Appendix K

Final APL Terminal Dredged Material Characterization Study Berths 302-306 Port of Los Angeles San Pedro, California

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FINAL
APL TERMINAL DREDGED MATERIAL
CHARACTERIZATION STUDY BERTHS 302 - 306
PORT OF LOS ANGELES, SAN PEDRO, CALIFORNIA

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EXECUTIVE SUMMARY

The Port of Los Angeles (Port) is planning to improve the existing APL Terminal by extending the existing concrete wharf by 1,250 linear feet to add a new berth (Berth 306), adding new cranes to Berths 302-305, and expanding the existing container terminal by approximately 56 acres. The project will require dredging of approximately 70,000 cubic yards of sediment adjacent to APL terminal Berths 302-306.

To determine if the proposed dredged material is acceptable for unconfined disposal at the LA-2 ocean disposal site, a Green Book Tier III evaluation was performed. The project footprint was divided into three areas (A, B, and C) based on site geography. The study included physical, chemical, toxicity, and bioaccumulation analyses on sediment samples collected at the proposed project site.

Results indicate that sediments from the westernmost section evaluated (Composite Area A) are suitable for unconfined aquatic disposal based on low sediment chemistry concentrations, no toxicity, and limited to no bioaccumulation of contaminants of concern.

The central Composite Area B sediments are likely unsuitable for unconfined ocean disposal due to elevated metals concentrations (arsenic, copper, and nickel) and solid-phase toxicity to the marine amphipod *Eohaustorius estuarius*. Based on these initial results no bioaccumulation tests were performed for this site.

Composite Area C sediments also had elevated levels of arsenic, copper, and nickel. Furthermore, toxicity tests with the marine amphipod on Area C sediments showed toxicity. Further characterization of Area C identified what appears to be a metals “hot spot” at coring location C2, near the border with Area B. Concentrations of trace metals decreased in either direction from this location; with a substantial drop particularly noticeable in the easternmost core locations C4 and C5. This finding indicates that the elevated metals levels observed around Core C2 may have been partially responsible for the toxicity observed in the amphipod test conducted on the Site C Composite. Consequently, it appears that sediments in the easternmost portion of Area C may also be suitable for unconfined aquatic disposal.

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ACRONYMS AND ABBREVIATIONS

µg/kg	micrograms per kilogram (parts per billion)
AMEC	AMEC Earth & Environmental, inc.
BCF	bioconcentration factors
BP	bioaccumulation phase
Calscience	Calscience Environmental Laboratories, Inc.
CRG	CRG Marine Laboratories, Inc.
cy	cubic yards
DDPI	deep-draft power-intensive
DGPS	differential global positioning system
EC_{50}	median effects concentration
EPA	U.S. Environmental Protection Agency
ERL	effects range – low
ERM	effects range – median
FDA	Food and Drug Administration
ft	feet
LA-2	LA-2 Ocean Dredged Material Disposal Site
LAXT	Los Angeles Export Terminal
LC_{50}	median lethal concentration
LPC	limiting permissible concentration
m	meters
MBC	MBC Applied Environmental Sciences
mg/kg	milligrams per kilogram (parts per million)
MLLW	mean lower low water
mm	millimeters
Nautilus	Nautilus Environmental, Inc.
ND	not detected
nmi	nautical miles
OD	over dredge
ºC	degrees Celsius
ODMDS	Ocean Dredged Material Disposal Site
oz	ounce

ACRONYMS AND ABBREVIATIONS (Cont.)

PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
Port	Port of Los Angeles
QA/QC	Quality Assurance/Quality Control
SAP	Sampling and Analysis Plan
SD	standard deviation
Seaventures	Seaventures, Inc.
SIO	Scripps Institution of Oceanography
SP	Solid-phase
SPP	suspended particulate-phase
SVOC	semi-volatile organic compound
TEG	TEG Oceanographic Services, Inc.
TRPH	total recoverable petroleum hydrocarbons
TITP	Terminal Island Treatment Plant
USACE	U.S. Army Corps of Engineers

1.0 INTRODUCTION

The Port is proposing to dredge sediments adjacent to the APL terminal (Berth 302-305, Figure 1) and dispose of the material at the LA-2 ocean disposal site (or potentially at the Middle Harbor fill area in the Port of Long Beach). The proposed development project will improve the existing terminal, extend the existing concrete wharf by 1,250 linear feet to add a new berth (Berth 306), add new cranes to Berths 302-305, and expand the existing container terminal by approximately 56 acres.

The approximate volume of dredged material to be characterized for this project is summarized in Table 1. The purpose of this study was to evaluate the sediment quality adjacent to the existing Berths 302-305 berthing area as well as along a potential new wharf to be constructed east of Berth 305 (referred to as Berth 306).

Table 1. Composite Area Volumes

Composite Area	Total Volume with 2 ft OD (cy)	Dredge Purpose
A & B	55,000	Maintenance
C	20,000	New Wharf Expansion

Notes:
cy cubic yards
OD Overdredge
ft feet

The LA-2 disposal site is located approximately 5 nautical miles (nmi) (9.3 kilometers [km]) southwest of the breakwater at San Pedro and 20.5 nmi (38 km) from the Newport Harbor entrance (33°37'06" N and 118°17'24" W). The site is near the top edge of the continental slope in approximately 360 to 1,115 feet (ft) (110 to 340 meters [m]) of water. The ocean disposal of dredged materials at LA-2 is regulated under Section 103 of the Marine Protection, Research, and Sanctuaries Act, and disposal operations must comply with permitting and dredging regulations published in 33 Code of Federal Regulations Parts 320-330 and 335-338.

In order to assess ocean disposal suitability, the sediments within the proposed dredge footprint were characterized in accordance with U.S. Environmental Protection Agency (EPA)/ U.S. Army Corps of Engineers (USACE) guidelines outlined in “Evaluation of Dredged Material Proposed for Ocean Disposal” (Green Book Testing Manual), U.S EPA Office of Water, Department of the Army US Army Corps of Engineers (EPA 503/8-91/001). This evaluation included Tier III chemical, toxicological, and bioaccumulation analyses.

This report addresses the sediment collection, sample analysis, and data analysis outlined in the project specific SAP needed to determine suitability for unconfined aquatic disposal (June 2010). This report was prepared by AMEC Earth & Environmental, Inc. (AMEC) for MBC Applied Environmental Sciences (MBC).

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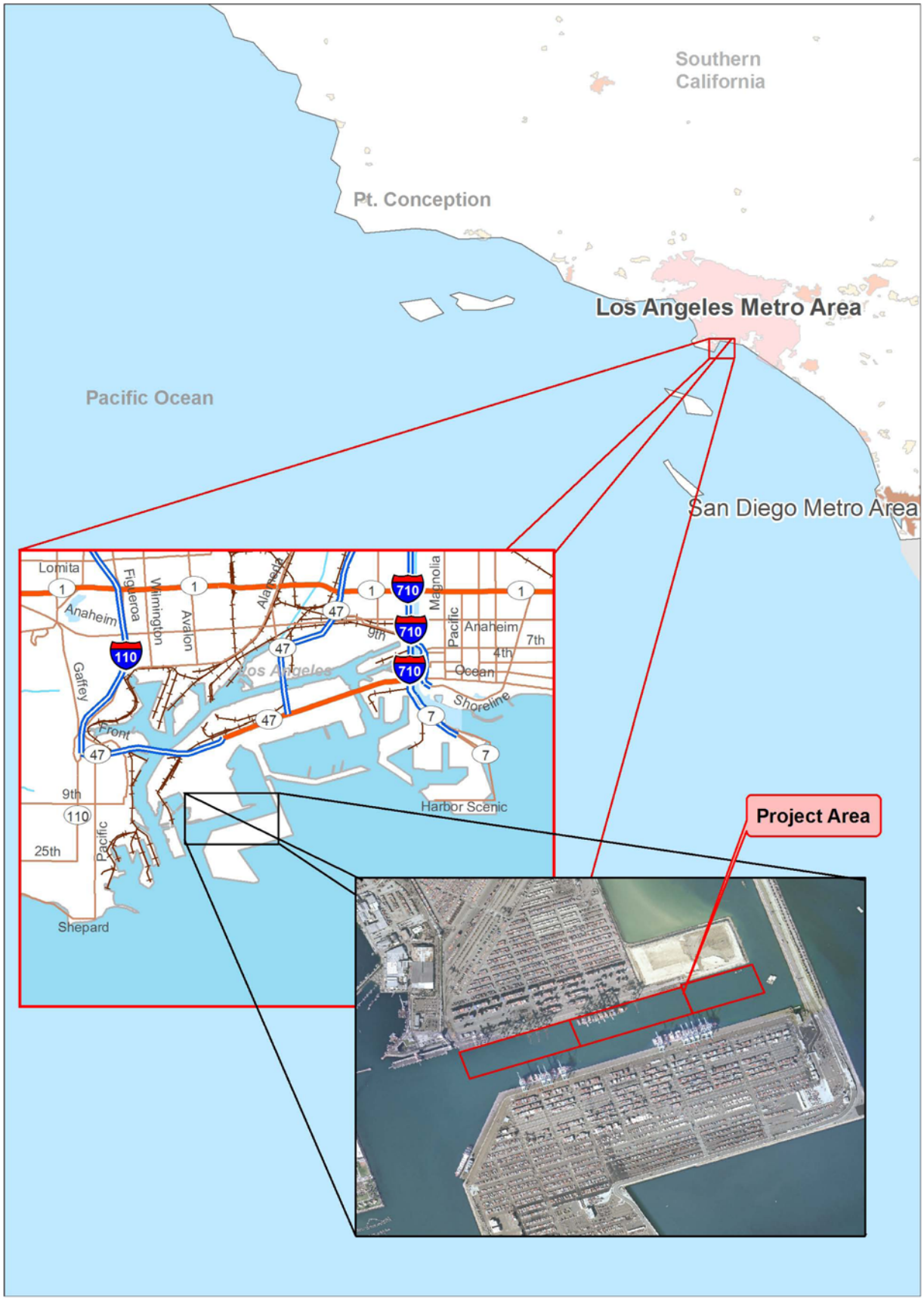

Project Overview Map

FIGURE 1

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1.1 Site Background

The project site is located on Terminal Island, within an industrial area to the east of the Fish Harbor region of the Port. Berths 302-305 are currently occupied by the 292-acre APL Terminal/Global Gateway South container terminal facility. The APL/Global Gateway South opened in 1997 and at the time was considered to be one of the world's largest and most technologically advanced ocean and rail container terminals. Eagle Marine Services, LTD is the existing terminal operator. Berth 306 is an existing 41-acre landfill adjacent to Pier 300 that is currently undeveloped. The site is generally bounded on the north by Terminal Way, the Pier 300 Shallow Water Habitat on the east, Earle Street on the west, and the Pier 300 Channel on the south (Figure 2). In addition to the container terminal facility, the land uses in the project vicinity include the Terminal Island Treatment Plant (TITP) and the now vacant Los Angeles Export Terminal (LAXT) facility that occupied Berth 301.

The total length of the existing four-ship berthing wharf is approximately 4,000 ft. The terminal includes a 55,000 square feet maintenance and repair facility; on-dock rail service that accommodates up to 64 five-platform doublestack railcars; two dedicated lead rail tracks; a gate complex includes intermodal control tower; 13 inbound and 12 outbound lanes; integrated, real-time computer system for vessel, rail and gate operations; 600 refrigerated container plugs; and a wash system for interior/exterior of containers.

The southern portion of Pier 300 where Berths 302-305 are located was part of a 190-acre landfill created between 1981 and 1983 from dredged material removed from Los Angeles Harbor as a part of a Los Angeles Harbor Deepening Project. At one time, the TITP discharged secondary treated effluent approximately 100 ft south of Pier 300. The TITP outfall was relocated to the south as a result of dredge and fill projects conducted at Pier 300 and Pier 400.

As depicted in Appendix A of the project-specific SAP, Figure A-1, the most recent dredging/filling in the vicinity of the APL Terminal project site was conducted between 1994 and 2000. The dredging was conducted as part of the Deep Draft Navigation Improvements Project which was performed in order to optimize navigation channels in the Outer Los Angeles Harbor and as dredged material fill to create the approximately 600 acres of new land for Pier 400. The 1,000-foot-long, 40-acre Berth 306 expansion area was created between 2004 and 2006 with 2.0 million cubic yards (cy) of sand as part of the Water Resource Development Act 2000 Channel Deepening Project. Additional details regarding the dredging history of Pier 300 are summarized in SAP Appendix A, Table A-1.

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FIGURE 2

Project Area and Proximity to Sensitive Resources

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1.2 Previous Sediment Studies in the Vicinity of Pier 300

Between 1997 and 2004, LAXT operated a coal and petroleum coke loading facility at Berth 301 that transferred product to berthed ships via a network of conveyors. The LAXT facility was immediately adjacent (to the west) of the current study area, and conducted dry bulk operations. Previous sediment characterization studies were conducted offshore of Berth 301 in 1997 and 2008. In 1997, TetraTech was retained by LAXT to conduct an environmental baseline survey of its dry bulk handling facilities on Pier 300 (TetraTech 1998). As part of this survey, four surface sediment samples were collected by divers approximately 50 ft offshore at a depth of approximately 80 ft below mean sea level. The divers collected the top 6 inches of sediment from between the rocks that lined the bottom at this site. As part of a lease transfer study, AMEC also conducted a sediment characterization study offshore of Berth 301 (AMEC 2008). The 2008 study involved the collection of three vibracore samples to a depth of 4 ft into the harbor bottom. Sample collection locations for both studies are depicted in the SAP Appendix A, Figure A-2. The chemistry results for these studies are outlined in the SAP Appendix A, Tables A-2 through A-4.

1.2.1 1997 Study Results

To evaluate general sediment quality, the sediment chemistry results from 1997 were compared to sediment quality screening guidelines referred to as Effects Range-Low (ERL) and Effects Range-Median (ERM) values (Long et al. 1995). Chemical concentrations lower than ERL guidelines are considered to be below published effects levels, while concentrations above ERM guidelines are considered to have a good probability of causing effects. The results of the TetraTech study found cadmium and copper in test sediments at concentrations above respective ERLs, but below ERMs for all four samples analyzed. Nickel was detected slightly above the ERL in Site LAXT-3-SED, and above the ERM value of 51.6 milligrams per kilogram (mg/kg) in sample LAXT-1-SED (69.6 mg/kg). Silver was detected above the ERL for sample LAXT-3-SED only. Most organic contaminants (e.g. total petroleum hydrocarbons, polychlorinated biphenyls [PCBs], and polycyclic aromatic hydrocarbons [PAHs]) were below detection limits, with the exception of PAHs in LAXT-3-SED with a concentration of 230 µg/kg.

1.2.2 2008 Study Results

Arsenic, cadmium, copper, mercury, and nickel were found to be slightly elevated at all three locations. Arsenic levels ranged from 15.4 to 17.9 mg/kg, which exceeded the ERL guideline of 8.2 mg/kg at all sites. Cadmium levels ranged from 1.40 to 1.57 mg/kg, which exceeded the ERL level of 1.2 mg/kg. Copper concentrations ranged from 71.8 to 75.5 mg/kg, which exceeded the ERL guideline of 34 mg/kg at all sites. Mercury ranged from 0.202 mg/kg to 0.226 mg/kg between all three sites, which exceeded the ERL guideline of 0.15 mg/kg. Nickel concentrations ranged from 37.4 to 39.7 mg/kg, exceeding the ERL level of 20.9 mg/kg. No metals concentrations were found to exceed respective ERM values.

Results for organics generally indicated low sediment concentrations with some exceptions. The PCB Aroclor levels were non-detect (<20 µg/kg) with the exception of Core 1, which had an Aroclor-1248 level of 1,400 µg/kg. This elevated value exceeded the ERM guideline of 180 µg/kg. Phenols were all below detections, but several PAHs were observed in all sites. Of the PAHs detected, ERL levels were exceeded for acenaphthene, anthracene, fluorene, and phenanthrene in Cores 2 and 3. Fluoranthene exceeded the ERL level (600 µg/kg) in Core 3. No pesticides were observed above detection limits with the exception of 4,4'-DDE (dichlorodiphenyl dichloroethylene). Concentrations of 4,4'-DDE varied across the site within a range of 8.3 to 23 µg/kg, all of which were above the ERL screening level of 2.2 µg/kg for this compound.

1.3 Spills

Reported spills that occurred in the vicinity of Pier 300 between 2001 and 2007 are listed in the SAP Appendix A, Table A-5. The majority of the spills involved petroleum products; however, spills of hydraulic fluids, ferrous chloride, and alcohol were also noted.

2.0 METHODS AND MATERIALS

Sampling and analysis protocols for the APL Terminal were designed to satisfy the sediment testing requirements described in the Green Book. These protocols are detailed in the project-specific SAP (June 2010) and are outlined below.

2.1 Sampling Design

The study was designed to provide sufficient information to determine the suitability of the proposed dredged materials for ocean disposal, while maximizing the efficiency of sample testing. The approximate dredge material volume contained in each of the three test areas is summarized in Table 1. The date of collection and location of cores, as well as recovery relative to targeted depths are provided in Table 2.

For Green Book testing purposes, the dredge footprint has been partitioned into three separate testing areas, referred to as Composite Areas A, B, and C (Figure 3). The locations of storm drain outfalls that discharge into the proposed project site are also shown on Figure 3. The proposed dredge design depth for Composite Areas A (Berths 302/303) and B (Berths 304/305) is -50 ft mean lower low water (MLLW), while the design depth for Composite Area C (future Berth 306) is -55 ft MLLW. To adequately characterize the dredge footprint, 10 vibracore samples (five in each area) were collected in Composite Areas B and C; and four vibracore samples were collected in Composite Area A, for a total of 13 core locations.

To more accurately correlate with Green Book ocean disposal testing requirements (which generally only permit a 2-ft OD allowance), Composites A and B were prepared with material down to -52 ft MLLW, while Composite C was prepared with material down to -57 ft MLLW. These composites underwent full Green Book ocean disposal analyses (chemistry, grain size, toxicity, and bioaccumulation).

The material collected below the 2-ft OD depths (i.e.,-52 to -54 ft MLLW in Composite Areas A and B; and -57 to -59 ft MLLW in Composite Area C) were composited by area for additional chemical and grain size analyses. The results of the chemical analyses on these deep core segments were compared to ERL and ERM sediment quality screening guideline values in order to evaluate the general sediment quality at or near the project depth. Post-dredge, this depth will become the sediment surface (aka the Z layer).

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APL Terminal (Berths 302-306) Sampling Map

FIGURE

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Table 2. Sample Collection Locations and Core Depths

Station ID	Latitude (WGS84) (dd°mm.mmm')	Longitude (WGS84) (-ddd°mm.mmm')	Date	Time	Attempt #	MLLW (ft)	Target Penetration[1] (ft)	Actual Penetration (ft)	Analysis Length[2] (ft)	Total Volume Collected (gal)	Comments
A-1	33° 43.894'	-118° 15.522'	6/28/2010	8:20	1	48.5	3.5	5.5	5.5	6.3	over penetrated for chemistry sample
A-1	33° 43.894'	-118° 15.522'	6/28/2010	9:05	2	48.5	3.5	3.5	3.5	6.3	
A-1	33° 43.894'	-118° 15.522'	6/28/2010	9:30	3	48.5	3.5	3.5	3.5	6.3	
A-1	33° 43.894'	-118° 15.522'	6/28/2010	9:40	4	48.5	3.5	3.5	3	6	
A-2	33° 43.915'	-118° 15.469'	6/28/2010	10:06	1	48.5	3.5	5.5	5.5	6.5	over penetrated for additional chemistry
A-2	33° 43.915'	-118° 15.469'	6/28/2010	10:32	2	48.5	3.5	3.5	3.5	6.3	
A-2	33° 43.915'	-118° 15.469'	6/28/2010	10:45	3	48.5	3.5	3.5	3.5	6.5	
A-2	33° 43.915'	-118° 15.469'	6/28/2010	10:58	4	48.5	3.5	3.5	3.5	6.5	
A-3	33° 43.953'	-118° 15.336'	6/28/2010	11:29	1	46.2	5.8	7.8	7.8	10	over penetration for additional chemistry
A-3	33° 43.953'	-118° 15.336'	6/28/2010	12:15	2	46.2	5.8	5.8	5.8	10	
A-4	33° 43.967'	-118° 15.276'	6/28/2010	13:00	1	47.4	4.6	6.6	6.1	9	over penetration for additional chemistry
B-1	33° 43.997'	-118° 15.183'	6/30/2010	8:09	1	47.1	4.9	7	6.9	9	over penetration for additional chemistry
B-1	33° 43.997'	-118° 15.183'	6/30/2010	8:37	2	47.1	4.9	5	4.9	9	
B-3	33° 44.067'	-118° 14.927'	7/1/2010	10:39	1	47.5	4.5	6.5	4.5	10	over penetration for additional chemistry
B-3	33° 44.067'	-118° 14.927'	7/1/2010	11:07	2	47.5	4.5	4.5	4.5	9	
B-3	33° 44.067'	-118° 14.927'	7/1/2010	11:22	3	47.5	4.5	4.5	4	9	
B-4	33° 44.057'	-118° 14.963'	6/30/2010	9:25	1	47.2	4.8	6.8	6	10	over penetration for additional chemistry
B-4	33° 44.057'	-118° 14.963'	6/30/2010	9:49	2	47.2	4.8	4.8	4.2	8	
B-4	33° 44.057'	-118° 14.963'	6/30/2010	10:02	3	47.2	4.8	4.8	4	9	
B-5	33° 44.075'	-118° 14.900'	6/30/2010	10:31	1	48.1	3.9	6	6	8	over penetration for additional chemistry
C-1	33° 44.092'	-118° 14.860'	6/29/2010	8:40	1	47	10	10	10	16	over penetration for additional chemistry, refusal at 10 ft.
C-1	33° 44.092'	-118° 14.860'	6/29/2010	10:36	2	47	10	8	7.5	15	
C-2	33° 44.104'	-118° 14.823'	6/29/2010	11:20	1	50	7	7	6.2	12	
C-2	33° 44.104'	-118° 14.823'	6/29/2010	11:53	2	50	7	9	6	10	over penetrated for additional chemistry
C-3	33° 44.123'	-118° 14.758'	6/29/2010	13:05	1	50.6	6.4	8.6	6.6	13	over penetration for additional chemistry
C-4	33° 44.141'	-118° 14.691'	6/29/2010	14:11	1	50.5	6.5	8.5	8.5	13	over penetration for additional chemistry
C-5	33° 44.152'	-118° 14.650'	6/29/2010	14:52	1	52.3	4.7	6.7	4.7	9	over penetration for additional chemistry
Reference	33° 30.200’	-118° 10.800’	6/28/2010	NR	1	600	surface	NA	NA	15	LA-2 Reference Site

Notes:
1 based on MLLW depth (as measured in the field) and the project depth including the +2 ft OD
2 includes over penetration length for those stations that were penetrated beyond project depth for additional chemical characterization
NR not recorded

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2.2 Sediment Collection

This section describes the locations and techniques that were employed to collect test sediment and reference sediments. Sediment collection followed the guidance provided in *Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual* (EPA 2001). The sampling approach for this testing program was developed based on agreements among the Port, USACE, and EPA (as outlined in the final site-specific SAP for the program [AMEC June 2010] and subsequent agreements) and was intended to provide the information needed to make a determination for ocean disposal of the proposed dredged materials while maximizing the efficiency of sample collection and testing. Sediment collection began on 28 June 2010 and was completed 1 July 2010. AMEC personnel supervised the sediment collection field program. Samples were collected aboard the vessel *M/V Early Bird II*, which is operated by Seaventures, Inc. (Seaventures). TEG Oceanographic Services, Inc. (TEG) provided the vibracore equipment and operator.

2.2.1 Positioning

A differential global positioning system (DGPS) was used to navigate to the target sampling locations. The *Early Bird II* used either a three-point anchor technique or a combination of anchor and tie-ups to the existing pier to maintain its position. Once secured, the position was recorded in the electronic field log and the water depth was measured with a weighted fiberglass tape. The water depth was corrected to MLLW using National Oceanic and Atmospheric Administration (NOAA) tide tables and compared to the bathymetric survey map (Figure 3). Target penetration depth was based on the in-field determination of water depths and actual penetration was recorded in the field upon collection (Table 2).

The navigational accuracy target was ± 3 m (10 ft). Collections were successful at all targeted locations with the exception of Core B-2. Due to the presence of a barge at Berth 304-305 during the sampling event, Composite Area B core locations were aggregated at the north west corner of the project footprint (near Composite Area C), and the collection of Core B-2 was not possible at the time due to ships in the area.

2.2.2 Core Sampling

Sediment cores were collected within each of the three proposed dredging units. Additional sediment cores were collected as needed to perform all testing requirements, as well as a contingency to provide material for supplementary testing if needed (described below). Depending upon volume needs and core recovery, up to three separate core samples were taken at each of the 13 core locations.

TEG personnel deployed the vibracore for sediment sample collection. The vibracore used a 4-inch-diameter aluminum tube connected to a stainless-steel cutter. The aluminum-encased vibrating unit uses 240-volt, 3-phase, and 26-amp electricity to drive two counter-rotating concentric vibrators. The vibracore and tube were lowered by a hydraulic winch and vibrated until penetration to project depth or refusal. Refusal, in this case, is defined as less than 1 foot of penetration per minute. Core penetration depth was calculated using a tape measure

attached to the vibracore head. After the vibracore was turned off, the sediment core was returned to the boat's deck for processing.

It is common when vibracoring in the Port to encounter a native, consolidated, partially lithofied sand/clay layer that the vibracore will not penetrate called Malaga mudstone. When this layer is encountered, it typically leaves a "plug" of hard material in the core cutter. The presence of the plug verifies that Malaga mudstone has been encountered, and the core extends to "refusal" depth. If the Field Manager is unable to verify that the Malaga mudstone was reached (i.e., no plug) and the core has not achieved the desired target penetration, the collection boat was re-positioned slightly and a second (and third, if necessary) core attempt was made.

Core samples were carefully extruded into clean, polyethylene-lined core trays. The recovered sediment was photographed first and then systematically inspected for unique strata, color, odors, etc.

The following information was recorded during the sediment collection program in a project-specific electronic field log and stored in a Microsoft Access database:

- Date and time of collection
- Sample identification code
- Sampling location (latitude/longitude to within a 3-m accuracy)
- Water depth (± 0.1 ft)
- Mudline elevation
- Tidal stage
- Climatic conditions
- Sampling method and any problems encountered (e.g., debris)
- Maximum penetration
- Analysis length
- Description of the material type obtained in the samples
- Description of any vertical stratification in each core
- Description of sediment subsampling methods
- Photographic record of each core

2.2.3 Test Sediment Compositing

Test composites representative of each of the three proposed dredge units were prepared by first separately homogenizing individual core samples (taken to a depth of -52 ft MLLW for Sites A and B and -57 ft MLLW for Site C), then combining the individual core samples together to form an area-wide composite. Each area composite was subsampled for chemical, physical,

toxicological, and bioaccumulation testing (Table 3). The three area composites were prepared as follows:

- Composite Area A = Cores A1 through A4
- Composite Area B = Cores B1 and B3 through B5
- Composite Area C = Cores C1 through C5

A separate subsample was also collected from each homogenized core and each area composite for archiving purposes.

On the survey vessel, each of the individual core samples from Composite Areas A, B, and C, (plus additional cores necessary to make up sufficient testing volume) were homogenized separately in a clean, non-contaminating stainless steel mixing vessel, and then subsampled for archiving purposes. Sediment from the four or five individual cores collected within each composite area were then combined, homogenized, and subsampled for physical and chemical analyses, as well as for a composite area archive. Samples for physical and chemical analyses were transferred to Calscience in labeled plastic bags and 8-ounce (oz) glass jars, respectively.

In an effort to further characterize the sediments found within the leasehold, additional sediment was collected 2 ft below the proposed project depth for independent chemical and physical analyses. These deeper sediment samples underwent the same chemical testing as that for the three area-wide composites; however they were not tested using Green Book methodologies.

Following a review of initial sediment chemistry and toxicological results, more refined spatial characterization of the material in Composite Areas B and C was desired. Archived samples of all individual cores from these locations were submitted to Calscience for additional trace metal analysis.

2.2.4 Toxicological and Bioaccumulation Testing

Toxicological and bioaccumulation testing was also performed on sediment from the three test site composite areas. These samples were delivered to Nautilus Environmental (Nautilus) in food-grade plastic bags in iced coolers or buckets. These samples were held in a 4 degree Celsius (°C) cold room until toxicity tests are initiated. The remainder of the sediment was stored in a 4°C cold room in the event that additional testing was necessary.

The integrity of each sample was maintained throughout the study from the time of collection to the point of data reporting. Proper record-keeping and chain-of-custody procedures were implemented to allow samples to be traced from collection to their final destination. Field log entries were completed at the time that observations are made. Archived samples will be retained by the laboratories for a period of one year from collection.

Table 3. Sediment Testing Matrix

Station ID	Sample Type	Sample Collection Type	Analysis Type			Archive
			Chemical/ Physical	Toxicity	Bioaccum-ulation	
Site A Comp	Area-wide Composite	Vibracore	X	X	X	X
Site B Comp	Area-wide Composite	Vibracore	X	X	---	X
Site C Comp	Area-wide Composite	Vibracore	X	X	X	X
Site A Bottom	Grab	Vibracore	X	---	---	X
Site B Bottom	Grab	Vibracore	X	---	---	X
Ste C Bottom	Grab	Vibracore	X	---	---	X
Cores B1, B3, B4, and B5	Core	Vibracore	X[1]	---	---	X
Cores C1, C2, C3, C4, and C5	Core	Vibracore	X[1]	---	---	X
LA-2 Ocean Reference Sediment						
Reference	Sediment	Grab	X	X	X	X
Laboratory Control Sediment						
Control	Sediment	Grab	---	X	X	X

Note:
--- No testing conducted
1 Metal chemistry only

2.2.5 Sample Archives

Archive samples were collected at multiple stages of the program:

1. As a standard procedure after material from a specific sampling location was homogenized (one 8 oz. jar was retained)
2. As a standard procedure following preparation of area-wide composites (one 8 oz. jar was retained)

Archived samples were held at 4°C until 1 August 2010, at which time they were moved to a -20°C freezer (see Section 2.2.3, Test Sediment Compositing, for further details).

2.2.6 Reference Sediment Collection

Reference sediment was collected from a designated offshore site identified as LA-2 (latitude 33°30.200' North, longitude 118° 10.800' West). Collection was performed on 27 June 2010 using a stainless-steel pipe dredge from the *R/V Early Bird II*. This site has been used for

numerous dredged material bioassays and has a documented sediment quality that is acceptable to the EPA and USACE (Figure 4). The reference sediment was immediately placed in polyethylene bags and stored in chests under ice until transported to laboratories with the test sediments.

2.2.7 Control Sediment Collection

Control sediments are used for both the solid-phase toxicity test (SP) and bioaccumulation-phase test (BP) biological tests. The control or "home" sediments are collected at the same location and at the same time as the test organisms. Control sediment exposures are used to determine the health of the test organisms during the laboratory exposure period. These tests must meet specific control criteria (≥ 90 percent survival in the SP tests and ≥ 70 percent in the BP tests) for the tests to be considered valid. Survival at these levels attest to the suitability of the organisms for testing purposes.

Control sediments were collected by the test-organism supplier using a grab sampler. Sediments were shipped to the Nautilus laboratory along with each batch of test organisms and were stored at 4°C prior to test initiation. Both the polychaete and amphipod tests had two additional concurrent laboratory controls (consisting of coarse sand collected offshore of Scripps Institution of Oceanography [SIO] in La Jolla, California, and a fine-grained control sediment collected from Sail Bay in Mission Bay, San Diego), both collected by Nautilus personnel. The additional "fine grain size" control sediment was tested to better represent the common fine sediments found within bays and harbors; the SIO sand is an internal standard routinely tested with amphipods for Quality Assurance/Quality Control (QA/QC) purposes at Nautilus.

2.3 Physical and Chemical Analyses

The physical and chemical analyses, analysis methods, and target detection limits are listed in Table 4.

2.3.1 Grain-Size Analysis

Sediment grain size analysis was conducted by PTS Laboratories on area-wide composite samples. The sieve and laser particle size method (ASTM D422/D4464M) was used to determine the percentage of gravel, sand, silt, and clay to 0.1 percent. Gravel was defined as material retained on a 2-millimeter (mm) sieve; sand as material passing through the 2-mm sieve, but retained by a 0.063-mm sieve; silt as material finer than 0.063 mm, but greater than 0.002 mm in diameter; and clay as less than 0.002 mm in diameter.

2.3.2 Chemical Analyses

Calscience, a California accredited laboratory, conducted all analytical chemical analyses. The sediment and tissue samples submitted to Calscience were analyzed according to EPA- and USACE-approved methods for the constituents listed in Table 4. Total solids/water content was also determined and reported to 0.1 percent solids. Routine laboratory QA/QC procedures included duplicate sample analyses, reagent blanks, and spiked samples according to EPA methods.

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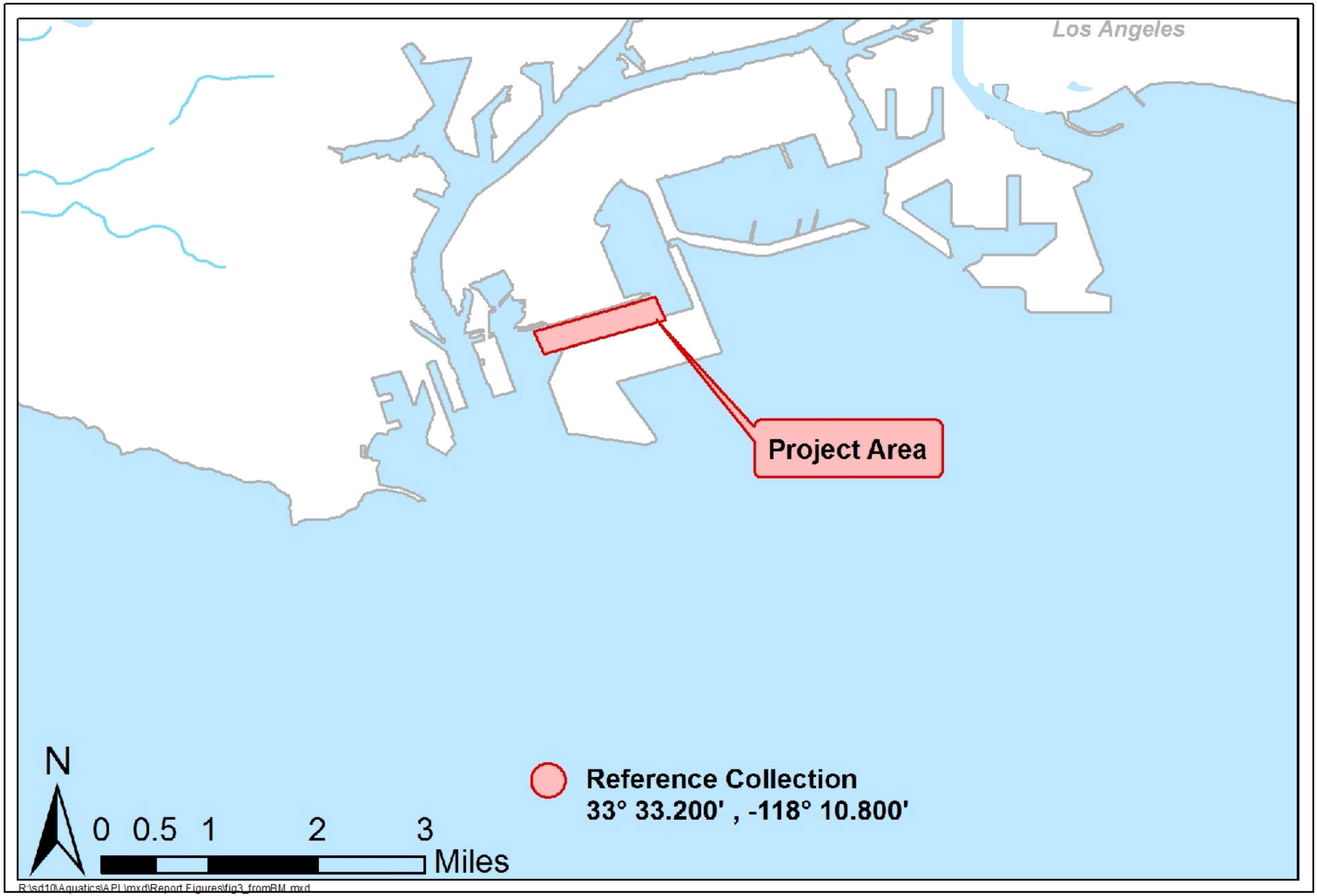

amec

Reference Sediment Collection Site

FIGURE

4

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Table 4. Chemical Analyses for Sediment and Tissue Samples

Analyte	Analysis Method	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a,b]
Total solids	EPA 160.3	0.1 %	N/A
Total organic carbon	EPA 9060	0.1 %	N/A
Total ammonia	SM 350.2M[c]	0.2 mg/kg	N/A
Total & soluble sulfides	SM 376.2M[c]	0.1 mg/kg	N/A
Arsenic	EPA 6020/6010B[d]	0.1 mg/kg	0.25 mg/kg
Cadmium	EPA 6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Chromium	EPA 6020/6010B[d]	0.1 mg/kg	0.02 mg/kg
Copper	EPA 6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Lead	EPA 6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Mercury	EPA 7471A[d]	0.02 mg/kg	0.02 mg/kg
Nickel	EPA 6020/6010B[d]	0.1 mg/kg	0.02 mg/kg
Selenium	EPA 6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Silver	EPA 6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Zinc	EPA 6020/6010B[d]	2.0 mg/kg	1.0 mg/kg
TRPH	EPA 418.1M [d]	5.0 mg/kg	N/A
PAHs[e]	EPA 8270C[d]	20 µg/kg	20 µg/kg
Chlorinated pesticides[f]	EPA 8081A[d]	0.5 – 30 µg/kg	0.5 - 2.0 µg/kg
PCBs[g]	EPA 8082[d]	20 µg/kg	20 µg/kg
Phenols	EPA 8270C [d]	20 – 100 µg/kg	N/A
Phthalates	EPA 8270C [d]	10 µg/kg	N/A
Organotins	Rice/Krone[h]	1.0 µg/kg	N/A

Notes:

a Sediment minimum detection limits are on a dry-weight basis. Tissue minimum levels are on a wet-weight basis.
b Reporting limits provided by Calscience Environmental Laboratories.
c Standard Methods for the Examination of Water and Wastewater (SM), 19th Edition APHA et al. 1995.
d EPA 1986-1996. SW -846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.
e Includes naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene.
f Includes aldrin, □-BHC, □-BHC, □-BHC (lindane), □-BHC, chlordane, 2,4- and 4,4-DDD, 2,4- and 4,4-DDE, 2,4- and 4,4-DDT,dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.
g Includes Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.
h Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)
mg/kg milligrams per kilogram (parts per million)
mg/L milligrams per liter
µg/kg micrograms per kilogram (parts per billion)
N/A not analyzed
PAH polycyclic aromatic hydrocarbon
PCB polychlorinated biphenyl
SM Standard Methods for the Examination of Water and Wastewater
TRPH total recoverable petroleum hydrocarbons

2.4 Bioassay Testing

Solid-phase and suspended particulate-phase toxicity testing was conducted on the three composite samples and the ocean reference sediment. Bioaccumulation tests were initiated on all three composite samples following a review of the SP results, however, only tissue from Sites A and C were chemically analyzed. Bioassay testing methods followed EPA- and USACE-approved methods as outlined in the project-specific SAP and Appendix A.

All toxicity and bioaccumulation exposures were conducted at Nautilus. The test species and endpoints were as follows:

Solid-Phase Tests

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

Suspended Particulate-Phase Tests

- Mysid shrimp 96-hr survival (*Americamysis bahia*)
- Inland silverside fish 96-hr survival (*Menidia beryllina*)
- Blue mussel 48-hr embryo development (*Mytilus galloprovincialis*)

Bioaccumulation-Phase Tests

- Marine polychaete worm 28-day exposure (*Nereis virens*)
- Bent-nosed clam 28-day exposure (*Macoma nasuta*)

The solid-phase organisms tested 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 while *Neanthes* is a burrowing deposit feeder. Additional detailed test methods and QA/QC procedures employed by Nautilus for this study are referenced in Appendix A.

Amphipod tests required two rounds of testing. The first round of amphipod tests were declared invalid due to control survival (82 percent) not meeting the 90 percent acceptability criterion. Control survival in the second round of tests was 91 percent. The toxicity testing report contained in Appendix A provides a detailed explanation of the two test rounds needed in order to obtain valid amphipod results.

3.0 RESULTS

3.1 Sample Collection, Processing, and Handling

All sediment samples were collected between 28 June and 1 July 2010 in accordance with the procedures detailed in the approved project-specific SAP. The core collection data summarized in Table 2 includes date and time of collection, GPS location, and target-versus-actual penetration depth. Detailed core logs are contained in Appendix B. Core photographs are presented in Appendix C.

Archive samples were collected from each core as well as from top and bottom composite samples.

3.2 Grain-Size Analyses Results

Grain-size results are summarized in Table 5. Detailed laboratory results are contained in Appendix D. Composite Samples B and C were composed predominantly of silt and clay (fines) size fractions (76 and 75 percent, respectively), while Composite A was determined to be composed of 57 percent fines. Sediment collected from the LA-2 Reference site was dominated by fine sand (67 percent) and only contained 30 percent fines.

3.3 Bulk Sediment Chemistry Results

Bulk composite sediment chemistry data are summarized in Table 6. The complete sediment chemistry laboratory report from Calscience is provided in Appendix D. Chemical concentrations were compared to available Effects Range Low (ERL) and Effects Range Median (ERM) sediment quality screening guideline values derived by Long et al (1995) and contained in NOAA's 2008 Screening Quick Reference Tables (Buchman, 2008). Chemical concentrations lower than ERL guidelines are considered to be below published effects levels, while concentrations above ERM guidelines are considered to have a good probability of causing effects. The values were derived to be used for screening purposes only. Overall, a few trace metals did exceed ERL/ERM screening values in the APL composite sediments; however the sediment samples were substantially free of organic chemicals (chlorinated pesticides, PCBs, PAHs, phenols, phthalates, and organotins).

Concentrations of arsenic, copper and nickel were elevated above ERL guideline screening values in all three composite areas. Arsenic and copper, however, were less than their respective ERM values by a factor of more than 4x. Nickel exceeded its respective ERM value of 51.6 mg/kg in a single sample (Composite C Bottom) with a concentration of 79.7 mg/kg. Concentrations, in general, were lowest in Composite A and similar in Composites B and C. Given the elevated metals concentrations, in particular nickel in Area C, all individual cores collected from Composite Areas B and C subsequently analyzed for the full suite of trace metals to better characterize spatial relationships and potential trends. (See Section 3.3.1).

Of the organic compounds analyzed only the chlorinated pesticide 4,4'-DDE was detected above an ERL guideline value (2.2 µg/kg for this compound). Measured concentrations, however, were below the ERM value of 27 µg/kg in all composite area samples (Table 6).

3.3.1 Additional Core Sample Sediment Chemistry

Results from the metals analyses of selected individual core samples are summarized in Table 7. Sediment chemistry reports from Calscience are located in Appendix E. Concentrations of arsenic, copper, and nickel were again above ERL guidelines in cores from both Composite Areas B and C (Table 7). Arsenic and copper exceeded ERL guideline values in all three Area B cores and adjacent Cores 1, 2, and 3 in Area C. Nickel exceeded the ERL guideline value for this metal in all Area B and C cores with the exception of Core C5, the easternmost sample collected. Nickel also exceeded the ERM value of 51.6 mg/kg in a single core sample from Area C (Core C2; 67.5 mg/kg). Among these three metals, Core C2, had the highest concentrations, appearing to be a trace metal "hot spot" with decreasing concentrations observed in either direction from this location.

Mercury also exceeded an ERL value of 0.15 mg/kg in Cores B3, B4, B5, and C3 with no apparent spatial trend. The maximum concentration of mercury, however, was only 0.20 mg/kg in Core C3, less than the ERM by a factor of more than 3x. The ERL for mercury was also exceeded slightly in the Area B Composite.

3.4 Biological Effects Test Results

Toxicity and bioaccumulation test results are summarized in this section. A complete report of with these results including test validity data is contained in Appendix A.

3.4.1 Solid-Phase Tests

Solid-phase test results are presented in Table 8.

3.4.1.1 Amphipod *Eohaustorius* 10-day Survival

The amphipod test portion of this study required two rounds of tests. The first round of amphipod tests were declared invalid due to control survival (82 percent) not meeting the 90 percent acceptability criterion. Control survival in the second round of tests was 91 percent. Results for both sets of tests are provided in Table 8 and Appendix A for comparison. Trends and statistical results for both rounds of tests were the same with Areas B and C showing a significant decrease in survival relative to that in the reference sediment and no effect in Composite A sediment.

Amphipod survival exceeded Green Book limiting permissible concentration (LPC) criteria in Composite A only with a mean of 80 percent survival in the test sediment. Statistically significant amphipod mortality was observed for Composite Samples B and C (both 60 percent mean survival) compared to mean survival in the reference sediment of 85 percent during the second round of SP tests. The LPC criterion is defined in the Green Book as a statistically significant reduction in survival in a test sediment relative to that in the reference material, as well as a difference in response that is greater than 20 percent.

