Tyler Huff, QSP  
 Marine Scientist  
 AMEC Environment & Infrastructure, 9210 Sky Park Ct. # 200, San Diego, CA 92123  
 (858) 300-4322 (office) // (858) 449-2334 (cell) // [tyler.huff@amec.com](mailto:tyler.huff@amec.com)  
 \*\*\*\*\*







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0079

**Table 4-2.**  
**Chemical Analyses for Elutriate, Sediment and Tissue Samples**

Analyte	Analysis Method	Elutriate Target Detection Limits <sup>a, b</sup>	Sediment Target Detection Limits <sup>a, b</sup>	Tissue Target Detection Limits <sup>a, b</sup>
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M <sup>c</sup>	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M <sup>c</sup>	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D <sup>c</sup>	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A <sup>d</sup>	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B <sup>d</sup>	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B <sup>d</sup>	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a <sup>i</sup>	N/A	N/A	0.1 %
TRPH	418.1M <sup>d</sup>	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B <sup>d</sup>	N/A	5.0 mg/kg	N/A
PAHs <sup>e</sup>	8270C SIM/ GC/TQ <sup>d</sup>	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides <sup>f</sup>	8081A <sup>d</sup>	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners <sup>g</sup>	8270C SIM PCB <sup>d</sup>	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM <sup>d</sup>	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS <sup>i</sup>	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM <sup>d</sup>	N/A	10 µg/kg	N/A
Organotins	Rice/Krone <sup>h</sup>	3.0 ng/L	3.0 µg/kg	N/A

## Notes:

<sup>a</sup> Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

<sup>b</sup> Reporting limits provided by Calscience Environmental Laboratories, Inc.

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

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

<sup>e</sup> 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.

<sup>f</sup> Includes aldrin, α-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

<sup>g</sup> 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)

<sup>h</sup> Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

<sup>i</sup> NOAA 1993

<sup>j</sup> Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lambda, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)

µg/L - micrograms per liter

mg/kg - milligrams per kilogram (parts per million)

mg/L - milligrams per liter

ng/L - nanograms per liter

N/A - not applicable

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

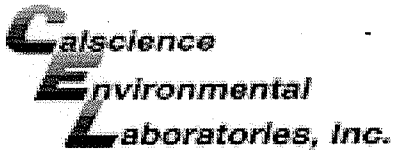
SM - Standard Methods

SOP - standard operating procedure

TPH - total petroleum hydrocarbons

TRPH - total recoverable petroleum hydrocarbons





WORK ORDER #: 13-06-0079

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/03/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0°C - 6.0°C, not frozen except sediment/tissue)
Temperature 3.3°C - 0.2°C (CF) = 3.1°C [X] 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: [Signature]

CUSTODY SEALS INTACT:
[ ] Cooler [ ] \_\_\_\_\_ [ ] No (Not Intact) [X] Not Present [ ] N/A Initial: [Signature]
[ ] Sample [ ] \_\_\_\_\_ [ ] No (Not Intact) [X] Not Present Initial: [Signature]

SAMPLE CONDITION:
Chain-Of-Custody (COC) document(s) received with samples..... [X] Yes [ ] No [ ] N/A
COC document(s) received complete..... [X] Yes [ ] No [ ] N/A
[ ] 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..... [X] Yes [ ] No [ ] N/A
Sample container label(s) consistent with COC..... [X] Yes [ ] No [ ] N/A
Sample container(s) intact and good condition..... [X] Yes [ ] No [ ] N/A
Proper containers and sufficient volume for analyses requested..... [X] Yes [ ] No [ ] N/A
Analyses received within holding time..... [X] Yes [ ] No [ ] N/A
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours... [ ] Yes [ ] No [X] N/A
Proper preservation noted on COC or sample container..... [ ] Yes [ ] No [X] N/A
[ ] Unpreserved vials received for Volatiles analysis
Volatile analysis container(s) free of headspace..... [ ] Yes [ ] No [X] N/A
Tedlar bag(s) free of condensation..... [ ] Yes [ ] No [X] N/A

CONTAINER TYPE:
Solid: [ ] 4ozCGJ [X] 8ozCGJ [X] 16ozCGJ [ ] Sleeve (\_\_\_\_) [ ] EnCores® [ ] TerraCores® [ ] \_\_\_\_\_
Water: [ ] VOA [ ] VOA h [ ] VOA na2 [ ] 125AGB [ ] 125AGB h [ ] 125AGB p [ ] 1AGB [ ] 1AGB na2 [ ] 1AGB s
[ ] 500AGB [ ] 500AGJ [ ] 500AGJ s [ ] 250AGB [ ] 250CGB [ ] 250CGB s [ ] 1PB [ ] 1PB na [ ] 500PB
[ ] 250PB [ ] 250PB n [ ] 125PB [ ] 125PB z n n a [ ] 100PJ [ ] 100PJ na2 [ ] \_\_\_\_\_ [ ] \_\_\_\_\_ [ ] \_\_\_\_\_
Air: [ ] Tedlar® [ ] Canister Other: [ ] \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: [Signature]
Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: [Signature]
Preservative: h: HCL n: HNO3 na2: Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 u: Ultra-pure z n n a: ZnAc2+NaOH f: Filtered Scanned by: [Signature]