Table 5. Grain-Size Analyses Results

Sample ID	Mean Grain Size Description	Median Grain Size (mm)	Particle Size Distribution, wt. percent						Silt & Clay
			Gravel	Sand Size			Silt	Clay	
				Coarse	Medium	Fine			
Composite A	Fine sand	0.042	0.00	0.00	4.25	39.0	40.1	16.7	56.8
Composite B	Silt	0.018	0.00	0.00	1.13	22.7	54.1	22.1	76.2
Composite C	Silt	0.024	0.00	0.00	1.09	24.1	56.2	18.7	74.8
Composite A Bottom	Fine sand	0.095	0.00	0.00	3.03	56.0	32.0	8.97	41.0
Composite B Bottom	Silt	0.021	0.00	0.00	0.00	21.0	60.1	18.9	79.0
Composite C Bottom	Fine sand	0.071	0.00	0.00	14.3	34.9	38.7	12.1	50.8
LA-2	Fine sand	0.109	0.00	0.00	3.39	66.8	24.5	5.38	29.9

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Table 6. Bulk Sediment Chemistry Results

						Dredge Material			Overdredge Material				Reference
Method	**Compound Name**	**Units**	**Type**	**ERL**	**ERM**	**Composite A**	**Composite B**	**Composite C**	**Composite A Bottom**	**Composite B Bottom**	**Composite C Bottom**	**Composite B Bottom Laboratory Duplicate**	**LA-2**
EPA 9060A	Carbon, Total Organic	%	General Chemistry	.	.	0.93	1.3	1.3	0.49	1.3	1.0	1.3	0.72
SM 2540 B	Total Solids	%	General Chemistry	.	.	66.5	58.8	63.1	75.1	63.7	75.2	66.2	75.4
EPA 376.2M	Sulfide, Total	mg/kg	General Chemistry	.	.	120	56	21	4.0	15	13	NT	0.66
EPA 376.2M	Sulfide, Dissolved	mg/kg	General Chemistry	.	.	<0.75	<0.85	<0.79	<0.67	<0.78	<0.66	NT	<0.66
SM 4500-NH3 B/C (M)	Ammonia (as N)	mg/kg	General Chemistry	.	.	2.5	4.8	3.5	3.4	6.2	4.1	NT	5.2
EPA 418.1M	TRPH	mg/kg	Petroleum Hydrocarbons	.	.	18	17	17	15	<16	27	<15	<13
EPA 6020	Arsenic	mg/kg	Metals	**8.2**	**70**	**8.86**	**15**	**14.5**	6.26	**11.1**	**12.1**	**10.9**	3.06
EPA 6020	Cadmium	mg/kg	Metals	**1.2**	**9.6**	0.385	0.62	0.532	0.276	0.658	0.451	0.624	0.216
EPA 6020	Chromium	mg/kg	Metals	**81**	**370**	28.3	38.7	42.4	18.9	33.6	72.6	33.2	22
EPA 6020	Copper	mg/kg	Metals	**34**	**270**	**38.6**	**50.8**	**46.9**	19.1	**38.1**	**35.5**	**37.8**	11.6
EPA 6020	Lead	mg/kg	Metals	**46.7**	**218**	13	19	18.7	5.83	20.7	15	20	6.34
EPA 7471A	Mercury	mg/kg	Metals	**0.15**	**0.71**	0.137	**0.153**	0.144	0.0536	**0.162**	0.0851	0.147	0.0337
EPA 6020	Nickel	mg/kg	Metals	**20.9**	**51.6**	**23.3**	**31.6**	**36.4**	15.8	**24.9**	**79.7**	25.3	12.1
EPA 6020	Selenium	mg/kg	Metals	**.**	**.**	0.631	0.533	0.758	0.234	0.839	0.398	0.85	0.287
EPA 6020	Silver	mg/kg	Metals	**1**	**3.7**	0.163	0.232	0.196	<0.133	0.275	<0.133	0.273	<0.133
EPA 6020	Zinc	mg/kg	Metals	**150**	**410**	95.9	123	117	70.6	108	94.1	110	52.9
EPA 8081A	2,4'-DDD	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	2,4'-DDE	ug/kg	Chlorinated Pesticides	**.**	**.**	2.6	3.4	3	<1.3	6.2	<1.3	6.6	<1.3
EPA 8081A	2,4'-DDT	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	4,4'-DDD	ug/kg	Chlorinated Pesticides	**2**	**20**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	4,4'-DDE	ug/kg	Chlorinated Pesticides	**2.2**	**27**	**12**	**14**	**13**	1.7	**25**	**3.8**	**26**	**6.1**
EPA 8081A	4,4'-DDT	ug/kg	Chlorinated Pesticides	**1**	**7**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
	Total Detectable DDTs		Chlorinated Pesticides	**1.58**	**46.1**	**14.6**	**17.4**	**16.0**	**1.7**	**31.2**	**3.8**	**32.6**	**6.1**
EPA 8081A	Aldrin	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Alpha-BHC	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Beta-BHC	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Alpha Chlordane	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Chlordane	ug/kg	Chlorinated Pesticides	**.**	**.**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8081A	Gamma Chlordane	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Delta-BHC	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Dieldrin	ug/kg	Chlorinated Pesticides	**0.02**	**8**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Endosulfan I	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Endosulfan II	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Endosulfan Sulfate	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Endrin	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Endrin Aldehyde	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Endrin Ketone	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Gamma-BHC	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Heptachlor	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Heptachlor Epoxide	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Methoxychlor	ug/kg	Chlorinated Pesticides	**.**	**.**	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3

Table 6. Bulk Sediment Chemistry Results

						Dredge Material			Overdredge Material				Reference
Method	Compound Name	Units	Type	ERL	ERM	Composite A	Composite B	Composite C	Composite A Bottom	Composite B Bottom	Composite C Bottom	Composite B Bottom Laboratory Duplicate	LA-2
EPA 8081A	Cis-nonachlor	ug/kg	Chlorinated Pesticides	.	.	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Trans-nonachlor	ug/kg	Chlorinated Pesticides	.	.	<1.5	<1.7	<1.6	<1.3	<1.6	<1.3	<1.5	<1.3
EPA 8081A	Toxaphene	ug/kg	Chlorinated Pesticides	.	.	<30	<34	<32	<27	<31	<27	<30	<27
EPA 8270C SIM	Naphthalene	ug/kg	LMW PAH	**160**	**2100**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	1-Methylnaphthalene	ug/kg	LMW PAH	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2-Methylnaphthalene	ug/kg	LMW PAH	**70**	**670**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Acenaphthylene	ug/kg	LMW PAH	**44**	**640**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Acenaphthene	ug/kg	LMW PAH	**16**	**500**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Fluorene	ug/kg	LMW PAH	**19**	**540**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Phenanthrene	ug/kg	LMW PAH	**240**	**1500**	<15	<17	<16	<13	<16	<13	15	<13
EPA 8270C SIM	Anthracene	ug/kg	LMW PAH	**85.3**	**1100**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Fluoranthene	ug/kg	LMW PAH	**600**	**5100**	<15	<17	<16	<13	<16	<13	17	<13
EPA 8270C SIM	Pyrene	ug/kg	HMW PAH	**665**	**2600**	<15	<17	<16	<13	<16	<13	19	<13
EPA 8270C SIM	Benzo (a) Anthracene	ug/kg	HMW PAH	**261**	**1600**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Chrysene	ug/kg	HMW PAH	**384**	**2800**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Benzo (k) Fluoranthene	ug/kg	HMW PAH	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Benzo (b) Fluoranthene	ug/kg	HMW PAH	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Benzo (a) Pyrene	ug/kg	HMW PAH	**430**	**1600**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	ug/kg	HMW PAH	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Dibenz (a,h) Anthracene	ug/kg	HMW PAH	**63.4**	**260**	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Benzo (g,h,i) Perylene	ug/kg	HMW PAH	.	.	<15	<17	<16	<13	<16	<13	<15	<13
	Total Detectable PAHs		PAH	**4022**	**44792**	NA	NA	NA	NA	NA	NA	NA	NA
EPA 8270C SIM	2,4,5-Trichlorophenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2,4,6-Trichlorophenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2,4-Dichlorophenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2,4-Dimethylphenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2,4-Dinitrophenol	ug/kg	Phenols	.	.	<750	<850	<790	<670	<780	<660	<760	<660
EPA 8270C SIM	2-Chlorophenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2-Methylphenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	2-Nitrophenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	3/4-Methylphenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	ug/kg	Phenols	.	.	<750	<850	<790	<670	<780	<660	<760	<660
EPA 8270C SIM	4-Chloro-3-Methylphenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	4-Nitrophenol	ug/kg	Phenols	.	.	<750	<850	<790	<670	<780	<660	<760	<660
EPA 8270C SIM	Pentachlorophenol	ug/kg	Phenols	.	.	<750	<850	<790	<670	<780	<660	<760	<660
EPA 8270C SIM	Phenol	ug/kg	Phenols	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	ug/kg	Phthalates	.	.	<15	19	<16	<13	<16	16	16	<13
EPA 8270C SIM	Butyl Benzyl Phthalate	ug/kg	Phthalates	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Diethyl Phthalate	ug/kg	Phthalates	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Dimethyl Phthalate	ug/kg	Phthalates	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8270C SIM	Di-n-Butyl Phthalate	ug/kg	Phthalates	.	.	<15	<17	<16	<13	<16	<13	<15	<13

Table 6. Bulk Sediment Chemistry Results

						Dredge Material			Overdredge Material				Reference
Method	**Compound Name**	**Units**	**Type**	**ERL**	**ERM**	**Composite A**	**Composite B**	**Composite C**	**Composite A Bottom**	**Composite B Bottom**	**Composite C Bottom**	**Composite B Bottom Laboratory Duplicate**	**LA-2**
EPA 8270C SIM	Di-n-Octyl Phthalate	ug/kg	Phthalates	.	.	<15	<17	<16	<13	<16	<13	<15	<13
GC-FPD	Dibutyltin	ug/kg	TBT	.	.	<1.67	<1.89	<1.83	<1.46	<1.74	<1.51	NT	<1.52
GC-FPD	Monobutyltin	ug/kg	TBT	.	.	<0.80	<0.90	<0.88	<0.70	<0.83	<0.72	NT	<0.72
GC-FPD	Tetrabutyltin	ug/kg	TBT	.	.	<1.30	<1.46	<1.42	<1.13	<1.34	<1.17	NT	<1.17
GC-FPD	Tributyltin	ug/kg	TBT	.	.	<1.44	<1.63	<1.58	<1.26	<1.49	<1.30	NT	<1.30
GC-FPD	Total Butyltins	ug/kg	TBT	.	.	<1.30	<1.46	<1.42	<1.13	<1.34	<1.17	NT	<1.17
EPA 8082	Aroclor-1016	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8082	Aroclor-1221	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8082	Aroclor-1232	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8082	Aroclor-1242	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8082	Aroclor-1248	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8082	Aroclor-1254	ug/kg	PCB Aroclors	.	.	<15	<17	16	<13	25	<13	27	<13
EPA 8082	Aroclor-1260	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
EPA 8082	Aroclor-1262	ug/kg	PCB Aroclors	.	.	<15	<17	<16	<13	<16	<13	<15	<13
	Total PCB Aroclors	ug/kg	PCB Aroclors	**22.7**	**180**	NA	NA	NA	NA	**25**	NA	**27**	NA

Notes:
< less than the Method Recording Limit.
NA all concentrations are less than the detection limit

Table 7. Select Individual Core Chemistry Results

Method	**Compound name**	**Type**	**Units**	**ERL**	**ERM**	**APL B1-1**	**APL B1-1 Duplicate**	**APL B3-1**	**APL B4-1**	**APL B5-1**	**APL C1-1**	**APL C2-1**	**APL C3-1**	**APL C4-1**	**APL C5-1**
EPA 6020	Arsenic	Metals	mg/kg	**8.2**	**70**	**9.51**	**10.4**	**11.6**	**12.0**	**12.0**	**8.61**	**19.4**	**9.82**	7.70	5.08
EPA 6020	Cadmium	Metals	mg/kg	**1.2**	**9.6**	0.45	0.51	0.63	0.60	0.59	0.47	0.65	0.46	0.44	0.24
EPA 6020	Chromium	Metals	mg/kg	**81**	**370**	39.6	43.6	53.2	51.4	54.4	40.9	74.2	44.8	39.2	24.7
EPA 6020	Copper	Metals	mg/kg	**34**	**270**	**41.8**	**46.0**	**50.9**	**52.4**	**54.0**	**37.6**	**55.7**	**42.2**	32.9	22.4
EPA 6020	Lead	Metals	mg/kg	**46.7**	**218**	15.4	17.0	21.3	20.4	21.0	14.4	23.2	17.7	12.7	7.74
EPA 7471A	Mercury	Metals	mg/kg	**0.15**	**0.71**	0.12	0.14	**0.17**	**0.17**	**0.16**	0.12	0.12	**0.20**	0.13	0.08
EPA 6020	Nickel	Metals	mg/kg	**20.9**	**51.6**	**26.7**	**28.9**	**34.2**	**36.1**	**35.7**	**26.1**	**67.5**	**28.0**	**23.9**	15.9
EPA 6020	Selenium	Metals	mg/kg	**.**	**.**	0.58	0.59	0.86	0.70	0.72	0.63	0.80	0.81	0.71	0.46
EPA 6020	Silver	Metals	mg/kg	**1**	**3.7**	0.17	0.19	0.25	0.24	0.23	0.17	0.17	0.16	<0.14	<0.14
EPA 6020	Zinc	Metals	mg/kg	**150**	**410**	80.9	87.4	100	101	101	77.1	111	87.3	72.8	54.7

Notes:
< less than the Method Recording Limit.
NA all concentrations are less than the detection limit

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3.4.1.2 Polychaete *Neanthes* 10-day Survival

Mean survival of polychaete worms was 100 percent in the control and reference sediments. Survival in all test sediments was 100 percent indicating the absence of toxicological effects.

Table 8. Solid-Phase Toxicity Test Results (Mean Survival)

Site	*Eohaustorius estuarius* (Round 1)	*Eohaustorius estuarius* (Round 2)	*Neanthes arenaceodentata*
"Home" Lab Control	82	91	na
SIO Control Sand	79	80	100
Fine Grain Size Control	80	84	100
LA-2 Reference	85	85	100
APL A Comp	83	80	100
APL B Comp	**63***	**60***	100
APL C Comp	**72***	**60***	100

Notes:
Data are mean percent survival at test completion (Day 10)
NA not applicable
Bold* values are significantly reduced from the mean survival in the LA-2 reference sediment.

3.4.2 Suspended Particulate-Phase Tests

Results of the SPP tests are summarized in Table 9. None of the sediment elutriates were toxic to the three species tested: inland silverside minnows, mysids, or mussel larvae. Mean survival of mysids ranged from 94 to 96 percent in laboratory controls, and 92 to 94 percent in undiluted elutriates. Mean survival of *Menidia* in all controls ranged from 96 to 98 percent and was 96 percent in undiluted elutriates. The mean normal development (percent normal alive) of surviving mussel embryos ranged from 91 to 97 percent in the laboratory controls, and exceeded 93 percent in all test elutriates.

Due to the absence of toxicological effects, all LC50 values were greater than 100 percent elutriate, exceeding Green Book LPC requirements.

Table 9. Suspended Particulate-Phase Toxicity Test Results

Site	Elutriate Concentration	Mussel (Mean % Normal Alive)	Mysid (Mean % Survival)	Inland Silverside (Mean % Survival)
Laboratory Control[a]	0%	91 - 97	94 - 96	96 - 98
APL A Comp	10%	95	96	100
	50%	94	94	96
	100%	93	92	96
APL B Comp	10%	93	96	98
	50%	89	96	96
	100%	94	94	96
APL C Comp	10%	96	90	96
	50%	96	94	98
	100%	97	94	96

Notes:
Data are mean percent survival at 96 hours (mysid and fish tests) and mean percent normal development at 48 hours (bivalve test).
a Test sediments were batched with one of three laboratory controls. Laboratory control values shown are the range in mean survival or normal development across the controls.

3.4.3 Bioaccumulation Phase Tests

Survival results for the bioaccumulation tests are summarized in Table 10. Mean survival of worms and clams exceeded 90 percent in all samples tested, including control and reference sediments.

Tissue samples were frozen at Nautilus following depuration and prior to shipment to Calscience for chemical analysis.

Table 10. Bioaccumulation Phase Clam and Worm Survival

Site	*Macoma nasuta* (% Survival)	*Nereis virens* (% Survival)
Laboratory Control	94	98
LA-2 Reference Site	94	100
APL A Comp	91	98
APL B Comp	92	94
APL C Comp	94	100

Notes:
Data are mean percent survival (n = 5 replicates).

3.4.4 Chemical Bioaccumulation in Worm and Clam Tissues

Results for chemical bioaccumulation in clams and worm tissues are summarized in Tables 11 and 12. Chemical analysis of tissues was performed only on clams and worms exposed to Composite Area A and C sediments, as well as the ocean reference material. Sediment chemistry and toxicity results for Composite Area B suggested this site would likely not pass unconfined aquatic disposal suitability criteria, thus tissue analysis was not performed. Although toxicity was observed in Composite Area C, and several chemicals exceeded ERL values, there appeared to be a "hot spot" near the border between Composite Areas B and C, with a marked decrease in concentrations moving east from Core C2. Consequently, chemical analyses were conducted on Composite Area C tissues to determine if the material meets the bioaccumulation LPC suitability requirements for unconfined aquatic disposal. Tissues for Composite Area B remain archived frozen if needed at a later date.

Concentrations of chemicals in Composite A and C tissues (normalized to dry weight) were statistically compared to that in the Reference tissues using Student's one-tailed t-test. Statistical comparisons were performed only when mean concentrations of a chemical were higher in the test sediments than that in the reference sediments. For Composite A, statistical comparisons were performed for the trace metals arsenic, copper, lead, mercury, and nickel in *Macoma* clam tissues and chromium, lead, mercury, and selenium in *Nereis* worm tissues. Statistically significant differences were not observed for any of these comparisons. Statistical comparisons between Composite C and the reference tissues were performed for concentrations of arsenic, copper, lead, silver, and zinc in clam tissues and mercury concentrations in worm tissues. Of these metals, lead and silver were significantly greater ($p < 0.05$) in Composite C clam tissues than that in the reference. Mean concentrations, however, were within a factor of two between area composites and the reference tissue for both chemicals. Concentrations of silver were particularly low (a mean of 0.48 mg/kg dry weight) in Composite C tissue relative to 0.32 mg/kg dry weight in the Reference tissue, less than the detection limit (0.04 mg/kg dry weight) for this constituent. Mercury was also significantly greater in Composite C worm tissues than that in the reference; however, a number of values were

below the detection limit of 0.1 mg/kg dry weight, and those detected had concentrations equal to or very close to the reporting limit.

The only organic compound detected was 4,4'-DDE with mean concentrations of 55.6, 32.8, and 46.2 μg/kg dry weight in clam tissues from Composite A, Composite C, and Reference, respectively, The concentration in Composite A was not statistically greater than that in the reference tissues. Mean concentrations in worm tissues were 14.6 and 8.2 μg/kg for Sites A and C, respectively. DDE was not detected in reference worm tissues, thus statistical analyses were not conducted for this comparison.

Chemical concentrations in clam and worm tissues were also compared to available FDA action levels for shellfish and fin fish tissues for human consumption. None of the chemicals measured in the test tissues exceeded available FDA action levels based on wet weight concentrations (Tables 13 and 14).

3.5 Data Quality

3.5.1 Bulk Sediment Data Quality

Bulk sediment chemistry data provided by Calscience were reviewed and found to be of acceptable quality. The calibration verification, surrogate, duplicate, and method blank quality assurance criteria were met for all analyses.

3.5.2 Biological Testing Data Quality

Applicable quality control parameters were met by Nautilus for all biological tests. Ammonia concentrations were below concentrations expected to be toxic for all species tested and appear to be unrelated to toxicity observed in amphipod tests from Area B and C composite samples. Sediment grain size also does not appear to be a confounding factor for this set of tests given the favorable results obtained for amphipods in the fine grained control (greater than 80 percent survival).

3.5.3 Tissue Chemistry Testing Data Quality

Laboratory QA/QC data were reviewed and found to be within acceptability limits of Calscience's Laboratory Quality Assurance Program. Data were released without further qualification. QA/QC results are further detailed in the Calscience report (Appendix F).

Table 11. Clam Tissue Bioaccumulation Results (Dry Weight)

				APL Composite A							APL Composite C								LA-2 Reference Site							
Method	Compound Name	Units (Dry weight)	Type	14C	15C	22C	23C	6C	Mean	1 SD	10C	12C	13C	18C	18C Laboratory Duplicate	2C	Mean	1 SD	21C	24C	4C	5C	5C Laboratory Duplicate	7C	Mean	1 SD
EPA 6020	Arsenic	mg/kg	Metals	24.4	24.2	25.3	24.8	24.1	24.6	0.5	24.6	20.1	24.6	24.7	23.5	24.9	23.8	2.1	23.1	19.6	22.5	26.3	26.1	24.1	23.1	2.4
EPA 6020	Cadmium	mg/kg	Metals	<0.4	0.46	<0.4	0.74	<0.4	0.36	0.2	0.668	0.43	0.504	0.586	0.615	0.554	0.548	0.1	0.89	0.65	<0.4	<0.4	<0.4	0.5	0.49	0.2
EPA 6020	Chromium	mg/kg	Metals	7.85	17.4	8.17	11.9	9.99	11.1	3.9	6.82	6.89	6.06	6.04	5.53	7.46	6.65	0.6	9.98	5.39	12.9	14.9	13.3	14.4	11.5	3.9
EPA 6020	Copper	mg/kg	Metals	10.4	18.4	17.2	17.6	14.3	15.6	3.3	14.2	13.6	14.1	14	14.9	15.8	14.3	0.8	16.6	13.2	10.5	13.7	13.8	15.5	13.9	2.3
EPA 6020	Lead	mg/kg	Metals	1.76	3.12	2.44	3.03	2.26	2.52	0.6	2.97	2.79	2.66	2.81	2.71	2.91	2.83	0.1	2.58	2.05	1.47	2.6	2.74	2.35	2.2	0.5
EPA 7471A	Mercury	mg/kg	Metals	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
EPA 6020	Nickel	mg/kg	Metals	6.96	11.8	7.16	9.0	8.18	8.62	2.0	5.84	5.33	4.91	5.26	5.52	5.57	5.38	0.3	9.0	5.25	9.63	8.7	8.86	10.3	8.58	2.0
EPA 6020	Selenium	mg/kg	Metals	1.47	1.62	1.61	1.79	1.37	1.57	0.2	1.64	1.51	1.46	1.61	1.70	1.64	1.57	0.1	1.78	1.54	1.77	2.17	1.99	1.99	1.85	0.2
EPA 6020	Silver	mg/kg	Metals	<0.4	<0.4	<0.4	<0.4	<0.4	NA	NA	0.461	0.442	0.444	0.679	0.654	0.381	0.48	0.1	0.58	<0.4	<0.4	<0.4	<0.4	0.4	0.32	0.1
EPA 6020	Zinc	mg/kg	Metals	78.3	109	104	113	86.4	98.1	15	113	108	114	118	122	114	113.4	3.6	116	118	83.1	114	114	114	109	14.6
EPA 8081A	2,4'-DDD	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	2,4'-DDE	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	2,4'-DDT	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	4,4'-DDD	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	4,4'-DDE	ug/kg	Chlorinated Pesticides	56	55	53	64	50	55.6	5.2	30	35	32	34	30	33	32.8	1.9	49	50	46	38	51	48	46.2	4.8
EPA 8081A	4,4'-DDT	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Total Detectable DDTs	ug/kg	Chlorinated Pesticides	56	55	53	64	50	55.6	5.2	30	35	32	34	30	33	32.8	1.9	49	50	46	38	51	48	46.2	4.8
EPA 8081A	Aldrin	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Alpha-BHC	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Beta-BHC	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Delta-BHC	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Dieldrin	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Endosulfan I	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Endosulfan II	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Endosulfan Sulfate	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Endrin	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Endrin Aldehyde	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Endrin Ketone	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Gamma-BHC	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Heptachlor	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Heptachlor Epoxide	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA

Table 11. Clam Tissue Bioaccumulation Results (Dry Weight)

				APL Composite A							APL Composite C								LA-2 Reference Site							
Method	Compound Name	Units (Dry weight)	Type	14C	15C	22C	23C	6C	Mean	1 SD	10C	12C	13C	18C	18C Laboratory Duplicate	2C	Mean	1 SD	21C	24C	4C	5C	5C Laboratory Duplicate	7C	Mean	1 SD
EPA 8081A	Methoxychlor	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081A	Toxaphene	ug/kg	Chlorinated Pesticides	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8270C	Naphthalene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Acenaphthylene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Acenaphthene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Fluorene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Phenanthrene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Anthracene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Fluoranthene	ug/kg	LMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Pyrene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Benzo (a) Anthracene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Chrysene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Benzo (k) Fluoranthene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Benzo (b) Fluoranthene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Benzo (a) Pyrene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Indeno (1,2,3-c,d) Pyrene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Dibenz (a,h) Anthracene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Benzo (g,h,i) Perylene	ug/kg	HMW PAH	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	Total Detectable PAHs		PAH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA 8270C	1-Methylnaphthalene	ug/kg	Other SVOCs	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8270C	2-Methylnaphthalene	ug/kg	Other SVOCs	<180	<160	<170	<160	<180	NA	NA	<140	<140	<140	<160	<160	<140	NA	NA	<150	<180	<170	<170	<170	<150	NA	NA
EPA 8081B	Alpha Chlordane	ug/kg	Other SVOCs	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8081B	Gamma Chlordane	ug/kg	Other SVOCs	<18	<16	<17	<16	<18	NA	NA	<14	<14	<14	<16	<16	<14	NA	NA	<15	<18	<17	<17	<17	<15	NA	NA
EPA 8082	Aroclor-1016	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA
EPA 8082	Aroclor-1221	ug/kg	PCBs	<220	<200	<220	<200	<220	NA	NA	<170	<180	<180	<200	<200	<180	NA	NA	<190	<220	<210	<210	<210	<190	NA	NA
EPA 8082	Aroclor-1232	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA
EPA 8082	Aroclor-1242	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA
EPA 8082	Aroclor-1248	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA
EPA 8082	Aroclor-1254	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA
EPA 8082	Aroclor-1260	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA
EPA 8082	Aroclor-1262	ug/kg	PCBs	<88	<82	<86	<79	<89	NA	NA	<70	<71	<70	<78	<78	<72	NA	NA	<75	<88	<85	<83	<84	<76	NA	NA

Notes:
See Notes Table 12.

Table 12. Worm Tissue Bioaccumulation Results (Dry Weight)

				APL Composite A							APL Composite C							LA-2 Reference Site						
Method	Compound Name	Units (Dry weight)	Type	14W	15W	22W	23W	6W	Mean	1 SD	10W	12W	13W	18W	2W	Mean	1 SD	21W	24W	4W	5W	7W	Mean	1 SD
EPA 6020	Arsenic	mg/kg	Metals	13.1	12.2	14.2	12.5	13.4	13	0.8	12.4	13.5	13.4	11.6	11.6	12.5	0.9	15.4	12.6	14.6	12.6	14.4	13.9	1.3
EPA 6020	Cadmium	mg/kg	Metals	<0.4	<0.4	<0.4	<0.3	<0.3	NA	NA	<0.3	<0.3	<0.4	<0.3	<0.3	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	NA	NA
EPA 6020	Chromium	mg/kg	Metals	13.3	8.04	4.36	19.3	26	14	8.7	4.88	5.97	5.23	5.11	4.09	5.1	0.7	34.6	11	3.31	2.57	29.5	16.2	15.0
EPA 6020	Copper	mg/kg	Metals	9.7	11	9.99	10.7	10.4	10	0.5	8.26	8.78	8.37	7.83	7.39	8.1	0.5	14.8	10.5	9.42	9.71	12.1	11.3	2.2
EPA 6020	Lead	mg/kg	Metals	1.41	1.64	1.11	1.32	1.09	1.3	0.2	1.17	1.66	1.16	0.981	0.948	1.2	0.3	1.07	1.18	1.35	1.15	1.32	1.2	0.1
EPA 7471A	Mercury	mg/kg	Metals	0.10	<0.1	0.09	0.10	0.10	0.09	0.01	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	<0.1	<0.1	0.10	0.10	0.10	0.08	0.01
EPA 6020	Nickel	mg/kg	Metals	7.02	4.53	3.2	9.84	11.9	7.3	3.6	2.02	2.54	1.88	2.46	1.47	2.1	0.4	16.8	6.19	2.5	1.98	14.6	8.4	6.9
EPA 6020	Selenium	mg/kg	Metals	1.61	1.61	1.56	1.88	1.86	1.7	0.2	1.27	1.44	1.27	1.15	1.23	1.3	0.1	1.83	1.62	1.94	1.51	1.59	1.7	0.2
EPA 6020	Silver	mg/kg	Metals	<0.3	<0.4	<0.3	<0.3	<0.3	NA	NA	<0.3	<0.3	<0.4	<0.3	<0.3	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	NA	NA
EPA 6020	Zinc	mg/kg	Metals	79.3	194	83.2	74.6	133	113	51.1	73.4	123.0	80.5	80.4	59.3	83.3	23.8	272	101	79	127	112	138.2	76.8
EPA 8081A	2,4'-DDD	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	2,4'-DDE	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	2,4'-DDT	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	4,4'-DDD	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	4,4'-DDE	ug/kg	Chlorinated Pesticides	<14	<16	16	19	23	14.6	2.9	<13	<13	<14	<12	15	8.2	0.01	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	4,4'-DDT	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Total Detectable DDTs	ug/kg	Chlorinated Pesticides	NA	NA	16	19	23	14.6	2.9	NA	NA	NA	NA	15	8.2	0.01	NA	NA	NA	NA	NA	NA	NA
EPA 8081A	Aldrin	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Alpha-BHC	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Beta-BHC	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Delta-BHC	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Dieldrin	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Endosulfan I	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Endosulfan II	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Endosulfan Sulfate	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Endrin	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Endrin Aldehyde	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Endrin Ketone	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Gamma-BHC	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Heptachlor	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Heptachlor Epoxide	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Methoxychlor	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081A	Toxaphene	ug/kg	Chlorinated Pesticides	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8270C	Naphthalene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Acenaphthylene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Acenaphthene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Fluorene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Phenanthrene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA

Table 12. Worm Tissue Bioaccumulation Results (Dry Weight)

				APL Composite A							APL Composite C							LA-2 Reference Site						
Method	Compound Name	Units (Dry weight)	Type	14W	15W	22W	23W	6W	Mean	1 SD	10W	12W	13W	18W	2W	Mean	1 SD	21W	24W	4W	5W	7W	Mean	1 SD
EPA 8270C	Anthracene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Fluoranthene	ug/kg	LMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Pyrene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Benzo (a) Anthracene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Chrysene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Benzo (k) Fluoranthene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Benzo (b) Fluoranthene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Benzo (a) Pyrene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Indeno (1,2,3-c,d) Pyrene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Dibenz (a,h) Anthracene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Benzo (g,h,i) Perylene	ug/kg	HMW PAH	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	Total Detectable PAHs		PAH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA 8270C	1-Methylnaphthalene	ug/kg	Other SVOCs	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8270C	2-Methylnaphthalene	ug/kg	Other SVOCs	<140	<160	<140	<140	<120	NA	NA	<130	<130	<140	<120	<110	NA	NA	<170	<180	<150	<140	<160	NA	NA
EPA 8081B	Alpha Chlordane	ug/kg	Other SVOCs	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8081B	Gamma Chlordane	ug/kg	Other SVOCs	<14	<16	<14	<14	<12	NA	NA	<13	<13	<14	<12	<11	NA	NA	<17	<18	<15	<14	<16	NA	NA
EPA 8082	Aroclor-1016	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA
EPA 8082	Aroclor-1221	ug/kg	PCBs	<170	<200	<170	<170	<150	NA	NA	<160	<160	<170	<160	<140	NA	NA	<220	<220	<190	<180	<200	NA	NA
EPA 8082	Aroclor-1232	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA
EPA 8082	Aroclor-1242	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA
EPA 8082	Aroclor-1248	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA
EPA 8082	Aroclor-1254	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA
EPA 8082	Aroclor-1260	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA
EPA 8082	Aroclor-1262	ug/kg	PCBs	<69	<79	<69	<68	<61	NA	NA	<65	<66	<70	<62	<55	NA	NA	<86	<89	<75	<70	<82	NA	NA

Notes:
SD Standard Deviation
< less than the Method Reporting Limit.
NA all concentrations are less than the detection limit
Mean concentrations for analytes where individual replicates had detected and non detected levels were calculated by adding ½ of the detection limit

Table 13. Clam Bioaccumulation Results (Wet Weight) Compared to US Food and Drug Administration Action Levels

					Clam Tissue															
					APL Composite A					APL Composite C						LA-2 Reference Site				
METHOD	COMPOUND NAME	UNITS	TYPE	FDA Action Level	14C	15C	22C	23C	6C	10C	12C	13C	18C	18C Lab Dup	2C	21C	24C	4C	5C	5C Lab Dup	7C
SM 2540B	Percent Solids	%	General Chemistry	---	11	12	12	13	11	14	14	14	13	18	14	13	11	12	12	12	13
EPA 6020	Arsenic	mg/kg ww	Metals	86[1]	2.8	3.0	3	3.1	2.7	3.5	2.8	3.5	3.2	4.3	3.4	3.1	2.2	2.6	3.2	3.1	3.2
EPA 6020	Cadmium	mg/kg ww	Metals	4[1]	<0.05	0.1	<0.05	0.1	<0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.05	<0.05	<0.05	0.1
EPA 6020	Chromium	mg/kg ww	Metals	13[1]	0.9	2.1	0.9	1.5	1.1	1.0	1.0	0.9	0.8	1.0	1.0	1.3	0.6	1.5	1.8	1.6	1.9
EPA 6020	Lead	mg/kg ww	Metals	1.7[1]	0.2	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.3	0.3	0.3
EPA 7471A	Mercury	mg/kg ww	Metals	1.0[2,3]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EPA 6020	Nickel	mg/kg ww	Metals	80[1]	0.8	1.4	0.8	1.1	0.9	0.8	0.7	0.7	0.7	1.0	0.8	1.2	0.6	1.1	1.0	1.1	1
EPA 8081A	2,4'-DDE	ug/kg ww	Chlorinated Pesticides	5000[2]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	2,4'-DDT	ug/kg ww	Chlorinated Pesticides	5000[2]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	4,4'-DDE	ug/kg ww	Chlorinated Pesticides	5000[2]	6.3	6.7	6.1	8.1	5.6	4.3	4.9	4.5	4.4	5.5	4.6	6.6	5.7	5.4	4.6	6.1	6.3
EPA 8081A	4,4'-DDT	ug/kg ww	Chlorinated Pesticides	5000[2]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	Total Detectable DDTs	ug/kg ww	Chlorinated Pesticides	5000[2]	6.3	6.7	6.1	8.1	5.6	4.3	4.9	4.5	4.4	5.5	4.6	6.6	5.7	5.4	4.6	6.1	6.3
EPA 8082	Aroclor-1016	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1221	ug/kg ww	PCBs	1000[2]	<25	<24	<26	<25	<25	<24	<25	<26	<26	<37	<25	<25	<25	<25	<25	<25	<25
EPA 8082	Aroclor-1232	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1242	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1248	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1254	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1260	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1262	ug/kg ww	PCBs	1000[2]	<9.9	<10	<10	<10	<10	<10	<10	<10	<10	<14	<10	<10	<10	<10	<10	<10	<10

Notes:
[1] U.S. Food and Drug Administration Action Levels for Molluscan Shellfish (wet weight limits)
[2] U.S. Food and Drug Administration Action Levels for All Fish (wet weight limits)
[3] U.S. Food and Drug Administration Action Levels for Methyl Mercury (wet weight limits)
< = less than the Method Reporting Limit.
ww - wet weight

Table 14. Worm Bioaccumulation Results (Wet Weight) Compared to US Food and Drug Administration Action Levels

					Worm Tissue														
					APL Composite A					APL Composite C					LA-2 Reference Site				
METHOD	COMPOUND NAME	UNITS	TYPE	FDA Action Level	14W	15W	22W	23W	6W	10W	12W	13W	18W	2W	21W	24W	4W	5W	7W
SM 2540B	Percent Solids	%	General Chemistry	---	14.5	12.6	14.5	14.6	16.5	15.4	15.2	14.3	16.1	18.3	11.6	11.2	13.3	14.2	12.2
EPA 6020	Arsenic	mg/kg ww	Metals	**86**[1]	1.90	1.5	2.1	1.8	2.2	1.9	2.1	1.9	1.9	2.1	1.8	1.4	1.9	1.8	1.8
EPA 6020	Cadmium	mg/kg ww	Metals	**4**[1]	<0.06	<0.05	<0.06	<0.04	<0.05	<0.05	<0.05	<0.06	<0.05	<0.05	<0.05	<0.04	<0.05	<0.06	<0.05
EPA 6020	Chromium	mg/kg ww	Metals	**13**[1]	1.9	1.0	0.6	3	4.3	0.8	0.9	0.7	0.8	0.7	4	1.2	0.4	0.4	3.6
EPA 6020	Lead	mg/kg ww	Metals	**1.7**[1]	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2
EPA 7471A	Mercury	mg/kg ww	Metals	**1.0**[2,3]	0.015	<0.01	0.013	0.014	0.017	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	0.02	0.015	0.012
EPA 6020	Nickel	mg/kg ww	Metals	**80**[1]	1.0	0.6	0.5	1.4	2.0	0.3	0.4	0.3	0.4	0.3	1.9	0.7	0.3	0.3	1.8
EPA 8081A	2,4'-DDE	ug/kg ww	Chlorinated Pesticides	**5000**[2]	<2.0	<2.0	<14	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	2,4'-DDT	ug/kg ww	Chlorinated Pesticides	**5000**[2]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	4,4'-DDE	ug/kg ww	Chlorinated Pesticides	**5000**[2]	<2.0	<2.0	2.3	2.8	3.8	<2.0	<2.0	<2.0	<2.0	2.1	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	4,4'-DDT	ug/kg ww	Chlorinated Pesticides	**5000**[2]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
EPA 8081A	Total Detectable DDTs	ug/kg ww	Chlorinated Pesticides	**5000**[2]	NA	NA	2.3	2.8	3.8	NA	NA	NA	NA	2.1	NA	NA	NA	NA	NA
EPA 8082	Aroclor-1016	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1221	ug/kg ww	PCBs	**1000**[2]	<25	<25	<25	<25	<25	<25	<25	<24	<26	<25	<26	<25	<25	<26	<24
EPA 8082	Aroclor-1232	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1242	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1248	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1254	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1260	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
EPA 8082	Aroclor-1262	ug/kg ww	PCBs	**1000**[2]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Notes:
[1] U.S. Food and Drug Administration Action Levels for Molluscan Shellfish (wet weight limits)
[2] U.S. Food and Drug Administration Action Levels for All Fish (wet weight limits)
[3] U.S. Food and Drug Administration Action Levels for Methyl Mercury (wet weight limits)
< = less than the Method Reporting Limit.
ww - wet weight

4.0 DISCUSSION

4.1 Sediment Chemistry

Concentrations of chemicals in the APL sediments were compared to ERL and ERM values published by Long et al (1995). These guidelines, as well as others, are provided in NOAA's 2008 Screening Quick Reference Tables (Buchman, 2008). The ERL and ERM guidelines are based upon a database primarily of synoptic marine sediment chemistry and sediment toxicity bioassay data. For a given analyte, the samples which were categorized as toxic by the original principal investigator was excerpted, and that subset was then ranked by increasing analyte concentration and the 10th (ERL) and 50th (ERM) percentiles determined. ERL and ERM values are to be used as a screening tool only.

Comparing the sediment chemical concentrations of the APL sediments to the sediment quality screening guidelines described above indicates the following:

- Samples were largely free of detected organic compounds with the exception of the chlorinated pesticide 4,4'-DDE. DDE was detected above an ERL guideline value in all three composite areas as well as the reference sediment. No concentrations, however, exceeded an ERM value for this compound.
- The two areas that showed significant amphipod toxicity (Areas B and C) both had ERL guideline exceedances for arsenic, copper, and nickel. None of the sediments that underwent toxicity testing exceeded ERM guideline levels for any chemicals tested.
- While the non-toxic area (Area A) also contained metals levels above the ERL guidelines, they were always at lower concentrations than that observed in Areas B and C.
- The bottom composites for Areas B and C also displayed elevated levels of metals arsenic, copper, and nickel, with composite Area C bottom having a concentration of nickel that was greater than the ERM guideline level. Toxicity tests were not conducted on the bottom samples.
- No elevated metal concentrations were observed in the LA-2 Reference sediment.
- To better characterize spatial relationships of trace metals in the proposed dredge footprint, all individual cores collected from Composite Areas B and C were subsequently analyzed for the full suite of trace metals. Concentrations of arsenic, copper, and nickel were again above ERL guidelines in cores from both Composite Areas B and C. Arsenic and copper exceeded ERL guideline values in all three Area B cores and adjacent Cores 1, 2, and 3 in Area C. Nickel exceeded the ERL guideline value for this metal in all Area B and C cores, with the exception of Core C5, the easternmost sample collected. Nickel also exceeded its ERM value in a single core sample from Area C (Core C2). Among these three metals, Core location C2, had the highest trace metal concentrations, appearing

to be a “hot spot” with decreasing concentrations observed in either direction from this location.

4.1.1 Solid-Phase and Suspended Particulate-Phase Toxicity Tests

Toxicity was only observed in the amphipod 10-day survival test (Composite Areas B and C). No toxicity was observed in any of the SPP tests. Statistical analyses conducted on both the valid and invalid amphipod data sets indicate that Areas B and C (but not Area A) had significantly reduced amphipod survival compared to that in the Reference sediment. In general, the results of the invalid amphipod test supports those obtained in the valid test; although if the first round of tests had been valid, Site C would have met the benthic effects LPC because it was less than 20 percent lower than the average Reference survival level (72 percent compared to 85 percent).

Based upon the statistically significant reduction in amphipod survival in the solid-phase toxicity tests, it appears that Areas B and C, if composited as is, would not meet the benthic impacts Limiting Permissible Concentration (LPC) for placement at LA-2. Sediment chemistry results suggest that the reduction in amphipod survival may be attributable to the elevated metal levels observed in the test sediments.

4.1.1.1 Potential Confounding Factors for Toxicity

The two samples that displayed statistically significant amphipod mortality (Composites B and C) also contained the highest concentrations of fine grain-sized particles. The potential effect on *Eohaustorius* survival due to elevated fines appears to be an occasional confounding factor, but this has not been definitively determined.

The Southern California Coastal Water Research Project notes in their Bight ’08 Toxicology Laboratory Manual that “There is evidence that the amphipod *Eohaustorius* may be negatively affected by fine grained sediments. This sensitivity seems to be seasonally influenced and somewhat unpredictable.” DeWitt et al. 1989 reports, however, that in numerous tests conducted with *Eohaustorius* they found that this species “showed little sensitivity to sediment of different grain sizes: mean survival was 92 percent in sediments with ≥80 percent silt-clay content and 97 percent for coarser sediments.”

To assess the potential effects of grain size on individual batches of amphipods, the test lab (Nautilus Environmental) performs concurrent control treatments using a broad range of grain sized sediments. For the APL study, Nautilus conducted two grain size controls: one collected in Sail Bay in Mission Bay, San Diego, CA (fine-grained control) and one collected offshore of Scripps Pier in La Jolla (coarse-grained control). The fine-grained control had a percent fines content of approximately 85 percent, slightly greater than that in the finest samples tested for APL (Composite B with 76 percent fines). Average amphipod survival in the Sail Bay control was 80 and 84 percent in test rounds 1 and 2, respectively. Based upon this observation, it appears unlikely that the toxicity observed in Areas B and C was the result of the fines content of the composites tested.

Ammonia is also often a potential confounding factor in sediment tests, however, measured concentrations in both the sediment porewater and overlying water during the toxicity tests were well below concentrations of potential concern for all species tested (see Toxicity Report in Appendix A).

4.1.2 Tissue Bioaccumulation of Chemicals

Chemical concentrations in tissues from Area A and C Composites were statistically compared to that found in the reference tissues as well as available FDA action levels for the human consumption of seafood. Results include the following primary observations:

- The trace metals lead and silver were significantly greater in Composite C clam tissues than that in the reference. Concentrations of silver, however, were particularly low and near the reporting limit of 0.4 mg/kg dry weight for this metal. Mercury was also significantly greater in Composite C worm tissues than that in the reference; however, a number of values were below the detection limit of 0.1 mg/kg, and those detected had concentrations equal to or very close to the detection limit for this metal as well.
- No chemical concentrations were statistically greater in Composite A samples relative to the reference tissue levels.
- The only organic compound detected in clam and worm tissues was 4,4'-DDE. Concentrations, however, were not statistically different in the site composite samples relative to that in the reference tissues. DDE was not detected in reference worm tissues, thus statistical analyses relative to concentrations found in Composite A and C tissues were not possible.
- No chemicals measured in the test tissues exceeded available FDA action levels based on their wet weight concentrations.

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5.0 CONCLUSIONS

Sediment chemistry results for the proposed dredged footprint at the APL terminal were similar to that recorded in prior studies in the vicinity of Pier 300 that found elevated levels of several trace metals, but overall limited concentrations of organic compounds of potential concern. Results from this study actually show less frequent detections of organics than that recorded in the past studies. APL is an active shipping container facility and the area has a history of prior use that may have contributed to chemicals observed in sediments at this location. The southern portion of Pier 300 where Berths 302-305 are located was part of a 190-acre landfill created between 1981 and 1983 from dredged material removed from Los Angeles Harbor as a part of a Los Angeles Harbor Deepening Project. At one time, the Terminal Island Wastewater Treatment Plant also discharged secondary treated effluent approximately 100 feet (ft) south of Pier 300. A variety of other industrial uses (i.e. a coal and petroleum coke loading facility operated by LAXT) have also taken place over the years at or near this location. A Green Book Tier III evaluation of sediments proposed to be dredged at the APL Terminal resulted in the following conclusions for the three general areas assessed at the site with regard to a suitability determination for unconfined aquatic disposal at LA-2:

5.1 Composite Area A

Composite Area A sediments (approximately 18,800 cy) are suitable for unconfined aquatic disposal at LA-2 based on the following findings:

- No toxicity was observed in suspended-particulate or solid-phase tests; and
- Bioaccumulation of chemicals was not observed. No statistical increases were observed relative to concentrations in the reference tissues, and no concentrations exceeded current available FDA action levels.

5.2 Composite Area B

Composite Area B sediments (approximately 32,000 cy) are unsuitable for unconfined aquatic disposal at LA-2 based on the following findings:

- Consistently elevated concentrations of arsenic, copper, and nickel above ERL guideline values, with nickel approaching its ERM in several cores; and
- Statistically significant toxicity to amphipods with more than a 20 percent difference in survival relative to that observed in the reference.

5.3 Composite Area C

A majority of Composite Area C sediments (approximately 19,000 cy total) are unsuitable for unconfined aquatic disposal at LA-2 based on the following findings:

- Consistently elevated concentrations of arsenic, copper, and nickel above ERL guideline values, with nickel exceeding the ERM in one core; and
- Statistically significant toxicity to amphipods with more than a 20 percent difference in survival relative to that observed in the reference.

The eastern-most portion of Area C, however, may qualify for unconfined aquatic disposal based on the following:

- Further characterization of Area C identified what appears to be a trace metal "hot spot" at coring location C2, near the border with Area B. It is likely that elevated levels of metals at coring location C2 partially attributed to the statistically significant toxicity observed in the amphipod solid-phase test. Concentrations of trace metals decrease in either direction from this location; with a substantial drop noticeable in the easternmost core locations C4 and C5. No trace metals exceeded ERL values in core C5, and only nickel exceeds an ERL value in core C4. It appears that sediments in these locations of Area C could therefore be considered for unconfined aquatic disposal.

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APPENDIX A

TOXICOLOGICAL TESTING REPORT

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Port of Los Angeles APL Terminal (Berths 302-306)
Dredged Material Characterization

Toxicity & Bioaccumulation Testing Report

July 2010

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1.0 INTRODUCTION

The Port of Los Angeles is proposing to dredge sediments adjacent to the APL terminal (Berth 302-305) and dispose of the material at the LA-2 ocean disposal site. In order to assess the suitability for ocean disposal, Nautilus Environmental (Nautilus) has partnered with AMEC Earth & Environmental (AMEC) to conduct biological testing as part of a Phase IV sediment characterization. The sediment was characterized using full Tier III characterization methods as outlined in the 1991 USEPA/USACE "Greenbook" testing protocol; "*Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual"*.

The following report presents the results of toxicity and bioaccumulation bioassays conducted on composite sediment samples collected from 3 sites within the dredging footprint. In addition, reference sediment was collected and tested from the US Environmental Protection Agency (EPA) 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 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. All bioassays followed EPA and US Army Corps of Engineers (USACE) guidance developed for the Evaluation of Dredged Material Proposed for Ocean Disposal (USACE/EPA 1991). Tissue chemistry results from the bioaccumulation exposures will be presented in a separate report.

2.0 METHODS

2.1 Study Design and Sample Collection

The testing framework for sediment characterization was designed through discussions between the US Navy, USACE, and EPA. The project-specific Sampling and Analysis Plan (SAP; R0610-072) describes the sampling methods and testing protocols of how to proceed with testing. Several control sediments were tested in conjunction with the solid-phase tests. The solid-phase polychaete and amphipod tests contained two concurrent controls (consisting of coarse sand collected offshore of Scripps Institution of Oceanography [SIO]) and a fine-grained control sediment collected from Sail Bay in Mission Bay, San Diego. Solid-phase amphipod tests also included a control treatment consisting of home sediment obtained from the organism collection location. Grain size is a well known potential confounding factor for amphipods, needing careful consideration and control to avoid falsely concluding a toxic effect when actual effects may be physically related to grain size (ASTM 1999, USEPA 1994, and

Nautilus internal data). Our standard sediment control from the amphipod collection site is composed of 100% sand, lacking silt and clay fractions. Thus, an additional "fine grain size" control sediment was tested to better represent the common fine sediments found within bays and harbors. The fine grain control sediment used for this program was obtained from Sail Bay within Mission Bay in San Diego, California and is comprised of 85.7% fines. This location was selected based on a review of sediment characteristics, toxicity, and chemistry values measured during a region-wide marine assessment program in southern California conducted in 2003 (Bight '03), as well as a follow-up inter-laboratory screening assessment conducted as a part of the Bight '08 toxicity program. The sediment is considered to be fine enough to represent that commonly found in harbors and bays in southern California, relatively free of potentially toxic concentrations of contaminants based on comparison to available sediment quality guidelines, and non-toxic in laboratory bioassays. Reference sediment was collected from the LA-2 disposal site. All site sediments from APL Terminal were collected on June 28 through July 1, 2010 following the sampling schedule outlined in Table 1 below.

2.2 Sample Receipt and Preparation

Approximately 25 gallons of sediment was collected for toxicity testing from each site, and delivered to the Nautilus laboratory in San Diego, CA. The sediment was transported and held in 5-gallon buckets with food-grade polyethylene plastic liners. Samples were received at Nautilus on June 29 and July 1, 2010. Samples were identified as APL A Comp, APL B Comp, APL C Comp and LA-2 Ref. Chain of custody documentation for all samples is provided in Appendix E. Upon arrival at Nautilus, the sediments were stored at 4°Celsius (C). 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® mesh screen to remove native organisms and large debris that may interfere with the survival and recovery of test organisms.

Table 1. Sediment Collection Schedule

Site	Collection Date	Receipt Date
LA-2 Reference Sediment	June 28, 2010	June 29, 2010
Sail Bay Grain-size Control	July 8, 2010	July 8, 2010
APL A Comp	June 28, 2010	June 29, 2010
APL B Comp	July 1, 2010	July 1, 2010
APL C Comp	June 29, 2010	July 1, 2010

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 then allowed to settle overnight in a 4°C cold room. 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) 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, porewater 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 Amphipod *Eohaustorius estuarius*

Test organism	Marine Amphipod – *Eohaustorius estuarius*
Test organism source	Northwest Aquatic Sciences (*Eohaustorius*)
Test organism age at initiation	NA - Field collected
Test duration; endpoint	10 days; survival
Test solution renewal	None
Feeding	None
Test chamber	1-L glass jar
Sediment depth	2 cm
Overlying water volume	900 mL
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C instantaneous
Dilution water	Natural seawater collected offshore SIO Pier in La Jolla, CA. Seawater is diluted to 30 ppt with deionized water prior to testing.
Test concentrations	Undiluted sediment
Number of organisms/chamber	20
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Negative controls	"Home" sediment from amphipod collection site, fine-grain control from Sail Bay, and clean rinsed beach sand collected near SIO
Photoperiod	Continuous light (24 hr.)
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	ASTM 1999, US EPA 1994
Test acceptability criteria	≥ 90 percent mean survival in controls
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 – *Neanthes arenaceodentata*
Test organism source	Dr. Donald Reish at CSU Long Beach
Test organism age at initiation	NA
Test duration; endpoint	10 days; survival
Overlying water renewal	None
Feeding	1 ml of flake food slurry as needed (slurry comprised of 100 mL seawater: 1 g Tetramin® fish feed) at test initiation
Test chamber	1-L glass jar
Sediment depth/ volume	2 cm
Overlying water volume	900 mL
Test temperature	20 ± 1°C test-wide mean, 20 ± 3°C instantaneous
Dilution water	Natural seawater collected offshore SIO Pier in La Jolla, CA. Seawater is diluted to 30ppt with deionized water prior to testing.
Test concentrations	Undiluted sediment
Number of organisms/chamber	5
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Negative control	Fine-grain control from Sail Bay, and clean rinsed beach sand collected near SIO
Photoperiod	16 hours light/8 hours dark
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	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 - *Mytilus galloprovincialis*
Test organism source	Mission Bay, San Diego, CA (field collections by Nautilus)
Test duration, endpoint	48 hours, normal development and survival
Test solution renewal	None
Feeding	None
Test initiation	Within 36 hours of elutriate preparation
Test chamber	30-mL glass scintillation vial
Test solution volume	10-mL
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C instantaneous
Dilution water	Natural seawater collected offshore SIO Pier in La Jolla, CA. Seawater is diluted to 30 ppt with deionized water prior to testing.
Test concentrations (percent sample)	Lab control (0%), 10%, 50%, 100%
Number of organisms/chamber	~200 embryos
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None
Test Protocol	ASTM E 724-98, EPA 503/8-91/001
Test acceptability criteria	≥50% survival based on initial density and ≥90% percent of surviving embryos with normal development
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 - *Americamysis bahia*
Test organism source	Aquatic BioSystems
Test organism age at initiation	4 days post-hatch
Test duration; endpoint	96 hours; survival
Test solution renewal	None
Feeding	*Artemia* nauplii twice daily
Test initiation	Within 36 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 instantaneous
Dilution water	Natural seawater collected offshore SIO Pier in La Jolla, CA. Seawater is diluted to 30 ppt with deionized water prior to testing.
Test concentrations (percent sample)	Lab control (0%), 10%, 50%, 100%
Number of organisms/chamber	10
Number of replicates	4
Photoperiod	16 hours light/8 hours dark
Aeration	None, unless DO < 2.5 mg/L
Test Protocol	EPA 503/8-91/001, 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 - *Menidia beryllina*
Test organism source	Aquatic BioSystems
Test organism age at initiation	14 days post-hatch
Test duration; endpoint	96 hours; survival
Test solution renewal	None
Feeding	*Artemia* nauplii twice daily
Test initiation	Within 36 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 instantaneous
Dilution water	Natural seawater collected offshore SIO Pier in La Jolla, CA. Seawater is diluted to 30 ppt with deionized water prior to testing.
Test concentrations (percent sample)	Lab control (0%), 10%, 50%, 100%
Number of organisms/chamber	10
Number of replicates	4
Photoperiod	16 hours light/8 hours dark
Aeration	None, unless DO < 2.5 mg/L
Test Protocol	EPA 503/8-91/001, 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 *Macoma nasuta* and the marine polychaete *Nereis virens*
Test organism source	Brezina & Associates
Test organism age at initiation	Adult (field caught)
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 instantaneous
Dilution water	Undiluted natural seawater (34 ppt) collected offshore SIO Pier in La Jolla, CA.
Test concentrations	Undiluted sediment
Number of organisms/chamber	35 (*Macoma nasuta*), 10 (*Nereis virens*)
Number of replicates	5
Negative control	“Home” sediment from clam collection location
Photoperiod	16 hours light/8 hours dark
Aeration	Yes
Test Protocol	EPA 503/8-91/001, ASTM E-1168-00a
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 reference sediment. Prior to analyses, normality was evaluated with the 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, survival data (as a proportion) were arcsine square-root transformed prior to statistical analysis. 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 1.6.3revE or revG. Comparisons between the 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. All solid-phase tests were initiated within 5 weeks of the receipt of the first sediment sample. The solid-phase toxicity exposures were initiated in two separate rounds. The initial round of solid-phase testing yielded acceptable control survival results for the polychaete, but the amphipod (*Eohaustorius*) did not meet control survival requirements (see further details in Results section 3.1 and the QA/QC section for solid-phase testing). A second solid-phase exposure was performed for *Eohaustorius* on July 30, 2010 and did meet acceptable control survival. Initiation of SPP tests was performed within 2 weeks of sample collection. Bioaccumulation exposures were initiated 14 days from receipt of the first sediment sample. All tests were initiated within a maximum recommended sediment holding time of 8 weeks for dredged material testing (EPA/USACE, 1991).

Table 8. Toxicity Test Schedule

Toxicity Test	Initiation Date
Solid-Phase Tests	
Eohaustorius 10-Day Survival (Round 1)	July 9, 2010
Eohaustorius 10-Day Survival (Round 2)	July 30, 2010
Neanthes 10-Day Survival	July 9, 2010
Suspended Particulate-Phase Tests	
Mytilus 48-Hour Embryo Development	July 7, 2010
Americamysis 96-Hour Survival	July 8, 2010
Menidia 96-Hour Survival	July 7, 2010
Bioaccumulation Tests	
Macoma and *Nereis* 28-Day Exposure	July 13, 2010

3.0 RESULTS

Summaries of toxicity test results are provided in Tables 9-11 and Figures 1-5, detailed results are provided in Appendix A. Water quality data are provided in Appendix B and reference toxicant data can be found in Appendix C. Summaries of statistical analyses can be found in Appendix D.

Solid-phase tests found no significant reductions in polychaete survival (*Neanthes arenaceodentata*) in any of the test sediments relative to that in LA-2 reference sediment. *Eohaustorius* survival was significantly lower in Sites APL B Comp and APL C Comp than that in the LA-2 Reference sediment. In addition, survival in these two sites was also statistically reduced relative to the fine grained control sediment. Suspended particulate-phase elutriates obtained from test sediments were not toxic to mysid shrimp (*Americamysis bahia*), inland silverside minnow (*Menidia beryllina*) or the mussel (*Mytilus galloprovincialis*) at any concentration tested. Mean survival of clams (*Macoma nasuta*) and polychaetes (*Nereis virens*) in the bioaccumulation exposures did not differ between control, reference, and test sediments.

3.1 Solid-Phase Toxicity Tests

3.1.1 Eohaustorius

Mean survival of *Eohaustorius* in the "Home" Lab Control sediment during the first round of testing was 82 percent, not meeting EPA minimum control survival criteria. Results of the second round did meet acceptability criteria, with 91 percent survival in the "Home" Lab Control. Mean survival in the fine-grained control and reference sediment was 84 and 85 percent, respectively. Mean amphipod survival in the three test sites ranged from 60 to 80 percent (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 Sites APL B Comp and APL C Comp when compared to the LA-2 reference site. In addition, both APL B Comp and APL C Comp were significantly reduced relative to the fine grain control. Statistical analysis of the first round of amphipod testing also revealed a significant reduction in survival in Sites APL B Comp and APL C Comp when compared to the LA-2 reference site.

3.1.2 Neanthes

Mean survival of polychaete worms was 100 percent in all controls, reference sediments, and test sites. Survival in all test sediments was 100 percent (Table 9, Figure 2) indicating the absence of toxicological effects.

Table 9. Summary of Solid-Phase Toxicity Test Results

Site	*Eohaustorius estuarius* (Round 1)	*Eohaustorius estuarius* (Round 2)	*Neanthes arenaceodentata*
"Home" Lab Control	82	91	na
SIO Control Sand	79	80	100
Fine Grain Size Control	80	84	100
LA-2 Reference	85	85	100
APL A Comp	83	80	100
APL B Comp	**63***	**60***	100
APL C Comp	**72***	**60***	100

Data are mean percent survival at test completion (Day 10)

na – not applicable

Bold asterisk values are significantly reduced from the mean survival in the LA-2 reference sediment.

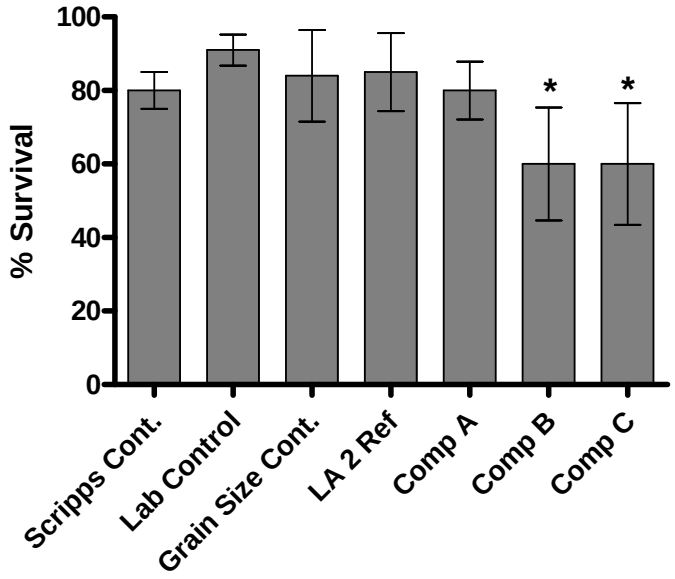

Figure 1. Survival of amphipods (*Eohaustorius estuarius*) in the 10-day solid-phase toxicity test (mean percent survival ± 1 SD). Columns marked with an asterisk differ significantly from the LA-2 Reference sample ($p < 0.05$). Results for Round 2 are shown.

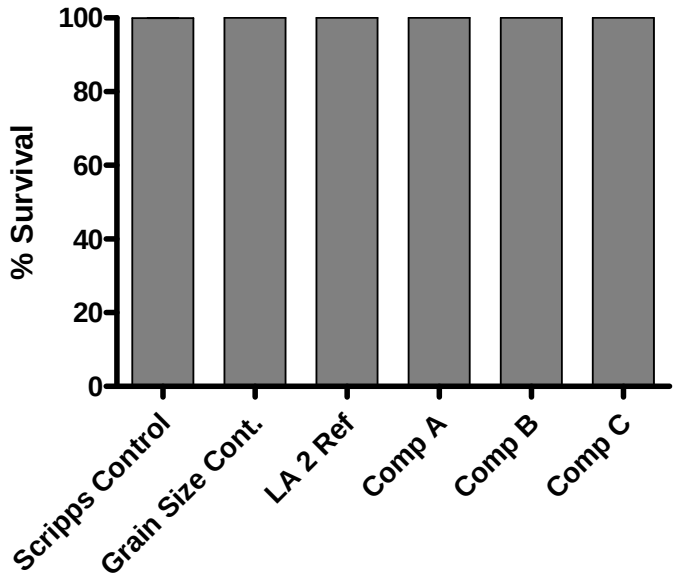

Figure 2. Survival of polychaetes in the 10-day solid-phase toxicity test (mean percent survival ± 1 SD).

3.2 Suspended Particulate-Phase Toxicity Tests

Results for the suspended particulate-phase tests are summarized in Table 10. None of the sediment elutriates were toxic to the three species tested: inland silverside minnows, mysids, or mussels. Mean survival of mysids ranged from 94 to 96 percent in laboratory controls and 92 to 94 percent in undiluted elutriates (Figure 3). Mean survival in all controls for *Menidia* ranged from 96 to 98 percent and was 96 percent in all undiluted elutriates (Figure 4). Mean normal development (percent normal alive) of surviving mussel embryos ranged from 91 to 97 percent in the laboratory controls, and exceeded 88 percent in all test elutriates (Figure 5). No significant differences were identified for any of the elutriate dilution series using ANOVA (Appendix Tables D3 - D5).

Table 10. Summary of Suspended Particulate-Phase Toxicity Test Results

Site	Elutriate Concentration	Mussel (Mean % Normal Alive)	Mysid (Mean % Survival)	Inland Silverside (Mean % Survival)
Laboratory Control[a]	0%	91 - 97	94 - 96	96 - 98
Super A	10%	95	96	100
	50%	94	94	96
	100%	93	92	96
Super B	10%	93	96	98
	50%	89	96	96
	100%	94	94	96
C-Bottom	10%	96	90	96
	50%	96	94	98
	100%	97	94	96

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

[a]Test sediments were batched with one of three laboratory controls. Laboratory control values shown are the range in mean survival or normal development across the controls.

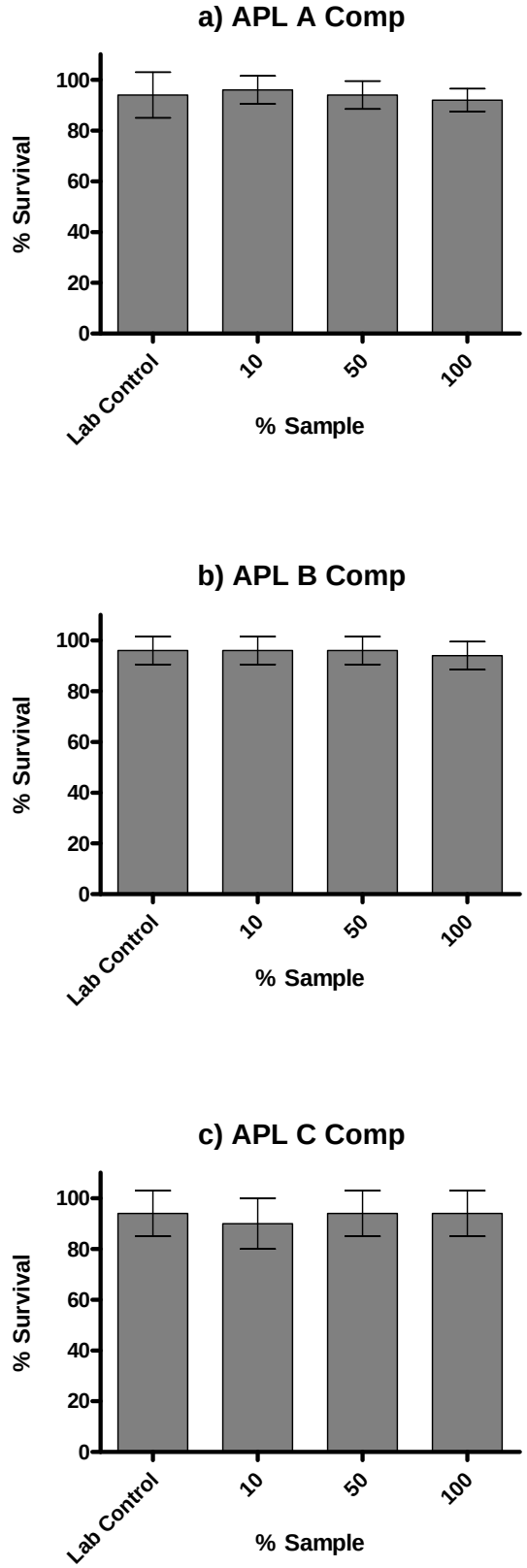

Figure 3. Survival of mysids in the 96-hr suspended particulate-phase toxicity test (mean percent survival ± 1 SD).

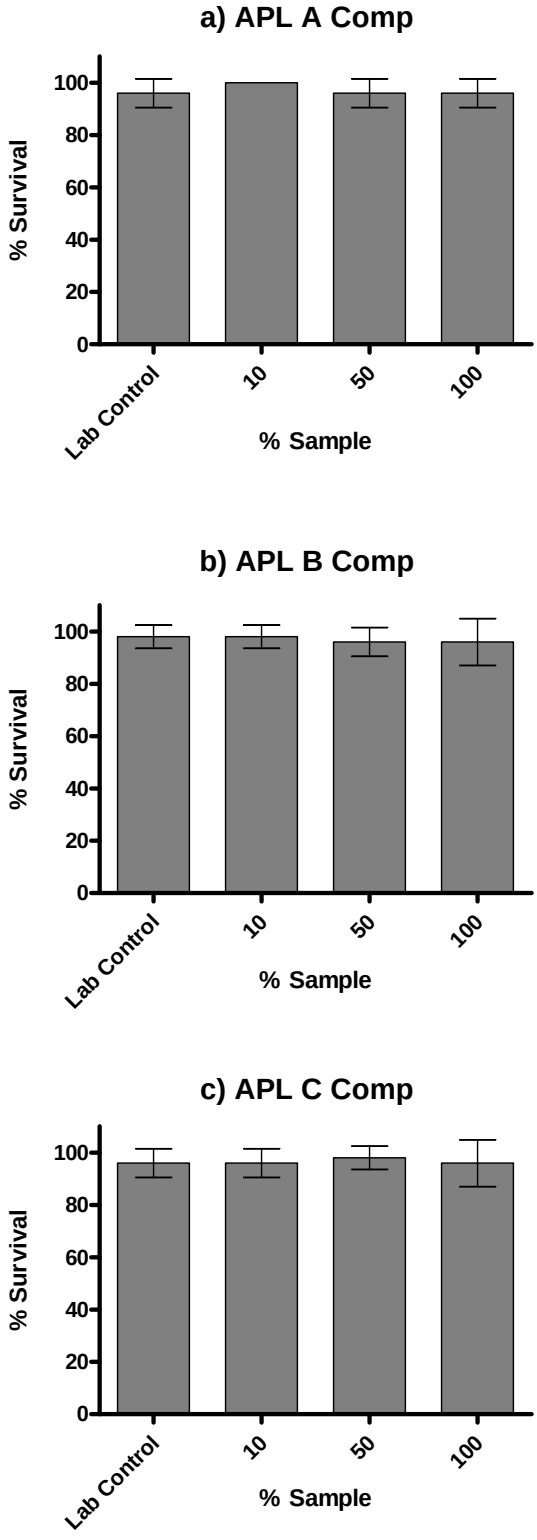

Figure 4. Survival of inland silverside in the 96-hr suspended particulate-phase toxicity test (mean percent survival ± 1 SD).

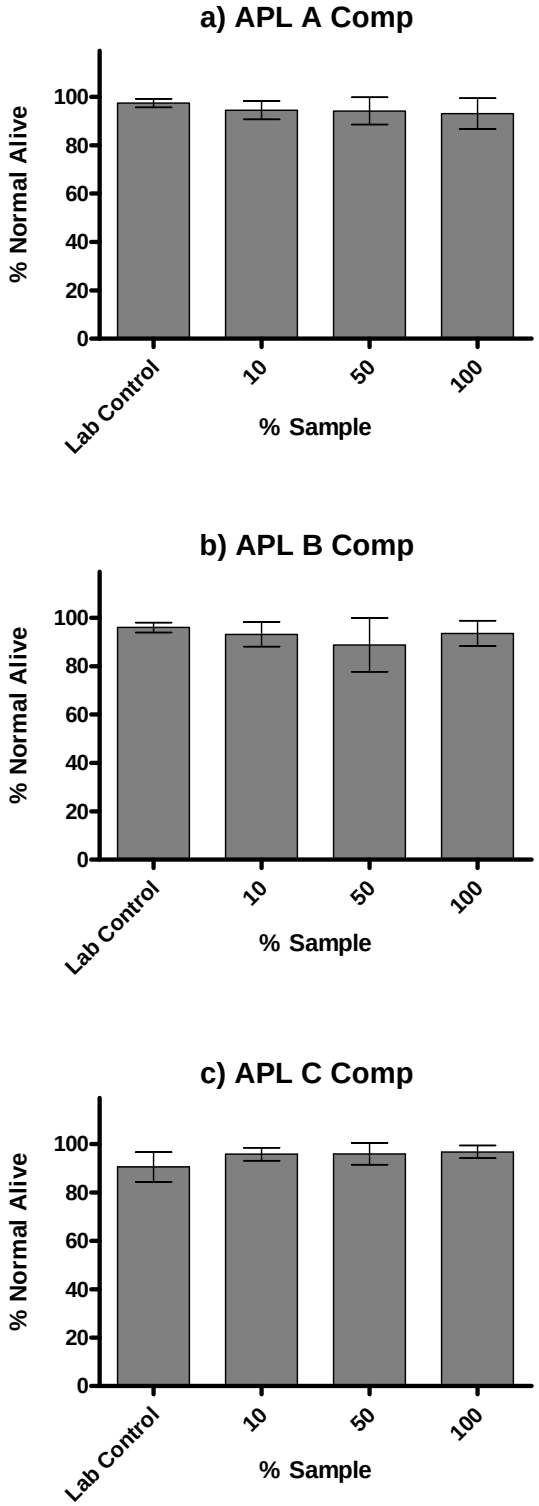

Figure 5. Mussel embryo development during the 48-hr suspended particulate-phase toxicity test (mean percent normal development ± 1 SD).

3.3 Bioaccumulation Tests

Results of the bioaccumulation tests are summarized in Table 11 and Figures 6 and 7. Mean survival of *Macoma* in the laboratory control and reference sediments was 94 percent and between 91 and 94 percent in the three test sediments. Mean survival did not differ significantly among test, reference and control sediments using an experiment-wide ANOVA (Appendix Table D-6, $p = 0.831$). Mean survival of *Nereis* in the laboratory control and reference sediment was 98 and 100 percent, respectively, and between 94 and 100 percent for the three test sediments. ANOVA found no significant differences in polychaete survival among test and reference sediments (Appendix Tables D-7, $p = 0.356$).

Table 11. Mean Clam and Polychaete Survival in Bioaccumulation Tests

Site	*Macoma nasuta*	*Nereis virens*
Laboratory Control	94	98
LA-2 Reference Site	94	100
APL A Comp	91	98
APL B Comp	92	94
APL C Comp	94	100

Data are mean percent survival (n = 5 replicates).

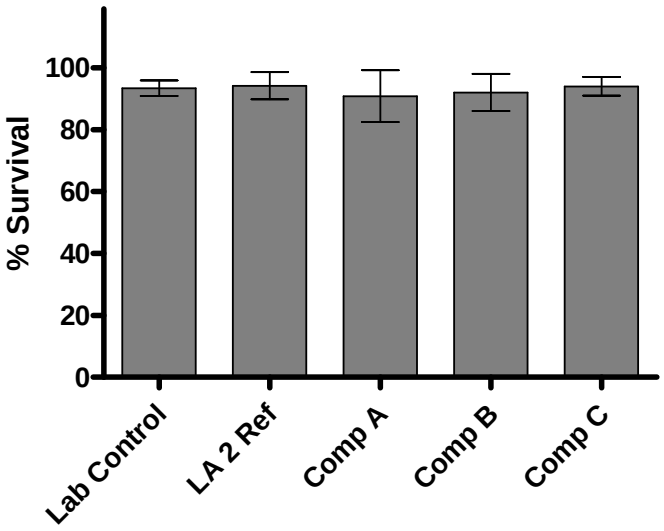

Figure 6. Survival of *Macoma* in the 28-day bioaccumulation exposure (mean ± 1 SD).

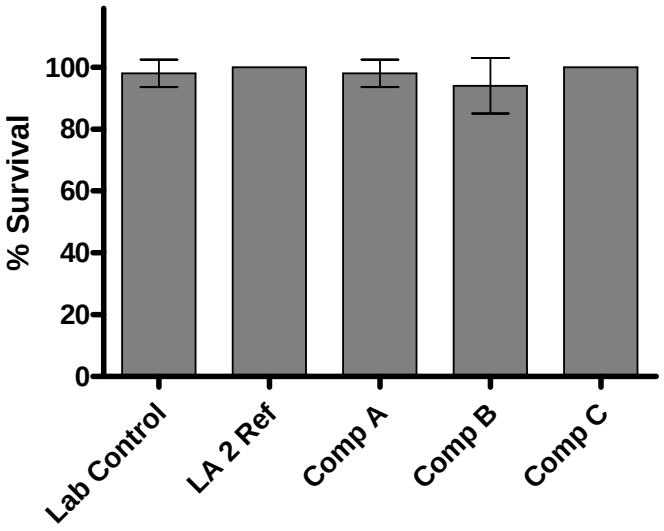

Figure 7. Survival of *Nereis* in the 28-day bioaccumulation exposure (mean ± 1 SD).

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

were corrected with re-testing (amphipod test), or 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. The reference toxicant test for the first round of *Eohaustorius* testing did not meet control survival acceptability criteria, with 65 percent survival. This test was repeated on July 14, 2010, which did pass acceptability criteria. Median lethal effect (LC_{50}) concentration values for reference toxicant tests were within ± 2 S.D. of internal control chart means for all species tested.

4.2 Solid-Phase Toxicity Tests

Laboratory control survival in the first round of *Eohaustorius* testing, at 82 percent, did not meet the 90 percent control survival criterion. The exposures were repeated on July 30, 2010 and *Eohaustorius* survival in the second round was 91 percent in the home sediment laboratory control sample and exhibited low variability among replicates. *Neanthes* survival exceeded 90 percent in the laboratory control. All other test acceptability criteria were met and water quality values were within acceptable ranges as defined by the test protocol for both species.

4.3 Suspended Particulate-Phase Toxicity Tests

Fish and mysid survival exceeded the EPA 90 percent criterion in all negative controls. Mussel embryo performance met both criteria under EPA 1995 guidance with greater than 50 percent survival and greater than 90 percent normal 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 94 and 98 percent, respectively, meeting EPA acceptability criteria of 90 percent. For both species, all 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. Ammonia concentrations were below concentrations expected to be toxic for all species tested. The only test to show significant toxicity was the *Eohaustorius* solid-phase test, in which both APL B Comp and APL C Comp had significantly reduced amphipod survival relative to that in the Reference. Total and un-ionized ammonia concentrations in these sediments and overlying water were at least an order of magnitude below published toxic thresholds for this species. Thus, the toxicity observed in APL B Comp and APL C Comp amphipod tests would appear to be unrelated to ammonia concentrations.

Table 12. Total and Un-ionized Ammonia Concentrations in Sediment Porewater

	Total Ammonia (mg/L)	**Un-ionized Ammonia (mg/L)**
Grain Size Control	1.2	0.011
LA-2 Reference	0.5	0.002
APL A Comp	4.5	0.018
APL B Comp	5.9	0.029
APL C Comp	5.6	0.021

Threshold Effect Levels

	Ammonia NOEC (mg/L)		Ammonia 96-h LC_{50} (mg/L)	
Species	Total	Un-ionized	Total	Un-ionized
Eohaustorius[a]	60	0.8	120	1.05[c]
Neanthes[b]	20	0.7 - 1.25	-	-
Menidia	15	-	-	0.9
Americamysis	29	-	-	2.3
Mytilus	4.0	0.05[d]	-	0.12[c]
Nereis	20	0.68	-	-

[a] NOEC values from EPA 1994 & Kohn et al 1994
[b] Dillon et al 1993
[c] 96-h LC50 values from Nautilus internal data
[d] Marine Pollution Studies Laboratory (personal comm.)

Table 13. Total and Un-ionized Ammonia Concentrations in Solid-Phase Toxicity Tests – Overlying Water

	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
	Day 0	Day 10	Day 0	Day 10
Overlying water				
Eohaustorius				
Lab control	<0.5	<0.5	<0.012	<0.014
Grain Size Control	<0.5	<0.5	<0.011	<0.014
LA-2 Reference	<0.5	<0.5	<0.011	<0.013
APL A Comp	<0.5	1.34	<0.011	0.043
APL B Comp	<0.5	<0.5	<0.011	<0.015
APL C Comp	<0.5	1.10	<0.010	0.028
Neanthes				
Lab control	<0.5	<0.5	<0.017	<0.022
Grain Size Control	<0.5	<0.5	<0.016	<0.022
LA-2 Reference	<0.5	1.59	<0.017	0.082
APL A Comp	<0.5	<0.5	<0.016	<0.022
APL B Comp	<0.5	0.85	<0.016	0.044
APL C Comp	<0.5	<0.5	<0.016	<0.022

Threshold Effect Levels				
	Ammonia NOEC (mg/L)		Ammonia 96-h LC_{50} (mg/L)[c]	
Species	Total	Un-ionized	Total	Un-ionized
Eohaustorius[a]	60	0.8	120	1.05
Neanthes[b]	20	0.7 - 1.25	-	-

[a] NOEC values from EPA 1994 & Kohn et al 1994
[b] Dillon et al 1993
[c] 96-h LC50 values from Nautilus internal data

Table 14. Total and Un-ionized Ammonia Concentrations in Suspended Particulate-Phase Toxicity Tests – Overlying Water

Sample	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
Menidia	Initiation	Termination	Initiation	Termination
Lab Control	0.0	0.0	0.00	0.00
APL A Comp	1.2	1.2	0.03	0.07
APL B Comp	2.0	2.2	0.01	0.02
APL C Comp	2.1	2.2	0.01	0.02
Americamysis	Initiation	Termination	Initiation	Termination
Lab Control	0.5	0.7	0.018	0.025
APL A Comp	0.5	2.0	0.019	0.077
APL B Comp	1.0	1.8	0.032	0.085
APL C Comp	1.1	2.7	0.028	0.128
Mytilus	Initiation	Termination	Initiation	Termination
Lab Control	0.5	0.6	0.010	0.012
APL A Comp	0.5	0.7	0.018	0.018
APL B Comp	1.0	1.5	0.015	0.035
APL C Comp	1.1	1.8	0.013	0.044

Threshold Effect Levels				
	Ammonia NOEC (mg/L)		Ammonia 96-h LC_{50} (mg/L)	
Species	Total	Un-ionized	Total	Un-ionized
Menidia	15	-	-	0.9
Americamysis	29	-	-	2.3
Mytilus	4.0[a]	0.05[b]	-	0.12[c]

[a] Tang et al, 1997
[b] Marine Pollution Studies Laboratory (personal comm.)
[c] Nautilus internal data

Table 15. Total and Un-ionized Ammonia Concentrations in Bioaccumulation Tests

Overlying Water

	Day 0	Day 7	Day 14	Day 21	Day 28
Total Ammonia (mg/L)					
Lab Control	<0.5	<0.5	<0.5	0.7	0.5
LA-2 Ref	<0.5	<0.5	0.9	0.9	0.9
APL A Comp	<0.5	<0.5	1.0	<0.5	1.6
APL B Comp	<0.5	<0.5	<0.5	<0.5	0.5
APL C Comp	0.9	<0.5	1.1	<0.5	0.9
Un-ionized Ammonia (mg/L)					
Lab Control	0.013	0.012	0.013	0.017	0.013
LA-2 Ref	0.015	0.013	0.021	0.023	0.023
APL A Comp	0.014	0.012	0.026	0.012	0.044
APL B Comp	0.015	0.013	0.012	0.014	0.012
APL C Comp	0.026	0.013	0.028	0.012	0.024

4.5.2 Sediment Grain Size

Sediment grain size may affect the survival of several species of amphipod, including *Eohaustorius estuarius* (EPA 1994, ASTM 1999). *Eohaustorius* are collected from locations containing relatively coarse sediments, which are the typical preferred habitat type of this species. In contrast, test sediments for port and harbor dredged material programs tend to consist of finer grained materials. *Eohaustorius* have been found to perform well in both fine and sandy material, however fine grain size has also been hypothesized to occasionally impair *Eohaustorius* performance (EPA 1994, ASTM 1999, Nautilus internal observations). Thus, the potential effect of fine material on this amphipod species needs careful consideration.

A grain size control was incorporated into the study design, which consisted of a fine grain uncontaminated sediment collected from Sail Bay in Mission Bay, San Diego. This allowed for an assessment of the effects of fine grain size on amphipod survival in the absence of elevated chemicals of concern. Survival of amphipods in the grain size control (84%) was similar to that observed in the LA-2 reference sediment (85%), also a finer grained material. The fine-grained control had a percent fines content of approximately 85 percent, slightly greater than that in the finest samples tested for APL (Composite B with 76 percent fines). Average amphipod survival in the Sail Bay control was 80 and 84 percent in test rounds 1 and 2, respectively. Based upon this observation, it appears unlikely that the toxicity observed in Areas B and C was the result of the fines content of the composites tested. Furthermore, linear regression analysis between mean survival of *Eohaustorius* and test sediment fine fractions (clay and silt combined) and percent clay alone revealed non-significant relationships ($p > 0.05$).

5.0 SUMMARY

Three site sediments were tested to assess the suitability of proposed dredged materials for ocean disposal. Of the sediments tested, both APL B Comp and APL C Comp sediments exhibited toxicity relative to LA-2 Reference sediment in the solid-phase test with the amphipod *Eohaustorius estuarius*. None of the remaining sediments or test types exhibited toxicity.

6.0 REFERENCES

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Appendix A
Summary of Toxicity Test Results

Appendix Table A-1. *Eohaustorius estuarius* Survival (Round 1 – Invalid Control)

Sediment Characterization for APL Terminal

Test initiation: July 19, 2010

Site	Replicate	# Alive	% Survival	Mean % Survival
Laboratory "Home" Control	A	16	80	82
	B	13	65	
	C	20	100	
	D	15	75	
	E	18	90	
Grain Size Control	A	15	75	80
	B	20	100	
	C	15	75	
	D	14	70	
	E	16	80	
Scripps Sediment Control	A	13	68	79
	B	18	90	
	C	16	80	
	D	15	75	
	E	16	80	
LA-2 Reference Site	A	18	90	85
	B	18	90	
	C	16	80	
	D	16	80	
	E	17	85	
APL A Comp	A	13	65	83
	B	16	80	
	C	18	90	
	D	17	85	
	E	19	95	
APL B Comp	A	14	70	**63***
	B	12	60	
	C	9	45	
	D	14	70	
	E	14	70	
APL C Comp	A	14	70	**72***
	B	15	75	
	C	16	80	
	D	14	70	
	E	13	65	

Bold asterisk values are significantly different from the Reference sample.

Appendix Table A-2. *Eohaustorius estuarius* Survival (Round 2 – Valid Control)

Sediment Characterization for APL Terminal

Test initiation: July 30, 2010

Site	Replicate	# Alive	% Survival	Mean % Survival
Laboratory "Home" Control	A	18	90	91
	B	19	95	
	C	17	85	
	D	18	90	
	E	19	95	
Grain Size Control	A	17	80	84
	B	16	85	
	C	19	95	
	D	19	95	
	E	13	65	
Scripps Sediment Control	A	17	85	80
	B	17	85	
	C	16	80	
	D	15	75	
	E	15	75	
LA-2 Reference Site	A	17	75	85
	B	19	95	
	C	14	70	
	D	16	80	
	E	19	95	
APL A Comp	A	15	75	80
	B	14	70	
	C	17	85	
	D	18	90	
	E	16	80	
APL B Comp	A	16	80	**60***
	B	13	65	
	C	8	40	
	D	13	65	
	E	10	50	
APL C Comp	A	11	55	**60***
	B	11	55	
	C	13	65	
	D	7	35	
	E	16	80	

Bold asterisk values are significantly different from the Reference sample.

Appendix Table A-3. *Neanthes arenaceodentata* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 9, 2010

Site	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	5	100	100
	B	5	100	
	C	5	100	
	D	5	100	
	E	5	100	
Grain Size Control	A	5	100	100
	B	5	100	
	C	5	100	
	D	5	100	
	E	5	100	
LA-2 Reference Site	A	5	100	100
	B	5	100	
	C	5	100	
	D	5	100	
	E	5	100	
APL A Comp	A	5	100	100
	B	5	100	
	C	5	100	
	D	5	100	
	E	5	100	
APL B Comp	A	5	100	100
	B	5	100	
	C	5	100	
	D	5	100	
	E	5	100	
APL C Comp	A	5	100	100
	B	5	100	
	C	5	100	
	D	5	100	
	E	5	100	

Appendix Table A-4. *Mytilus galloprovincialis* Survival & Development

Sediment Characterization for APL Terminal

Test Initiation: July 7, 2010

Site: APL A Comp

Treatment	Replicate	% Normal Alive	Mean % Normal Alive
Laboratory Control	A	94.5	97.4
	B	97.0	
	C	99.0	
	D	98.3	
	E	98.2	
10:90 (Sample:Clean Seawater)	A	96.2	94.5
	B	92.1	
	C	100	
	D	90.1	
	E	94.1	
50:50 (Sample:Clean Seawater)	A	98.2	94.2
	B	88.1	
	C	97.4	
	D	88.1	
	E	99.1	
100:0 (Sample:Clean Seawater)	A	94.1	93.1
	B	94.1	
	C	82.2	
	D	98.3	
	E	96.6	

Appendix Table A-4 cont. *Mytilus galloprovincialis* Survival & Development

Sediment Characterization for APL Terminal

Test Initiation: July 7, 2010

Site: APL B Comp

Treatment	Replicate	% Normal Alive	Mean % Normal Alive
Laboratory Control	A	96.8	96.0
	B	93.6	
	C	99.0	
	D	95.7	
	E	95.0	
10:90 (Sample:Clean Seawater)	A	94.7	93.2
	B	96.4	
	C	96.2	
	D	84.2	
	E	94.5	
50:50 (Sample:Clean Seawater)	A	95.1	88.8
	B	97.4	
	C	76.2	
	D	77.2	
	E	98.1	
100:0 (Sample:Clean Seawater)	A	93.1	93.6
	B	99.0	
	C	93.6	
	D	85.2	
	E	97.0	

Appendix Table A-4 cont. *Mytilus galloprovincialis* Survival & Development

Sediment Characterization for APL Terminal

Test Initiation: July 7, 2010

Site: APL C Comp

Treatment	Replicate	% Normal Alive	Mean % Normal Alive
Laboratory Control	A	94.1	90.5
	B	98.2	
	C	88.1	
	D	82.2	
	E	90.1	
10:90 (Sample:Clean Seawater)	A	98.2	95.9
	B	92.1	
	C	98.3	
	D	94.1	
	E	96.6	
50:50 (Sample:Clean Seawater)	A	88.1	96.0
	B	97.4	
	C	97.0	
	D	98.3	
	E	99.1	
100:0 (Sample:Clean Seawater)	A	99.0	96.8
	B	96.2	
	C	94.6	
	D	100	
	E	94.1	

Appendix Table A-5. *Americamysis bahia* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 8, 2010

Site: APL A Comp

Treatment	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	10	100	94
	B	9	90	
	C	8	80	
	D	10	100	
	E	10	100	
10:90 (Sample:Clean Seawater)	A	10	100	96
	B	9	90	
	C	10	100	
	D	10	100	
	E	9	90	
50:50 (Sample:Clean Seawater)	A	9	90	94
	B	9	90	
	C	10	100	
	D	10	100	
	E	9	90	
100:0 (Sample:Clean Seawater)	A	10	100	92
	B	9	90	
	C	9	90	
	D	9	90	
	E	9	90	

Appendix Table A-5 cont. *Americamysis bahia* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 8, 2010

Site: APL B Comp

Treatment	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	10	100	96
	B	10	100	
	C	9	90	
	D	10	100	
	E	9	90	
10:90 (Sample:Clean Seawater)	A	9	90	96
	B	10	100	
	C	10	100	
	D	10	100	
	E	9	90	
50:50 (Sample:Clean Seawater)	A	10	100	96
	B	9	90	
	C	10	100	
	D	10	100	
	E	9	90	
100:0 (Sample:Clean Seawater)	A	9	90	94
	B	10	100	
	C	9	90	
	D	9	90	
	E	10	100	

Appendix Table A-5 cont. *Americamysis bahia* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 8, 2010

Site: APL C Comp

Treatment	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	8	80	94
	B	10	100	
	C	10	100	
	D	10	100	
	E	9	90	
10:90 (Sample:Clean Seawater)	A	9	90	90
	B	8	80	
	C	8	80	
	D	10	100	
	E	10	100	
50:50 (Sample:Clean Seawater)	A	10	100	94
	B	10	100	
	C	10	100	
	D	8	80	
	E	9	90	
100:0 (Sample:Clean Seawater)	A	9	90	94
	B	8	80	
	C	10	100	
	D	10	100	
	E	10	100	

Appendix Table A-6. *Menidia beryllina* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 7, 2010

Site: APL A Comp

Treatment	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	10	100	96
	B	9	90	
	C	9	90	
	D[a]	11	100	
	E	10	100	
10:90 (Sample:Clean Seawater)	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
50:50 (Sample:Clean Seawater)	A	10	100	96
	B	9	90	
	C	10	100	
	D	9	90	
	E	10	100	
100:0 (Sample:Clean Seawater)	A	10	100	96
	B	9	90	
	C	10	100	
	D	9	90	
	E	10	100	

[a] Eleven *Menidia* added at initiation

Appendix Table A-6 cont. *Menidia beryllina* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 7, 2010

Site: APL B Comp

Treatment	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	10	100	98
	B	10	100	
	C	10	100	
	D	9	90	
	E	10	100	
10:90 (Sample:Clean Seawater)	A	10	100	98
	B	10	100	
	C	10	100	
	D	10	100	
	E	9	90	
50:50 (Sample:Clean Seawater)	A	10	100	96
	B	10	100	
	C	9	90	
	D	9	90	
	E	10	100	
100:0 (Sample:Clean Seawater)	A	8	80	96
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	

Appendix Table A-6 cont. *Menidia beryllina* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 7, 2010

Site: APL C Comp

Treatment	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	10	100	96
	B	9	90	
	C	10	100	
	D	10	100	
	E	9	90	
10:90 (Sample:Clean Seawater)	A	10	100	96
	B	10	100	
	C	10	100	
	D	9	90	
	E	9	90	
50:50 (Sample:Clean Seawater)	A	10	100	98
	B	10	100	
	C	10	100	
	D	10	100	
	E	9	90	
100:0 (Sample:Clean Seawater)	A	10	100	96
	B	8	80	
	C	10	100	
	D	10	100	
	E	10	100	

Appendix Table A-7. *Macoma nasuta* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 13, 2010

Site	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	33	94	94
	B	34	97	
	C	32	91	
	D	33	94	
	E	32	91	
LA-2 Reference Site	A	33	94	94
	B	34	97	
	C	32	91	
	D	31	89	
	E	35	100	
APL A Comp	A	31	89	91
	B	34	97	
	C	27	77	
	D	33	94	
	E	34	97	
APL B Comp	A	31	89	92
	B	29	83	
	C	33	94	
	D	34	97	
	E	34	97	
APL C Comp	A	32	91	94
	B	33	94	
	C	34	97	
	D	32	91	
	E	34	97	

Appendix Table A-8. *Nereis virens* Survival

Sediment Characterization for APL Terminal

Test Initiation: July 13, 2010

Site	Replicate	# Alive	% Survival	Mean % Survival
Laboratory Control	A	10	100	98
	B	10	100	
	C	10	100	
	D	9	90	
	E	10	100	
LA-2 Reference Site	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
APL A Comp	A	10	100	98
	B	9	90	
	C	10	100	
	D	10	100	
	E	10	100	
APL B Comp	A	10	100	94
	B	10	100	
	C	8	80	
	D	9	90	
	E	10	100	
APL C Comp	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E[a]	11	100	

[a] Replicate initiated with 11 polychaetes

Appendix B
Water Quality Raw Data

Appendix C

Reference Toxicant Data

Appendix D

Summary of Statistical Analyses

Appendix Table D-1. Statistical Analysis of *Eohaustorius* Survival

Sediment Characterization for APL Terminal

Test initiation: July 30, 2010

Analysis of Variance (ANOVA)					
Dependent variable:	*Eohaustorius* Survival				
Source	SS	df	MS	F	p
Site	0.3386	6	0.05644	5.931	**<0.001***
Residual	0.2665	28	0.009517		

Bold asterisk indicates a statistically significant difference in amphipod survival among sediments (p<0.05).

Multiple Comparison t-tests			
Comparison		% Difference From Reference / Grain Size Cont.	p
Reference Sample vs.	APL A Comp	-5	0.189
Reference Sample vs.	APL B Comp	-25	**0.009***
Reference Sample vs.	APL C Comp	-25	**0.011***
Grain Size Control vs.	APL A Comp	-4	0.245
Grain Size Control vs.	APL B Comp	-24	**0.013***
Grain Size Control vs.	APL C Comp	-24	**0.015***

Bold asterisk indicates a statistically significant reduction in survival relative to the Reference sediment (p<0.05).

Appendix Table D-2. Analysis of *Neanthes arenaceodentata* Survival

Sediment Characterization for APL Terminal

Test initiation: July 9, 2010

Analysis of Variance (ANOVA)					
Dependent variable:			*Neanthes* Survival		
Source	SS	df	MS	F	P
Site	0.00000005	5	0.00000001	1.000	0.4389
Residual	0.00000026	24	0.00000001		

Appendix D-3. Analysis of *Americamysis bahia* Survival

Sediment Characterization for APL Terminal

Test initiation: July 8, 2010

Appendix D-4. Analysis of *Menidia beryllina* Survival

Sediment Characterization for APL Terminal

Test initiation: July 7, 2010

Appendix D-5. Analysis of *Mytilus galloprovincialis* Embryo Development

Sediment Characterization for APL Terminal

Test initiation: July 7, 2010

Appendix Table D-6. Analysis of *Macoma nasuta* Survival

Sediment Characterization for APL Terminal

Test initiation: July 13, 2010

Analysis of Variance (ANOVA)					
Dependent variable:	Percent *Macoma nasuta* Survival				
Source	SS	df	MS	F	P
Site	0.006541	4	0.001635	0.3645	0.8310
Residual	0.08973	20	0.004486		

Appendix Table D-7. Analysis of *Nereis virens* Survival

Sediment Characterization for APL Terminal

Test initiation: July 13, 2010

Analysis of Variance (ANOVA)					
Dependent variable:	Percent *Nereis virens* Survival				
Source	SS	df	MS	F	P
Site	0.03169	4	0.007923	1.164	0.3563
Residual	0.1362	20	0.006808		

APPENDIX B

CORE LOGS

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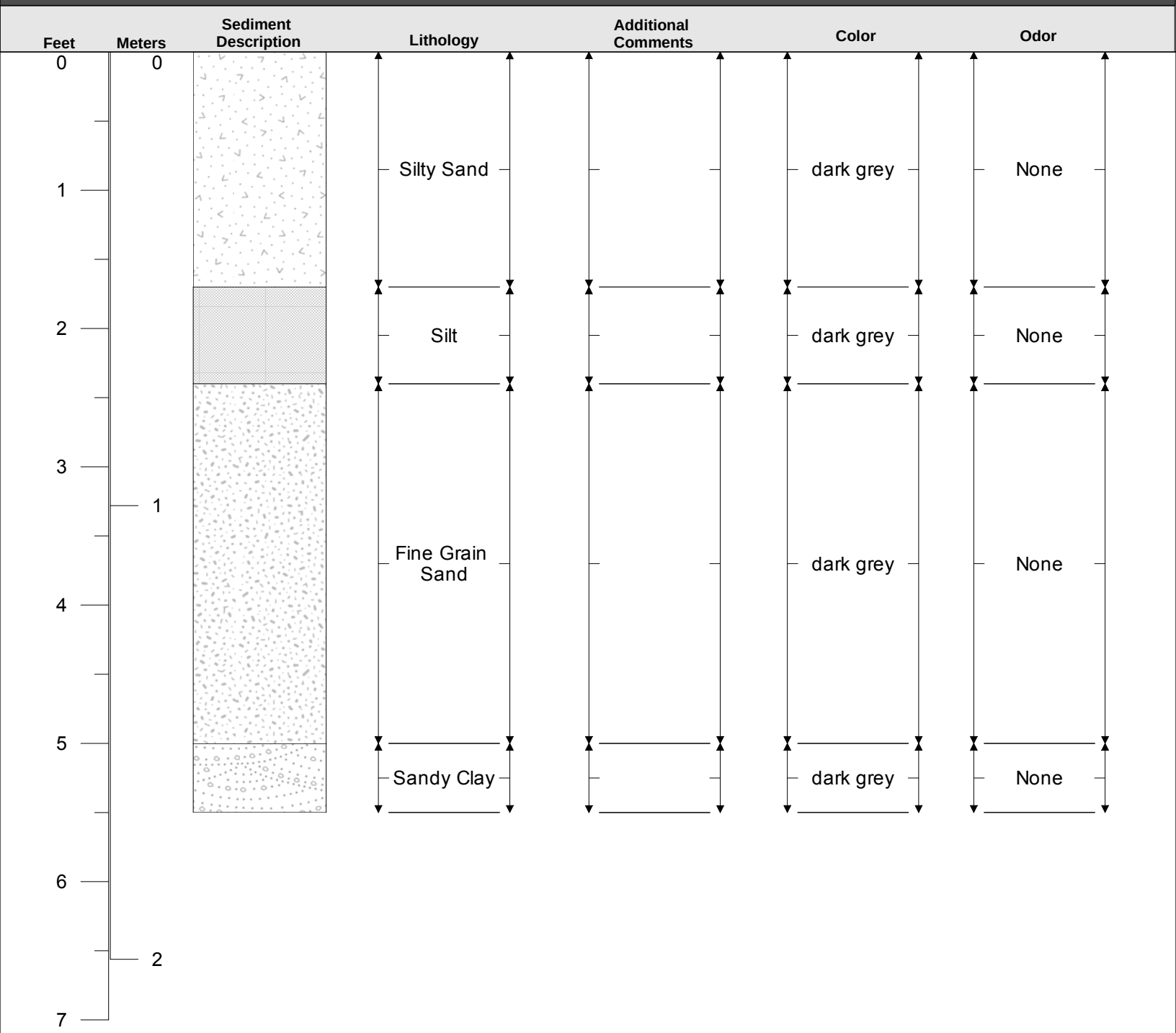
amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 8:20
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'



Water Depth (ft): 49.5
Tide (ft): 1
Attempt: 1

Penetration (ft): 5.5
Analysis Length (ft): 5.5
Comments: over penetrated for chemistry sample

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 8:20
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

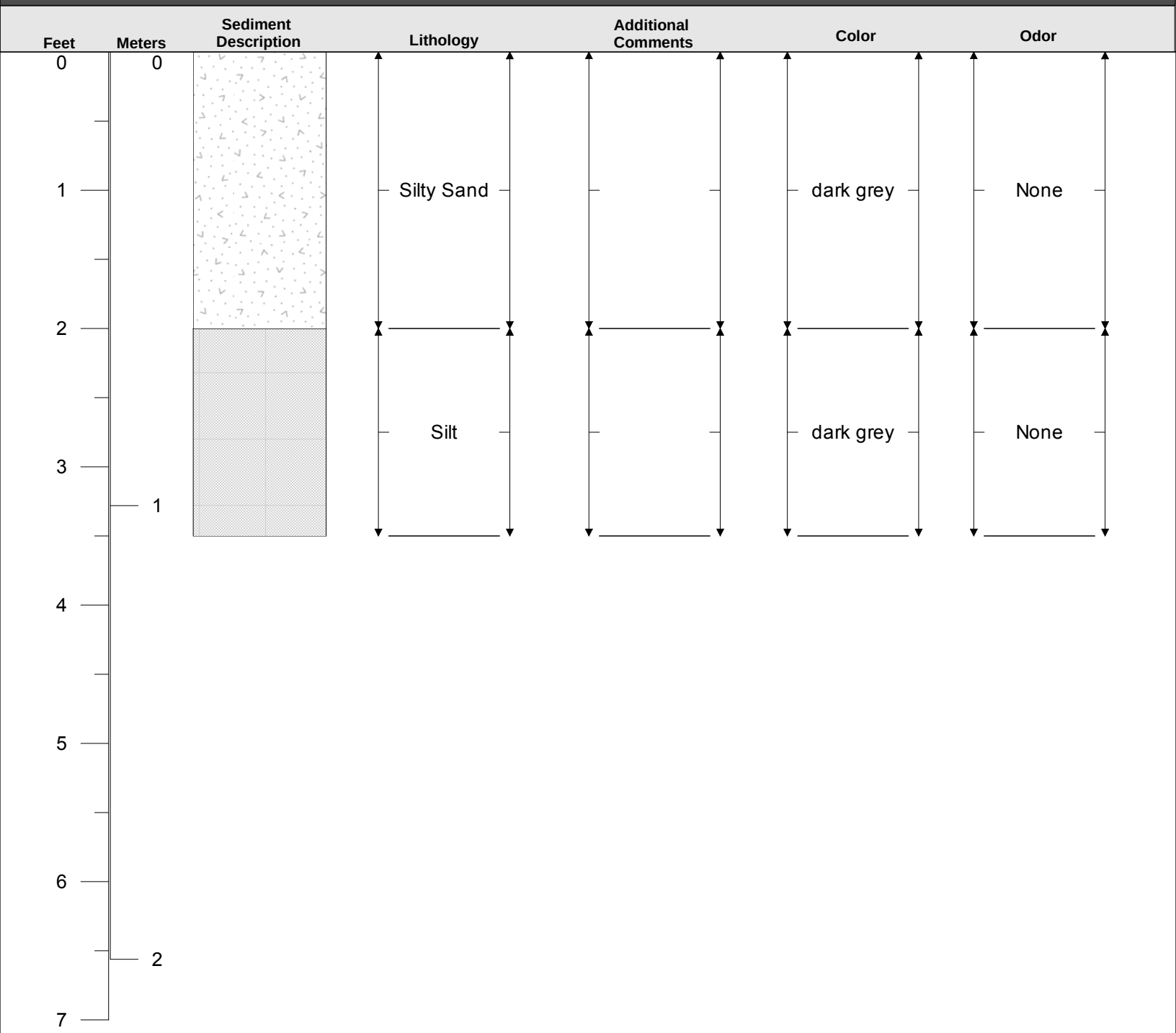
Water Depth (ft): 49.5
Tide (ft): 1
Attempt: 1