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WO # / LAB USE ONLY  
**13-06-0204**

LABORATORY CLIENT: AMEC Environment & Infrastructure  
 ADDRESS: 9210 Sky Park Ct Ste 200  
 CITY: San Diego STATE: CA ZIP: 92123  
 TEL: 658 2004200 E-MAIL: Barry.Snyder@amec.com

CLIENT PROJECT NAME / NUMBER: 1015101929 P.O. NO.: 1015101929  
 PROJECT CONTACT: Barry Snyder, Tyler Huff SAMPLER(S): (PRINT) KG1TH

TURNAROUND TIME:  SAME DAY  24 HR  48 HR  72 HR  STANDARD  COELT EDF GLOBAL ID

SPECIAL INSTRUCTIONS:  
1x 14 & 1x 8oz jar per loc, if 2 containers noted.  
AS has 1x 16oz / x 8oz  
YTI TERMINAL SAMPLES. 1x 2pl. off  
Danielle Gonsman is P.M. Do Not Freeze.

LAB USE ONLY	SAMPLE ID	SAMPLING		MATRIX	NO. OF CONT.	LOG CODE		
		DATE	TIME			Unpreserved	Preserved	Field Filtered
1	A5	6/4/13	0819	sed	3			
2	A5-A	6/4/13	0819	sed	1			
3	A5-B	6/4/13	0819	sed	1			
	A5	6/4/13	0819	sed	1			

Requested Analyses		Please check box or fill in blank as needed.	
<input type="checkbox"/> TPH (g) <input type="checkbox"/> GRO	<input type="checkbox"/> TPH (d) <input type="checkbox"/> DRO	<input type="checkbox"/> PAHs (8270)	<input type="checkbox"/> Cr(VI) <input type="checkbox"/> 7196 <input type="checkbox"/> 7199 <input type="checkbox"/> 218.6
<input type="checkbox"/> TPH <input type="checkbox"/> C6-C36 <input type="checkbox"/> C6-C44	<input type="checkbox"/> BTEX / MTBE <input type="checkbox"/> 8260 <input type="checkbox"/>	<input type="checkbox"/> PCBs (8082)	<input type="checkbox"/> T22 Metals <input type="checkbox"/> 6010/747X <input type="checkbox"/> 6020/747X
<input type="checkbox"/> VOCs (8260)	<input type="checkbox"/> Oxygenates (8260)	<input type="checkbox"/> SVOCs (8270)	<input type="checkbox"/> Pesticides (8081)
<input type="checkbox"/> Prep (5035) <input type="checkbox"/> En Core <input type="checkbox"/> Terra Core			

Relinquished by: (Signature) [Signature] Received by: (Signature/Affiliation) [Signature] Date: 6/04/13 Time: 1736  
 Relinquished by: (Signature) [Signature] Received by: (Signature/Affiliation) [Signature] Date: 6/4/13 Time: 1920  
 Relinquished by: (Signature) [Signature] Received by: (Signature/Affiliation) [Signature] Date: 6/4/13 Time: 1920

WORK ORDER #: **13-06-0204**

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/04/13

**TEMPERATURE:** Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 0.6 °C - 0.2 °C (CF) = 0.4 °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: AP

**CUSTODY SEALS INTACT:**

- Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A
- Sample  \_\_\_\_\_  No (Not Intact)  Not Present

Initial: AP

Initial: DJ

**SAMPLE CONDITION:**

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

**CONTAINER TYPE:**

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_)  EnCores®  TerraCores®  8

Water:  VOA  VOA<sub>h</sub>  VOA<sub>na2</sub>  125AGB  125AGB<sub>h</sub>  125AGB<sub>p</sub>  1AGB  1AGB<sub>na2</sub>  1AGB<sub>s</sub>  
 500AGB  500AGJ  500AGJ<sub>s</sub>  250AGB  250CGB  250CGB<sub>s</sub>  1PB  1PB<sub>na</sub>  500PB  
 250PB  250PB<sub>n</sub>  125PB  125PB<sub>z<sub>na</sub></sub>  100PJ  100PJ<sub>na2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Air:  Tedlar®  Canister Other:  \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: DJ

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

Preservative: h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure z<sub>na</sub>: ZnAc<sub>2</sub>+NaOH f: Filtered Scanned by: WJC