Penetration (ft): 5.5
Analysis Length (ft): 5.5
Comments: over penetrated for chemistry sample

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 9:05
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'



Water Depth (ft): 50.3
Tide (ft): 1.8
Attempt: 2

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 9:05
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

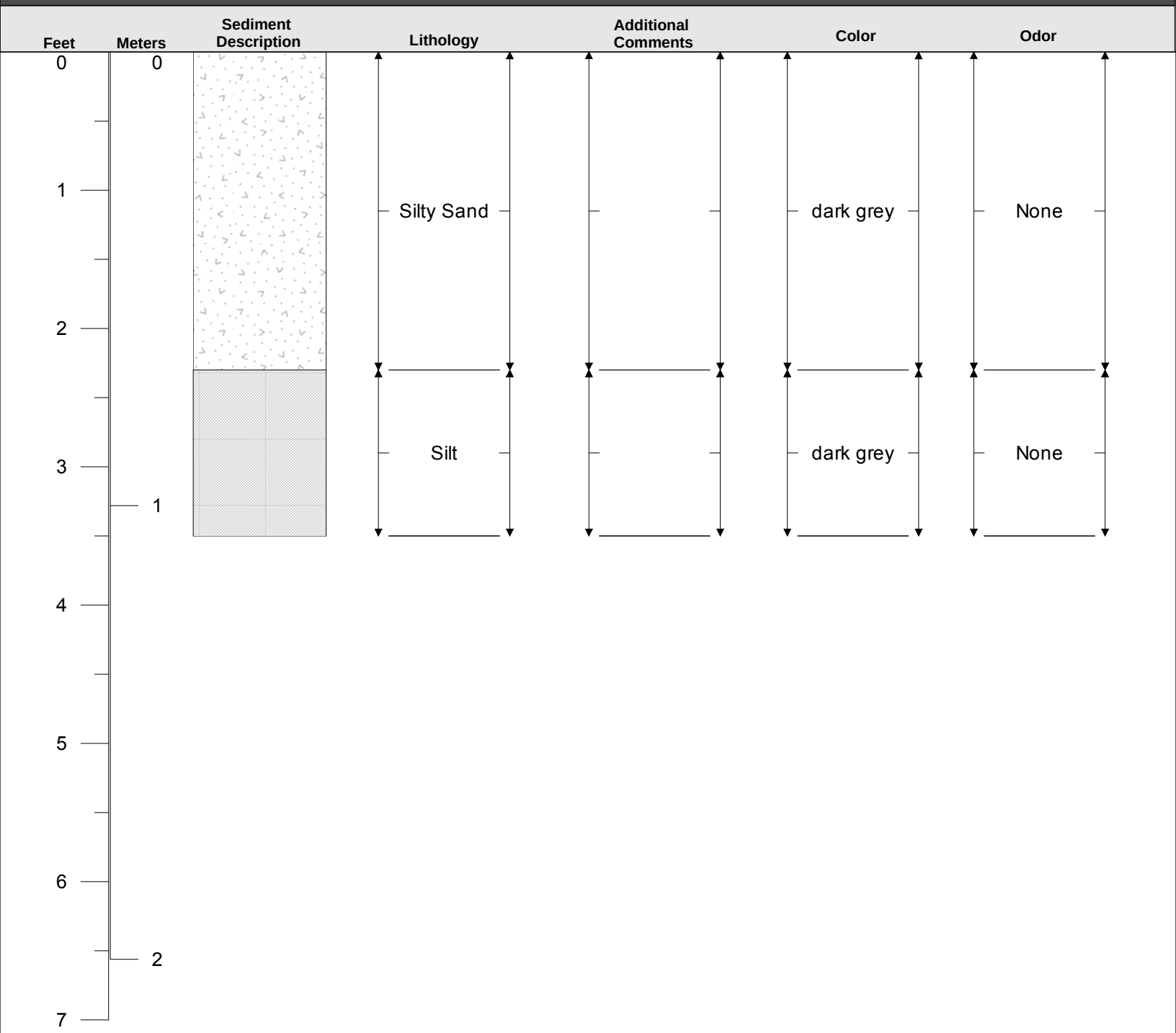
Water Depth (ft): 50.3
Tide (ft): 1.8
Attempt: 2

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 9:30
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'



Water Depth (ft): 49.5
Tide (ft): 1
Attempt: 3

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 9:30
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

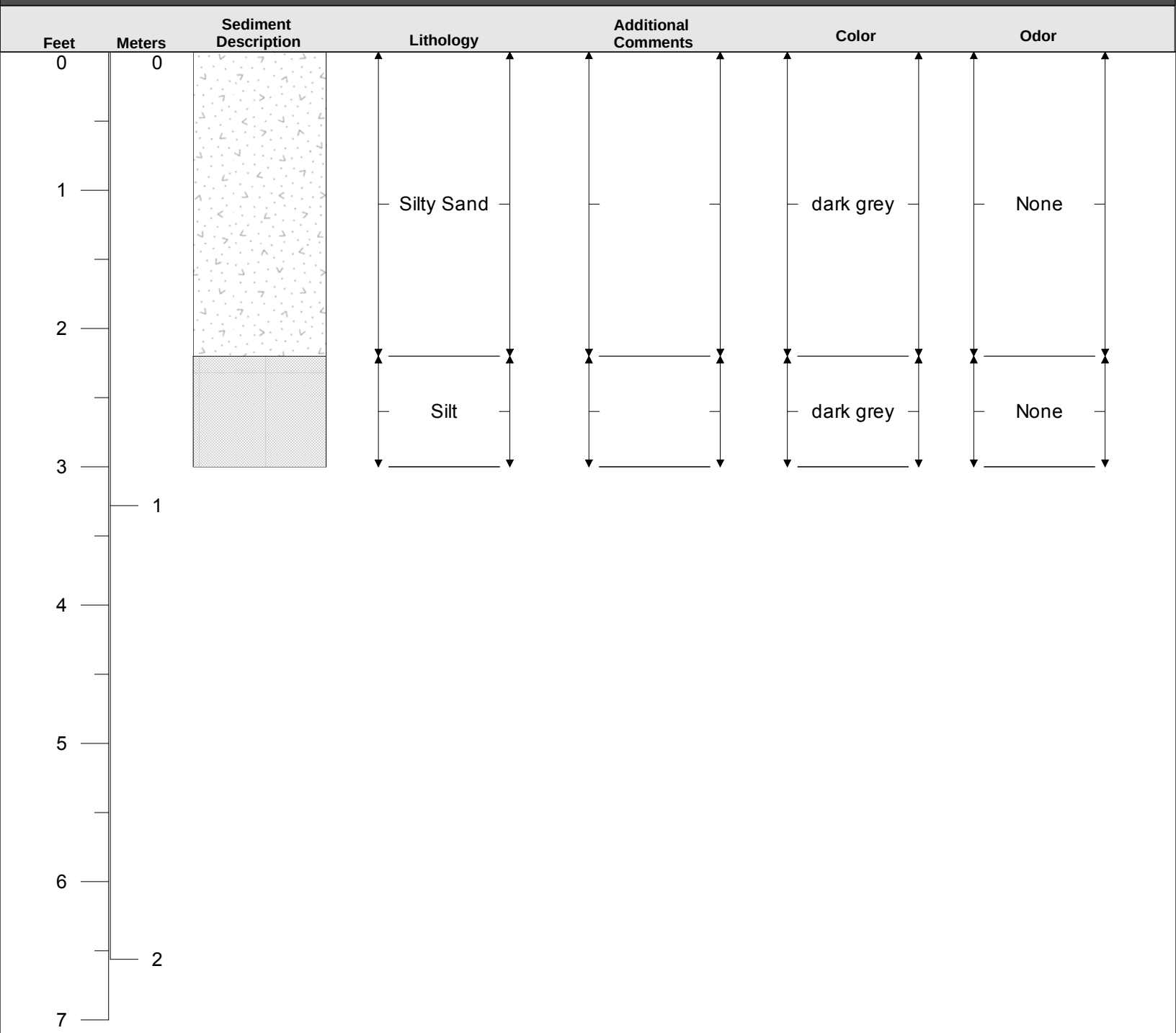
Water Depth (ft): 49.5
Tide (ft): 1
Attempt: 3

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 9:40
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'



Water Depth (ft): 50.6
Tide (ft): 2.1
Attempt: 4

Penetration (ft): 3.5
Analysis Length (ft): 3
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 9:40
Latitude (WGS84): 33° 43.894'
Longitude (WGS84): -118° 15.522'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

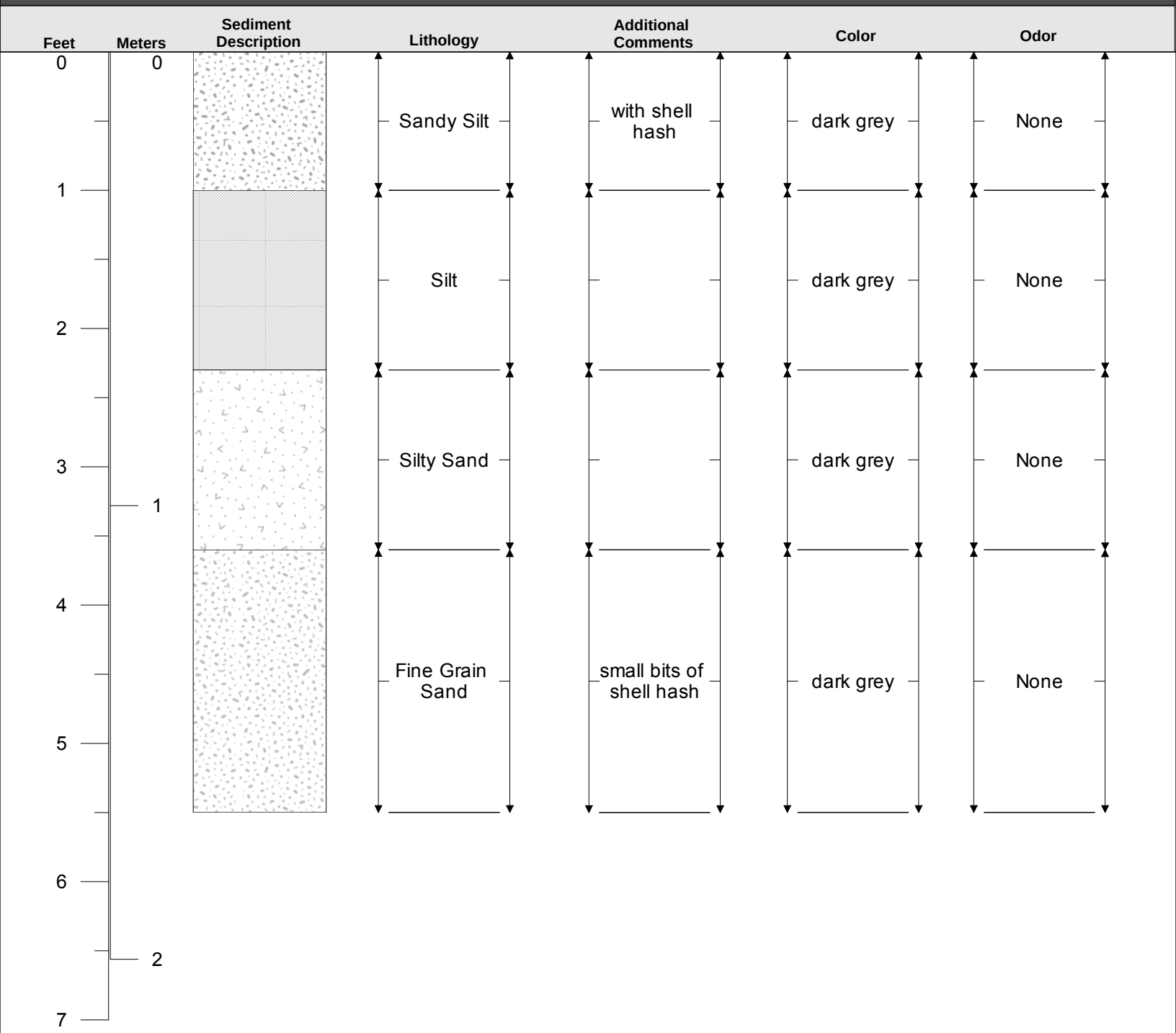
Water Depth (ft): 50.6
Tide (ft): 2.1
Attempt: 4

Penetration (ft): 3.5
Analysis Length (ft): 3
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:06
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'



Water Depth (ft): 51.2
Tide (ft): 2.7
Attempt: 1

Penetration (ft): 5.5
Analysis Length (ft): 5.5
Comments: over penetrated for additional chemistry

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:06
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

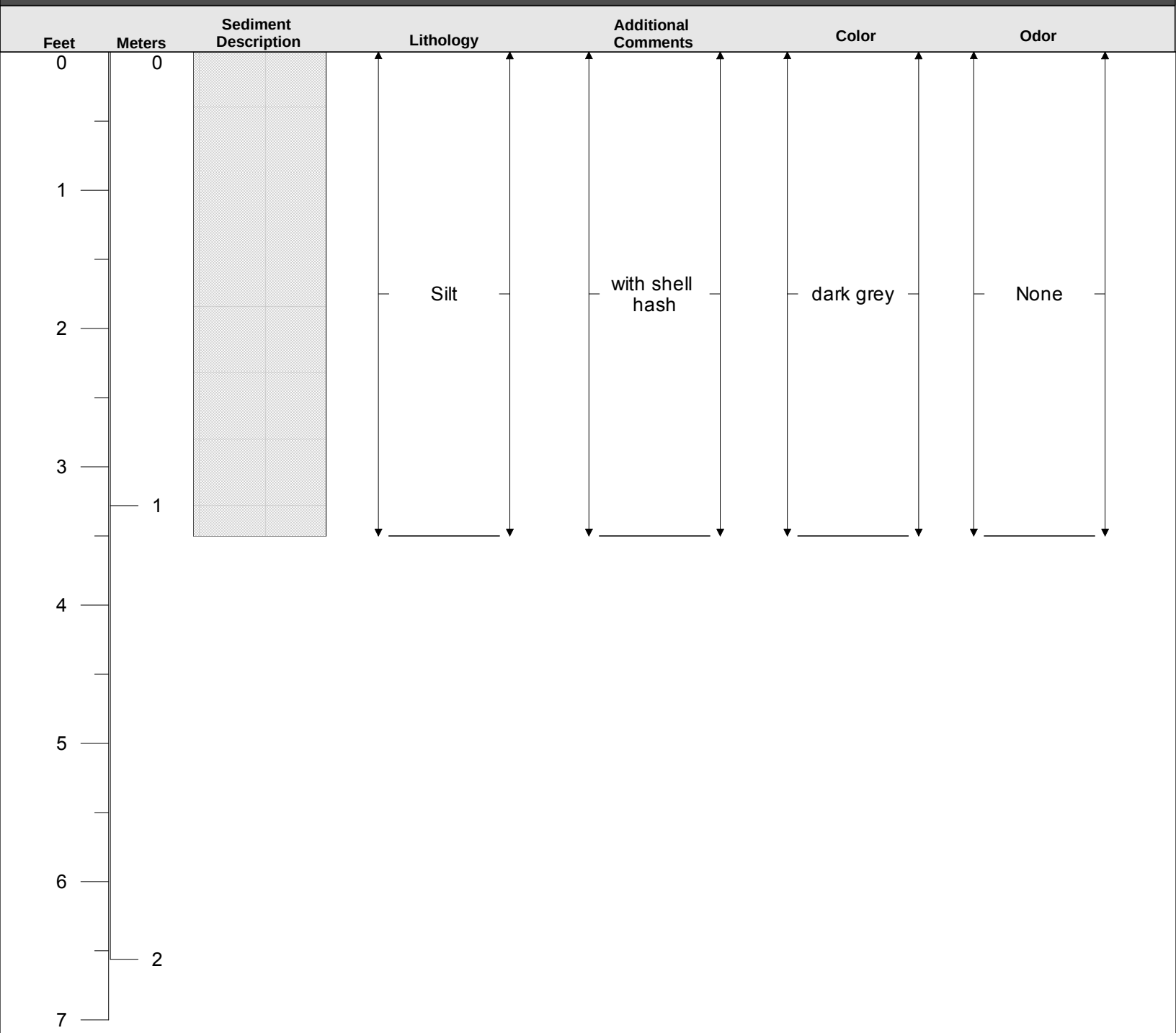
Water Depth (ft): 51.2
Tide (ft): 2.7
Attempt: 1

Penetration (ft): 5.5
Analysis Length (ft): 5.5
Comments: over penetrated for additional chemistry

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:32
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'



Water Depth (ft): 51.6
Tide (ft): 3.1
Attempt: 2

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:32
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

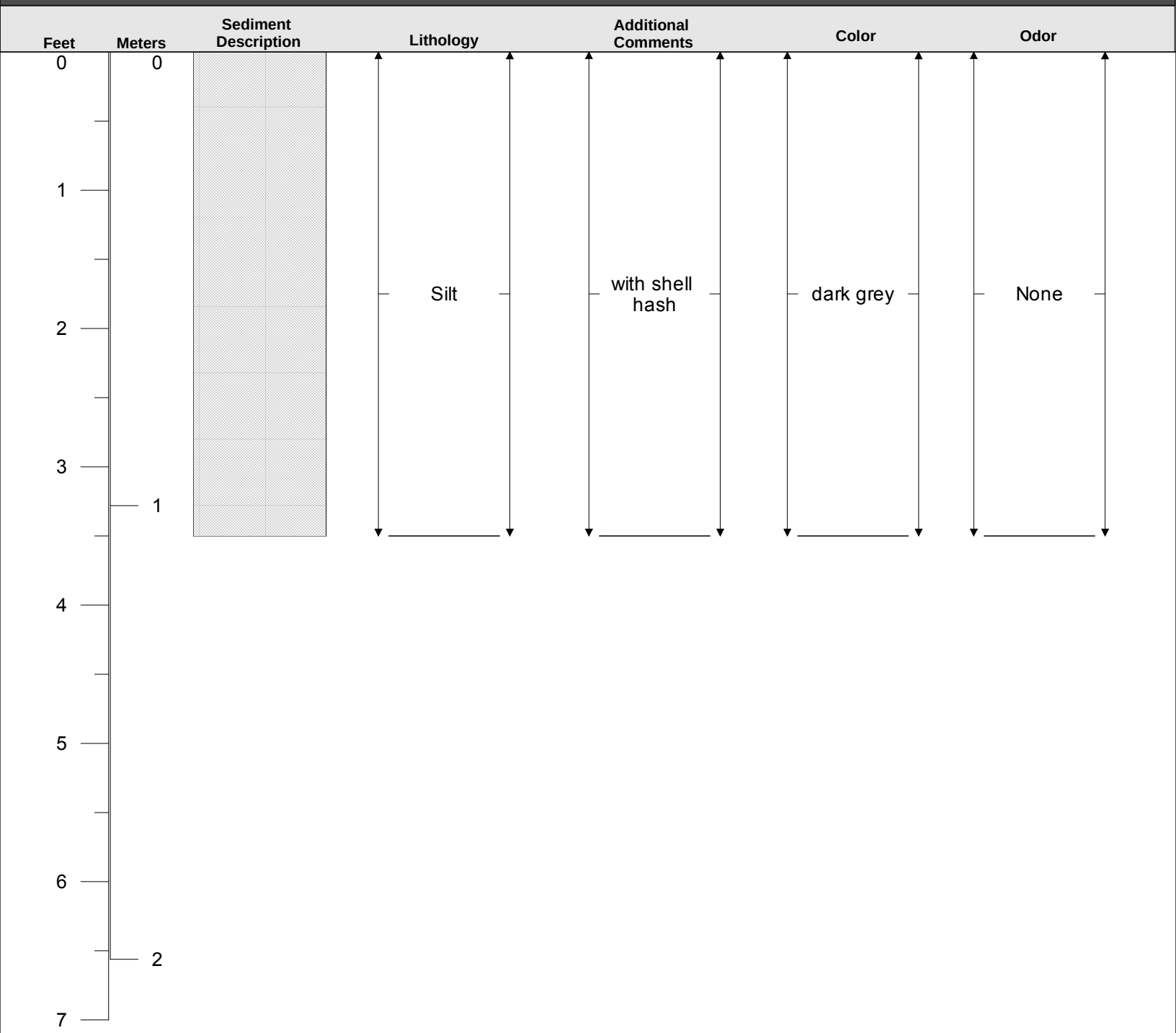
Water Depth (ft): 51.6
Tide (ft): 3.1
Attempt: 2

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:45
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'



Water Depth (ft): 51.9
Tide (ft): 3.4
Attempt: 3

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:45
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

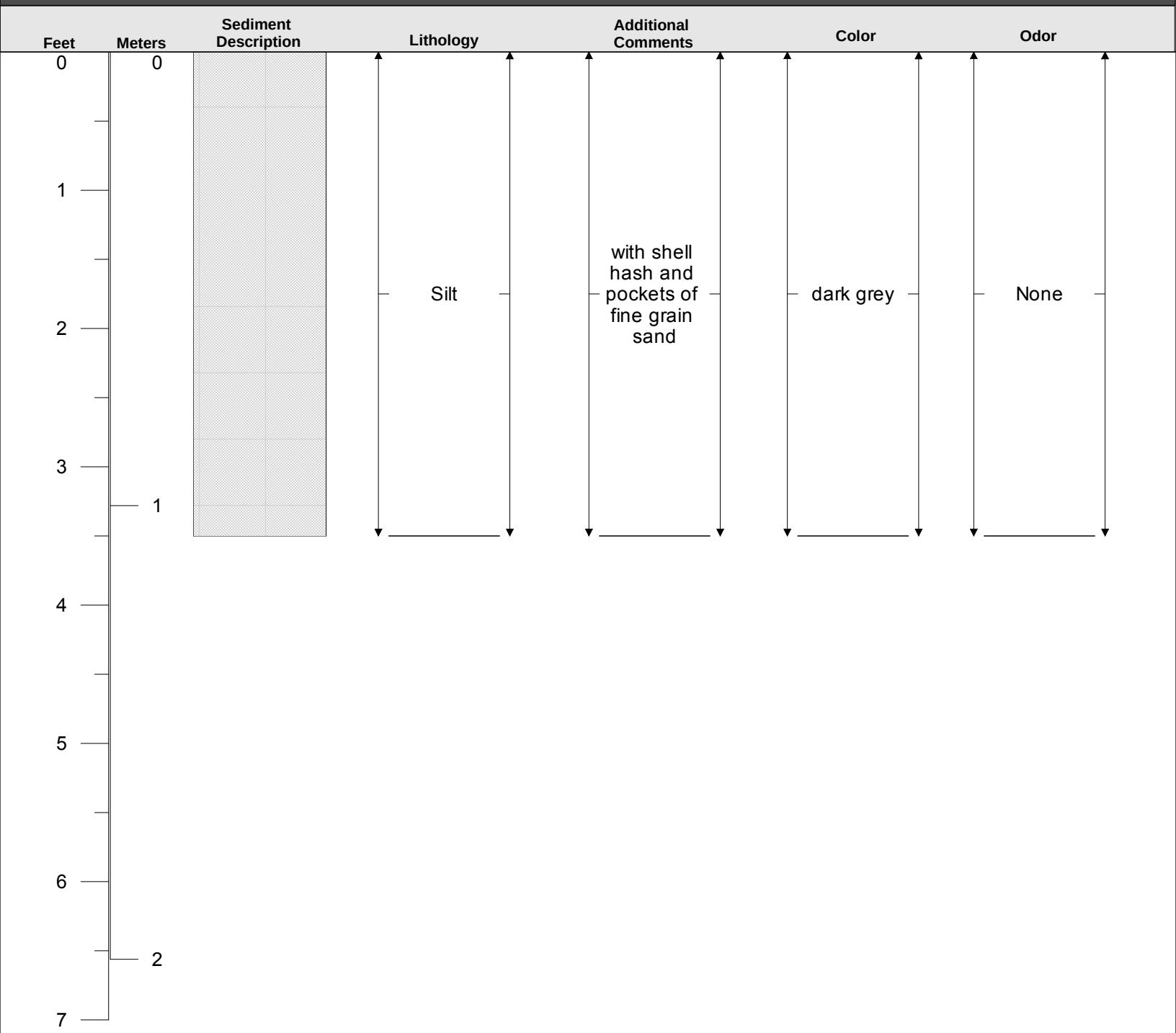
Water Depth (ft): 51.9
Tide (ft): 3.4
Attempt: 3

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:58
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'



Water Depth (ft): 52.1
Tide (ft): 3.6
Attempt: 4

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 10:58
Latitude (WGS84): 33° 43.915'
Longitude (WGS84): -118° 15.469'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

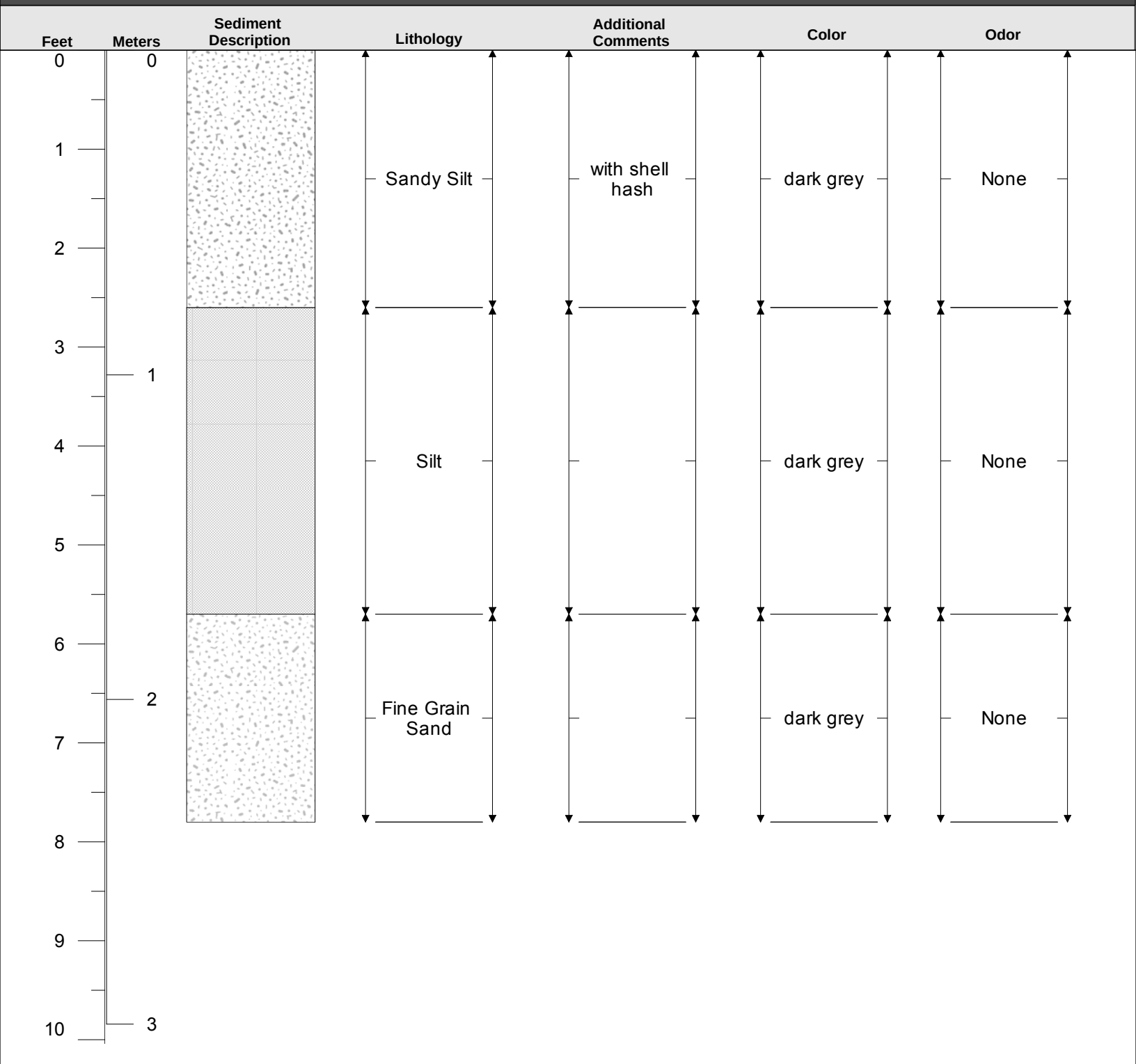
Water Depth (ft): 52.1
Tide (ft): 3.6
Attempt: 4

Penetration (ft): 3.5
Analysis Length (ft): 3.5
Comments: N/A

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

Station ID: A-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 11:29
Latitude (WGS84): 33° 43.953'
Longitude (WGS84): -118° 15.336'



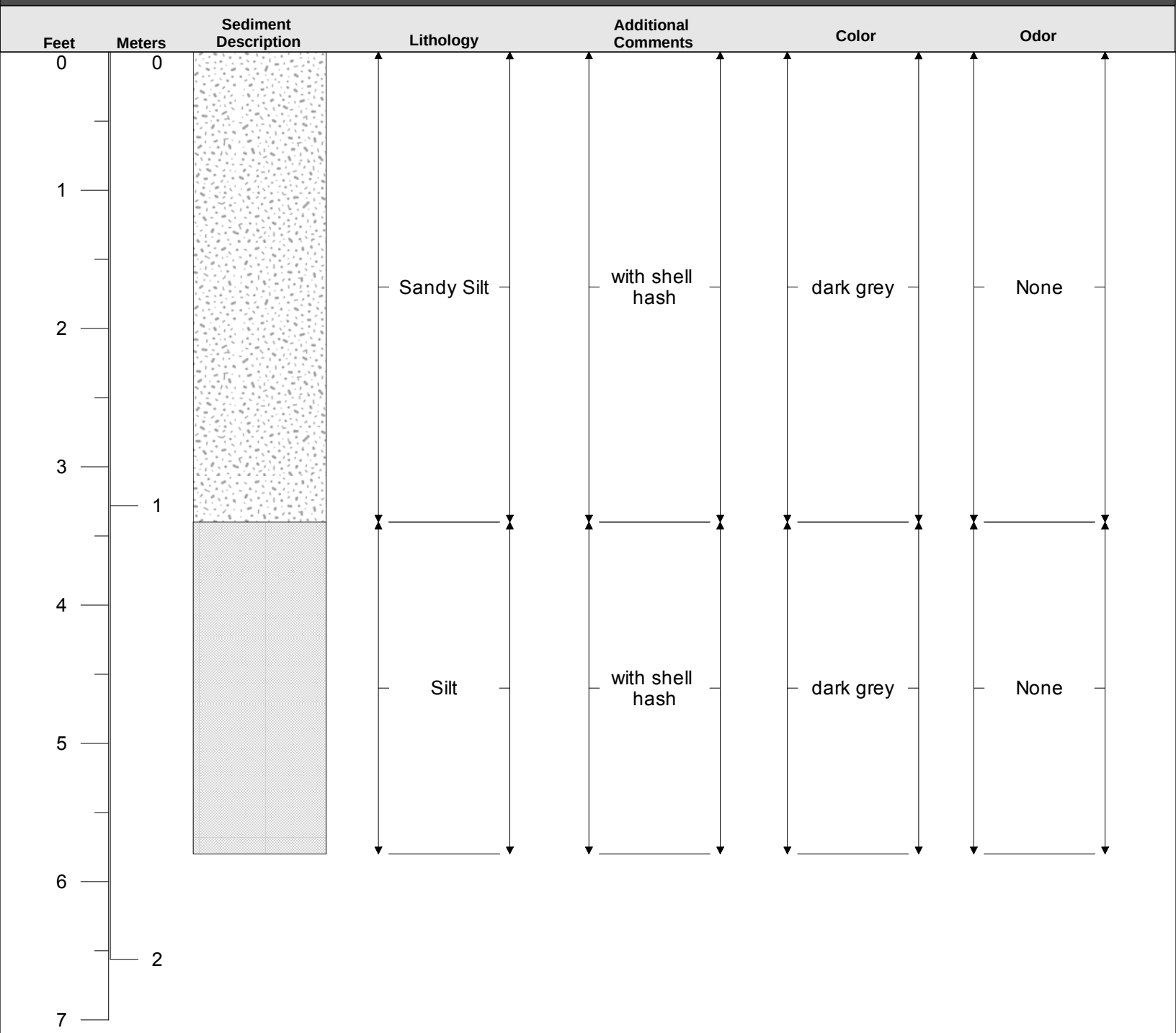
Water Depth (ft): 49.9
Tide (ft): 3.7
Attempt: 1

Penetration (ft): 7.8
Analysis Length (ft): 7.8
Comments: N/A

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

Station ID: A-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 12:15
Latitude (WGS84): 33° 43.953'
Longitude (WGS84): -118° 15.336'



Water Depth (ft): 50
Tide (ft): 3.8
Attempt: 2

Penetration (ft): 5.8
Analysis Length (ft): 5.8
Comments: N/A

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

Station ID: A-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 12:15
Latitude (WGS84): 33° 43.953'
Longitude (WGS84): -118° 15.336'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

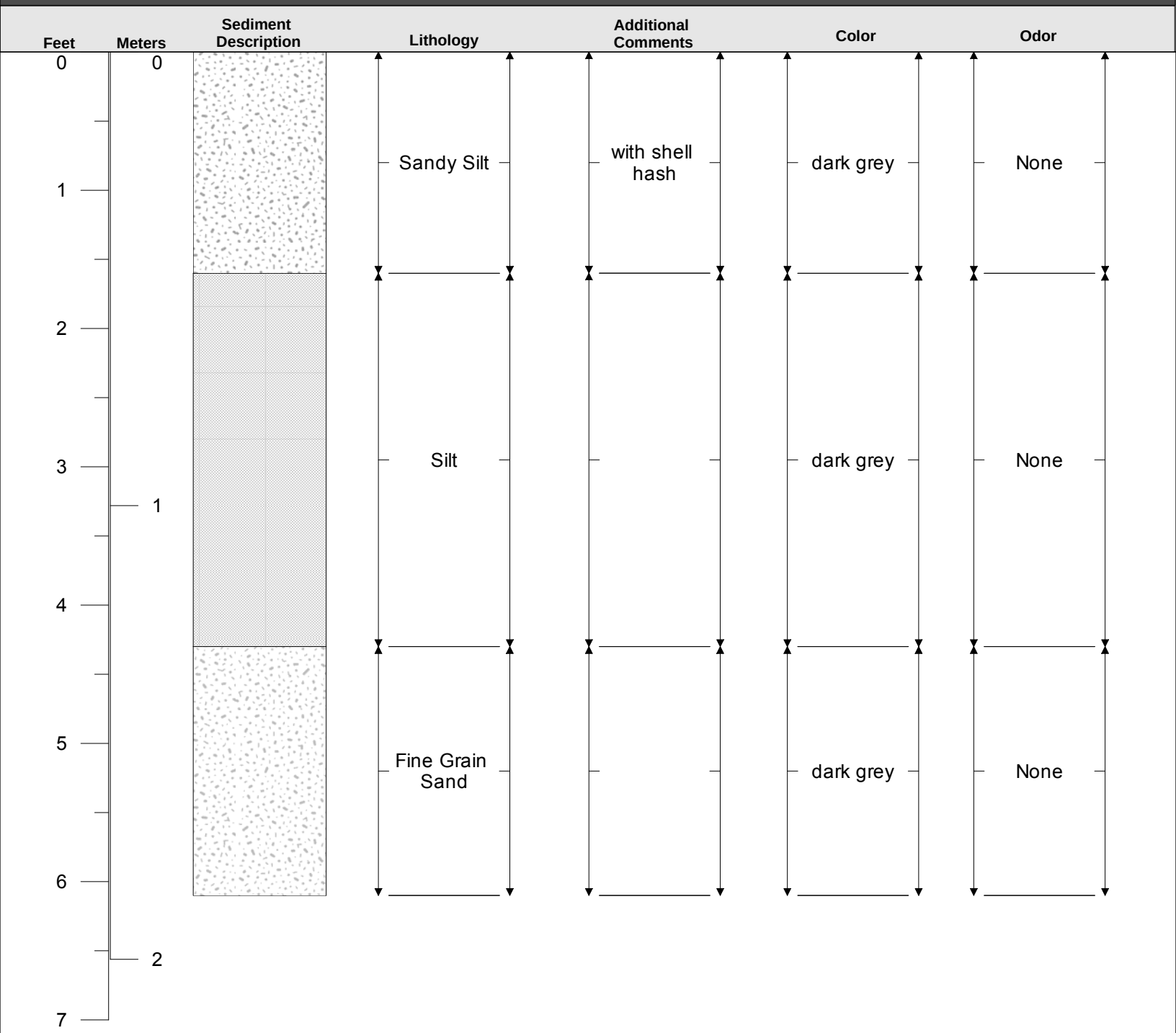
Water Depth (ft): 50
Tide (ft): 3.8
Attempt: 2

Penetration (ft): 5.8
Analysis Length (ft): 5.8
Comments: N/A

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

Station ID: A-4
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 13:00
Latitude (WGS84): 33° 43.967'
Longitude (WGS84): -118° 15.276'



Water Depth (ft): 51.5
Tide (ft): 4.1
Attempt: 1

Penetration (ft): 6.6
Analysis Length (ft): 6.1
Comments: N/A

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

Station ID: A-4
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/28/10
Time: 13:00
Latitude (WGS84): 33° 43.967'
Longitude (WGS84): -118° 15.276'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor

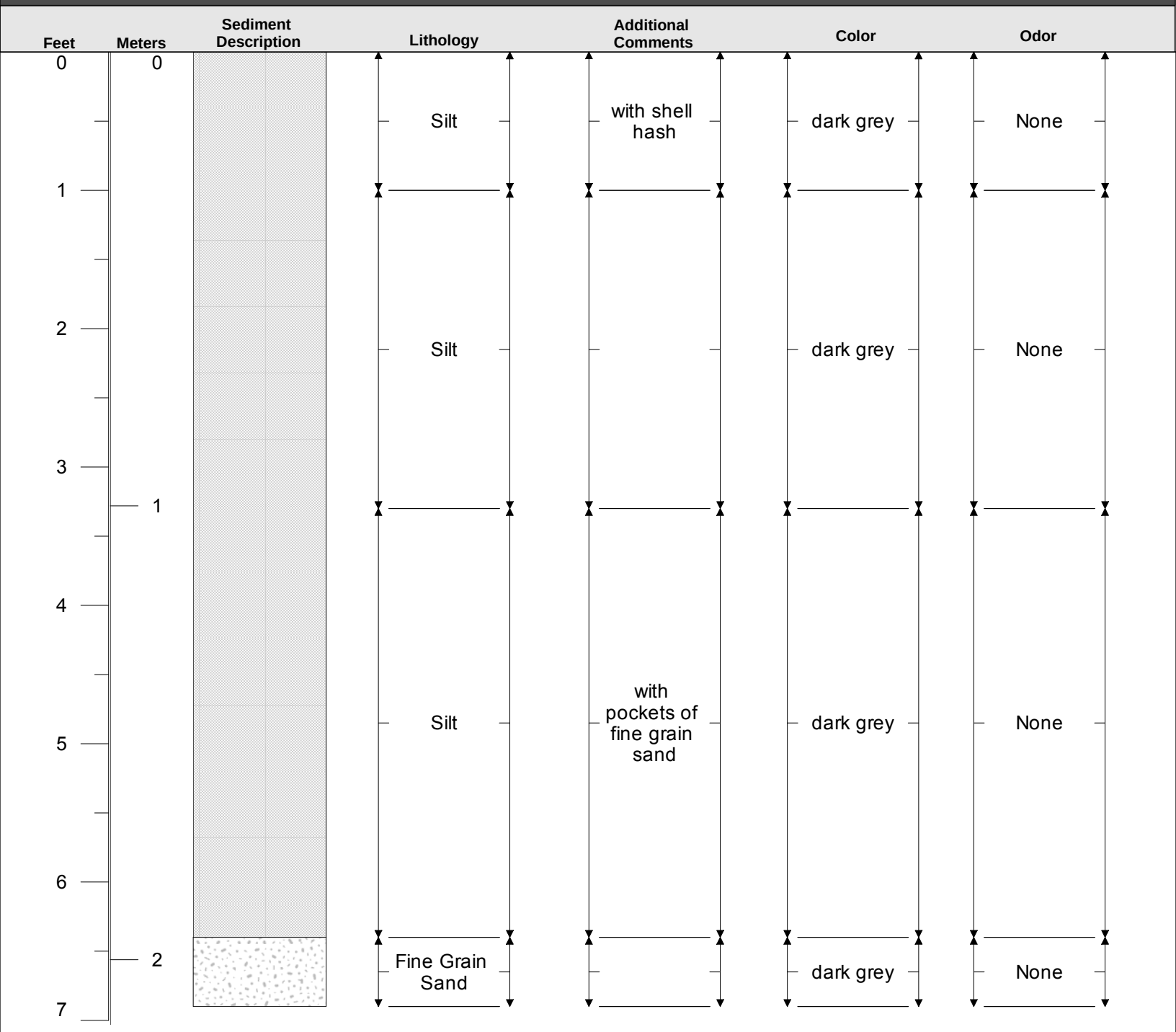
Water Depth (ft): 51.5
Tide (ft): 4.1
Attempt: 1

Penetration (ft): 6.6
Analysis Length (ft): 6.1
Comments: N/A

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

Station ID: B-1
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/30/10
Time: 8:09
Latitude (WGS84): 33° 43.997'
Longitude (WGS84): -118° 15.183'



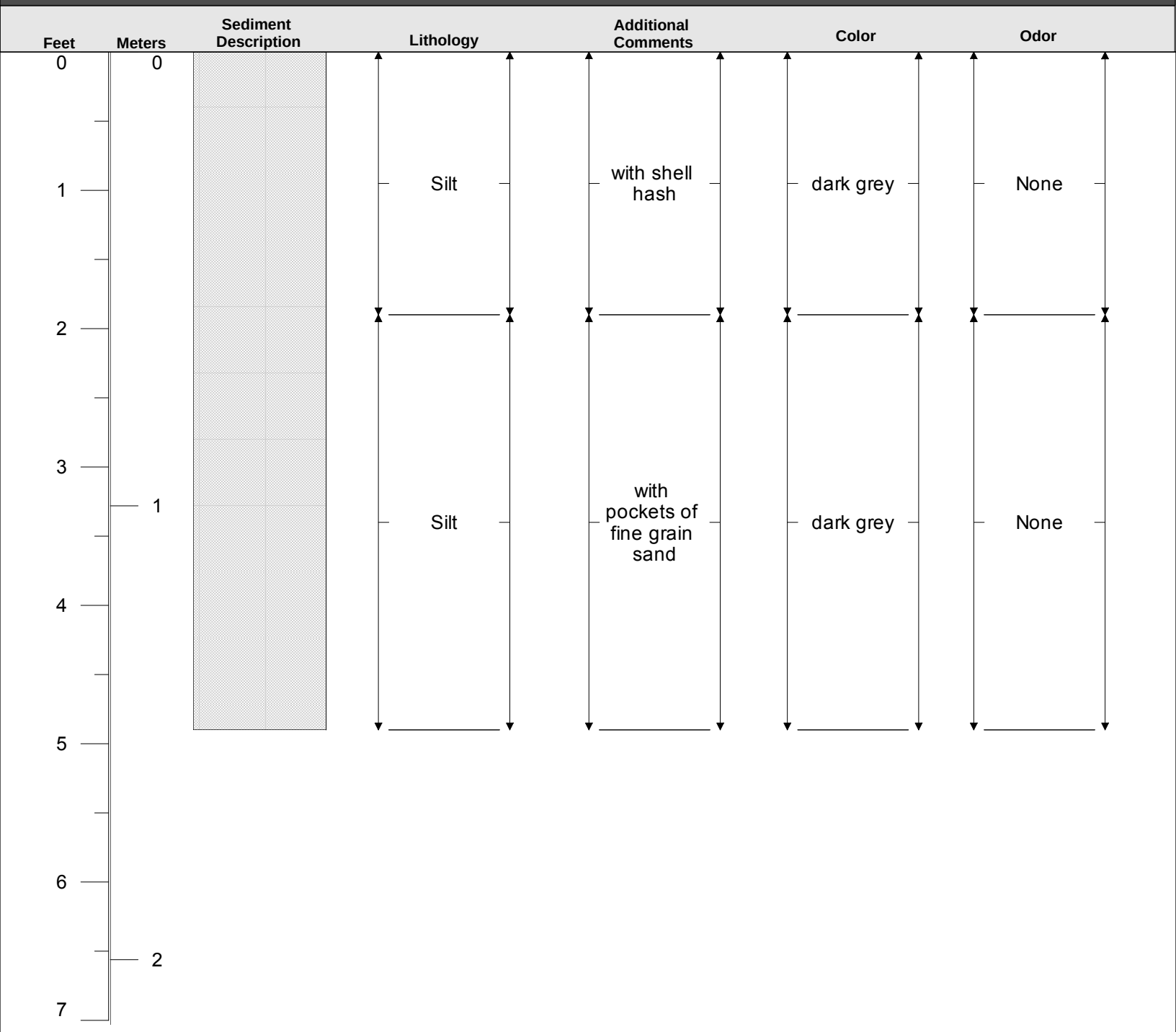
Water Depth (ft): 47.6
Tide (ft): 0.5
Attempt: 1

Penetration (ft): 7
Analysis Length (ft): 6.9
Comments: over penetration for additional chemistry

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

Station ID: B-1
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/30/10
Time: 8:37
Latitude (WGS84): 33° 43.997'
Longitude (WGS84): -118° 15.183'



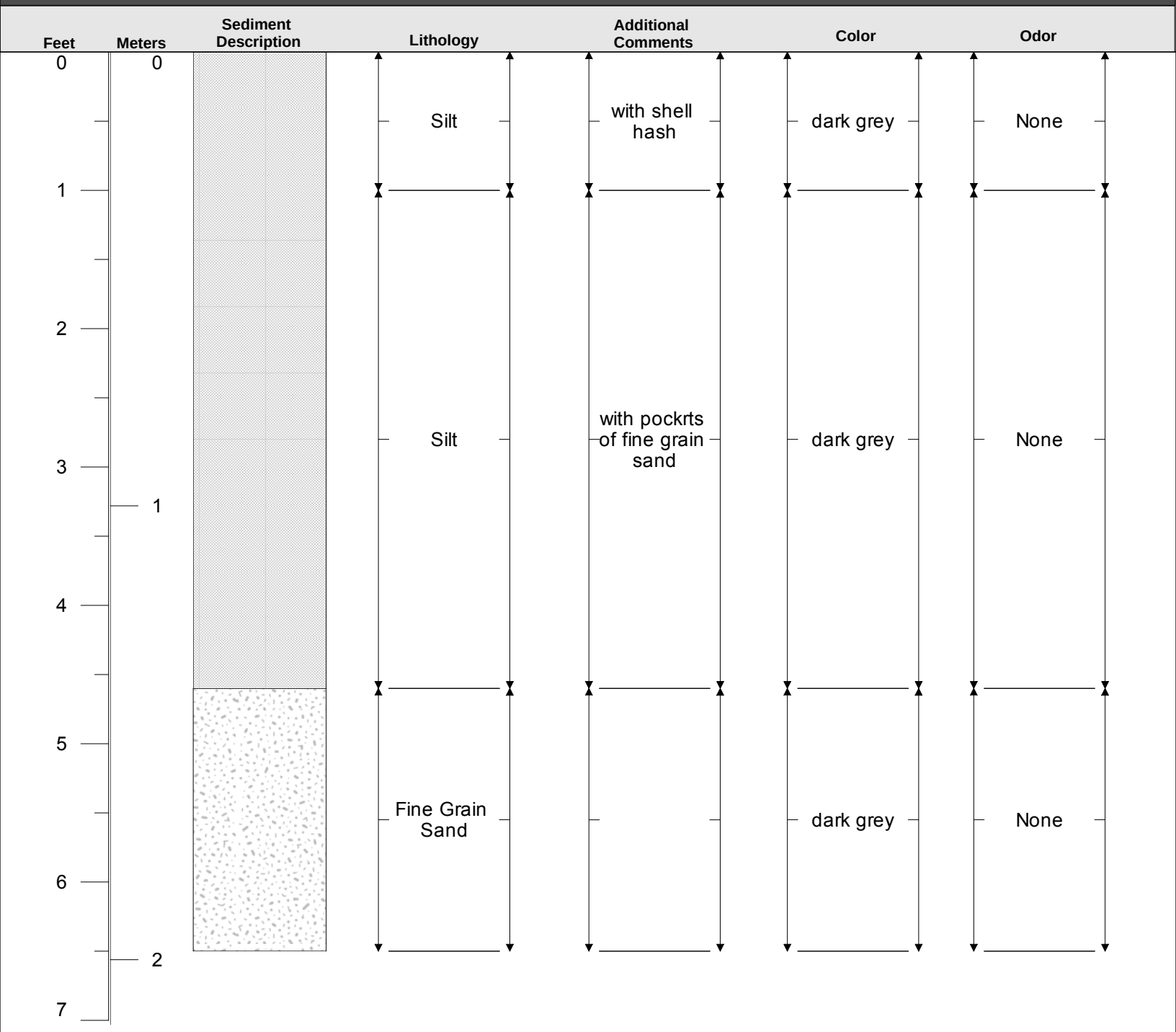
Water Depth (ft): 48
Tide (ft): 0.9
Attempt: 2

Penetration (ft): 5
Analysis Length (ft): 4.9
Comments: N/A

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

Station ID: B-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 7/1/10
Time: 10:39
Latitude (WGS84): 33° 44.067'
Longitude (WGS84): -118° 14.927'



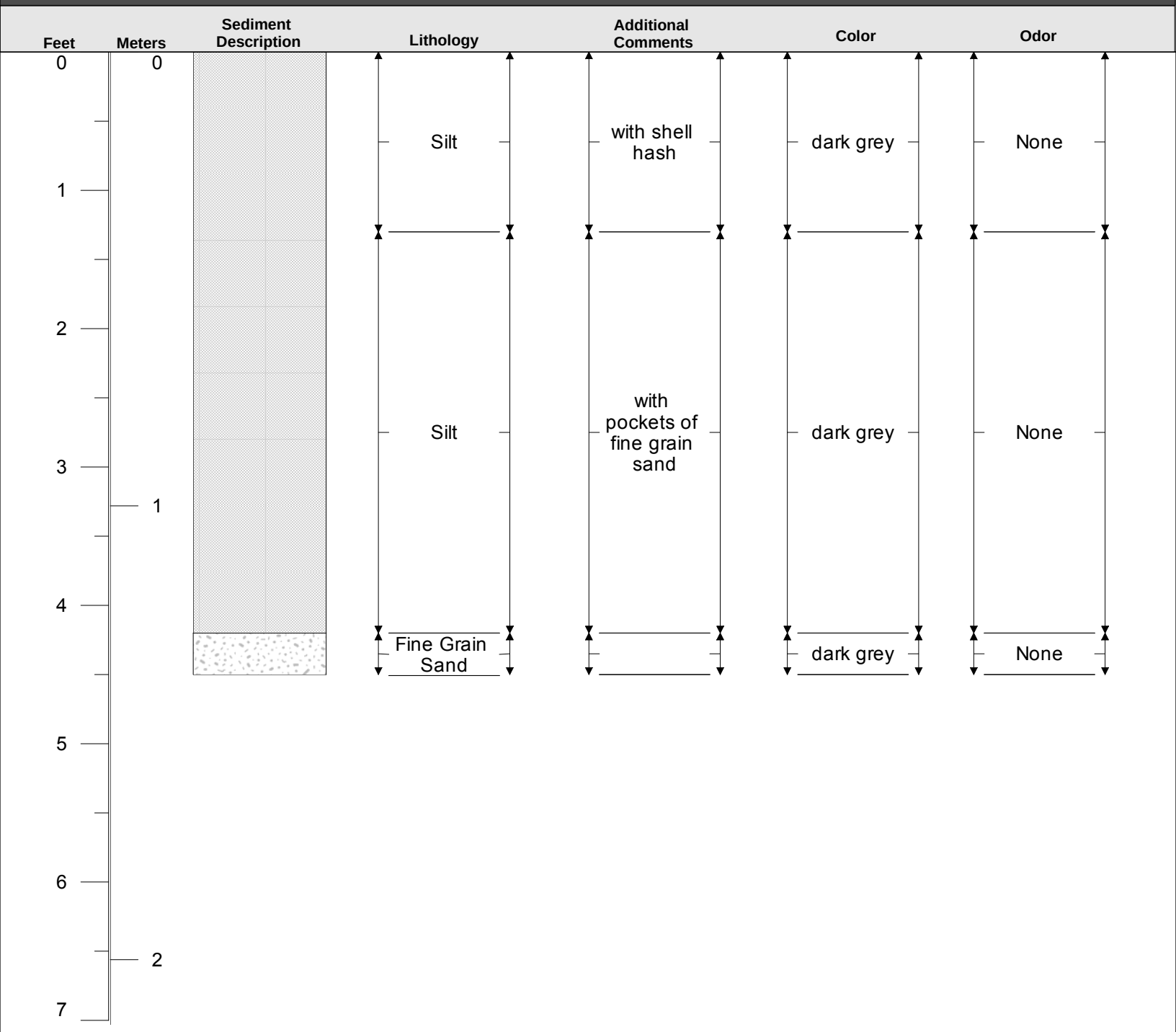
Water Depth (ft): 49.7
Tide (ft): 2.2
Attempt: 1

Penetration (ft): 6.5
Analysis Length (ft): 4.5
Comments: over penetration for additional chemistry

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

Station ID: B-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 7/1/10
Time: 11:07
Latitude (WGS84): 33° 44.067'
Longitude (WGS84): -118° 14.927'



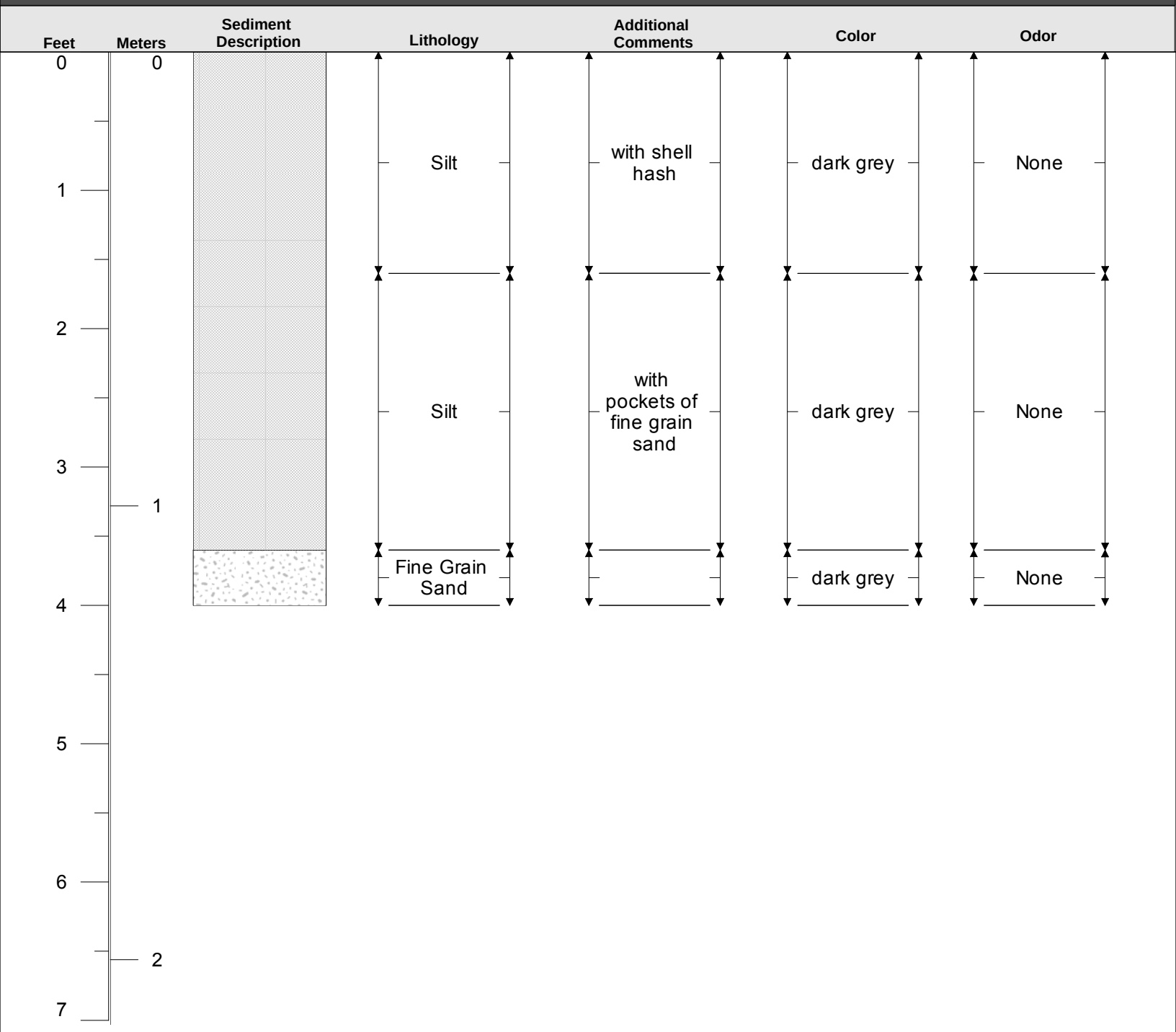
Water Depth (ft): 49.7
Tide (ft): 2.2
Attempt: 2

Penetration (ft): 4.5
Analysis Length (ft): 4.5
Comments: N/A

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

Station ID: B-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 7/1/10
Time: 11:22
Latitude (WGS84): 33° 44.067'
Longitude (WGS84): -118° 14.927'



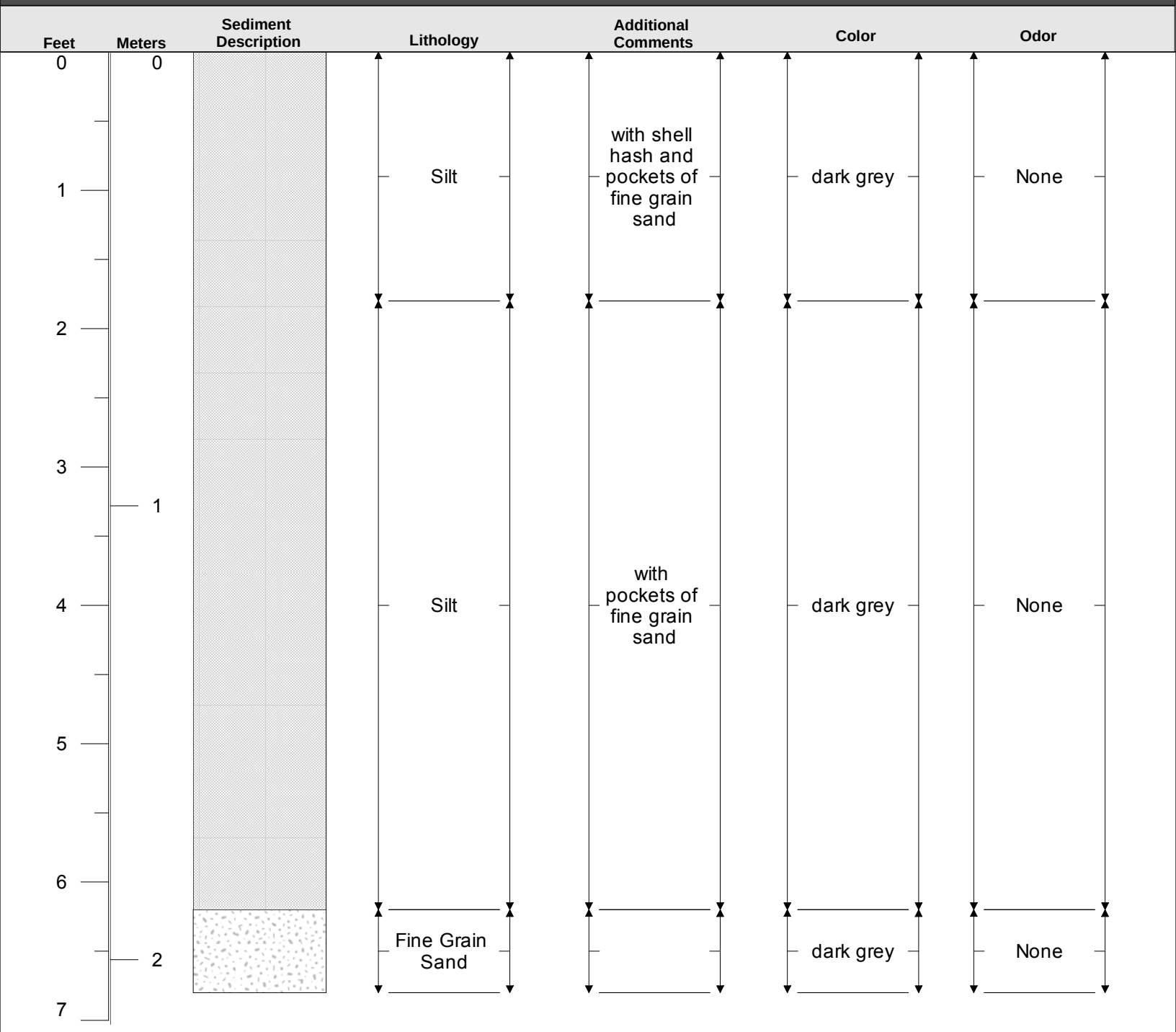
Water Depth (ft): 50
Tide (ft): 2.5
Attempt: 3

Penetration (ft): 4.5
Analysis Length (ft): 4
Comments: N/A

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

Station ID: B-4
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/30/10
Time: 9:25
Latitude (WGS84): 33° 44.057'
Longitude (WGS84): -118° 14.963'



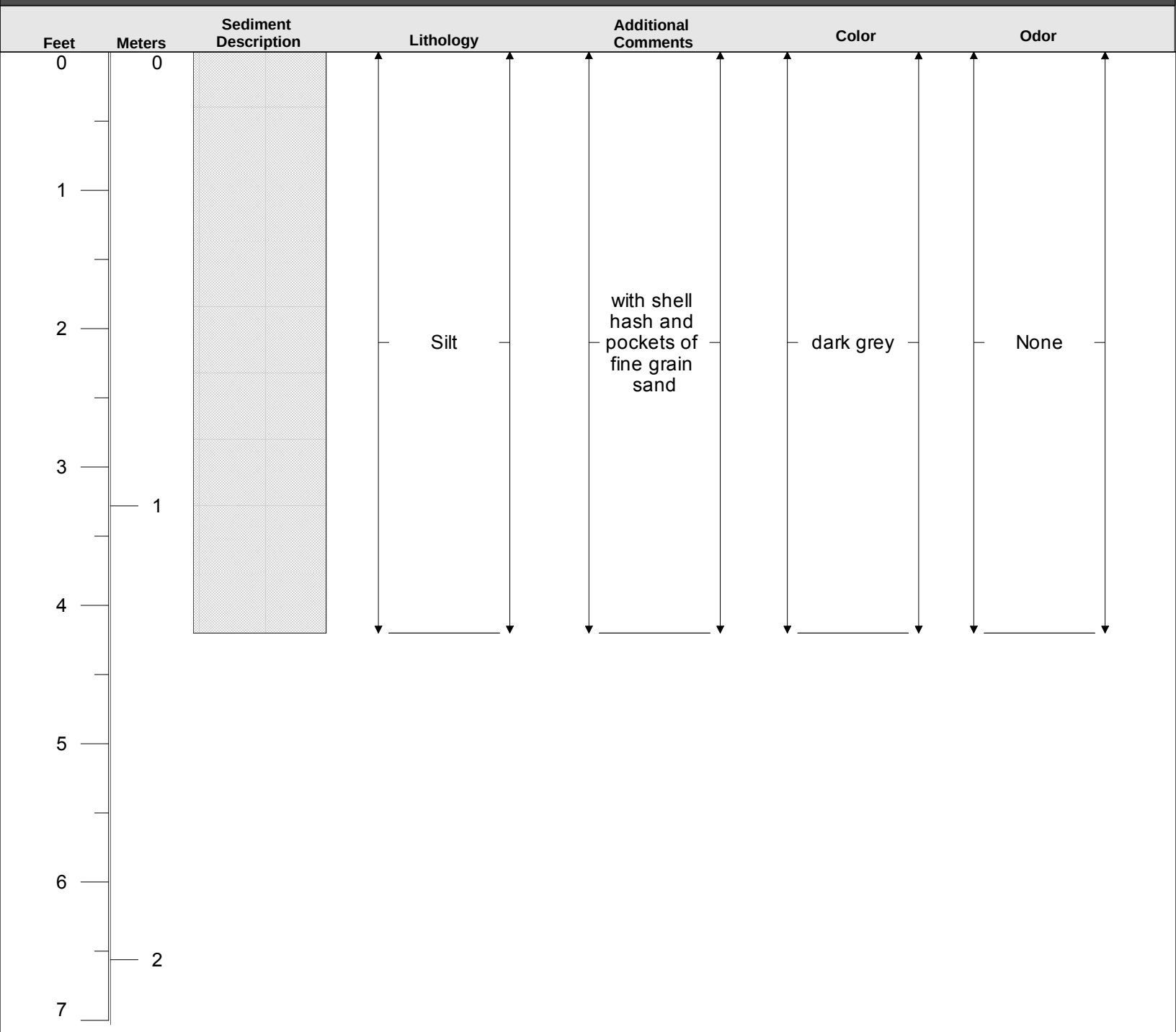
Water Depth (ft): 48.6
Tide (ft): 1.4
Attempt: 1

Penetration (ft): 6.8
Analysis Length (ft): 6
Comments: over penetration for additional chemistry

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

Station ID: B-4
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/30/10
Time: 9:49
Latitude (WGS84): 33° 44.057'
Longitude (WGS84): -118° 14.963'



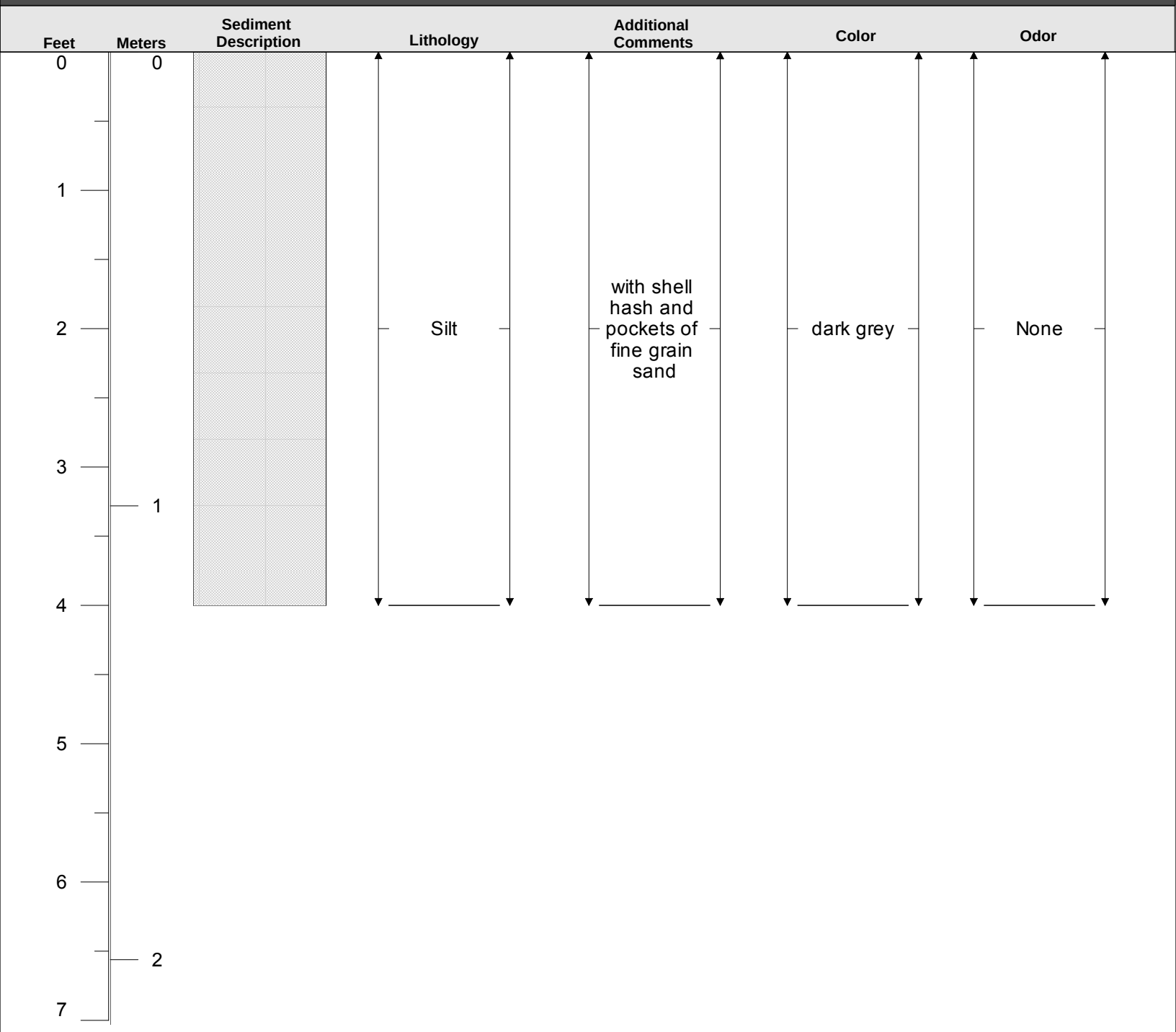
Water Depth (ft): 49.3
Tide (ft): 2.1
Attempt: 2

Penetration (ft): 4.8
Analysis Length (ft): 4.2
Comments: N/A

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

Station ID: B-4
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/30/10
Time: 10:02
Latitude (WGS84): 33° 44.057'
Longitude (WGS84): -118° 14.963'



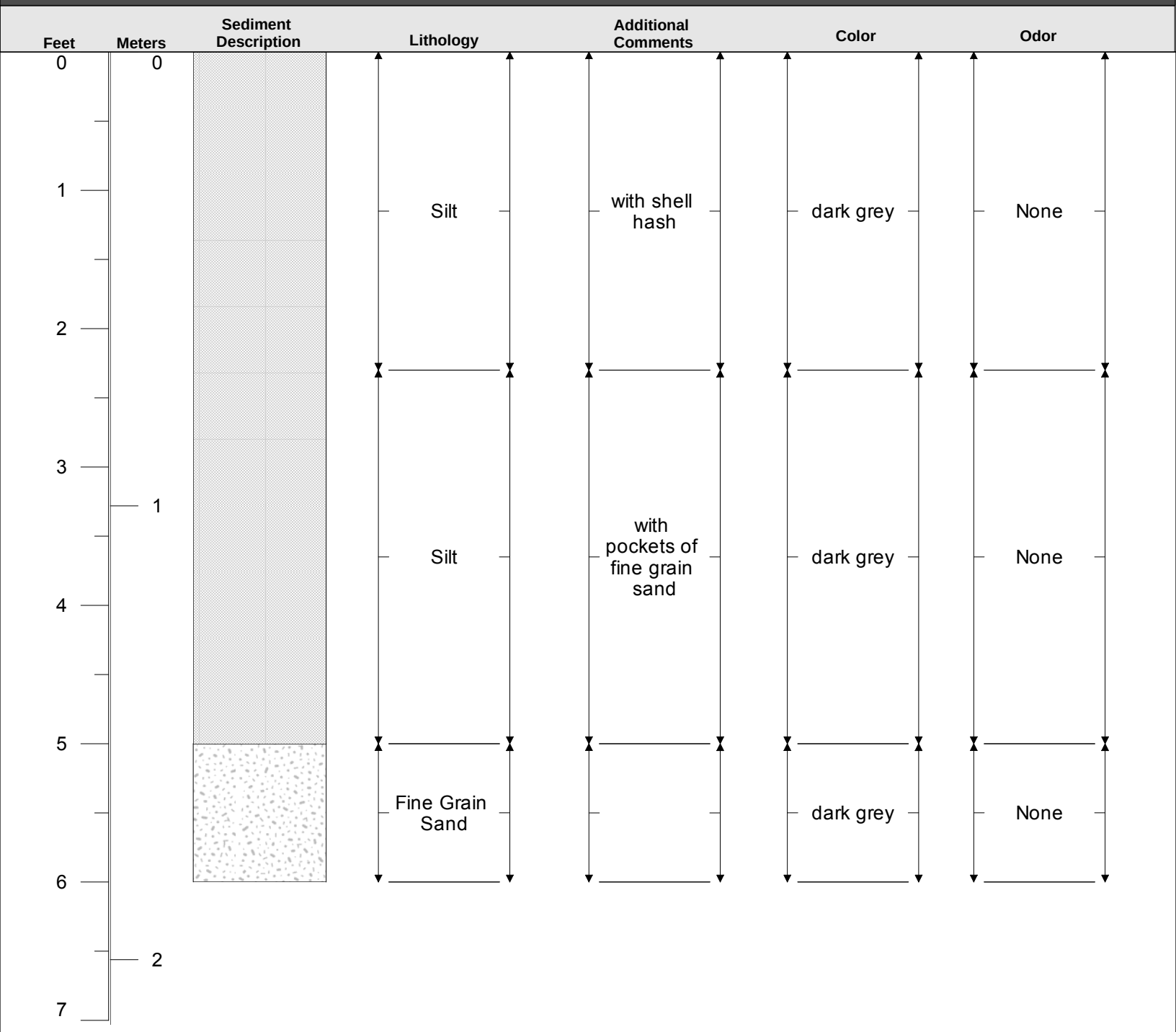
Water Depth (ft): 49.5
Tide (ft): 2.3
Attempt: 3

Penetration (ft): 4.8
Analysis Length (ft): 4
Comments: N/A

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

Station ID: B-5
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/30/10
Time: 10:31
Latitude (WGS84): 33° 44.075'
Longitude (WGS84): -118° 14.900'



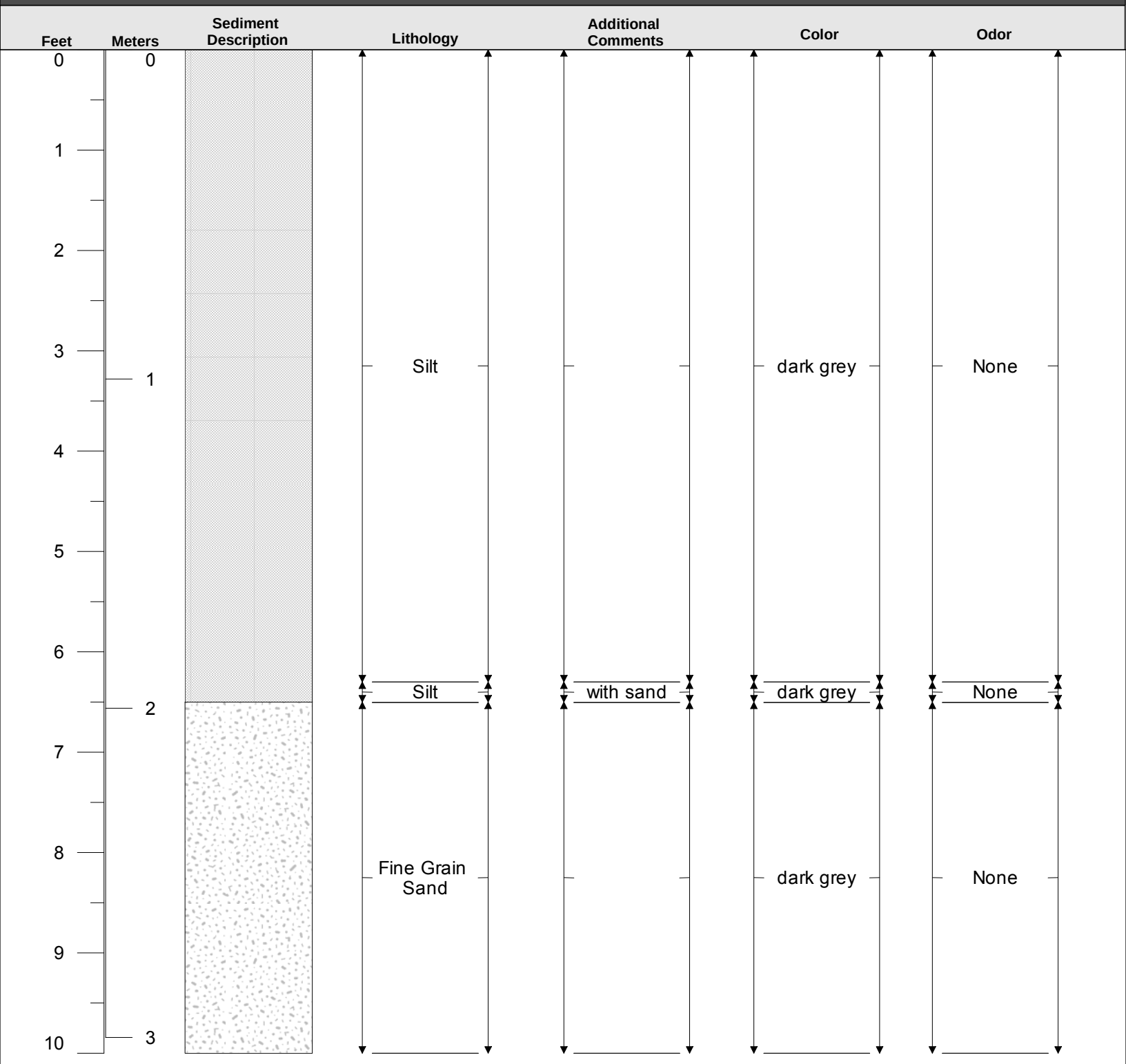
Water Depth (ft): 50.5
Tide (ft): 2.4
Attempt: 1

Penetration (ft): 6
Analysis Length (ft): 6
Comments: over penetration for additional chemistry

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

Station ID: C-1
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 8:40
Latitude (WGS84): 33° 44.092'
Longitude (WGS84): -118° 14.860'



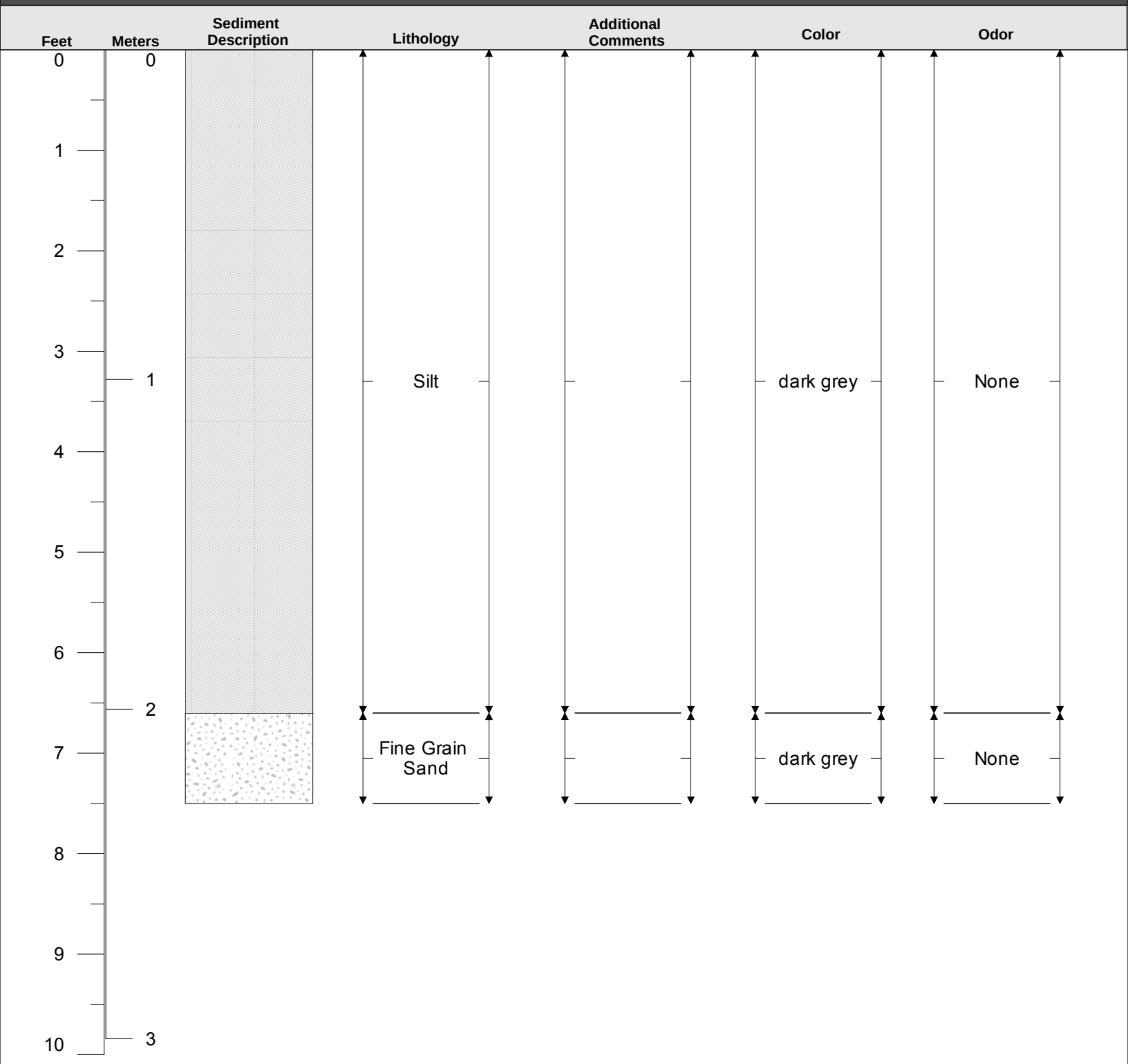
Water Depth (ft): 47.6
Tide (ft): 0.6
Attempt: 1

Penetration (ft): 10
Analysis Length (ft): 10
Comments: over penetration for additional chemistry

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

Station ID: C-1
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 10:36
Latitude (WGS84): 33° 44.092'
Longitude (WGS84): -118° 14.860'



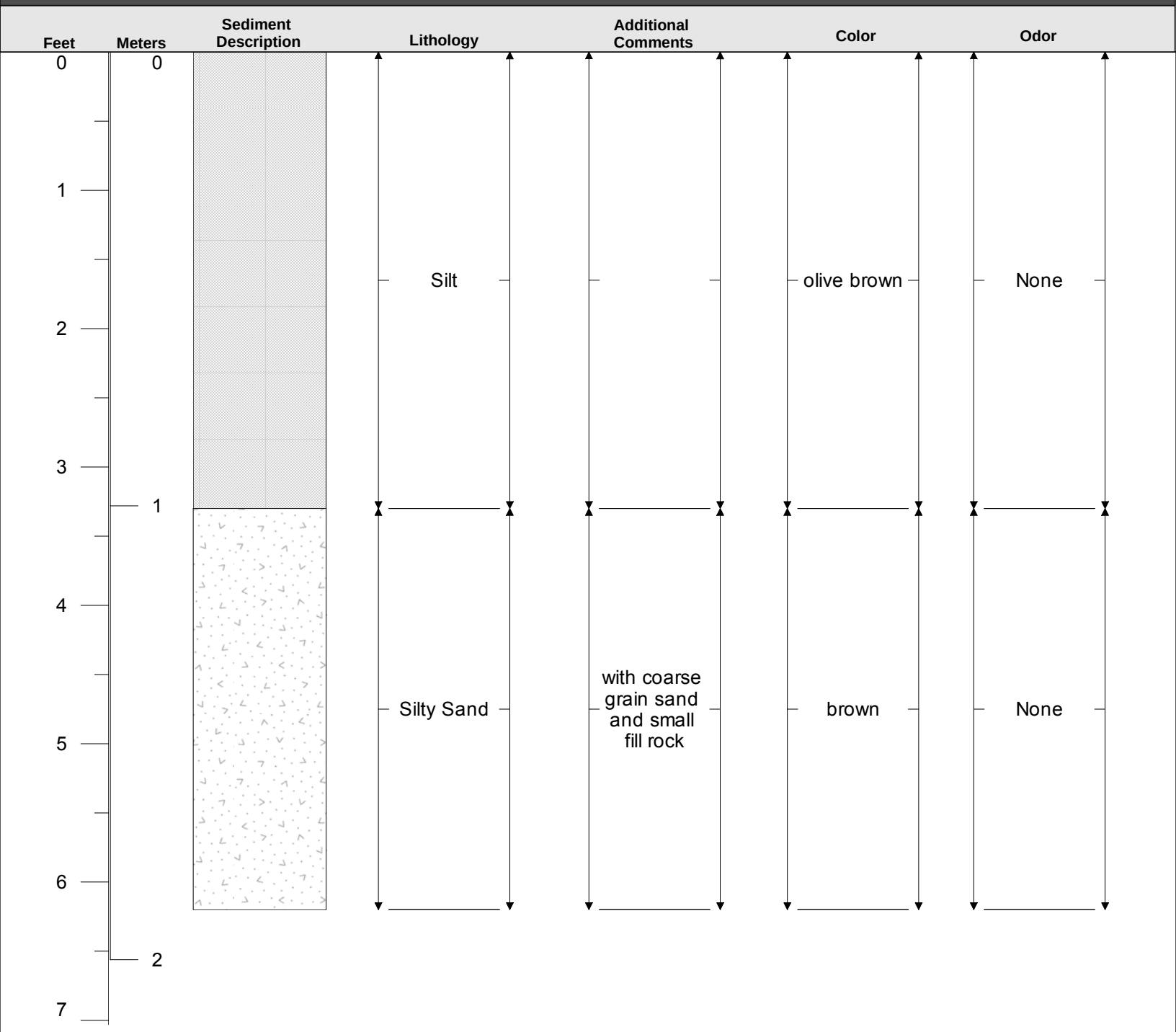
Water Depth (ft): 49.9
Tide (ft): 2.9
Attempt: 2

Penetration (ft): 8
Analysis Length (ft): 7.5
Comments: N/A

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

Station ID: C-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 11:20
Latitude (WGS84): 33° 44.104'
Longitude (WGS84): -118° 14.823'



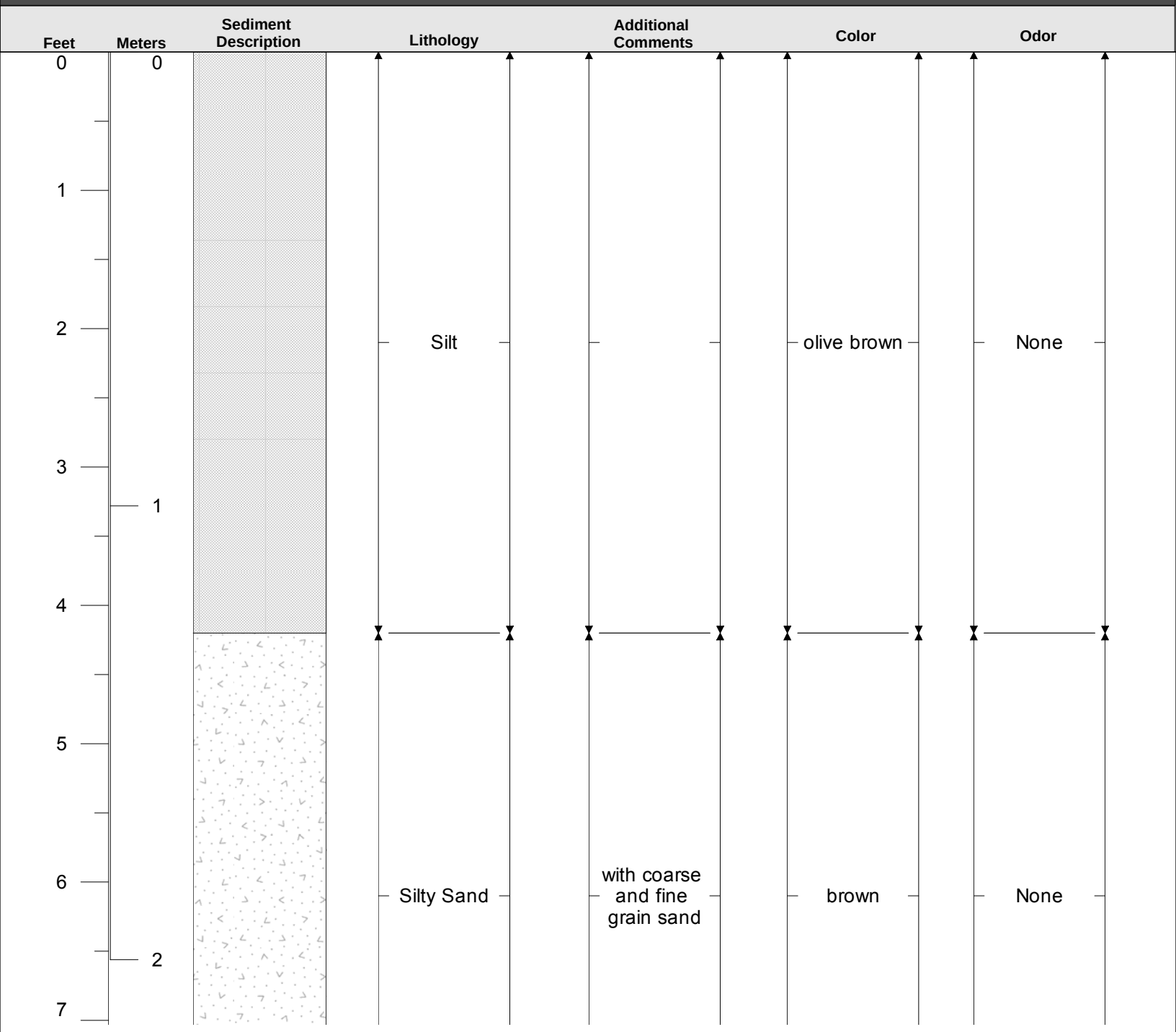
Water Depth (ft): 53.3
Tide (ft): 3.3
Attempt: 1

Penetration (ft): 7
Analysis Length (ft): 6.2
Comments: N/A

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

Station ID: C-2
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 11:53
Latitude (WGS84): 33° 44.104'
Longitude (WGS84): -118° 14.823'



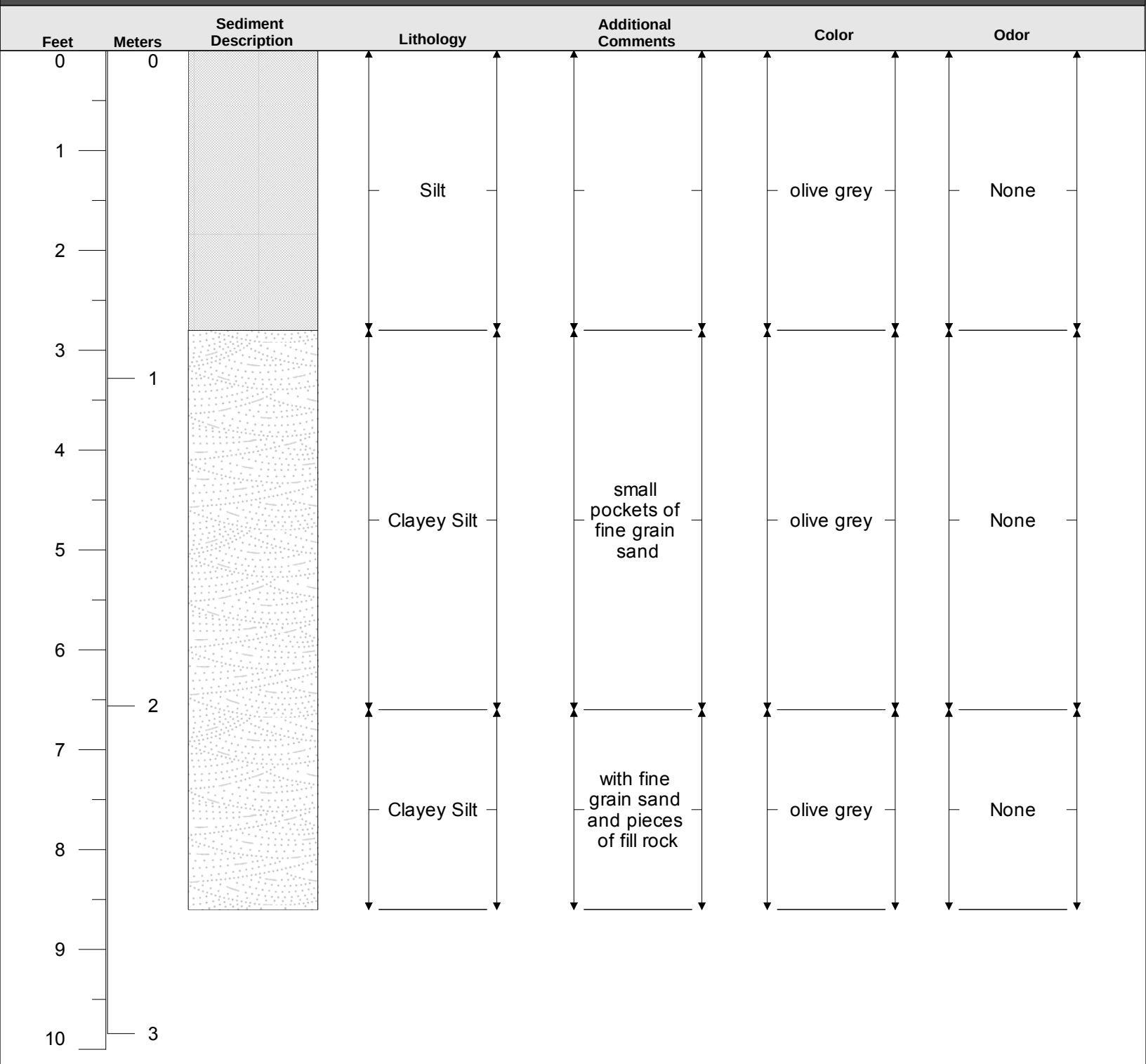
Water Depth (ft): 53.6
Tide (ft): 3.6
Attempt: 2

Penetration (ft): 9
Analysis Length (ft): 6
Comments: over penetrated for additional chemistry

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

Station ID: C-3
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 13:05
Latitude (WGS84): 33° 44.123'
Longitude (WGS84): -118° 14.758'



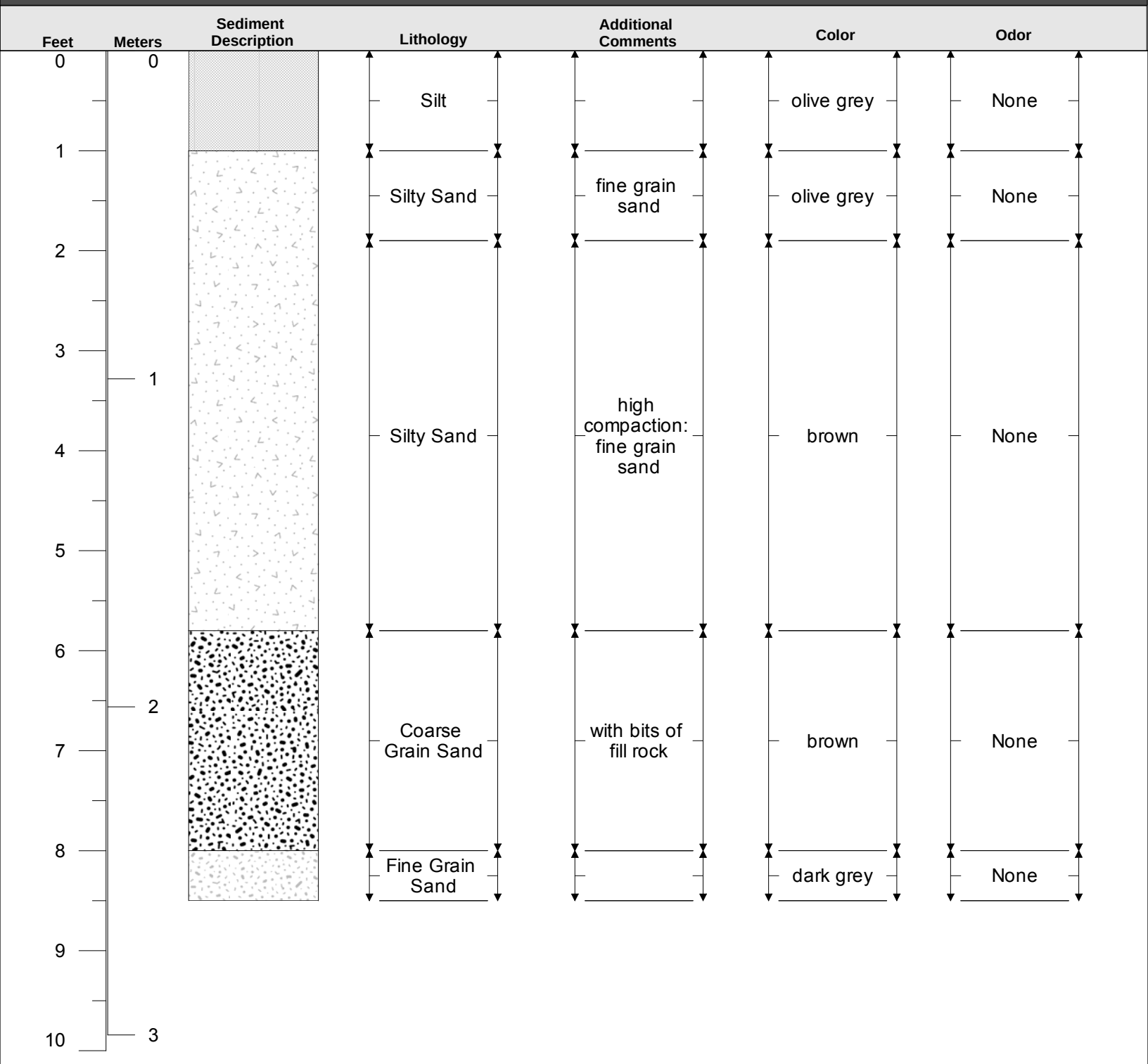
Water Depth (ft): 54.4
Tide (ft): 3.8
Attempt: 1

Penetration (ft): 8.6
Analysis Length (ft): 6.6
Comments: over penetration for additional chemistry

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

Station ID: C-4
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 14:11
Latitude (WGS84): 33° 44.141'
Longitude (WGS84): -118° 14.691'



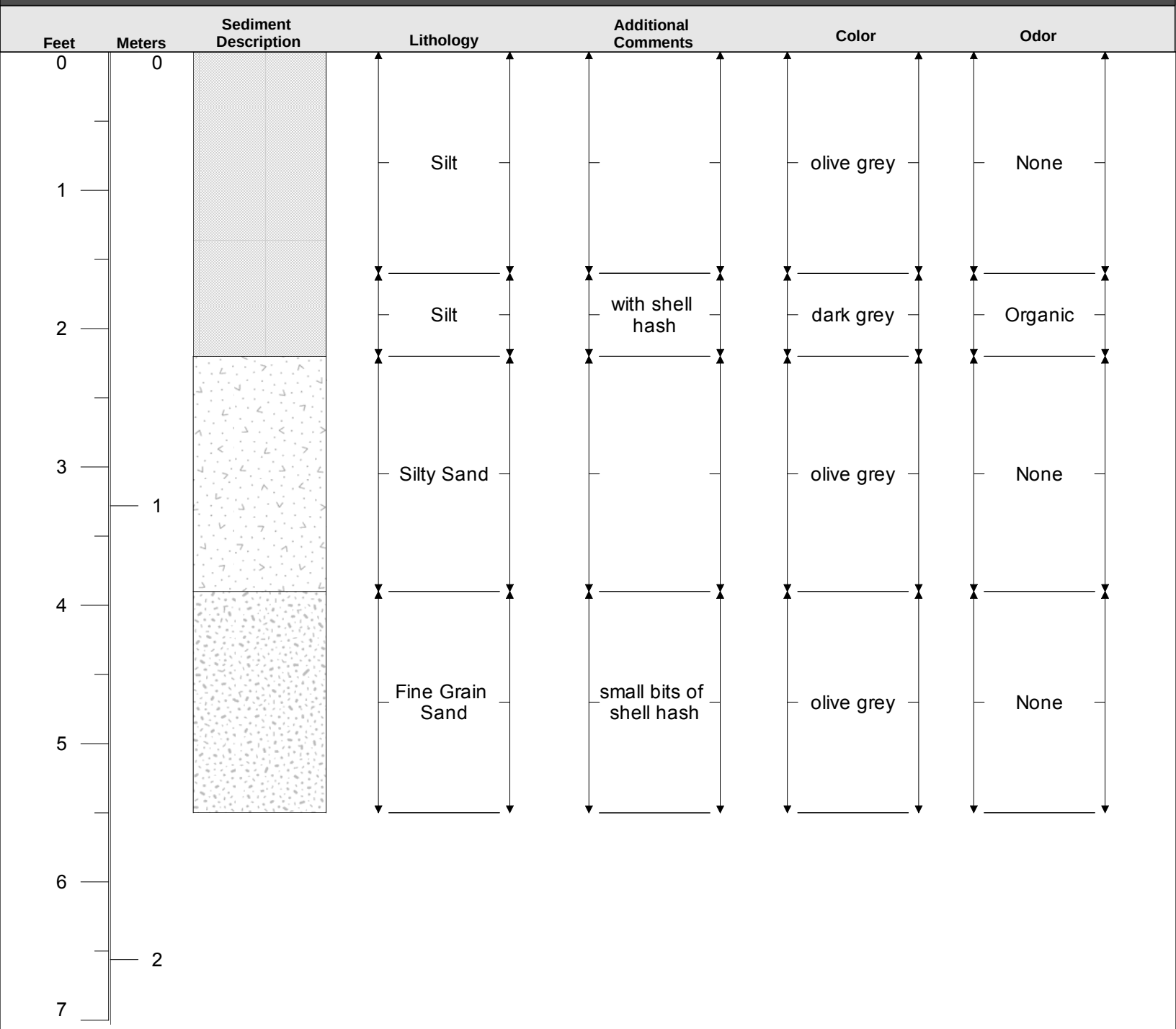
Water Depth (ft): 54.1
Tide (ft): 3.6
Attempt: 1

Penetration (ft): 8.5
Analysis Length (ft): 8.5
Comments: over penetration for additional chemistry

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

Station ID: C-5
Project: APL Terminal (Berths 302-306)
Project Manager: Barry Snyder

Date: 6/29/10
Time: 14:52
Latitude (WGS84): 33° 44.152'
Longitude (WGS84): -118° 14.650'



Water Depth (ft): 55.6
Tide (ft): 3.3
Attempt: 1

Penetration (ft): 6.7
Analysis Length (ft): 4.7
Comments: over penetration for additional chemistry

APPENDIX C

CORE PHOTOGRAPHS

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Station ID: A-1 Date: 6/28/2010 Time: 8:20
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: A-1 Date: 6/28/2010 Time: 8:20
Attempt:1
Start Length (ft): 3 End Length (ft):5.5

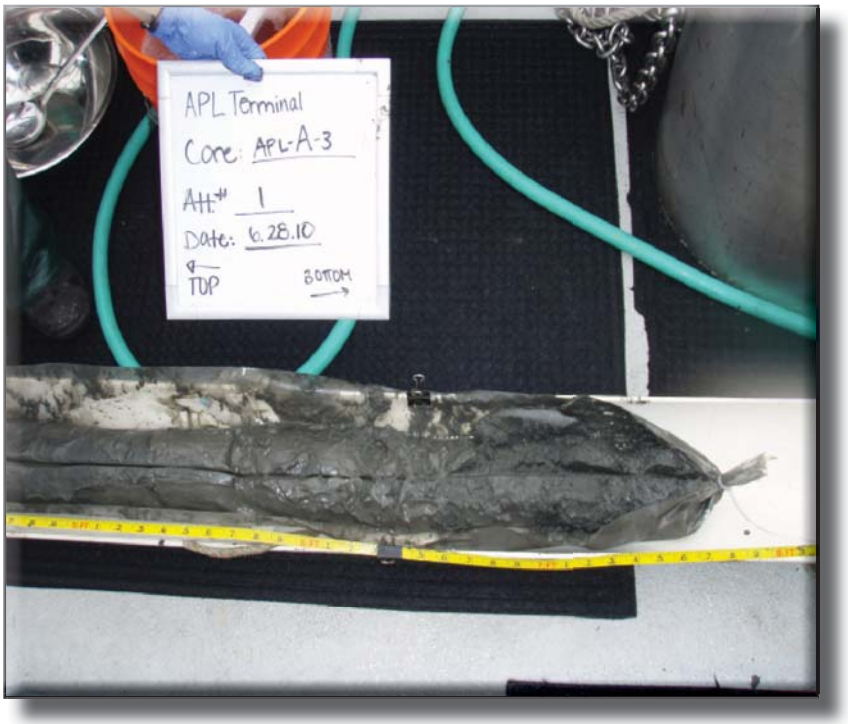
Image Not Available

Station ID: A-2 Date: 6/28/2010 Time: 10:06
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: A-2 Date: 6/28/2010 Time: 10:06
Attempt:1
Start Length (ft): 3 End Length (ft):5.5

Station ID: A-3 Date: 6/28/2010 Time: 11:29
Attempt:1
Start Length (ft): 0 End Length (ft):3

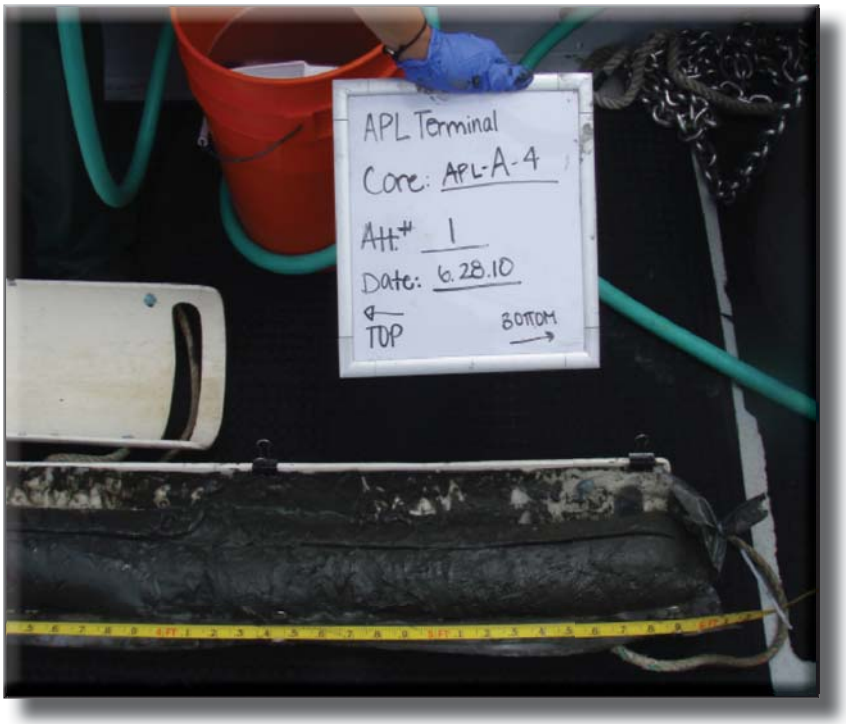
Station ID: A-3 Date: 6/28/2010 Time: 11:29
Attempt:1
Start Length (ft): 3 End Length (ft):5



Station ID: A-3 Date: 6/28/2010 Time: 11:29
Attempt:1
Start Length (ft): 5 End Length (ft):7.8

Station ID: A-4 Date: 6/28/2010 Time: 13:00
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: A-4 Date: 6/28/2010 Time: 13:00
Attempt:1
Start Length (ft): 3 End Length (ft):5



Station ID: A-4 Date: 6/28/2010 Time: 13:00
Attempt:1
Start Length (ft): 5 End Length (ft):6.1

Station ID: B-1 Date: 6/30/2010 Time: 8:09
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: B-1 Date: 6/30/2010 Time: 8:09
Attempt:1
Start Length (ft): 3 End Length (ft):5

Station ID: B-1 Date: 6/30/2010 Time: 8:09
Attempt:1
Start Length (ft): 5 End Length (ft):6.9

Station ID: B-3 Date: 7/1/2010 Time: 10:39
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: B-3 Date: 7/1/2010 Time: 10:39
Attempt:1
Start Length (ft): 3 End Length (ft):5

Station ID: B-3 Date: 7/1/2010 Time: 10:39
Attempt:1
Start Length (ft): 5 End Length (ft):6.5

Station ID: B-4 Date: 6/30/2010 Time: 9:25
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: B-4 Date: 6/30/2010 Time: 9:25
Attempt:1
Start Length (ft): 3 End Length (ft):5

Station ID: B-4 Date: 6/30/2010 Time: 9:25
Attempt:1
Start Length (ft): 5 End Length (ft):6.8

Station ID: B-5 Date: 6/30/2010 Time: 10:31
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: B-5 Date: 6/30/2010 Time: 10:31
Attempt:1
Start Length (ft): 3 End Length (ft):5

Station ID: B-5 Date: 6/30/2010 Time: 10:31
Attempt:1
Start Length (ft): 5 End Length (ft):6

Station ID: C-1 Date: 6/29/2010 Time: 8:40
Attempt:1
Start Length (ft): 0 End Length (ft):3

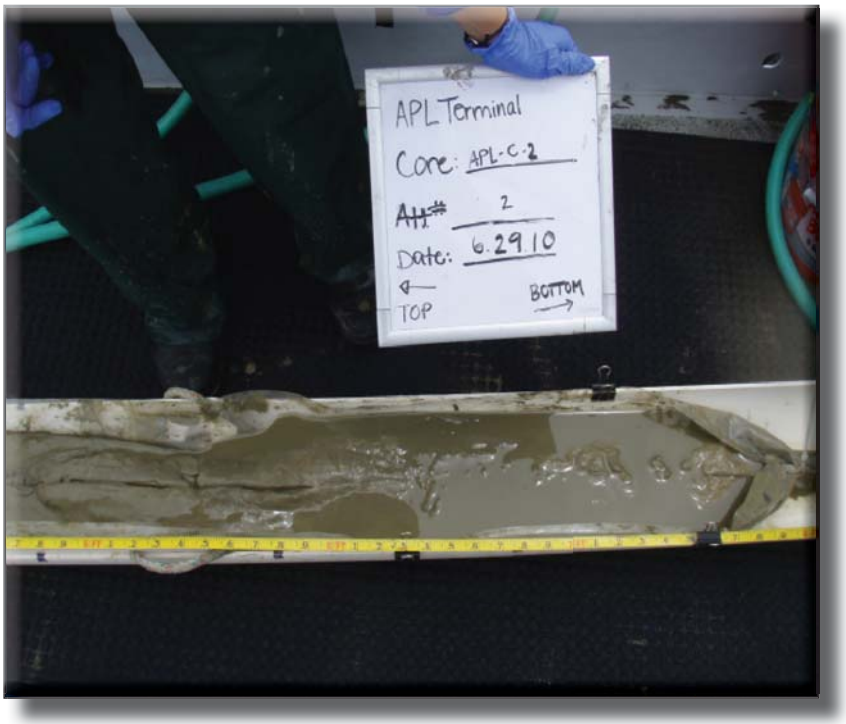
Station ID: C-1 Date: 6/29/2010 Time: 8:40
Attempt:1
Start Length (ft): 3 End Length (ft):6

Station ID: C-1 Date: 6/29/2010 Time: 8:40
Attempt:1
Start Length (ft): 6 End Length (ft):9

Station ID: C-1 Date: 6/29/2010 Time: 8:40
Attempt:1
Start Length (ft): 9 End Length (ft):10

Station ID: C-2 Date: 6/29/2010 Time: 11:53
Attempt:2
Start Length (ft): 0 End Length (ft):3

Station ID: C-2 Date: 6/29/2010 Time: 11:53
Attempt:2
Start Length (ft): 3 End Length (ft):6



Station ID: C-2 Date: 6/29/2010 Time: 11:53
Attempt:2
Start Length (ft): 6 End Length (ft):8

Station ID: C-3 Date: 6/29/2010 Time: 13:05
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: C-3 Date: 6/29/2010 Time: 13:05
Attempt:1
Start Length (ft): 3 End Length (ft):6

Station ID: C-3 Date: 6/29/2010 Time: 13:05
Attempt:1
Start Length (ft): 6 End Length (ft):8.6

Station ID: C-4 Date: 6/29/2010 Time: 14:11
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: C-4 Date: 6/29/2010 Time: 14:11
Attempt:1
Start Length (ft): 3 End Length (ft):6

Station ID: C-4 Date: 6/29/2010 Time: 14:11
Attempt:1
Start Length (ft): 6 End Length (ft):8.5

Station ID: C-5 Date: 6/29/2010 Time: 14:52
Attempt:1
Start Length (ft): 0 End Length (ft):3

Station ID: C-5 Date: 6/29/2010 Time: 14:52
Attempt:1
Start Length (ft): 3 End Length (ft):5.5

APPENDIX D

BULK SEDIMENT CHEMISTRY AND GRAIN SIZE RESULTS

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Calscience
Environmental
Laboratories, Inc.

July 26, 2010

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

Subject: **Calscience Work Order No.: 10-07-0093**
Client Reference: 10.1510.1100

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/1/2010 and analyzed in accordance with the attached chain-of-custody.

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

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

CASE NARRATIVE

Project ID: 10.1510.1100
Calscience Work Order No.: 10-07-0093

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 sample.

Sample Condition on Receipt

Seven sediment samples were received for this project on July 1, 2010. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 2.6°C. The samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and stored in refrigeration units pending chemistry testing.

No anomalies were noted.

Tests Performed

Dissolved Sulfide by EPA 376.2M
Total Sulfide by EPA 376.2M
Trace Metals by EPA 6020
Mercury by EPA 7471A
Organochlorine Pesticides by EPA 8081A
PCB Aroclors by EPA 8082
PAHs, Phenols and Phthalates by EPA 8270C SIM
Organotins by Krone et. al.
Total Organic Carbon by EPA 9060A
Total Solids by SM 2540B
Ammonia by SM 4500-NH3 B/C (M)
Grain Size by ASTM D4464

The Organotins analysis was subcontracted to EnviroMatrix Analytical, Inc. located in San Diego, CA. The results are included and follow the Calscience report.

Grain Size was subcontracted to PTS Laboratories in Santa Fe Springs, CA. The results are included and follow the Calscience report.

Data Summary

All samples were homogenized prior to analysis.

All sample results and reporting limits have been dry weight corrected.

A laboratory sample duplicate was created for sample Composite B Bottom. The duplicate sample was analyzed for Metals, SVOCs, PCBs, OC Pesticides, TOC and Total Solids.

Holding times

All holding time requirements were met.

Calibration

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

Reporting Limits

The Method Detection Limits were met.

Blanks

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

Laboratory Control Samples

Laboratory Control Sample (LCS) analyses were performed at the required frequencies and all parameters were within the accepted control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis. Matrix spiking was performed on the project samples, and all parameters were within the established control limits for each method with the following exceptions.

Sample APL Composite C was used for the metals matrix spiking. The matrix spike recoveries for Chromium and Copper were out of the control limits, but since the associated PDS/PDSD and LCS/LCSD recoveries were within the control limits, the data are released with no further action.

PAHs, Phenols and Phthalates were spiked on sample Composite C Bottom, and the MS and MSD recoveries for three analytes were outside the established control limits due to matrix interference. However, since the corresponding LCS/LCSD recoveries were within the established control limits, the data are released with no further qualification.

Surrogates

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

Acronyms

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

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	AMEC Earth & Environmental	Work Order:	10-07-0093
	9210 Sky Park Court, Suite 200	Project name:	10.1510.1100
	San Diego, CA 92123-4302	Received:	07/01/10 16:06
Attn:	Barry Snyder		

DETECTIONS SUMMARY

Client Sample ID / Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
APL Composite A						
Arsenic	**8.86**		0.150	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.385**		0.150	mg/kg	EPA 6020	EPA 3050B
Chromium	**28.3**		0.150	mg/kg	EPA 6020	EPA 3050B
Copper	**38.6**		0.150	mg/kg	EPA 6020	EPA 3050B
Lead	**13.0**		0.150	mg/kg	EPA 6020	EPA 3050B
Nickel	**23.3**		0.150	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.631**		0.150	mg/kg	EPA 6020	EPA 3050B
Silver	**0.163**		0.150	mg/kg	EPA 6020	EPA 3050B
Zinc	**95.9**		1.50	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**120**		7.5	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**0.93**		0.075	%	EPA 9060A	N/A
Ammonia (as N)	**2.5**		0.60	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**66.5**		0.100	%	SM 2540 B	N/A
TRPH	**18**		15	mg/kg	EPA 418.1M	Extraction
Mercury	**0.137**		0.0301	mg/kg	EPA 7471A	EPA 7471A Total
2,4'-DDE	**2.6**		1.5	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**12**		7.5	ug/kg	EPA 8081A	EPA 3545
LA-2						
Arsenic	**3.06**		0.133	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.216**		0.133	mg/kg	EPA 6020	EPA 3050B
Chromium	**22.0**		0.133	mg/kg	EPA 6020	EPA 3050B
Copper	**11.6**		0.133	mg/kg	EPA 6020	EPA 3050B
Lead	**6.34**		0.133	mg/kg	EPA 6020	EPA 3050B
Nickel	**12.1**		0.133	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.287**		0.133	mg/kg	EPA 6020	EPA 3050B
Zinc	**52.9**		1.33	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**0.66**		0.66	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**0.72**		0.066	%	EPA 9060A	N/A
Ammonia (as N)	**5.2**		0.53	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**75.4**		0.100	%	SM 2540 B	N/A
Mercury	**0.0337**		0.0266	mg/kg	EPA 7471A	EPA 7471A Total
4,4'-DDE	**6.1**		1.3	ug/kg	EPA 8081A	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	AMEC Earth & Environmental	Work Order:	10-07-0093
	9210 Sky Park Court, Suite 200	Project name:	10.1510.1100
	San Diego, CA 92123-4302	Received:	07/01/10 16:06
Attn:	Barry Snyder		

DETECTIONS SUMMARY

Client Sample ID / Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
Comp A bottom						
Arsenic	**6.26**		0.133	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.276**		0.133	mg/kg	EPA 6020	EPA 3050B
Chromium	**18.9**		0.133	mg/kg	EPA 6020	EPA 3050B
Copper	**19.1**		0.133	mg/kg	EPA 6020	EPA 3050B
Lead	**5.83**		0.133	mg/kg	EPA 6020	EPA 3050B
Nickel	**15.8**		0.133	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.234**		0.133	mg/kg	EPA 6020	EPA 3050B
Zinc	**70.6**		1.33	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**4.0**		0.67	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**0.49**		0.067	%	EPA 9060A	N/A
Ammonia (as N)	**3.4**		0.53	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**75.1**		0.100	%	SM 2540 B	N/A
TRPH	**15**		13	mg/kg	EPA 418.1M	Extraction
Mercury	**0.0536**		0.0267	mg/kg	EPA 7471A	EPA 7471A Total
4,4'-DDE	**1.7**		1.3	ug/kg	EPA 8081A	EPA 3545
APL Composite C						
Arsenic	**14.5**		0.158	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.532**		0.158	mg/kg	EPA 6020	EPA 3050B
Chromium	**42.4**		0.158	mg/kg	EPA 6020	EPA 3050B
Copper	**46.9**		0.158	mg/kg	EPA 6020	EPA 3050B
Lead	**18.7**		0.158	mg/kg	EPA 6020	EPA 3050B
Nickel	**36.4**		0.158	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.758**		0.158	mg/kg	EPA 6020	EPA 3050B
Silver	**0.196**		0.158	mg/kg	EPA 6020	EPA 3050B
Zinc	**117**		1.58	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**21**		0.79	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**1.3**		0.079	%	EPA 9060A	N/A
Ammonia (as N)	**3.5**		0.63	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**63.1**		0.100	%	SM 2540 B	N/A
TRPH	**17**		16	mg/kg	EPA 418.1M	Extraction
Mercury	**0.144**		0.0318	mg/kg	EPA 7471A	EPA 7471A Total
Aroclor-1254	**16**		16	ug/kg	EPA 8082	EPA 3545
2,4'-DDE	**3.0**		1.6	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**13**		3.2	ug/kg	EPA 8081A	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	AMEC Earth & Environmental	Work Order:	10-07-0093
	9210 Sky Park Court, Suite 200	Project name:	10.1510.1100
	San Diego, CA 92123-4302	Received:	07/01/10 16:06
Attn:	Barry Snyder		

DETECTIONS SUMMARY

Client Sample ID / Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
Composite C Bottom						
Arsenic	**12.1**		0.133	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.451**		0.133	mg/kg	EPA 6020	EPA 3050B
Chromium	**72.6**		0.133	mg/kg	EPA 6020	EPA 3050B
Copper	**35.5**		0.133	mg/kg	EPA 6020	EPA 3050B
Lead	**15.0**		0.133	mg/kg	EPA 6020	EPA 3050B
Nickel	**79.7**		0.133	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.398**		0.133	mg/kg	EPA 6020	EPA 3050B
Zinc	**94.1**		1.33	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**13**		0.66	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**1.0**		0.066	%	EPA 9060A	N/A
Ammonia (as N)	**4.1**		0.53	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**75.2**		0.100	%	SM 2540 B	N/A
TRPH	**27**		13	mg/kg	EPA 418.1M	Extraction
Mercury	**0.0851**		0.0266	mg/kg	EPA 7471A	EPA 7471A Total
Bis(2-Ethylhexyl) Phthalate	**16**		13	ug/kg	EPA 8270C SIM	EPA 3545
4,4'-DDE	**3.8**		1.3	ug/kg	EPA 8081A	EPA 3545
APL Composite B						
Arsenic	**15.0**		0.170	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.620**		0.170	mg/kg	EPA 6020	EPA 3050B
Chromium	**38.7**		0.170	mg/kg	EPA 6020	EPA 3050B
Copper	**50.8**		0.170	mg/kg	EPA 6020	EPA 3050B
Lead	**19.0**		0.170	mg/kg	EPA 6020	EPA 3050B
Nickel	**31.6**		0.170	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.533**		0.170	mg/kg	EPA 6020	EPA 3050B
Silver	**0.232**		0.170	mg/kg	EPA 6020	EPA 3050B
Zinc	**123**		1.70	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**56**		2.6	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**1.3**		0.085	%	EPA 9060A	N/A
Ammonia (as N)	**4.8**		0.68	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**58.8**		0.100	%	SM 2540 B	N/A
TRPH	**17**		17	mg/kg	EPA 418.1M	Extraction
Mercury	**0.153**		0.0341	mg/kg	EPA 7471A	EPA 7471A Total
Bis(2-Ethylhexyl) Phthalate	**19**		17	ug/kg	EPA 8270C SIM	EPA 3545
2,4'-DDE	**3.4**		1.7	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**14**		8.5	ug/kg	EPA 8081A	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	AMEC Earth & Environmental	Work Order:	10-07-0093
	9210 Sky Park Court, Suite 200	Project name:	10.1510.1100
	San Diego, CA 92123-4302	Received:	07/01/10 16:06
Attn:	Barry Snyder		

DETECTIONS SUMMARY

Client Sample ID / Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
Composite B Bottom						
Arsenic	**11.1**		0.157	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.658**		0.157	mg/kg	EPA 6020	EPA 3050B
Chromium	**33.6**		0.157	mg/kg	EPA 6020	EPA 3050B
Copper	**38.1**		0.157	mg/kg	EPA 6020	EPA 3050B
Lead	**20.7**		0.157	mg/kg	EPA 6020	EPA 3050B
Nickel	**24.9**		0.157	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.839**		0.157	mg/kg	EPA 6020	EPA 3050B
Silver	**0.275**		0.157	mg/kg	EPA 6020	EPA 3050B
Zinc	**108**		1.57	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**15**		0.78	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**1.3**		0.078	%	EPA 9060A	N/A
Ammonia (as N)	**6.2**		0.63	mg/kg	SM 4500-NH3 B/C (	N/A
Solids, Total	**63.7**		0.100	%	SM 2540 B	N/A
Mercury	**0.162**		0.0315	mg/kg	EPA 7471A	EPA 7471A Total
Aroclor-1254	**25**		16	ug/kg	EPA 8082	EPA 3545
2,4'-DDE	**6.2**		1.6	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**25**		7.8	ug/kg	EPA 8081A	EPA 3545
Composite B Bottom (Lab Dup)						
Arsenic	**10.9**		0.151	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.624**		0.151	mg/kg	EPA 6020	EPA 3050B
Chromium	**33.2**		0.151	mg/kg	EPA 6020	EPA 3050B
Copper	**37.8**		0.151	mg/kg	EPA 6020	EPA 3050B
Lead	**20.0**		0.151	mg/kg	EPA 6020	EPA 3050B
Nickel	**25.3**		0.151	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.850**		0.151	mg/kg	EPA 6020	EPA 3050B
Silver	**0.273**		0.151	mg/kg	EPA 6020	EPA 3050B
Zinc	**110**		1.51	mg/kg	EPA 6020	EPA 3050B
Carbon, Total Organic	**1.3**		0.076	%	EPA 9060A	N/A
Solids, Total	**66.2**		0.100	%	SM 2540 B	N/A
Mercury	**0.147**		0.0303	mg/kg	EPA 7471A	EPA 7471A Total
Bis(2-Ethylhexyl) Phthalate	**16**		15	ug/kg	EPA 8270C SIM	EPA 3545
Fluoranthene	**17**		15	ug/kg	EPA 8270C SIM	EPA 3545
Phenanthrene	**15**		15	ug/kg	EPA 8270C SIM	EPA 3545
Pyrene	**19**		15	ug/kg	EPA 8270C SIM	EPA 3545
Aroclor-1254	**27**		15	ug/kg	EPA 8082	EPA 3545
2,4'-DDE	**6.6**		1.5	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**26**		7.6	ug/kg	EPA 8081A	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	AMEC Earth & Environmental	Work Order:	10-07-0093
	9210 Sky Park Court, Suite 200	Project name:	10.1510.1100
	San Diego, CA 92123-4302	Received:	07/01/10 16:06
Attn:	Barry Snyder		

DETECTIONS SUMMARY

Client Sample ID

Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction

Subcontracted analyses, if any, are not included in this summary.

*MDL is shown.

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: Extraction
Method: EPA 418.1M

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite A	**10-07-0093-1-A**	**06/28/10 13:15**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	18	15	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA-2	**10-07-0093-2-A**	**06/27/10 12:00**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	ND	13	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Comp A bottom	**10-07-0093-3-A**	**06/28/10 13:15**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	15	13	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite C	**10-07-0093-4-A**	**06/29/10 15:00**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	17	16	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite C Bottom	**10-07-0093-5-A**	**06/29/10 15:00**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	27	13	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite B	**10-07-0093-6-A**	**07/01/10 12:00**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom	**10-07-0093-7-A**	**07/01/10 12:00**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	ND	16	1		mg/kg

Composite B Bottom (Lab Dup)	**10-07-0093-8-A**	**07/01/10 12:00**	**Sediment**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	ND	15	1		mg/kg

Method Blank	**099-07-015-1,677**	**N/A**	**Solid**	**IR #1**	**07/07/10**	**07/07/10 16:01**	**100707L01**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite A	**10-07-0093-1-A**	**06/28/10 13:15**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 12:07**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	15	1		Benzo (b) Fluoranthene	ND	15	1	
2,4,5-Trichlorophenol	ND	15	1		Benzo (g,h,i) Perylene	ND	15	1	
2,4,6-Trichlorophenol	ND	15	1		Benzo (k) Fluoranthene	ND	15	1	
2,4-Dichlorophenol	ND	15	1		Bis(2-Ethylhexyl) Phthalate	ND	15	1	
2,4-Dimethylphenol	ND	15	1		Butyl Benzyl Phthalate	ND	15	1	
2,4-Dinitrophenol	ND	750	1		Chrysene	ND	15	1	
2-Chlorophenol	ND	15	1		Di-n-Butyl Phthalate	ND	15	1	
2-Methylnaphthalene	ND	15	1		Di-n-Octyl Phthalate	ND	15	1	
2-Methylphenol	ND	15	1		Dibenz (a,h) Anthracene	ND	15	1	
2-Nitrophenol	ND	15	1		Diethyl Phthalate	ND	15	1	
3/4-Methylphenol	ND	15	1		Dimethyl Phthalate	ND	15	1	
4,6-Dinitro-2-Methylphenol	ND	750	1		Fluoranthene	ND	15	1	
4-Chloro-3-Methylphenol	ND	15	1		Fluorene	ND	15	1	
4-Nitrophenol	ND	750	1		Indeno (1,2,3-c,d) Pyrene	ND	15	1	
Acenaphthene	ND	15	1		Naphthalene	ND	15	1	
Acenaphthylene	ND	15	1		Pentachlorophenol	ND	750	1	
Anthracene	ND	15	1		Phenanthrene	ND	15	1	
Benzo (a) Anthracene	ND	15	1		Phenol	ND	15	1	
Benzo (a) Pyrene	ND	15	1		Pyrene	ND	15	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	57	32-143		2-Fluorobiphenyl	40	14-146	
2-Fluorophenol	32	15-138		Nitrobenzene-d5	37	18-162	
p-Terphenyl-d14	62	34-148		Phenol-d6	34	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 2 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA-2	**10-07-0093-2-A**	**06/27/10 12:00**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 12:32**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	13	1		Benzo (b) Fluoranthene	ND	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (g,h,i) Perylene	ND	13	1	
2,4,6-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	ND	13	1	
2,4-Dichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	ND	13	1	
2,4-Dimethylphenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dinitrophenol	ND	660	1		Chrysene	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Butyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylphenol	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Nitrophenol	ND	13	1		Diethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
4,6-Dinitro-2-Methylphenol	ND	660	1		Fluoranthene	ND	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Fluorene	ND	13	1	
4-Nitrophenol	ND	660	1		Indeno (1,2,3-c,d) Pyrene	ND	13	1	
Acenaphthene	ND	13	1		Naphthalene	ND	13	1	
Acenaphthylene	ND	13	1		Pentachlorophenol	ND	660	1	
Anthracene	ND	13	1		Phenanthrene	ND	13	1	
Benzo (a) Anthracene	ND	13	1		Phenol	ND	13	1	
Benzo (a) Pyrene	ND	13	1		Pyrene	ND	13	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,6-Tribromophenol	55	32-143			2-Fluorobiphenyl	52	14-146		
2-Fluorophenol	30	15-138			Nitrobenzene-d5	38	18-162		
p-Terphenyl-d14	61	34-148			Phenol-d6	22	17-141		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 3 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Comp A bottom	**10-07-0093-3-A**	**06/28/10 13:15**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 12:57**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	13	1		Benzo (b) Fluoranthene	ND	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (g,h,i) Perylene	ND	13	1	
2,4,6-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	ND	13	1	
2,4-Dichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	ND	13	1	
2,4-Dimethylphenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dinitrophenol	ND	670	1		Chrysene	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Butyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylphenol	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Nitrophenol	ND	13	1		Diethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
4,6-Dinitro-2-Methylphenol	ND	670	1		Fluoranthene	ND	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Fluorene	ND	13	1	
4-Nitrophenol	ND	670	1		Indeno (1,2,3-c,d) Pyrene	ND	13	1	
Acenaphthene	ND	13	1		Naphthalene	ND	13	1	
Acenaphthylene	ND	13	1		Pentachlorophenol	ND	670	1	
Anthracene	ND	13	1		Phenanthrene	ND	13	1	
Benzo (a) Anthracene	ND	13	1		Phenol	ND	13	1	
Benzo (a) Pyrene	ND	13	1		Pyrene	ND	13	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,6-Tribromophenol	40	32-143			2-Fluorobiphenyl	41	14-146		
2-Fluorophenol	18	15-138			Nitrobenzene-d5	33	18-162		
p-Terphenyl-d14	49	34-148			Phenol-d6	17	17-141		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 4 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite C	**10-07-0093-4-A**	**06/29/10 15:00**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 13:23**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	16	1		Benzo (b) Fluoranthene	ND	16	1	
2,4,5-Trichlorophenol	ND	16	1		Benzo (g,h,i) Perylene	ND	16	1	
2,4,6-Trichlorophenol	ND	16	1		Benzo (k) Fluoranthene	ND	16	1	
2,4-Dichlorophenol	ND	16	1		Bis(2-Ethylhexyl) Phthalate	ND	16	1	
2,4-Dimethylphenol	ND	16	1		Butyl Benzyl Phthalate	ND	16	1	
2,4-Dinitrophenol	ND	790	1		Chrysene	ND	16	1	
2-Chlorophenol	ND	16	1		Di-n-Butyl Phthalate	ND	16	1	
2-Methylnaphthalene	ND	16	1		Di-n-Octyl Phthalate	ND	16	1	
2-Methylphenol	ND	16	1		Dibenz (a,h) Anthracene	ND	16	1	
2-Nitrophenol	ND	16	1		Diethyl Phthalate	ND	16	1	
3/4-Methylphenol	ND	16	1		Dimethyl Phthalate	ND	16	1	
4,6-Dinitro-2-Methylphenol	ND	790	1		Fluoranthene	ND	16	1	
4-Chloro-3-Methylphenol	ND	16	1		Fluorene	ND	16	1	
4-Nitrophenol	ND	790	1		Indeno (1,2,3-c,d) Pyrene	ND	16	1	
Acenaphthene	ND	16	1		Naphthalene	ND	16	1	
Acenaphthylene	ND	16	1		Pentachlorophenol	ND	790	1	
Anthracene	ND	16	1		Phenanthrene	ND	16	1	
Benzo (a) Anthracene	ND	16	1		Phenol	ND	16	1	
Benzo (a) Pyrene	ND	16	1		Pyrene	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,6-Tribromophenol	39	32-143			2-Fluorobiphenyl	42	14-146		
2-Fluorophenol	29	15-138			Nitrobenzene-d5	38	18-162		
p-Terphenyl-d14	63	34-148			Phenol-d6	20	17-141		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 5 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite C Bottom	**10-07-0093-5-A**	**06/29/10 15:00**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 13:48**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	13	1		Benzo (b) Fluoranthene	ND	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (g,h,i) Perylene	ND	13	1	
2,4,6-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	ND	13	1	
2,4-Dichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	16	13	1	
2,4-Dimethylphenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dinitrophenol	ND	660	1		Chrysene	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Butyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylphenol	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Nitrophenol	ND	13	1		Diethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
4,6-Dinitro-2-Methylphenol	ND	660	1		Fluoranthene	ND	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Fluorene	ND	13	1	
4-Nitrophenol	ND	660	1		Indeno (1,2,3-c,d) Pyrene	ND	13	1	
Acenaphthene	ND	13	1		Naphthalene	ND	13	1	
Acenaphthylene	ND	13	1		Pentachlorophenol	ND	660	1	
Anthracene	ND	13	1		Phenanthrene	ND	13	1	
Benzo (a) Anthracene	ND	13	1		Phenol	ND	13	1	
Benzo (a) Pyrene	ND	13	1		Pyrene	ND	13	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	52	32-143		2-Fluorobiphenyl	47	14-146	
2-Fluorophenol	39	15-138		Nitrobenzene-d5	46	18-162	
p-Terphenyl-d14	59	34-148		Phenol-d6	49	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 6 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite B	**10-07-0093-6-A**	**07/01/10 12:00**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 14:13**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	17	1		Benzo (b) Fluoranthene	ND	17	1	
2,4,5-Trichlorophenol	ND	17	1		Benzo (g,h,i) Perylene	ND	17	1	
2,4,6-Trichlorophenol	ND	17	1		Benzo (k) Fluoranthene	ND	17	1	
2,4-Dichlorophenol	ND	17	1		Bis(2-Ethylhexyl) Phthalate	19	17	1	
2,4-Dimethylphenol	ND	17	1		Butyl Benzyl Phthalate	ND	17	1	
2,4-Dinitrophenol	ND	850	1		Chrysene	ND	17	1	
2-Chlorophenol	ND	17	1		Di-n-Butyl Phthalate	ND	17	1	
2-Methylnaphthalene	ND	17	1		Di-n-Octyl Phthalate	ND	17	1	
2-Methylphenol	ND	17	1		Dibenz (a,h) Anthracene	ND	17	1	
2-Nitrophenol	ND	17	1		Diethyl Phthalate	ND	17	1	
3/4-Methylphenol	ND	17	1		Dimethyl Phthalate	ND	17	1	
4,6-Dinitro-2-Methylphenol	ND	850	1		Fluoranthene	ND	17	1	
4-Chloro-3-Methylphenol	ND	17	1		Fluorene	ND	17	1	
4-Nitrophenol	ND	850	1		Indeno (1,2,3-c,d) Pyrene	ND	17	1	
Acenaphthene	ND	17	1		Naphthalene	ND	17	1	
Acenaphthylene	ND	17	1		Pentachlorophenol	ND	850	1	
Anthracene	ND	17	1		Phenanthrene	ND	17	1	
Benzo (a) Anthracene	ND	17	1		Phenol	ND	17	1	
Benzo (a) Pyrene	ND	17	1		Pyrene	ND	17	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,6-Tribromophenol	52	32-143			2-Fluorobiphenyl	40	14-146		
2-Fluorophenol	38	15-138			Nitrobenzene-d5	38	18-162		
p-Terphenyl-d14	64	34-148			Phenol-d6	43	17-141		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 7 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom	**10-07-0093-7-A**	**07/01/10 12:00**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 14:39**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	16	1		Benzo (b) Fluoranthene	ND	16	1	
2,4,5-Trichlorophenol	ND	16	1		Benzo (g,h,i) Perylene	ND	16	1	
2,4,6-Trichlorophenol	ND	16	1		Benzo (k) Fluoranthene	ND	16	1	
2,4-Dichlorophenol	ND	16	1		Bis(2-Ethylhexyl) Phthalate	ND	16	1	
2,4-Dimethylphenol	ND	16	1		Butyl Benzyl Phthalate	ND	16	1	
2,4-Dinitrophenol	ND	780	1		Chrysene	ND	16	1	
2-Chlorophenol	ND	16	1		Di-n-Butyl Phthalate	ND	16	1	
2-Methylnaphthalene	ND	16	1		Di-n-Octyl Phthalate	ND	16	1	
2-Methylphenol	ND	16	1		Dibenz (a,h) Anthracene	ND	16	1	
2-Nitrophenol	ND	16	1		Diethyl Phthalate	ND	16	1	
3/4-Methylphenol	ND	16	1		Dimethyl Phthalate	ND	16	1	
4,6-Dinitro-2-Methylphenol	ND	780	1		Fluoranthene	ND	16	1	
4-Chloro-3-Methylphenol	ND	16	1		Fluorene	ND	16	1	
4-Nitrophenol	ND	780	1		Indeno (1,2,3-c,d) Pyrene	ND	16	1	
Acenaphthene	ND	16	1		Naphthalene	ND	16	1	
Acenaphthylene	ND	16	1		Pentachlorophenol	ND	780	1	
Anthracene	ND	16	1		Phenanthrene	ND	16	1	
Benzo (a) Anthracene	ND	16	1		Phenol	ND	16	1	
Benzo (a) Pyrene	ND	16	1		Pyrene	ND	16	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	42	32-143		2-Fluorobiphenyl	34	14-146	
2-Fluorophenol	27	15-138		Nitrobenzene-d5	38	18-162	
p-Terphenyl-d14	61	34-148		Phenol-d6	25	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 8 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom (Lab Dup)	**10-07-0093-8-A**	**07/01/10 12:00**	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10 15:04**	**100703L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	15	1		Benzo (b) Fluoranthene	ND	15	1	
2,4,5-Trichlorophenol	ND	15	1		Benzo (g,h,i) Perylene	ND	15	1	
2,4,6-Trichlorophenol	ND	15	1		Benzo (k) Fluoranthene	ND	15	1	
2,4-Dichlorophenol	ND	15	1		Bis(2-Ethylhexyl) Phthalate	16	15	1	
2,4-Dimethylphenol	ND	15	1		Butyl Benzyl Phthalate	ND	15	1	
2,4-Dinitrophenol	ND	760	1		Chrysene	ND	15	1	
2-Chlorophenol	ND	15	1		Di-n-Butyl Phthalate	ND	15	1	
2-Methylnaphthalene	ND	15	1		Di-n-Octyl Phthalate	ND	15	1	
2-Methylphenol	ND	15	1		Dibenz (a,h) Anthracene	ND	15	1	
2-Nitrophenol	ND	15	1		Diethyl Phthalate	ND	15	1	
3/4-Methylphenol	ND	15	1		Dimethyl Phthalate	ND	15	1	
4,6-Dinitro-2-Methylphenol	ND	760	1		Fluoranthene	17	15	1	
4-Chloro-3-Methylphenol	ND	15	1		Fluorene	ND	15	1	
4-Nitrophenol	ND	760	1		Indeno (1,2,3-c,d) Pyrene	ND	15	1	
Acenaphthene	ND	15	1		Naphthalene	ND	15	1	
Acenaphthylene	ND	15	1		Pentachlorophenol	ND	760	1	
Anthracene	ND	15	1		Phenanthrene	15	15	1	
Benzo (a) Anthracene	ND	15	1		Phenol	ND	15	1	
Benzo (a) Pyrene	ND	15	1		Pyrene	19	15	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,6-Tribromophenol	50	32-143			2-Fluorobiphenyl	39	14-146		
2-Fluorophenol	29	15-138			Nitrobenzene-d5	40	18-162		
p-Terphenyl-d14	68	34-148			Phenol-d6	33	17-141		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 10.1510.1100			Page 9 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-413-281**	**N/A**	**Solid**	**GC/MS MM**	**07/03/10**	**07/10/10 10:26**	**100703L13**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	10	1		Benzo (b) Fluoranthene	ND	10	1	
2,4,5-Trichlorophenol	ND	10	1		Benzo (g,h,i) Perylene	ND	10	1	
2,4,6-Trichlorophenol	ND	10	1		Benzo (k) Fluoranthene	ND	10	1	
2,4-Dichlorophenol	ND	10	1		Bis(2-Ethylhexyl) Phthalate	ND	10	1	
2,4-Dimethylphenol	ND	10	1		Butyl Benzyl Phthalate	ND	10	1	
2,4-Dinitrophenol	ND	500	1		Chrysene	ND	10	1	
2-Chlorophenol	ND	10	1		Di-n-Butyl Phthalate	ND	10	1	
2-Methylnaphthalene	ND	10	1		Di-n-Octyl Phthalate	ND	10	1	
2-Methylphenol	ND	10	1		Dibenz (a,h) Anthracene	ND	10	1	
2-Nitrophenol	ND	10	1		Diethyl Phthalate	ND	10	1	
3/4-Methylphenol	ND	10	1		Dimethyl Phthalate	ND	10	1	
4,6-Dinitro-2-Methylphenol	ND	500	1		Fluoranthene	ND	10	1	
4-Chloro-3-Methylphenol	ND	10	1		Fluorene	ND	10	1	
4-Nitrophenol	ND	500	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1	
Acenaphthene	ND	10	1		Naphthalene	ND	10	1	
Acenaphthylene	ND	10	1		Pentachlorophenol	ND	500	1	
Anthracene	ND	10	1		Phenanthrene	ND	10	1	
Benzo (a) Anthracene	ND	10	1		Phenol	ND	10	1	
Benzo (a) Pyrene	ND	10	1		Pyrene	ND	10	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,6-Tribromophenol	36	32-143			2-Fluorobiphenyl	54	14-146		
2-Fluorophenol	36	15-138			Nitrobenzene-d5	43	18-162		
p-Terphenyl-d14	62	34-148			Phenol-d6	35	17-141		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: 10.1510.1100			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite A	**10-07-0093-1-A**	**06/28/10 13:15**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 09:40**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	15	1		Aroclor-1248	ND	15	1	
Aroclor-1221	ND	15	1		Aroclor-1254	ND	15	1	
Aroclor-1232	ND	15	1		Aroclor-1260	ND	15	1	
Aroclor-1242	ND	15	1		Aroclor-1262	ND	15	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	112	50-130		Decachlorobiphenyl	105	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA-2	**10-07-0093-2-A**	**06/27/10 12:00**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 09:59**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	13	1		Aroclor-1248	ND	13	1	
Aroclor-1221	ND	13	1		Aroclor-1254	ND	13	1	
Aroclor-1232	ND	13	1		Aroclor-1260	ND	13	1	
Aroclor-1242	ND	13	1		Aroclor-1262	ND	13	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	120	50-130		Decachlorobiphenyl	116	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Comp A bottom	**10-07-0093-3-A**	**06/28/10 13:15**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 10:18**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	13	1		Aroclor-1248	ND	13	1	
Aroclor-1221	ND	13	1		Aroclor-1254	ND	13	1	
Aroclor-1232	ND	13	1		Aroclor-1260	ND	13	1	
Aroclor-1242	ND	13	1		Aroclor-1262	ND	13	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	107	50-130		Decachlorobiphenyl	108	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: 10.1510.1100			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite C	**10-07-0093-4-A**	**06/29/10 15:00**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 10:37**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	16	1		Aroclor-1248	ND	16	1	
Aroclor-1221	ND	16	1		Aroclor-1254	16	16	1	
Aroclor-1232	ND	16	1		Aroclor-1260	ND	16	1	
Aroclor-1242	ND	16	1		Aroclor-1262	ND	16	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	100	50-130			Decachlorobiphenyl	101	50-130		

Composite C Bottom	**10-07-0093-5-A**	**06/29/10 15:00**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 10:57**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	13	1		Aroclor-1248	ND	13	1	
Aroclor-1221	ND	13	1		Aroclor-1254	ND	13	1	
Aroclor-1232	ND	13	1		Aroclor-1260	ND	13	1	
Aroclor-1242	ND	13	1		Aroclor-1262	ND	13	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	114	50-130			Decachlorobiphenyl	108	50-130		

APL Composite B	**10-07-0093-6-A**	**07/01/10 12:00**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 11:16**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	17	1		Aroclor-1248	ND	17	1	
Aroclor-1221	ND	17	1		Aroclor-1254	ND	17	1	
Aroclor-1232	ND	17	1		Aroclor-1260	ND	17	1	
Aroclor-1242	ND	17	1		Aroclor-1262	ND	17	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	89	50-130			Decachlorobiphenyl	80	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: 10.1510.1100			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom	**10-07-0093-7-A**	**07/01/10 12:00**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 11:35**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	16	1		Aroclor-1248	ND	16	1	
Aroclor-1221	ND	16	1		Aroclor-1254	25	16	1	
Aroclor-1232	ND	16	1		Aroclor-1260	ND	16	1	
Aroclor-1242	ND	16	1		Aroclor-1262	ND	16	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	98	50-130			Decachlorobiphenyl	94	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom (Lab Dup)	**10-07-0093-8-A**	**07/01/10 12:00**	**Sediment**	**GC 31**	**07/07/10**	**07/08/10 11:54**	**100707L05**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	15	1		Aroclor-1248	ND	15	1	
Aroclor-1221	ND	15	1		Aroclor-1254	27	15	1	
Aroclor-1232	ND	15	1		Aroclor-1260	ND	15	1	
Aroclor-1242	ND	15	1		Aroclor-1262	ND	15	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	109	50-130			Decachlorobiphenyl	107	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-565-155**	**N/A**	**Solid**	**GC 31**	**07/07/10**	**07/08/10 09:21**	**100707L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	10	1		Aroclor-1248	ND	10	1	
Aroclor-1221	ND	10	1		Aroclor-1254	ND	10	1	
Aroclor-1232	ND	10	1		Aroclor-1260	ND	10	1	
Aroclor-1242	ND	10	1		Aroclor-1262	ND	10	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	121	50-130			Decachlorobiphenyl	122	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 10.1510.1100			Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite A	**10-07-0093-1-A**	**06/28/10 13:15**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 01:21**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.5	1		Endosulfan I	ND	1.5	1	
Alpha-BHC	ND	1.5	1		Endosulfan II	ND	1.5	1	
Beta-BHC	ND	1.5	1		Endosulfan Sulfate	ND	1.5	1	
Delta-BHC	ND	1.5	1		Endrin	ND	1.5	1	
Gamma-BHC	ND	1.5	1		Endrin Aldehyde	ND	1.5	1	
Chlordane	ND	15	1		Endrin Ketone	ND	1.5	1	
Dieldrin	ND	1.5	1		Heptachlor	ND	1.5	1	
Trans-nonachlor	ND	1.5	1		Heptachlor Epoxide	ND	1.5	1	
2,4'-DDD	ND	1.5	1		Methoxychlor	ND	1.5	1	
2,4'-DDE	2.6	1.5	1		Toxaphene	ND	30	1	
2,4'-DDT	ND	1.5	1		Alpha Chlordane	ND	1.5	1	
4,4'-DDD	ND	1.5	1		Gamma Chlordane	ND	1.5	1	
4,4'-DDE	12	7.5	5		Cis-nonachlor	ND	1.5	1	
4,4'-DDT	ND	1.5	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	84	50-130		Decachlorobiphenyl	91	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA-2	**10-07-0093-2-A**	**06/27/10 12:00**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 01:49**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan I	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan II	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Chlordane	ND	13	1		Endrin Ketone	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDE	ND	1.3	1		Toxaphene	ND	27	1	
2,4'-DDT	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDE	6.1	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	86	50-130		Decachlorobiphenyl	100	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 10.1510.1100			Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Comp A bottom	**10-07-0093-3-A**	**06/28/10 13:15**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 02:17**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan I	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan II	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Chlordane	ND	13	1		Endrin Ketone	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDE	ND	1.3	1		Toxaphene	ND	27	1	
2,4'-DDT	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDE	1.7	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	79	50-130		Decachlorobiphenyl	89	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite C	**10-07-0093-4-A**	**06/29/10 15:00**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 02:46**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.6	1		Endosulfan I	ND	1.6	1	
Alpha-BHC	ND	1.6	1		Endosulfan II	ND	1.6	1	
Beta-BHC	ND	1.6	1		Endosulfan Sulfate	ND	1.6	1	
Delta-BHC	ND	1.6	1		Endrin	ND	1.6	1	
Gamma-BHC	ND	1.6	1		Endrin Aldehyde	ND	1.6	1	
Chlordane	ND	16	1		Endrin Ketone	ND	1.6	1	
Dieldrin	ND	1.6	1		Heptachlor	ND	1.6	1	
Trans-nonachlor	ND	1.6	1		Heptachlor Epoxide	ND	1.6	1	
2,4'-DDD	ND	1.6	1		Methoxychlor	ND	1.6	1	
2,4'-DDE	3.0	1.6	1		Toxaphene	ND	32	1	
2,4'-DDT	ND	1.6	1		Alpha Chlordane	ND	1.6	1	
4,4'-DDD	ND	1.6	1		Gamma Chlordane	ND	1.6	1	
4,4'-DDE	13	3.2	2		Cis-nonachlor	ND	1.6	1	
4,4'-DDT	ND	1.6	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	84	50-130		Decachlorobiphenyl	89	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 10.1510.1100			Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite C Bottom	**10-07-0093-5-A**	**06/29/10 15:00**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 03:14**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan I	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan II	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Chlordane	ND	13	1		Endrin Ketone	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDE	ND	1.3	1		Toxaphene	ND	27	1	
2,4'-DDT	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDE	3.8	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	86	50-130		Decachlorobiphenyl	89	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite B	**10-07-0093-6-A**	**07/01/10 12:00**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 03:42**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.7	1		Endosulfan I	ND	1.7	1	
Alpha-BHC	ND	1.7	1		Endosulfan II	ND	1.7	1	
Beta-BHC	ND	1.7	1		Endosulfan Sulfate	ND	1.7	1	
Delta-BHC	ND	1.7	1		Endrin	ND	1.7	1	
Gamma-BHC	ND	1.7	1		Endrin Aldehyde	ND	1.7	1	
Chlordane	ND	17	1		Endrin Ketone	ND	1.7	1	
Dieldrin	ND	1.7	1		Heptachlor	ND	1.7	1	
Trans-nonachlor	ND	1.7	1		Heptachlor Epoxide	ND	1.7	1	
2,4'-DDD	ND	1.7	1		Methoxychlor	ND	1.7	1	
2,4'-DDE	3.4	1.7	1		Toxaphene	ND	34	1	
2,4'-DDT	ND	1.7	1		Alpha Chlordane	ND	1.7	1	
4,4'-DDD	ND	1.7	1		Gamma Chlordane	ND	1.7	1	
4,4'-DDE	14	8.5	5		Cis-nonachlor	ND	1.7	1	
4,4'-DDT	ND	1.7	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	65	50-130		Decachlorobiphenyl	69	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 10.1510.1100			Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom	**10-07-0093-7-A**	**07/01/10 12:00**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 04:11**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.6	1		Endosulfan I	ND	1.6	1	
Alpha-BHC	ND	1.6	1		Endosulfan II	ND	1.6	1	
Beta-BHC	ND	1.6	1		Endosulfan Sulfate	ND	1.6	1	
Delta-BHC	ND	1.6	1		Endrin	ND	1.6	1	
Gamma-BHC	ND	1.6	1		Endrin Aldehyde	ND	1.6	1	
Chlordane	ND	16	1		Endrin Ketone	ND	1.6	1	
Dieldrin	ND	1.6	1		Heptachlor	ND	1.6	1	
Trans-nonachlor	ND	1.6	1		Heptachlor Epoxide	ND	1.6	1	
2,4'-DDD	ND	1.6	1		Methoxychlor	ND	1.6	1	
2,4'-DDE	6.2	1.6	1		Toxaphene	ND	31	1	
2,4'-DDT	ND	1.6	1		Alpha Chlordane	ND	1.6	1	
4,4'-DDD	ND	1.6	1		Gamma Chlordane	ND	1.6	1	
4,4'-DDE	25	7.8	5		Cis-nonachlor	ND	1.6	1	
4,4'-DDT	ND	1.6	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	81	50-130		Decachlorobiphenyl	81	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom (Lab Dup)	**10-07-0093-8-A**	**07/01/10 12:00**	**Sediment**	**GC 41**	**07/07/10**	**07/09/10 04:39**	**100707L04**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.5	1		Endosulfan I	ND	1.5	1	
Alpha-BHC	ND	1.5	1		Endosulfan II	ND	1.5	1	
Beta-BHC	ND	1.5	1		Endosulfan Sulfate	ND	1.5	1	
Delta-BHC	ND	1.5	1		Endrin	ND	1.5	1	
Gamma-BHC	ND	1.5	1		Endrin Aldehyde	ND	1.5	1	
Chlordane	ND	15	1		Endrin Ketone	ND	1.5	1	
Dieldrin	ND	1.5	1		Heptachlor	ND	1.5	1	
Trans-nonachlor	ND	1.5	1		Heptachlor Epoxide	ND	1.5	1	
2,4'-DDD	ND	1.5	1		Methoxychlor	ND	1.5	1	
2,4'-DDE	6.6	1.5	1		Toxaphene	ND	30	1	
2,4'-DDT	ND	1.5	1		Alpha Chlordane	ND	1.5	1	
4,4'-DDD	ND	1.5	1		Gamma Chlordane	ND	1.5	1	
4,4'-DDE	26	7.6	5		Cis-nonachlor	ND	1.5	1	
4,4'-DDT	ND	1.5	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	93	50-130		Decachlorobiphenyl	96	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 10.1510.1100			Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-69**	**N/A**	**Solid**	**GC 41**	**07/07/10**	**07/09/10 00:52**	**100707L04**

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

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	104	50-130		Decachlorobiphenyl	95	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite A	**10-07-0093-1-A**	**06/28/10 13:15**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 17:47**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	8.86	0.150	1		Nickel	23.3	0.150	1	
Cadmium	0.385	0.150	1		Selenium	0.631	0.150	1	
Chromium	28.3	0.150	1		Silver	0.163	0.150	1	
Copper	38.6	0.150	1		Zinc	95.9	1.50	1	
Lead	13.0	0.150	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA-2	**10-07-0093-2-A**	**06/27/10 12:00**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:05**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	3.06	0.133	1		Nickel	12.1	0.133	1	
Cadmium	0.216	0.133	1		Selenium	0.287	0.133	1	
Chromium	22.0	0.133	1		Silver	ND	0.133	1	
Copper	11.6	0.133	1		Zinc	52.9	1.33	1	
Lead	6.34	0.133	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Comp A bottom	**10-07-0093-3-A**	**06/28/10 13:15**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:10**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	6.26	0.133	1		Nickel	15.8	0.133	1	
Cadmium	0.276	0.133	1		Selenium	0.234	0.133	1	
Chromium	18.9	0.133	1		Silver	ND	0.133	1	
Copper	19.1	0.133	1		Zinc	70.6	1.33	1	
Lead	5.83	0.133	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite C	**10-07-0093-4-A**	**06/29/10 15:00**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:15**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	14.5	0.158	1		Nickel	36.4	0.158	1	
Cadmium	0.532	0.158	1		Selenium	0.758	0.158	1	
Chromium	42.4	0.158	1		Silver	0.196	0.158	1	
Copper	46.9	0.158	1		Zinc	117	1.58	1	
Lead	18.7	0.158	1						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite C Bottom	**10-07-0093-5-A**	**06/29/10 15:00**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:19**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.1	0.133	1		Nickel	79.7	0.133	1	
Cadmium	0.451	0.133	1		Selenium	0.398	0.133	1	
Chromium	72.6	0.133	1		Silver	ND	0.133	1	
Copper	35.5	0.133	1		Zinc	94.1	1.33	1	
Lead	15.0	0.133	1						

APL Composite B	**10-07-0093-6-A**	**07/01/10 12:00**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:24**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	15.0	0.170	1		Nickel	31.6	0.170	1	
Cadmium	0.620	0.170	1		Selenium	0.533	0.170	1	
Chromium	38.7	0.170	1		Silver	0.232	0.170	1	
Copper	50.8	0.170	1		Zinc	123	1.70	1	
Lead	19.0	0.170	1						

Composite B Bottom	**10-07-0093-7-A**	**07/01/10 12:00**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:28**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	11.1	0.157	1		Nickel	24.9	0.157	1	
Cadmium	0.658	0.157	1		Selenium	0.839	0.157	1	
Chromium	33.6	0.157	1		Silver	0.275	0.157	1	
Copper	38.1	0.157	1		Zinc	108	1.57	1	
Lead	20.7	0.157	1						

Composite B Bottom (Lab Dup)	**10-07-0093-8-A**	**07/01/10 12:00**	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10 18:33**	**100702L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	10.9	0.151	1		Nickel	25.3	0.151	1	
Cadmium	0.624	0.151	1		Selenium	0.850	0.151	1	
Chromium	33.2	0.151	1		Silver	0.273	0.151	1	
Copper	37.8	0.151	1		Zinc	110	1.51	1	
Lead	20.0	0.151	1						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received:	07/01/10
Work Order No:	10-07-0093
Preparation:	EPA 3050B
Method:	EPA 6020
Units:	mg/kg

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**096-10-002-1,775**	**N/A**	**Solid**	**ICP/MS 04**	**07/02/10**	**07/02/10 17:06**	**100702L01**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental	Date Received:	07/01/10
9210 Sky Park Court, Suite 200	Work Order No:	10-07-0093
San Diego, CA 92123-4302	Preparation:	EPA 7471A Total
	Method:	EPA 7471A

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite A	**10-07-0093-1-A**	**06/28/10 13:15**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:21**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.137	0.0301	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA-2	**10-07-0093-2-A**	**06/27/10 12:00**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:23**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0337	0.0266	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Comp A bottom	**10-07-0093-3-A**	**06/28/10 13:15**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:26**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0536	0.0267	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite C	**10-07-0093-4-A**	**06/29/10 15:00**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:28**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.144	0.0318	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite C Bottom	**10-07-0093-5-A**	**06/29/10 15:00**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:30**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0851	0.0266	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL Composite B	**10-07-0093-6-A**	**07/01/10 12:00**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:37**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.153	0.0341	1		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	07/01/10
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom	**10-07-0093-7-A**	**07/01/10 12:00**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:39**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.162	0.0315	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B Bottom (Lab Dup)	**10-07-0093-8-A**	**07/01/10 12:00**	**Sediment**	**Mercury**	**07/06/10**	**07/06/10 17:41**	**100706L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.147	0.0303	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-136**	**N/A**	**Solid**	**Mercury**	**07/06/10**	**07/06/10 17:10**	**100706L01**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 07/01/10
Work Order No: 10-07-0093

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date Collected	Matrix
APL Composite A	**10-07-0093-1**	**06/28/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	120	7.5	10		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.75	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	0.93	0.075	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	66.5	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	2.5	0.60	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

Client Sample Number	Lab Sample Number	Date Collected	Matrix
LA-2	**10-07-0093-2**	**06/27/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	0.66	0.66	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.66	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	0.72	0.066	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	75.4	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	5.2	0.53	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Comp A bottom	**10-07-0093-3**	**06/28/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	4.0	0.67	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.67	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	0.49	0.067	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	75.1	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	3.4	0.53	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 07/01/10
Work Order No: 10-07-0093

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date Collected	Matrix
APL Composite C	**10-07-0093-4**	**06/29/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	21	0.79	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.79	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	1.3	0.079	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	63.1	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	3.5	0.63	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Composite C Bottom	**10-07-0093-5**	**06/29/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	13	0.66	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.66	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	1.0	0.066	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	75.2	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	4.1	0.53	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

Client Sample Number	Lab Sample Number	Date Collected	Matrix
APL Composite B	**10-07-0093-6**	**07/01/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	56	2.6	3		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.85	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	1.3	0.085	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	58.8	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	4.8	0.68	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 07/01/10
Work Order No: 10-07-0093

Project: 10.1510.1100

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Composite B Bottom	**10-07-0093-7**	**07/01/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	15	0.78	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.78	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic (9)	1.3	0.078	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	63.7	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N) (9)	6.2	0.63	2		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

Composite B Bottom (Lab Dup)	**10-07-0093-8**	**07/01/10**	**Sediment**

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Carbon, Total Organic (9)	1.3	0.076	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	66.2	0.100	1		%	07/06/10	07/06/10	SM 2540 B

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total	ND	0.50	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Sulfide, Dissolved	ND	0.50	1		mg/kg	07/02/10	07/02/10	EPA 376.2M
Carbon, Total Organic	ND	0.050	1		%	N/A	07/09/10	EPA 9060A
Solids, Total	ND	0.100	1		%	07/06/10	07/06/10	SM 2540 B
Ammonia (as N)	ND	0.20	1		mg/kg	07/14/10	07/14/10	SM 4500-NH3 B/C (M)

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3050B
Method: EPA 6020

Project 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL Composite C	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10**	**100702S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	108	120	80-120	8	0-20	
Cadmium	104	111	80-120	7	0-20	
Chromium	78	98	80-120	10	0-20	3
Copper	75	82	80-120	4	0-20	3
Lead	100	112	80-120	7	0-20	
Nickel	82	87	80-120	3	0-20	
Selenium	96	99	80-120	3	0-20	
Silver	108	115	80-120	5	0-20	
Zinc	94	111	80-120	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

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

Date Received 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3050B
Method: EPA 6020

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
APL Composite C	**Sediment**	**ICP/MS 04**	**07/02/10**	**07/02/10**	**100702S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	107	104	75-125	2	0-20	
Cadmium	97	100	75-125	2	0-20	
Chromium	76	81	75-125	3	0-20	
Copper	80	79	75-125	0	0-20	
Lead	96	101	75-125	3	0-20	
Nickel	80	79	75-125	1	0-20	
Selenium	87	90	75-125	3	0-20	
Silver	101	102	75-125	1	0-20	
Zinc	85	89	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: Extraction
Method: EPA 418.1M

Project 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL Composite C	**Sediment**	**IR #1**	**07/07/10**	**07/07/10**	**100707S01**

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

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 7471A Total
Method: EPA 7471A

Project 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL Composite C	**Sediment**	**Mercury**	**07/06/10**	**07/06/10**	**100706S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	90	91	76-136	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3545
Method: EPA 8270C SIM

Project 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite C Bottom	**Sediment**	**GC/MS MM**	**07/03/10**	**07/10/10**	**100703S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	61	60	40-160	1	0-20	
2,4-Dichlorophenol	57	57	40-160	1	0-20	
2-Methylphenol	57	57	40-160	1	0-20	
2-Nitrophenol	37	38	40-160	2	0-20	3
4-Chloro-3-Methylphenol	55	56	40-160	3	0-20	
Acenaphthene	47	48	40-106	0	0-20	
Benzo (a) Pyrene	63	62	17-163	1	0-20	
Chrysene	65	66	17-168	0	0-20	
Di-n-Butyl Phthalate	41	41	40-160	0	0-20	
Dimethyl Phthalate	56	56	40-160	0	0-20	
Fluoranthene	46	46	26-137	1	0-20	
Fluorene	46	46	59-121	0	0-20	3
Naphthalene	51	51	21-133	1	0-20	
Phenanthrene	43	42	54-120	1	0-20	3
Phenol	60	60	40-160	0	0-20	
Pyrene	49	49	6-156	0	0-46	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3545
Method: EPA 8082

Project 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite C Bottom	**Sediment**	**GC 31**	**07/07/10**	**07/08/10**	**100707S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	94	94	50-135	1	0-25	
Aroclor-1260	130	126	50-135	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 07/01/10
Work Order No: 10-07-0093
Preparation: EPA 3545
Method: EPA 8081A

Project 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite C Bottom	**Sediment**	**GC 41**	**07/07/10**	**07/09/10**	**100707S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	65	64	50-135	3	0-25	
Alpha-BHC	69	70	50-135	2	0-25	
Beta-BHC	76	74	50-135	2	0-25	
Delta-BHC	58	57	50-135	1	0-25	
Gamma-BHC	70	69	50-135	3	0-25	
Dieldrin	68	66	50-135	4	0-25	
4,4'-DDD	79	78	50-135	1	0-25	
4,4'-DDE	92	84	50-135	6	0-25	
4,4'-DDT	77	70	50-135	10	0-25	
Endosulfan I	66	63	50-135	4	0-25	
Endosulfan II	72	69	50-135	5	0-25	
Endosulfan Sulfate	65	63	50-135	3	0-25	
Endrin	76	74	50-135	2	0-25	
Endrin Aldehyde	61	60	50-135	2	0-25	
Endrin Ketone	77	74	50-135	4	0-25	
Heptachlor	71	69	50-135	3	0-25	
Heptachlor Epoxide	78	74	50-135	4	0-25	
Methoxychlor	78	72	50-135	7	0-25	
Alpha Chlordane	69	66	50-135	4	0-25	
Gamma Chlordane	72	70	50-135	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: N/A
Work Order No: 10-07-0093

Project: 10.1510.1100

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	EPA 9060A	APL Composite C	07/09/10	N/A	101	99	75-125	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: N/A
Work Order No: 10-07-0093

Project: 10.1510.1100

Matrix: Aqueous or Solid

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	EPA 376.2M	APL Composite C	07/02/10	21	20	8	0-25	
Sulfide, Dissolved	EPA 376.2M	APL Composite C	07/02/10	ND	ND	NA	0-25	
Ammonia (as N)	SM 4500-NH3 B/C (M)	Composite B Bottom	07/14/10	6.2	5.7	7	0-25	
Solids, Total	SM 2540 B	APL Composite C	07/06/10	63.1	63.3	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-07-0093
Preparation: EPA 3050B
Method: EPA 6020

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,775	**Solid**	**ICP/MS 04**	**07/02/10**	**07/02/10**	**100702L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	103	104	80-120	1	0-20	
Cadmium	102	102	80-120	0	0-20	
Chromium	101	102	80-120	0	0-20	
Copper	106	105	80-120	1	0-20	
Lead	99	101	80-120	2	0-20	
Nickel	106	104	80-120	2	0-20	
Selenium	101	101	80-120	1	0-20	
Silver	94	96	80-120	3	0-20	
Zinc	102	102	80-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-07-0093
Preparation: Extraction
Method: EPA 418.1M

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-015-1,677	**Solid**	**IR #1**	**07/07/10**	**07/07/10**	**100707L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	101	101	70-130	0	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	10-07-0093
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-136	**Solid**	**Mercury**	**07/06/10**	**07/06/10**	**100706L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	96	96	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-07-0093
Preparation: EPA 3545
Method: EPA 8270C SIM

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-413-281	**Solid**	**GC/MS MM**	**07/03/10**	**07/10/10**	**100703L13**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	70	70	40-160	20-180	0	0-20	
2,4-Dichlorophenol	71	72	40-160	20-180	2	0-20	
2-Methylphenol	73	73	40-160	20-180	0	0-20	
2-Nitrophenol	55	55	40-160	20-180	1	0-20	
4-Chloro-3-Methylphenol	69	70	40-160	20-180	2	0-20	
Acenaphthene	73	72	48-108	38-118	2	0-11	
Benzo (a) Pyrene	79	78	17-163	0-187	1	0-20	
Chrysene	74	74	17-168	0-193	1	0-20	
Di-n-Butyl Phthalate	71	70	40-160	20-180	2	0-20	
Dimethyl Phthalate	72	71	40-160	20-180	2	0-20	
Fluoranthene	70	69	26-137	8-156	0	0-20	
Fluorene	73	73	59-121	49-131	0	0-20	
Naphthalene	73	75	21-133	2-152	3	0-20	
Phenanthrene	72	72	54-120	43-131	0	0-20	
Phenol	73	74	40-160	20-180	1	0-20	
Pyrene	70	70	28-106	15-119	0	0-16	

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

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-07-0093
Preparation: EPA 3545
Method: EPA 8082

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-565-155	**Solid**	**GC 31**	**07/07/10**	**07/08/10**	**100707L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	114	130	50-135	14	0-25	
Aroclor-1260	122	117	50-135	4	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-07-0093
Preparation: EPA 3545
Method: EPA 8081A

Project: 10.1510.1100

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-69	**Solid**	**GC 41**	**07/07/10**	**07/09/10**	**100707L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Aldrin	73	72	50-135	36-149	1	0-25	
Alpha-BHC	86	87	50-135	36-149	2	0-25	
Beta-BHC	90	92	50-135	36-149	1	0-25	
Delta-BHC	90	93	50-135	36-149	3	0-25	
Gamma-BHC	89	91	50-135	36-149	2	0-25	
Dieldrin	75	76	50-135	36-149	1	0-25	
4,4'-DDD	92	93	50-135	36-149	1	0-25	
4,4'-DDE	88	87	50-135	36-149	1	0-25	
4,4'-DDT	91	95	50-135	36-149	4	0-25	
Endosulfan I	79	81	50-135	36-149	3	0-25	
Endosulfan II	87	93	50-135	36-149	7	0-25	
Endosulfan Sulfate	81	82	50-135	36-149	2	0-25	
Endrin	90	93	50-135	36-149	3	0-25	
Endrin Aldehyde	68	70	50-135	36-149	3	0-25	
Endrin Ketone	84	85	50-135	36-149	1	0-25	
Heptachlor	83	85	50-135	36-149	2	0-25	
Heptachlor Epoxide	84	81	50-135	36-149	4	0-25	
Methoxychlor	84	86	50-135	36-149	3	0-25	
Alpha Chlordane	69	69	50-135	36-149	0	0-25	
Gamma Chlordane	83	80	50-135	36-149	3	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: N/A
Work Order No: 10-07-0093

Project: 10.1510.1100

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Carbon, Total Organic	EPA 9060A	099-06-013-505	07/09/10	N/A	0.6	0.628	105	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-07-0093

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

EnviroMatrix Analytical, Inc.

16 July 2010

Calscience Environmental Lab
Attn: Danielle Gonsman
7440 Lincoln Way
Garden Grove, California 92841

EMA Log #: 10G0178

Project Name: 10-07-0093

Enclosed are the results of analyses for samples received by the laboratory on 07/08/10 11:58. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
APL Composite A	10G0178-01	Sediment	06/28/10 13:15	07/08/10 11:58
LA-2	10G0178-02	Sediment	06/27/10 12:00	07/08/10 11:58
Comp A bottom	10G0178-03	Sediment	06/28/10 13:15	07/08/10 11:58
APL Composite C	10G0178-04	Sediment	06/29/10 15:00	07/08/10 11:58
Composite C Bottom	10G0178-05	Sediment	06/29/10 15:00	07/08/10 11:58
APL Composite B	10G0178-06	Sediment	07/01/10 12:00	07/08/10 11:58
Composite B Bottom	10G0178-07	Sediment	07/01/10 12:00	07/08/10 11:58

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
APL Composite A (10G0178-01) Sediment Sampled: 06/28/10 13:15 Received: 07/08/10 11:58										
% Solids	**68.7**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	
LA-2 (10G0178-02) Sediment Sampled: 06/27/10 12:00 Received: 07/08/10 11:58										
% Solids	**75.9**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	
Comp A bottom (10G0178-03) Sediment Sampled: 06/28/10 13:15 Received: 07/08/10 11:58										
% Solids	**78.6**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	
APL Composite C (10G0178-04) Sediment Sampled: 06/29/10 15:00 Received: 07/08/10 11:58										
% Solids	**62.8**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	
Composite C Bottom (10G0178-05) Sediment Sampled: 06/29/10 15:00 Received: 07/08/10 11:58										
% Solids	**76.1**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	
APL Composite B (10G0178-06) Sediment Sampled: 07/01/10 12:00 Received: 07/08/10 11:58										
% Solids	**60.9**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	
Composite B Bottom (10G0178-07) Sediment Sampled: 07/01/10 12:00 Received: 07/08/10 11:58										
% Solids	**66.2**	0.1	0.1	%	1	0070831	07/08/10	07/09/10	SM 2540 G	

Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Organotin Compounds by GC - FPD

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
APL Composite A (10G0178-01) Sediment Sampled: 06/28/10 13:15 Received: 07/08/10 11:58										
Tetrabutyltin	ND	1.30	1.46	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.44	1.46	"	"	"	"	"	"	
Dibutyltin	ND	1.67	2.91	"	"	"	"	"	"	
Monobutyltin	ND	0.80	2.91	"	"	"	"	"	"	
Total Organotins	ND	1.30	1.46	"	"	"	"	"	"	
Surrogate: Tripentyltin		*101 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*86 %*	*65-140*			"	"	"	"	
LA-2 (10G0178-02) Sediment Sampled: 06/27/10 12:00 Received: 07/08/10 11:58										
Tetrabutyltin	ND	1.17	1.32	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.30	1.32	"	"	"	"	"	"	
Dibutyltin	ND	1.52	2.64	"	"	"	"	"	"	
Monobutyltin	ND	0.72	2.64	"	"	"	"	"	"	
Total Organotins	ND	1.17	1.32	"	"	"	"	"	"	
Surrogate: Tripentyltin		*101 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*96 %*	*65-140*			"	"	"	"	
Comp A bottom (10G0178-03) Sediment Sampled: 06/28/10 13:15 Received: 07/08/10 11:58										
Tetrabutyltin	ND	1.13	1.27	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.26	1.27	"	"	"	"	"	"	
Dibutyltin	ND	1.46	2.54	"	"	"	"	"	"	
Monobutyltin	ND	0.70	2.54	"	"	"	"	"	"	
Total Organotins	ND	1.13	1.27	"	"	"	"	"	"	
Surrogate: Tripentyltin		*104 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*108 %*	*65-140*			"	"	"	"	

Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Organotin Compounds by GC - FPD

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
APL Composite C (10G0178-04) Sediment Sampled: 06/29/10 15:00 Received: 07/08/10 11:58										
Tetrabutyltin	ND	1.42	1.59	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.58	1.59	"	"	"	"	"	"	
Dibutyltin	ND	1.83	3.18	"	"	"	"	"	"	
Monobutyltin	ND	0.88	3.18	"	"	"	"	"	"	
Total Organotins	ND	1.42	1.59	"	"	"	"	"	"	
Surrogate: Tripentyltin		*79 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*81 %*	*65-140*			"	"	"	"	
Composite C Bottom (10G0178-05) Sediment Sampled: 06/29/10 15:00 Received: 07/08/10 11:58										
Tetrabutyltin	ND	1.17	1.31	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.30	1.31	"	"	"	"	"	"	
Dibutyltin	ND	1.51	2.63	"	"	"	"	"	"	
Monobutyltin	ND	0.72	2.63	"	"	"	"	"	"	
Total Organotins	ND	1.17	1.31	"	"	"	"	"	"	
Surrogate: Tripentyltin		*92 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*89 %*	*65-140*			"	"	"	"	
APL Composite B (10G0178-06) Sediment Sampled: 07/01/10 12:00 Received: 07/08/10 11:58										
Tetrabutyltin	ND	1.46	1.64	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.63	1.64	"	"	"	"	"	"	
Dibutyltin	ND	1.89	3.28	"	"	"	"	"	"	
Monobutyltin	ND	0.90	3.28	"	"	"	"	"	"	
Total Organotins	ND	1.46	1.64	"	"	"	"	"	"	
Surrogate: Tripentyltin		*89 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*77 %*	*65-140*			"	"	"	"	

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Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Organotin Compounds by GC - FPD

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite B Bottom (10G0178-07) Sediment	**Sampled: 07/01/10 12:00**		**Received: 07/08/10 11:58**							
Tetrabutyltin	ND	1.34	1.51	ug/kg dry	1	0070832	07/08/10	07/15/10	GC - FPD	
Tributyltin	ND	1.49	1.51	"	"	"	"	"	"	
Dibutyltin	ND	1.74	3.02	"	"	"	"	"	"	
Monobutyltin	ND	0.83	3.02	"	"	"	"	"	"	
Total Organotins	ND	1.34	1.51	"	"	"	"	"	"	
Surrogate: Tripentyltin		*105 %*	*65-132*			"	"	"	"	
Surrogate: Tri-n-propyltin		*101 %*	*65-140*			"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0070831											
Duplicate (0070831-DUP1)			**Source: 10G0130-06**		Prepared: 07/08/10	Analyzed: 07/09/10					
% Solids	16.6	0.1	0.1	%		16.6			0.1	20	

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Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Organotin Compounds by GC - FPD - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0070832											
Blank (0070832-BLK1)					Prepared: 07/08/10 Analyzed: 07/15/10						
Tetrabutyltin	ND	0.89	1.00	ug/kg wet							
Tributyltin	ND	0.99	1.00	"							
Dibutyltin	ND	1.15	2.00	"							
Monobutyltin	ND	0.55	2.00	"							
Total Organotins	ND	0.89	1.00	"							
Surrogate: Tripentyltin	*22.1*			*"*	*25.0*		*88*	*65-132*			
Surrogate: Tri-n-propyltin	*22.1*			*"*	*25.0*		*88*	*65-140*			
LCS (0070832-BS1)					Prepared: 07/08/10 Analyzed: 07/15/10						
Tetrabutyltin	22.5	0.89	1.00	ug/kg wet	25.0		90	75-115			
Tributyltin	22.4	0.99	1.00	"	25.0		89	58-128			
Dibutyltin	20.4	1.15	2.00	"	25.0		82	39-150			
Monobutyltin	4.28	0.55	2.00	"	25.0		17	0-140			
Surrogate: Tripentyltin	*23.4*			*"*	*25.0*		*94*	*65-132*			
Surrogate: Tri-n-propyltin	*23.3*			*"*	*25.0*		*93*	*65-140*			
LCS Dup (0070832-BSD1)					Prepared: 07/08/10 Analyzed: 07/15/10						
Tetrabutyltin	21.4	0.89	1.00	ug/kg wet	25.0		86	75-115	5	30	
Tributyltin	19.9	0.99	1.00	"	25.0		80	58-128	12	30	
Dibutyltin	20.0	1.15	2.00	"	25.0		80	39-150	2	30	
Monobutyltin	4.03	0.55	2.00	"	25.0		16	0-140	6	30	
Surrogate: Tripentyltin	*25.0*			*"*	*25.0*		*100*	*65-132*			
Surrogate: Tri-n-propyltin	*23.6*			*"*	*25.0*		*94*	*65-140*			
Duplicate (0070832-DUP1)			**Source: 10G0178-01**		Prepared: 07/08/10 Analyzed: 07/15/10						
Tetrabutyltin	ND	1.30	1.46	ug/kg dry		ND				30	
Tributyltin	ND	1.44	1.46	"		ND				30	
Dibutyltin	ND	1.67	2.91	"		ND				30	
Monobutyltin	ND	0.80	2.91	"		ND				30	
Total Organotins	ND	1.30	1.46	"		ND				30	
Surrogate: Tripentyltin	*35.4*			*"*	*36.4*		*97*	*65-132*			
Surrogate: Tri-n-propyltin	*32.8*			*"*	*36.4*		*90*	*65-140*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Calscience Environmental Lab
Project Name: 10-07-0093

EMA Log #: 10G0178

Organotin Compounds by GC - FPD - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0070832											
Matrix Spike (0070832-MS1)			**Source: 10G0178-01**		Prepared: 07/08/10		Analyzed: 07/15/10				
Tetrabutyltin	29.7	1.30	1.46	ug/kg dry	36.4	ND	82	74-115			
Tributyltin	31.1	1.44	1.46	"	36.4	ND	86	45-139			
Dibutyltin	30.7	1.67	2.91	"	36.4	ND	84	0-165			
Monobutyltin	6.11	0.80	2.91	"	36.4	ND	17	0-140			
Surrogate: Tripentyltin	*31.8*			*"*	*36.4*		*87*	*65-132*			
Surrogate: Tri-n-propyltin	*30.7*			*"*	*36.4*		*84*	*65-140*			
Matrix Spike Dup (0070832-MSD1)			**Source: 10G0178-01**		Prepared: 07/08/10		Analyzed: 07/15/10				
Tetrabutyltin	29.4	1.30	1.46	ug/kg dry	36.4	ND	81	74-115	0.7	30	
Tributyltin	25.0	1.44	1.46	"	36.4	ND	69	45-139	22	30	
Dibutyltin	24.2	1.67	2.91	"	36.4	ND	67	0-165	24	30	
Monobutyltin	5.13	0.80	2.91	"	36.4	ND	14	0-140	17	30	
Surrogate: Tripentyltin	*29.7*			*"*	*36.4*		*82*	*65-132*			
Surrogate: Tri-n-propyltin	*30.2*			*"*	*36.4*		*83*	*65-140*			

Client Name: Calscience Environmental Lab **EMA Log #: 10G0178**
Project Name: 10-07-0093

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis (if indicated in units column)
RPD	Relative Percent Difference
MDL	Method detection limit (indicated per client's request)

PTS Laboratories, Inc.

Calscience
PTS File No: 40474

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: N/A
PROJECT NO: 10-07-0093

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
APL COMPOSITE A	N/A	Fine sand	0.042	0.00	0.00	4.25	39.00	40.10	16.66	56.76
LA-2	N/A	Fine sand	0.109	0.00	0.00	3.39	66.76	24.47	5.38	29.85
COMP A BOTTOM	N/A	Fine sand	0.095	0.00	0.00	3.03	56.00	32.00	8.97	40.97
APL COMPOSITE C	N/A	Silt	0.024	0.00	0.00	1.09	24.08	56.19	18.65	74.84
COMPOSITE C BOTTOM	N/A	Fine sand	0.071	0.00	0.00	14.32	34.91	38.68	12.08	50.77
APL COMPOSITE B	N/A	Silt	0.018	0.00	0.00	1.13	22.68	54.05	22.14	76.19
COMPOSITE B BOTTOM	N/A	Silt	0.021	0.00	0.00	0.00	21.01	60.06	18.93	78.99

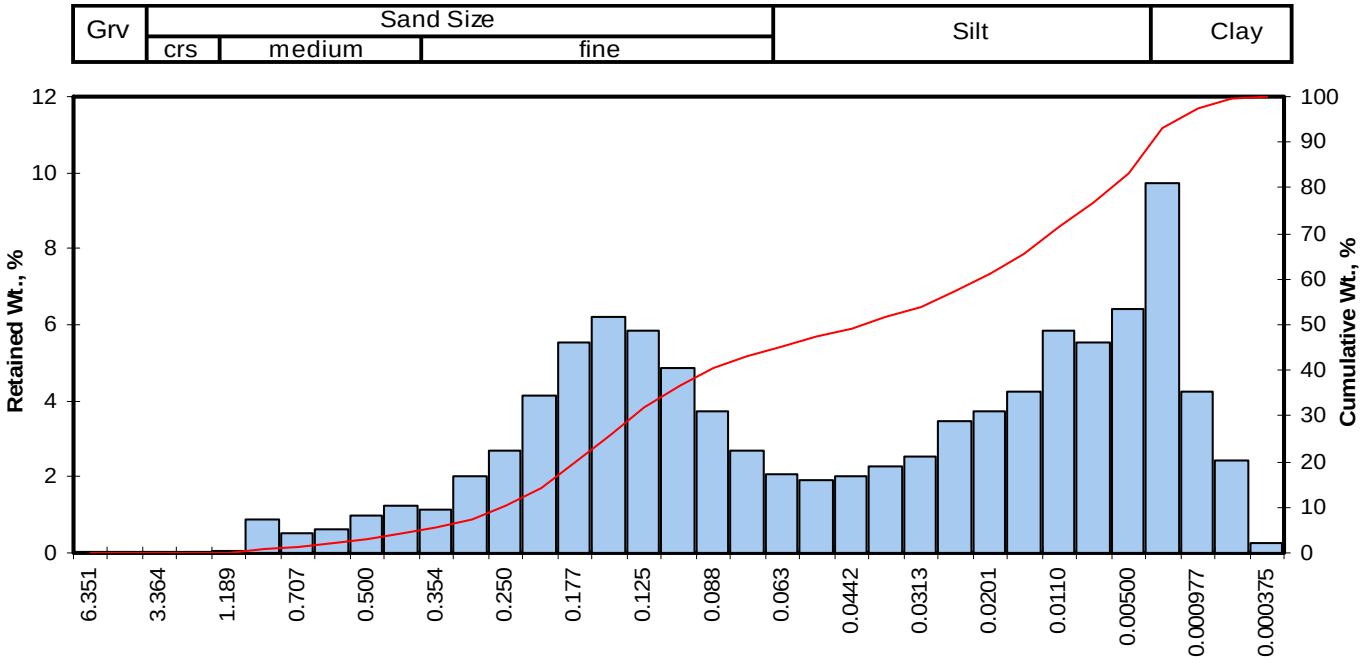
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: APL COMPOSITE A
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.03	0.03	0.03
0.0331	0.841	0.25	20	0.88	0.88	0.91
0.0278	0.707	0.50	25	0.53	0.53	1.44
0.0234	0.595	0.75	30	0.61	0.61	2.05
0.0197	0.500	1.00	35	0.96	0.96	3.01
0.0166	0.420	1.25	40	1.24	1.24	4.25
0.0139	0.354	1.50	45	1.16	1.16	5.41
0.0117	0.297	1.75	50	2.02	2.02	7.43
0.0098	0.250	2.00	60	2.71	2.71	10.14
0.0083	0.210	2.25	70	4.16	4.16	14.30
0.0070	0.177	2.50	80	5.55	5.55	19.85
0.0059	0.149	2.75	100	6.22	6.22	26.07
0.0049	0.125	3.00	120	5.87	5.87	31.93
0.0041	0.105	3.25	140	4.88	4.88	36.81
0.0035	0.088	3.50	170	3.72	3.72	40.53
0.0029	0.074	3.75	200	2.71	2.71	43.24
0.0025	0.063	4.00	230	2.09	2.09	45.33
0.0021	0.053	4.25	270	1.90	1.90	47.23
0.00174	0.0442	4.50	325	2.04	2.04	49.27
0.00146	0.0372	4.75	400	2.28	2.28	51.55
0.00123	0.0313	5.00	450	2.51	2.51	54.06
0.000986	0.0250	5.32	500	3.47	3.47	57.53
0.000790	0.0201	5.64	635	3.75	3.75	61.28
0.000615	0.0156	6.00		4.26	4.26	65.54
0.000435	0.0110	6.50		5.83	5.83	71.37
0.000308	0.00781	7.00		5.56	5.56	76.93
0.000197	0.00500	7.65		6.41	6.41	83.34
0.000077	0.00195	9.00		9.74	9.74	93.08
0.000038	0.000977	10.00		4.25	4.25	97.33
0.000019	0.000488	11.00		2.41	2.41	99.74
0.000015	0.000375	11.38		0.26	0.26	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	1.41	0.0148	0.376
10	1.99	0.0099	0.252
16	2.33	0.0078	0.199
25	2.71	0.0060	0.153
40	3.46	0.0036	0.091
50	4.58	0.0016	0.042
60	5.53	0.0009	0.022
75	6.83	0.0003	0.009
84	7.74	0.0002	0.005
90	8.57	0.0001	0.003
95	9.45	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	4.58	4.58	4.58
Median, in.	0.0016	0.0016	0.0016
Median, mm	0.042	0.042	0.042
Mean, phi	3.63	5.03	4.88
Mean, in.	0.0032	0.0012	0.0013
Mean, mm	0.081	0.031	0.034
Sorting	4.169	2.705	2.571
Skewness	0.878	0.167	0.190
Kurtosis	0.289	0.486	0.800
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	4.25
Fine Sand	200	39.00
Silt	>0.005 mm	40.10
Clay	<0.005 mm	16.66
	Total	**100**

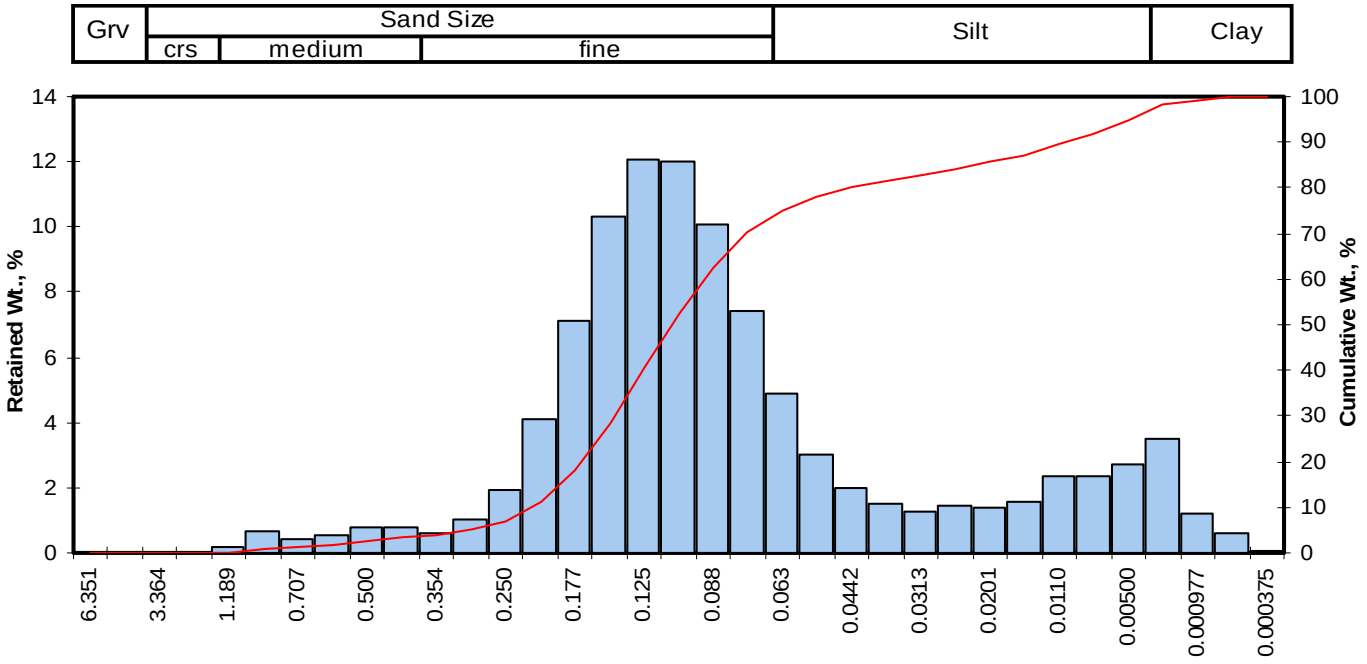
Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: LA-2
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.17	0.17	0.17
0.0331	0.841	0.25	20	0.66	0.66	0.83
0.0278	0.707	0.50	25	0.43	0.43	1.26
0.0234	0.595	0.75	30	0.56	0.56	1.82
0.0197	0.500	1.00	35	0.77	0.77	2.59
0.0166	0.420	1.25	40	0.80	0.80	3.39
0.0139	0.354	1.50	45	0.60	0.60	3.99
0.0117	0.297	1.75	50	1.05	1.05	5.04
0.0098	0.250	2.00	60	1.96	1.96	7.00
0.0083	0.210	2.25	70	4.12	4.12	11.12
0.0070	0.177	2.50	80	7.10	7.10	18.21
0.0059	0.149	2.75	100	10.30	10.30	28.51
0.0049	0.125	3.00	120	12.10	12.10	40.61
0.0041	0.105	3.25	140	12.00	12.00	52.60
0.0035	0.088	3.50	170	10.10	10.10	62.70
0.0029	0.074	3.75	200	7.45	7.45	70.15
0.0025	0.063	4.00	230	4.88	4.88	75.03
0.0021	0.053	4.25	270	3.03	3.03	78.05
0.00174	0.0442	4.50	325	1.97	1.97	80.02
0.00146	0.0372	4.75	400	1.48	1.48	81.50
0.00123	0.0313	5.00	450	1.26	1.26	82.76
0.000986	0.0250	5.32	500	1.46	1.46	84.22
0.000790	0.0201	5.64	635	1.39	1.39	85.61
0.000615	0.0156	6.00		1.57	1.57	87.18
0.000435	0.0110	6.50		2.35	2.35	89.53
0.000308	0.00781	7.00		2.38	2.38	91.91
0.000197	0.00500	7.65		2.71	2.71	94.62
0.000077	0.00195	9.00		3.51	3.51	98.13
0.000038	0.000977	10.00		1.20	1.20	99.33
0.000019	0.000488	11.00		0.61	0.61	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	1.74	0.0118	0.299
10	2.18	0.0087	0.220
16	2.42	0.0073	0.187
25	2.66	0.0062	0.158
40	2.99	0.0050	0.126
50	3.20	0.0043	0.109
60	3.43	0.0036	0.093
75	4.00	0.0025	0.063
84	5.27	0.0010	0.026
90	6.60	0.0004	0.010
95	7.79	0.0002	0.005

Measure	Trask	Inman	Folk-Ward
Median, phi	3.20	3.20	3.20
Median, in.	0.0043	0.0043	0.0043
Median, mm	0.109	0.109	0.109
Mean, phi	3.18	3.85	3.63
Mean, in.	0.0043	0.0027	0.0032
Mean, mm	0.110	0.070	0.081
Sorting	1.588	1.425	1.629
Skewness	0.910	0.457	0.488
Kurtosis	0.227	1.124	1.859
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	3.39
Fine Sand	200	66.76
Silt	>0.005 mm	24.47
Clay	<0.005 mm	5.38
	Total	**100**

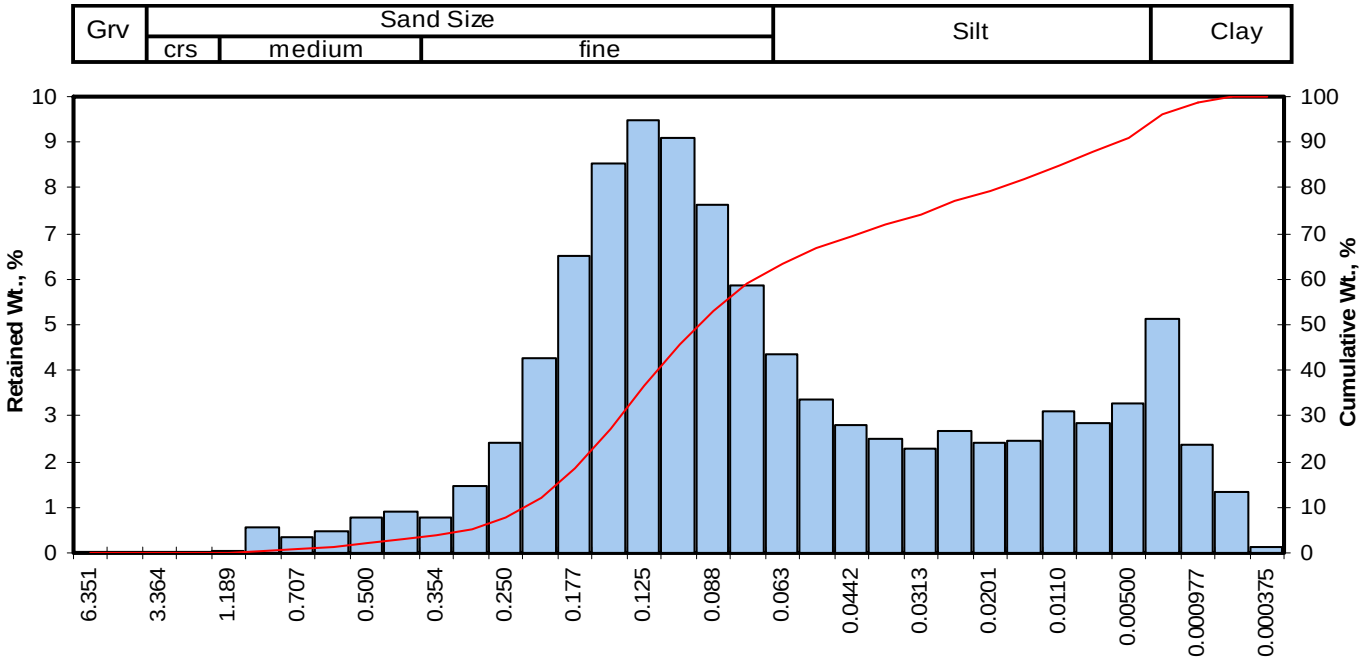
Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: COMP A BOTTOM
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.04	0.04	0.04
0.0331	0.841	0.25	20	0.54	0.54	0.58
0.0278	0.707	0.50	25	0.33	0.33	0.91
0.0234	0.595	0.75	30	0.46	0.46	1.37
0.0197	0.500	1.00	35	0.76	0.76	2.13
0.0166	0.420	1.25	40	0.90	0.90	3.03
0.0139	0.354	1.50	45	0.77	0.77	3.80
0.0117	0.297	1.75	50	1.46	1.46	5.26
0.0098	0.250	2.00	60	2.40	2.40	7.66
0.0083	0.210	2.25	70	4.28	4.28	11.94
0.0070	0.177	2.50	80	6.49	6.49	18.43
0.0059	0.149	2.75	100	8.52	8.52	26.95
0.0049	0.125	3.00	120	9.47	9.47	36.42
0.0041	0.105	3.25	140	9.08	9.08	45.50
0.0035	0.088	3.50	170	7.65	7.65	53.16
0.0029	0.074	3.75	200	5.87	5.87	59.03
0.0025	0.063	4.00	230	4.35	4.35	63.38
0.0021	0.053	4.25	270	3.35	3.35	66.73
0.00174	0.0442	4.50	325	2.81	2.81	69.54
0.00146	0.0372	4.75	400	2.49	2.49	72.03
0.00123	0.0313	5.00	450	2.28	2.28	74.31
0.000986	0.0250	5.32	500	2.66	2.66	76.97
0.000790	0.0201	5.64	635	2.42	2.42	79.39
0.000615	0.0156	6.00		2.44	2.44	81.83
0.000435	0.0110	6.50		3.09	3.09	84.92
0.000308	0.00781	7.00		2.84	2.84	87.76
0.000197	0.00500	7.65		3.27	3.27	91.03
0.000077	0.00195	9.00		5.11	5.11	96.14
0.000038	0.000977	10.00		2.38	2.38	98.52
0.000019	0.000488	11.00		1.34	1.34	99.86
0.000015	0.000375	11.38		0.14	0.14	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	1.71	0.0121	0.307
10	2.14	0.0090	0.227
16	2.41	0.0074	0.189
25	2.69	0.0061	0.155
40	3.10	0.0046	0.117
50	3.40	0.0037	0.095
60	3.81	0.0028	0.071
75	5.08	0.0012	0.029
84	6.35	0.0005	0.012
90	7.44	0.0002	0.006
95	8.70	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	3.40	3.40	3.40
Median, in.	0.0037	0.0037	0.0037
Median, mm	0.095	0.095	0.095
Mean, phi	3.44	4.38	4.05
Mean, in.	0.0036	0.0019	0.0024
Mean, mm	0.092	0.048	0.060
Sorting	2.290	1.973	2.046
Skewness	0.711	0.498	0.507
Kurtosis	0.282	0.772	1.199

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	3.03
Fine Sand	200	56.00
Silt	>0.005 mm	32.00
Clay	<0.005 mm	8.97
	Total	**100**

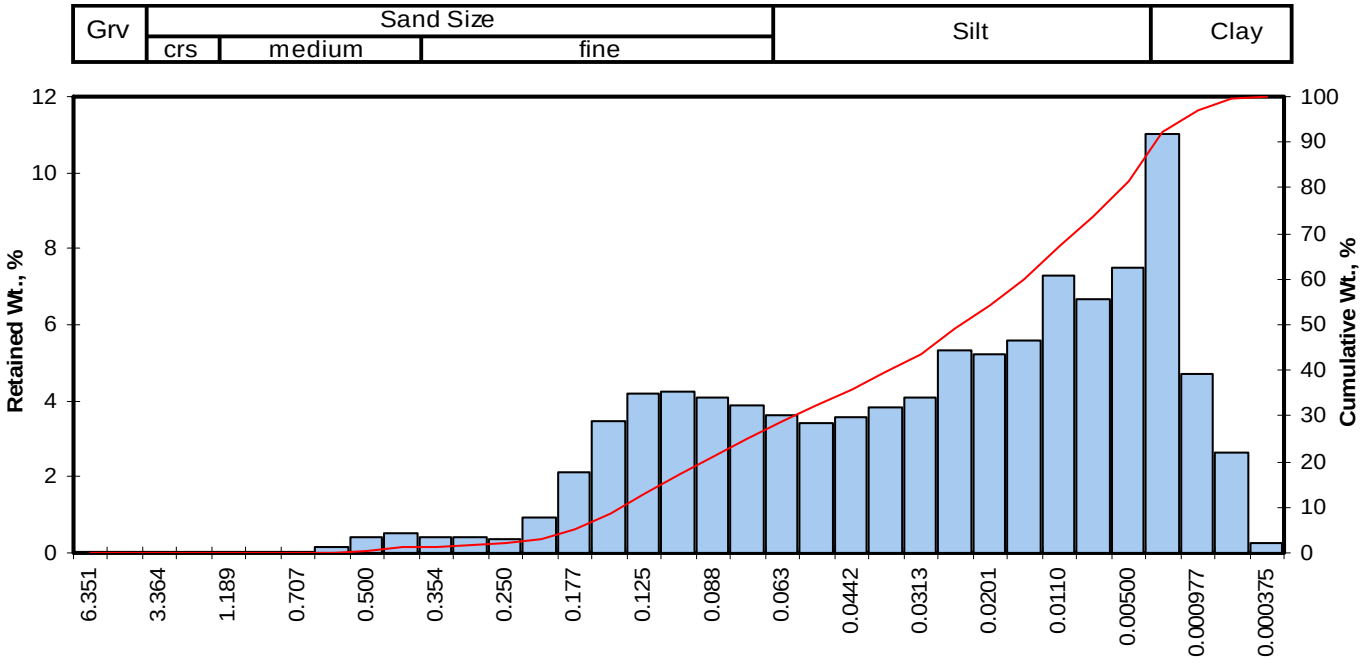
Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: APL COMPOSITE C
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.02	0.02	0.02
0.0234	0.595	0.75	30	0.16	0.16	0.18
0.0197	0.500	1.00	35	0.40	0.40	0.58
0.0166	0.420	1.25	40	0.51	0.51	1.09
0.0139	0.354	1.50	45	0.39	0.39	1.48
0.0117	0.297	1.75	50	0.40	0.40	1.88
0.0098	0.250	2.00	60	0.37	0.37	2.25
0.0083	0.210	2.25	70	0.91	0.91	3.16
0.0070	0.177	2.50	80	2.10	2.10	5.26
0.0059	0.149	2.75	100	3.48	3.48	8.74
0.0049	0.125	3.00	120	4.18	4.18	12.92
0.0041	0.105	3.25	140	4.26	4.26	17.18
0.0035	0.088	3.50	170	4.11	4.11	21.28
0.0029	0.074	3.75	200	3.88	3.88	25.16
0.0025	0.063	4.00	230	3.62	3.62	28.78
0.0021	0.053	4.25	270	3.44	3.44	32.22
0.00174	0.0442	4.50	325	3.56	3.56	35.78
0.00146	0.0372	4.75	400	3.84	3.84	39.62
0.00123	0.0313	5.00	450	4.08	4.08	43.70
0.000986	0.0250	5.32	500	5.31	5.31	49.01
0.000790	0.0201	5.64	635	5.25	5.25	54.26
0.000615	0.0156	6.00		5.61	5.61	59.87
0.000435	0.0110	6.50		7.31	7.31	67.18
0.000308	0.00781	7.00		6.69	6.69	73.86
0.000197	0.00500	7.65		7.49	7.49	81.35
0.000077	0.00195	9.00		11.00	11.00	92.35
0.000038	0.000977	10.00		4.72	4.72	97.07
0.000019	0.000488	11.00		2.65	2.65	99.72
0.000015	0.000375	11.38		0.28	0.28	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.47	0.0071	0.181
10	2.83	0.0056	0.141
16	3.18	0.0043	0.110
25	3.74	0.0029	0.075
40	4.77	0.0014	0.037
50	5.38	0.0009	0.024
60	6.01	0.0006	0.016
75	7.10	0.0003	0.007
84	7.97	0.0002	0.004
90	8.71	0.0001	0.002
95	9.56	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.38	5.38	5.38
Median, in.	0.0009	0.0009	0.0009
Median, mm	0.024	0.024	0.024
Mean, phi	4.61	5.58	5.51
Mean, in.	0.0016	0.0008	0.0009
Mean, mm	0.041	0.021	0.022
Sorting	3.202	2.395	2.272
Skewness	0.974	0.082	0.130
Kurtosis	0.244	0.481	0.865
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	1.09
Fine Sand	200	24.08
Silt	>0.005 mm	56.19
Clay	<0.005 mm	18.65
	Total	**100**

Phone: (562) 907-3607
Fax: (562) 907-3610

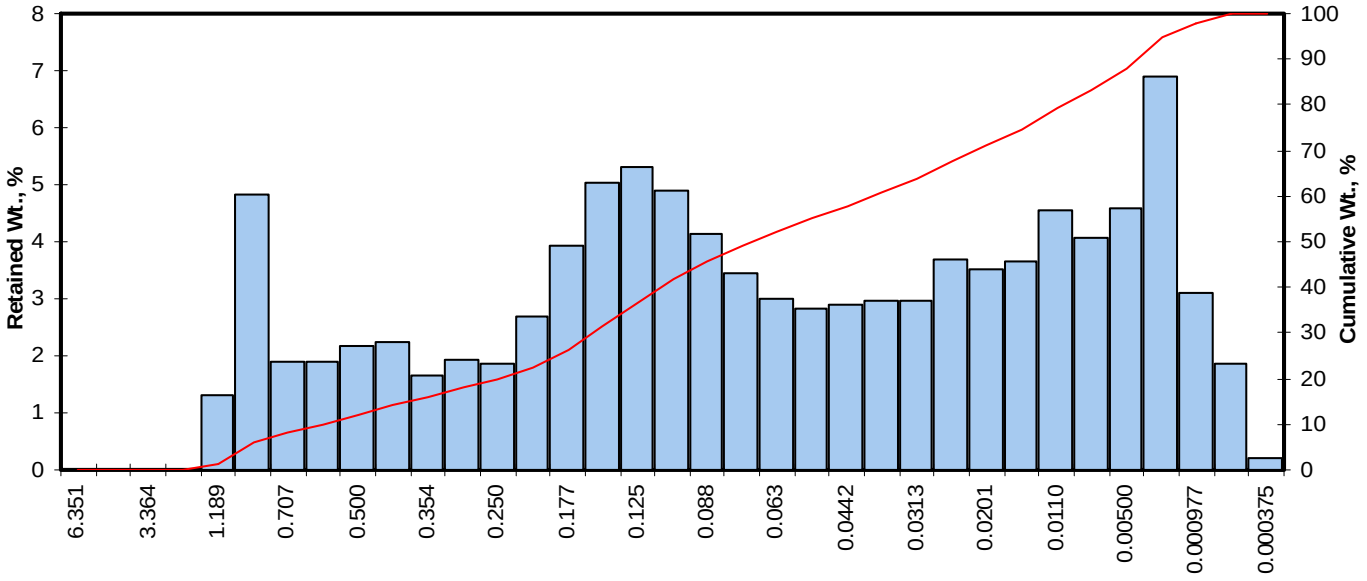
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: COMPOSITE C BOTTOM
Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.31	1.31	1.31
0.0331	0.841	0.25	20	4.81	4.81	6.12
0.0278	0.707	0.50	25	1.90	1.90	8.02
0.0234	0.595	0.75	30	1.89	1.89	9.91
0.0197	0.500	1.00	35	2.18	2.18	12.09
0.0166	0.420	1.25	40	2.23	2.23	14.32
0.0139	0.354	1.50	45	1.64	1.64	15.96
0.0117	0.297	1.75	50	1.94	1.94	17.90
0.0098	0.250	2.00	60	1.85	1.85	19.75
0.0083	0.210	2.25	70	2.70	2.70	22.45
0.0070	0.177	2.50	80	3.93	3.93	26.38
0.0059	0.149	2.75	100	5.02	5.02	31.40
0.0049	0.125	3.00	120	5.32	5.32	36.72
0.0041	0.105	3.25	140	4.91	4.91	41.63
0.0035	0.088	3.50	170	4.15	4.15	45.78
0.0029	0.074	3.75	200	3.45	3.45	49.23
0.0025	0.063	4.00	230	3.00	3.00	52.24
0.0021	0.053	4.25	270	2.84	2.84	55.08
0.00174	0.0442	4.50	325	2.88	2.88	57.96
0.00146	0.0372	4.75	400	2.95	2.95	60.91
0.00123	0.0313	5.00	450	2.96	2.96	63.87
0.000986	0.0250	5.32	500	3.68	3.68	67.55
0.000790	0.0201	5.64	635	3.51	3.51	71.06
0.000615	0.0156	6.00		3.64	3.64	74.70
0.000435	0.0110	6.50		4.56	4.56	79.26
0.000308	0.00781	7.00		4.08	4.08	83.34
0.000197	0.00500	7.65		4.58	4.58	87.92
0.000077	0.00195	9.00		6.90	6.90	94.82
0.000038	0.000977	10.00		3.12	3.12	97.94
0.000019	0.000488	11.00		1.86	1.86	99.80
0.000015	0.000375	11.38		0.20	0.20	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.13	0.0359	0.912
10	0.76	0.0232	0.590
16	1.50	0.0139	0.352
25	2.41	0.0074	0.188
40	3.17	0.0044	0.111
50	3.81	0.0028	0.071
60	4.67	0.0015	0.039
75	6.03	0.0006	0.015
84	7.09	0.0003	0.007
90	8.05	0.0001	0.004
95	9.06	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	3.81	3.81	3.81
Median, in.	0.0028	0.0028	0.0028
Median, mm	0.071	0.071	0.071
Mean, phi	3.30	4.30	4.14
Mean, in.	0.0040	0.0020	0.0022
Mean, mm	0.102	0.051	0.057
Sorting	3.508	2.794	2.749
Skewness	0.753	0.174	0.174
Kurtosis	0.147	0.597	1.010
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	14.32
Fine Sand	200	34.91
Silt	>0.005 mm	38.68
Clay	<0.005 mm	12.08
	Total	**100**

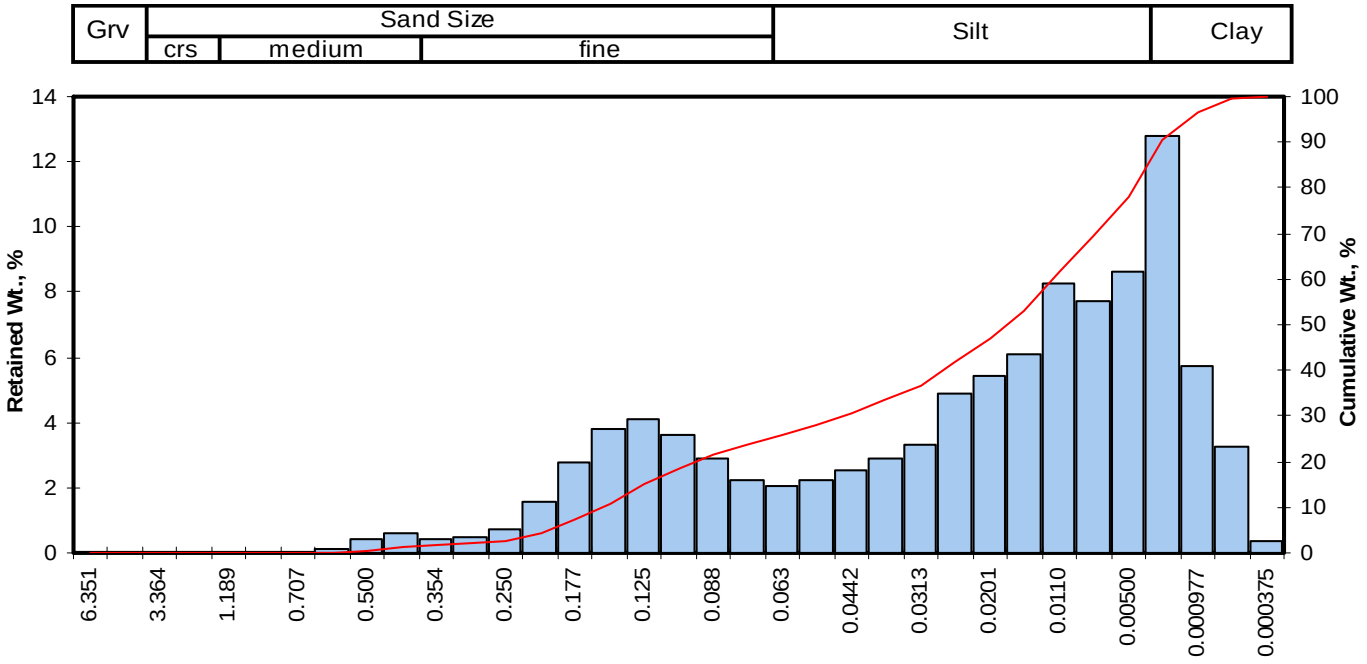
Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: APL COMPOSITE B
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.01	0.01	0.01
0.0234	0.595	0.75	30	0.12	0.12	0.13
0.0197	0.500	1.00	35	0.42	0.42	0.55
0.0166	0.420	1.25	40	0.58	0.58	1.13
0.0139	0.354	1.50	45	0.43	0.43	1.56
0.0117	0.297	1.75	50	0.50	0.50	2.06
0.0098	0.250	2.00	60	0.71	0.71	2.77
0.0083	0.210	2.25	70	1.56	1.56	4.33
0.0070	0.177	2.50	80	2.78	2.78	7.11
0.0059	0.149	2.75	100	3.82	3.82	10.94
0.0049	0.125	3.00	120	4.10	4.10	15.04
0.0041	0.105	3.25	140	3.64	3.64	18.68
0.0035	0.088	3.50	170	2.87	2.87	21.55
0.0029	0.074	3.75	200	2.26	2.26	23.81
0.0025	0.063	4.00	230	2.06	2.06	25.87
0.0021	0.053	4.25	270	2.21	2.21	28.08
0.00174	0.0442	4.50	325	2.53	2.53	30.62
0.00146	0.0372	4.75	400	2.89	2.89	33.51
0.00123	0.0313	5.00	450	3.32	3.32	36.83
0.000986	0.0250	5.32	500	4.87	4.87	41.70
0.000790	0.0201	5.64	635	5.41	5.41	47.11
0.000615	0.0156	6.00		6.11	6.11	53.23
0.000435	0.0110	6.50		8.27	8.27	61.50
0.000308	0.00781	7.00		7.70	7.70	69.20
0.000197	0.00500	7.65		8.65	8.65	77.86
0.000077	0.00195	9.00		12.80	12.81	90.67
0.000038	0.000977	10.00		5.72	5.72	96.39
0.000019	0.000488	11.00		3.26	3.26	99.65
0.000015	0.000375	11.38		0.35	0.35	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.31	0.0079	0.202
10	2.69	0.0061	0.155
16	3.07	0.0047	0.119
25	3.89	0.0026	0.067
40	5.21	0.0011	0.027
50	5.81	0.0007	0.018
60	6.41	0.0005	0.012
75	7.43	0.0002	0.006
84	8.29	0.0001	0.003
90	8.93	0.0001	0.002
95	9.76	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.81	5.81	5.81
Median, in.	0.0007	0.0007	0.0007
Median, mm	0.018	0.018	0.018
Mean, phi	4.77	5.68	5.72
Mean, in.	0.0014	0.0008	0.0007
Mean, mm	0.037	0.019	0.019
Sorting	3.408	2.614	2.436
Skewness	1.107	-0.050	0.005
Kurtosis	0.201	0.424	0.863
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	1.13
Fine Sand	200	22.68
Silt	>0.005 mm	54.05
Clay	<0.005 mm	22.14
	Total	**100**

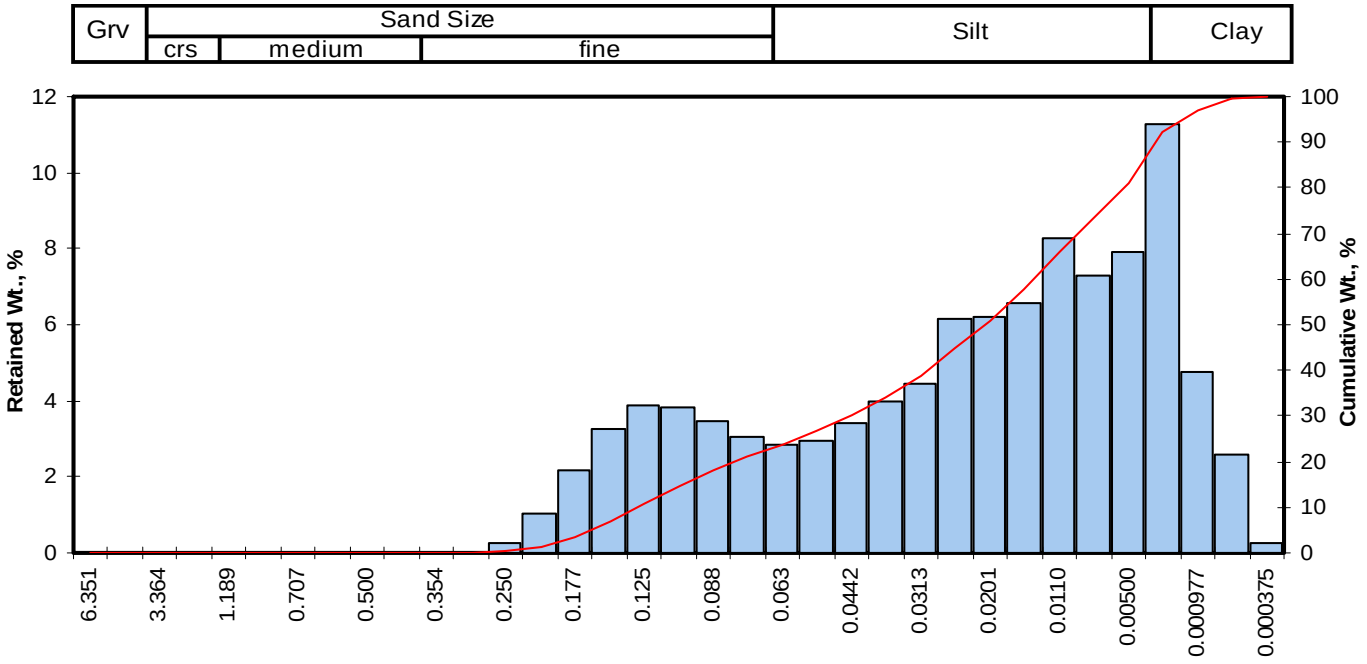
Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Calscience
Project: N/A
Project No: 10-07-0093

PTS File No: 40474
Sample ID: COMPOSITE B BOTTOM
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.03	0.03	0.03
0.0098	0.250	2.00	60	0.28	0.28	0.31
0.0083	0.210	2.25	70	1.03	1.03	1.34
0.0070	0.177	2.50	80	2.15	2.15	3.49
0.0059	0.149	2.75	100	3.28	3.28	6.77
0.0049	0.125	3.00	120	3.87	3.87	10.64
0.0041	0.105	3.25	140	3.85	3.85	14.49
0.0035	0.088	3.50	170	3.46	3.46	17.95
0.0029	0.074	3.75	200	3.06	3.06	21.01
0.0025	0.063	4.00	230	2.86	2.86	23.87
0.0021	0.053	4.25	270	2.97	2.97	26.84
0.00174	0.0442	4.50	325	3.41	3.41	30.25
0.00146	0.0372	4.75	400	3.96	3.96	34.21
0.00123	0.0313	5.00	450	4.46	4.46	38.67
0.000986	0.0250	5.32	500	6.13	6.13	44.80
0.000790	0.0201	5.64	635	6.22	6.22	51.02
0.000615	0.0156	6.00		6.55	6.55	57.57
0.000435	0.0110	6.50		8.26	8.26	65.83
0.000308	0.00781	7.00		7.30	7.30	73.14
0.000197	0.00500	7.65		7.93	7.93	81.07
0.000077	0.00195	9.00		11.30	11.30	92.37
0.000038	0.000977	10.00		4.77	4.77	97.14
0.000019	0.000488	11.00		2.59	2.59	99.73
0.000015	0.000375	11.38		0.27	0.27	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.62	0.0064	0.163
10	2.96	0.0051	0.129
16	3.36	0.0038	0.097
25	4.10	0.0023	0.059
40	5.07	0.0012	0.030
50	5.59	0.0008	0.021
60	6.15	0.0006	0.014
75	7.15	0.0003	0.007
84	8.00	0.0002	0.004
90	8.72	0.0001	0.002
95	9.55	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.59	5.59	5.59
Median, in.	0.0008	0.0008	0.0008
Median, mm	0.021	0.021	0.021
Mean, phi	4.93	5.68	5.65
Mean, in.	0.0013	0.0008	0.0008
Mean, mm	0.033	0.020	0.020
Sorting	2.884	2.319	2.210
Skewness	0.975	0.039	0.091
Kurtosis	0.204	0.496	0.930
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	21.01
Silt	>0.005 mm	60.06
Clay	<0.005 mm	18.93
	Total	**100**

Phone: (562) 907-3607
Fax: (562) 907-3610

Calscience Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Date 7/1/10

Page 1 of 1

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

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

LABORATORY CLIENT: AMEC Earth & Environmental

ADDRESS: 9210 Sky Park Ct Suite 200

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858.300.4320 E-MAIL: Barry.Snyder@amec.com; Brent.Mardian@amec.com

CLIENT PROJECT NAME / NUMBER: 10.1510.1100

PROJECT CONTACT: Barry Snyder

P.O. NO.:

LAB USE ONLY: 07-0093

SAMPLER(S): (PRINT) KIMBRIE GOBBI / Brent Mardian

COELT LOG CODE:

COOLER RECEIPT TEMP= °C

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

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING FORMS ☐ COELT EDF ☐ _____

SPECIAL INSTRUCTIONS:
D. Gonsman has updated analyte list, please see her for analyses.

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	FIELD POINT NAME (FOR COELT EDF)	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	~~DTSC~~ Organotins	TPH (d) or (C6-C36) or (C6-C44)	TPH TRPH (418.1)	BTEX / MTBE (8260B) or (____)	VOCs (8260B)	Oxygenates (8260B)	Encore Prep (5035)	SVOCs (8270C)	Pesticides (8081A)	PCBs (8082)	PNAs (8310) or (8270C)	T22 Metals (6010B/747X)	Cr(VI) [7196A or 7199 or 218.6]	VOCs (TO-14A) or (TO-15)	TPH (g) [TO-3]+ ____	Grain Size	Analytes	TOC
1	APL Composite A		6/28/10	1315	sed	2	X	X	X					X	X	X	X	X				X	X	X
2	~~Reference~~ LA-2		6/27/10	~~1200~~	sed	2	X	X	X					X	X	X	X	X				X	X	X
3	Comp A bottom		6/28/10	~~1315~~ 1315	sed	2	X	X	X					X	X	X	X	X				X	X	X
4	APL Composite ~~B~~ C		6/29/10	1500	sed	2	X	X	X					X	X	X	X	X				X	X	X
5	Composite ~~B~~ C Bottom		6/29/10	1500	sed	2	X	X	X					X	X	X	X	X				X	X	X
6	APL Composite B		~~6/1/10~~ 7/1/10	1200	sed	2	X	X	X					X	X	X	X	X				X	X	X
7	Composite B Bottom		7/1/10	1200	sed	2	X	X	X					X	X	X	X	X				X	X	X

Relinquished by: (Signature) Kimbrie Gobbi	Received by: (Signature/Affiliation)	Date: 7/1/10	Time: 1606
Relinquished by: (Signature)	Received by: (Signature/Affiliation) @ AMEC 7/1/10	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

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

05/01/07 Revision

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

TO: PTS LABORATORIES

CHAIN OF CUSTODY RECORD

DATE: 07/02/10
PAGE: 1 OF 1

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

CLIENT PROJECT NAME / NUMBER: 10-07-0093
PROJECT CONTACT: Danielle Gonsman
SAMPLER(S): (PRINT)

P.O. NO.: 10-07-0093
QUOTE NO.:
LAB USE ONLY 40474

TURNAROUND TIME
___SAME DAY ___24 HR ____48HR ____72 HR ____5 DAYS __X_NORMAL

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

SPECIAL INSTRUCTIONS

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	GRAIN SIZE by ASTM D4464
✓	APL COMPOSITE A	06/28/10	1315	SED	1 Bag	X
✓	LA-2	06/27/10	1200	SED	1 Bag	X
✓	COMP A BOTTOM	06/28/10	1315	SED	1 Bag	X
✓	APL COMPOSITE C	06/29/10	1500	SED	1 Bag	X
✓	COMPOSITE C BOTTOM	06/29/10	1500	SED	1 Bag	X
✓	APL COMPOSITE B	07/01/10	1200	SED	1 Bag	X
✓	COMPOSITE B BOTTOM	07/01/10	1200	SED	1 Bag	X

Relinquished by: (Signature) (CALSCIENCE)	Received by / Affiliation: (Signature) PTS Labs Inc	Date: 07/02/10	Time: 1350
Relinquished by: (Signature) ✓	Received by / Affiliation: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:

10G0178

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

TO: EnviroMatrix

CHAIN OF CUSTODY RECORD

DATE: 07/07/10

PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.

ADDRESS: 7440 Lincoln Way

CITY: Garden Grove, CA 92841-1427

TEL: (714) 895-5494

E-MAIL: dgonsman@calscience.com

CLIENT PROJECT NAME / NUMBER: 10-07-0093

P.O. NO.: 10-07-0093

PROJECT CONTACT: Danielle Gonsman

TEMP BLANK:

LAB USE ONLY

SAMPLER(S): (PRINT)

TURNAROUND TIME

____SAME DAY ____24 HR ____48HR ____72 HR ____5 DAYS _X_ STANDARD*

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS

Include MS/MSD and Standard EDD. Report to the MDL. Need results by 7/19.
Report on a dry weight basis- The total solids results will be provided.

*Tributyltin, Monobutyltin, Dibutyltin, Tetrabutyltin.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Organotins
	APL Composite A	06/28/10	1315	SED	1 jar	X
	LA-2	06/27/10	1200	SED	1 jar	X
	Comp A bottom	06/28/10	1315	SED	1 jar	X
	APL Composite C	06/29/10	1500	SED	1 jar	X
	Composite C Bottom	06/29/10	1500	SED	1 jar	X
	APL Composite B	07/01/10	1200	SED	1 jar	X
	Composite B Bottom	07/01/10	1200	SED	1 jar	X

Relinquished by: (Signature) to GSO 7-7-10 1730 (CALSCIENCE)	Received by / Affiliation: (Signature)	Date: 7/8/10	Time: 1155
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:

Table 5. Chemical Analyses for Sediment and Tissue Samples

Analyte	Analysis Method	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total solids	160.3	0.1 %	N/A
Total organic carbon	9060	0.1 %	N/A
Total ammonia	350.2M[c]	0.2 mg/kg	N/A
Total & soluble sulfides	376.2M[c]	0.1 mg/kg	N/A
Arsenic	6020/6010B[d]	0.1 mg/kg	0.25 mg/kg
Cadmium	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.1 mg/kg	0.02 mg/kg
Selenium	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	2.0 mg/kg	1.0 mg/kg
TRPH	418.1M[d]	5.0 mg/kg	N/A
PAHs[e]	8270C[d]	20 µg/kg	20 µg/kg
Chlorinated pesticides[f]	8081A[d]	0.5 – 30 µg/kg	0.5 - 2.0 µg/kg
PCBs[g]	8082[d]	20 µg/kg	20 µg/kg
Phenols	8270C[d]	20 – 100 µg/kg	N/A
Phthalates	8270C[d]	10 µg/kg	N/A
Organotins	Rice/Krone[h]	1.0 µg/kg	N/A

Notes;

[a] Sediment minimum detection limits are on a dry-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc. and CRG Marine Laboratories Inc.

[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition APHA et al. 1995.

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

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

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

[g] Includes Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

mg/kg - milligrams per kilogram (parts per million)

mg/L - milligrams per liter

µg/kg -micrograms per kilogram (parts per billion)

N/A – not analyzed

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

TRPH - total recoverable petroleum hydrocarbons

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-07-0093

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC DATE: 07/01/10

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

Temperature 2.1 °C + 0.5 °C (CF) = 2.6 °C ☑ Blank ☐ Sample

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

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

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

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** JF

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ 7

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

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

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

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

APPENDIX E

ADDITIONAL CORE SEDIMENT CHEMISTRY RESULTS

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Calscience
Environmental
Laboratories, Inc.

September 22, 2010

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

Subject: **Calscience Work Order No.: 10-09-0575**
Client Reference: APL Terminal

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/8/2010 and analyzed in accordance with the attached chain-of-custody.

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

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

CASE NARRATIVE

Calscience Work Order No.: 10-09-0575
Project Name: APL 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

Nine sediment samples, housed in 8oz glass containers, were received for this project on September 8, 2010. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 2.5°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending chemistry testing.

Tests Performed

Trace Metals by EPA 6020
Mercury by EPA 7471A
Total Solids by SM 2540 B

Data Summary

All sample concentrations and reporting limits were dry weight corrected.

All samples were homogenized prior to preparation/analysis.

A laboratory duplicate was performed on sample APL B-1-1

Holding times

All samples were received past the 28-day EPA recommended holding time for Mercury. However, the samples were stored frozen prior to the holding time expiration, and remained in that condition until received by Calscience on 9/8/10. As they were received frozen prior to the expiration of the recommended holding times, and based upon standard industry practice for these matrices, the results have not been flagged as exceeding the holding time.

Calibration

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

Reporting Limits

The Method Detection Limits were met.

Blanks

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

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test and all parameters were within the specified control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis. Matrix spiking was performed on project sample APL B-1-1, and all parameters were within the established control limits with the following exceptions.

The MS and MSD recoveries for Copper and Zinc fell just below the established control limits. However, since the associated PDS/PDSD and LCS/LCSD recoveries were within the control limits, the results are released with no further action.

Acronyms

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0575
Preparation: N/A
Method: SM 2540 B

Project: APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-1-1	**10-09-0575-1-A**	**06/30/10 08:15**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	63.4	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-3-1	**10-09-0575-2-A**	**07/01/10 11:00**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	59.6	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-4-1	**10-09-0575-3-A**	**06/30/10 09:30**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	57.5	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-5-1	**10-09-0575-4-A**	**06/30/10 10:45**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	55.7	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-1-1	**10-09-0575-5-A**	**06/29/10 08:45**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	63.8	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-2-1	**10-09-0575-6-A**	**06/30/10 11:45**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	63.2	0.100	1		%

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental	Date Received:	09/08/10
9210 Sky Park Court, Suite 200	Work Order No:	10-09-0575
San Diego, CA 92123-4302	Preparation:	N/A
	Method:	SM 2540 B

Project: APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-3-1	**10-09-0575-7-A**	**07/01/10 13:00**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	66.6	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-4-1	**10-09-0575-8-A**	**07/02/10 14:30**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	72.1	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-5-1	**10-09-0575-9-A**	**07/03/10 15:00**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	70.9	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-1-1 (DUP)	**10-09-0575-10-A**	**06/30/10 08:15**	**Sediment**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	59.5	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-1,501**	**N/A**	**Solid**	**N/A**	**09/16/10**	**09/16/10 20:00**	**A0916TSB2**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0575
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-1-1	**10-09-0575-1-A**	**06/30/10 08:15**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:06**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	9.51	0.158	1		Nickel	26.7	0.158	1	
Cadmium	0.450	0.158	1		Selenium	0.576	0.158	1	
Chromium	39.6	0.158	1		Silver	0.172	0.158	1	
Copper	41.8	0.158	1		Zinc	80.9	1.58	1	
Lead	15.4	0.158	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-3-1	**10-09-0575-2-A**	**07/01/10 11:00**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:24**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	11.6	0.168	1		Nickel	34.2	0.168	1	
Cadmium	0.625	0.168	1		Selenium	0.856	0.168	1	
Chromium	53.2	0.168	1		Silver	0.247	0.168	1	
Copper	50.9	0.168	1		Zinc	100	1.68	1	
Lead	21.3	0.168	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-4-1	**10-09-0575-3-A**	**06/30/10 09:30**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:29**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.0	0.174	1		Nickel	36.1	0.174	1	
Cadmium	0.598	0.174	1		Selenium	0.701	0.174	1	
Chromium	51.4	0.174	1		Silver	0.237	0.174	1	
Copper	52.4	0.174	1		Zinc	101	1.74	1	
Lead	20.4	0.174	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-5-1	**10-09-0575-4-A**	**06/30/10 10:45**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:33**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.0	0.180	1		Nickel	35.7	0.180	1	
Cadmium	0.586	0.180	1		Selenium	0.720	0.180	1	
Chromium	54.4	0.180	1		Silver	0.230	0.180	1	
Copper	54.0	0.180	1		Zinc	101	1.80	1	
Lead	21.0	0.180	1						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0575
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-1-1	**10-09-0575-5-A**	**06/29/10 08:45**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:37**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	8.61	0.157	1		Nickel	26.1	0.157	1	
Cadmium	0.469	0.157	1		Selenium	0.634	0.157	1	
Chromium	40.9	0.157	1		Silver	0.173	0.157	1	
Copper	37.6	0.157	1		Zinc	77.1	1.57	1	
Lead	14.4	0.157	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-2-1	**10-09-0575-6-A**	**06/30/10 11:45**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:42**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	19.4	0.158	1		Nickel	67.5	0.158	1	
Cadmium	0.648	0.158	1		Selenium	0.799	0.158	1	
Chromium	74.2	0.158	1		Silver	0.172	0.158	1	
Copper	55.7	0.158	1		Zinc	111	1.58	1	
Lead	23.2	0.158	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-3-1	**10-09-0575-7-A**	**07/01/10 13:00**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:46**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	9.82	0.150	1		Nickel	28.0	0.150	1	
Cadmium	0.456	0.150	1		Selenium	0.810	0.150	1	
Chromium	44.8	0.150	1		Silver	0.155	0.150	1	
Copper	42.2	0.150	1		Zinc	87.3	1.50	1	
Lead	17.7	0.150	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-4-1	**10-09-0575-8-A**	**07/02/10 14:30**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:51**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	7.70	0.139	1		Nickel	23.9	0.139	1	
Cadmium	0.435	0.139	1		Selenium	0.705	0.139	1	
Chromium	39.2	0.139	1		Silver	ND	0.139	1	
Copper	32.9	0.139	1		Zinc	72.8	1.39	1	
Lead	12.7	0.139	1						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0575
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020
		Units:	mg/kg
Project: APL Terminal			Page 3 of 3

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-5-1	**10-09-0575-9-A**	**07/03/10 15:00**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 18:55**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	5.08	0.141	1		Nickel	15.9	0.141	1	
Cadmium	0.239	0.141	1		Selenium	0.463	0.141	1	
Chromium	24.7	0.141	1		Silver	ND	0.141	1	
Copper	22.4	0.141	1		Zinc	54.7	1.41	1	
Lead	7.74	0.141	1						

APL B-1-1 (DUP)	**10-09-0575-10-A**	**06/30/10 08:15**	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10 19:00**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	10.4	0.168	1		Nickel	28.9	0.168	1	
Cadmium	0.506	0.168	1		Selenium	0.594	0.168	1	
Chromium	43.6	0.168	1		Silver	0.187	0.168	1	
Copper	46.0	0.168	1		Zinc	87.4	1.68	1	
Lead	17.0	0.168	1						

Method Blank	**096-10-002-1,830**	**N/A**	**Solid**	**ICP/MS 04**	**09/14/10**	**09/14/10 17:31**	**100914L01**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0575
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-1-1	**10-09-0575-1-A**	**06/30/10 08:15**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:29**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.124	0.0316	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-3-1	**10-09-0575-2-A**	**07/01/10 11:00**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:32**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.167	0.0336	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-4-1	**10-09-0575-3-A**	**06/30/10 09:30**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:34**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.165	0.0349	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-5-1	**10-09-0575-4-A**	**06/30/10 10:45**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:36**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.157	0.0360	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-1-1	**10-09-0575-5-A**	**06/29/10 08:45**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:38**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.115	0.0314	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-2-1	**10-09-0575-6-A**	**06/30/10 11:45**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:41**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.123	0.0317	1		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0575
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-3-1	**10-09-0575-7-A**	**07/01/10 13:00**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:47**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.203	0.0301	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-4-1	**10-09-0575-8-A**	**07/02/10 14:30**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:49**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.129	0.0278	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL C-5-1	**10-09-0575-9-A**	**07/03/10 15:00**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 19:52**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0846	0.0283	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL B-1-1 (DUP)	**10-09-0575-10-A**	**06/30/10 08:15**	**Sediment**	**Mercury**	**09/14/10**	**09/14/10 20:10**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.139	0.0337	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-161**	**N/A**	**Solid**	**Mercury**	**09/14/10**	**09/14/10 18:05**	**100914L04**

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

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0575
Preparation: EPA 3050B
Method: EPA 6020

Project APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL B-1-1	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	80	81	80-120	1	0-20	
Cadmium	95	94	80-120	1	0-20	
Chromium	96	94	80-120	1	0-20	
Copper	75	76	80-120	1	0-20	3
Lead	99	101	80-120	2	0-20	
Nickel	81	82	80-120	1	0-20	
Selenium	90	91	80-120	0	0-20	
Silver	95	95	80-120	0	0-20	
Zinc	76	77	80-120	1	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

AMEC Earth & Environmental		Date Received	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0575
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
APL B-1-1	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	82	83	75-125	2	0-20	
Cadmium	93	95	75-125	3	0-20	
Chromium	88	87	75-125	1	0-20	
Copper	82	79	75-125	2	0-20	
Lead	97	98	75-125	1	0-20	
Nickel	82	82	75-125	0	0-20	
Selenium	94	92	75-125	2	0-20	
Silver	93	95	75-125	2	0-20	
Zinc	75	77	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Earth & Environmental	Date Received:	09/08/10
9210 Sky Park Court, Suite 200	Work Order No:	10-09-0575
San Diego, CA 92123-4302	Preparation:	N/A
	Method:	SM 2540 B

Project: APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
APL B-1-1	**Sediment**	**N/A**	**09/16/10**	**09/16/10**	**A0916TSD2**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	63.4	64.2	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0575
Preparation: EPA 7471A Total
Method: EPA 7471A

Project APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL B-1-1	**Sediment**	**Mercury**	**09/14/10**	**09/15/10**	**100914S04A**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	91	90	76-136	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0575
Preparation: EPA 3050B
Method: EPA 6020

Project: APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,830	**Solid**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	99	102	80-120	3	0-20	
Cadmium	97	98	80-120	1	0-20	
Chromium	106	105	80-120	1	0-20	
Copper	102	105	80-120	3	0-20	
Lead	95	94	80-120	1	0-20	
Nickel	99	103	80-120	4	0-20	
Selenium	101	99	80-120	2	0-20	
Silver	103	102	80-120	1	0-20	
Zinc	99	102	80-120	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0575
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-161	**Solid**	**Mercury**	**09/14/10**	**09/14/10**	**100914L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	97	96	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-09-0575

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

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

CHAIN OF CUSTODY RECORD

DATE: 09/08/10

PAGE: 1 OF 1

LABORATORY CLIENT: AMEC Earth & Environmental, Inc

ADDRESS: 9210 Sky Park Court, Suite 200

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4320 FAX: 858-300-4301 E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: APL Terminal

P.O. NO.:

PROJECT CONTACT: Barry Snyder

LAB CONTACT OR QUOTE NO.: Bob Stearns

SAMPLER(S): (SIGNATURE) Brent/Kimbrie

LAB USE ONLY: 09-0575

TURNAROUND TIME:

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR X 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS:

Report in dry weight
Return unused samples to AMEC
Normal turnaround time

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Please list tests required	Percent Solids	As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Zn
1	APL B-1-1	Area B-1 Top	6/30/2010		Sed	1		x	x
2	APL B-3-1	Area B-3 Top	7/1/2010		Sed	1		x	x
3	APL B-4-1	Area B-4 Top	6/30/2010		Sed	1		x	x
4	APL B-5-1	Area B-5 Top	6/30/2010		Sed	1		x	x
5	APL C-1-1	Area C-1 Top	6/29/2010		Sed	1		x	x
6	APL C-2-1	Area C-2 Top	6/30/2010		Sed	1		x	x
7	APL C-3-1	Area C-3 Top	7/1/2010		Sed	1		x	x
8	APL C-4-1	Area C-4 Top	7/2/2010		Sed	1		x	x
9	APL C-5-1	Area C-5 Top	7/3/2010		Sed	1			

Relinquished by: (Signature) Barry J. Snyder	Received by: (Signature)	Date: 9/8/10	Time: 13:30
Relinquished by: (Signature)	Received by: (Signature)	Date: 9/8/10	Time: 1645
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

02/24/10 Revision

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-09-0575

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC DATE: 09/08/10

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

Temperature 2.0 °C + 0.5 °C (CF) = 2.5 °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 ☐ Metals Only ☐ PCBs Only Initial: VB

CUSTODY SEALS INTACT:

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

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

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☑ Collection date/time, matrix, and/or # of containers logged in based on sample labels. 9/9/10			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

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

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

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

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

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

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

APPENDIX F

BIOACCUMULATION TISSUE CHEMISTRY RESULTS

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Calscience
Environmental
Laboratories, Inc.

Supplemental Report 1

October 27, 2010

The original report has been revised/corrected.

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

Subject: **Calscience Work Order No.: 10-09-0576**
Client Reference: POLA APL Terminal

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/8/2010 and analyzed in accordance with the attached chain-of-custody.

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

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

CASE NARRATIVE

Calscience Work Order No.: 10-09-0576
Project Name: POLA APL Terminal

This Supplemental Report presents revised data for pesticides by EPA 8081A. Specifically, the laboratory determined the presence of minor levels of 4,4'-DDE in many of the samples which were reported as not detected in the original report. No other data is affected.

Sample Condition on Receipt

Twenty tissue samples were received for this project on September 8, 2010. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 2.5°C. The samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending homogenization and chemistry testing.

Tests Performed

Trace Metals by EPA 6020
Mercury by EPA 7471A
Chlorinated Pesticides by EPA 8081B
PCB Aroclors by EPA 8082
PAHs by EPA 8270C SIM
Percent Solids by SM 2540B

Data Summary

All samples were homogenized prior to analytical preparation.

A laboratory duplicate was performed on sample APL-4W.

Holding times

The samples were received past the 14-day EPA recommended holding time for PCBs by EPA 8082, OC Pesticides by EPA 8081B and PAHs by EPA 8270C. All samples were stored frozen prior to the holding time expiration, and remained in that condition until received by Calscience on 9/8/10. Given that the samples were frozen prior to the expiration of the recommended holding times, and based upon standard industry practice for these matrices, the results have not been flagged as exceeding the holding time.

Calibration

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

Reporting Limits

The Method Detection Limits were met.

Blanks

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

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test and all parameters were within the specified control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable test on project sample APL-22C, and all parameters were within the specified control limits with the following exceptions.

For PAHs (by EPA 8270C SIM), the RPDs for Benzo (b) Fluoranthene and Benzo (k) Fluoranthene were outside the acceptance ranges. In addition, the matrix spike recovery for 1-Methylnaphthalene was out of the established control limits. The results are flagged and released with no further clarification since the associated LCS/LCSD recoveries and RPDs were within the acceptance ranges.

Surrogates

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

Due to matrix interference, one Chlorinated Pesticides surrogate, 2, 4, 5, 6- Tetrachloro-m-Xylene was above the established control limits in sample APL-6W. However, since the percent recovery for the second surrogate and both of the Method Blank surrogates were in control, the results are released with no further action.

Acronyms

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: N/A
Method: SM 2540 B

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4W	**10-09-0576-1-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	13.3	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5W	**10-09-0576-2-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6W	**10-09-0576-3-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	16.5	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7W	**10-09-0576-4-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14W	**10-09-0576-5-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.5	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15W	**10-09-0576-6-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.6	0.100	1		%

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: N/A
Method: SM 2540 B

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21W	**10-09-0576-7-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.6	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22W	**10-09-0576-8-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.5	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23W	**10-09-0576-9-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.6	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24W	**10-09-0576-10-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4C	**10-09-0576-11-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.7	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C	**10-09-0576-12-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.0	0.100	1		%

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: N/A
Method: SM 2540 B

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6C	**10-09-0576-13-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7C	**10-09-0576-14-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	13.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14C	**10-09-0576-15-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.3	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15C	**10-09-0576-16-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21C	**10-09-0576-17-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	13.4	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22C	**10-09-0576-18-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.6	0.100	1		%

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23C	**10-09-0576-19-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.7	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24C	**10-09-0576-20-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.3	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C (DUPLICATE)	**10-09-0576-21-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**09/14/10**	**09/14/10 17:30**	**A0914TSB3**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	11.9	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-1,502**	**N/A**	**Solid**	**N/A**	**09/13/10**	**09/13/10 16:00**	**A0913TSB1**

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-1,503**	**N/A**	**Solid**	**N/A**	**09/14/10**	**09/14/10 17:30**	**A0914TSB3**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4W	**10-09-0576-1-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 20:06**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	75	1		Aroclor-1254	ND	75	1	
Aroclor-1221	ND	190	1		Aroclor-1260	ND	75	1	
Aroclor-1232	ND	75	1		Aroclor-1262	ND	75	1	
Aroclor-1248	ND	75	1		Aroclor-1242	ND	75	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	91	50-130			2,4,5,6-Tetrachloro-m-Xylene	101	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5W	**10-09-0576-2-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 20:24**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	70	1		Aroclor-1254	ND	70	1	
Aroclor-1221	ND	180	1		Aroclor-1260	ND	70	1	
Aroclor-1232	ND	70	1		Aroclor-1262	ND	70	1	
Aroclor-1248	ND	70	1		Aroclor-1242	ND	70	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	101	50-130			2,4,5,6-Tetrachloro-m-Xylene	110	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6W	**10-09-0576-3-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 20:42**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	61	1		Aroclor-1254	ND	61	1	
Aroclor-1221	ND	150	1		Aroclor-1260	ND	61	1	
Aroclor-1232	ND	61	1		Aroclor-1262	ND	61	1	
Aroclor-1248	ND	61	1		Aroclor-1242	ND	61	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	102	50-130			2,4,5,6-Tetrachloro-m-Xylene	111	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: POLA APL Terminal			Page 2 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7W	**10-09-0576-4-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 21:00**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	82	1		Aroclor-1254	ND	82	1	
Aroclor-1221	ND	200	1		Aroclor-1260	ND	82	1	
Aroclor-1232	ND	82	1		Aroclor-1262	ND	82	1	
Aroclor-1248	ND	82	1		Aroclor-1242	ND	82	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	103	50-130			2,4,5,6-Tetrachloro-m-Xylene	124	50-130		

APL-14W	**10-09-0576-5-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 21:18**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	69	1		Aroclor-1254	ND	69	1	
Aroclor-1221	ND	170	1		Aroclor-1260	ND	69	1	
Aroclor-1232	ND	69	1		Aroclor-1262	ND	69	1	
Aroclor-1248	ND	69	1		Aroclor-1242	ND	69	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	84	50-130			2,4,5,6-Tetrachloro-m-Xylene	90	50-130		

APL-15W	**10-09-0576-6-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 21:36**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	79	1		Aroclor-1254	ND	79	1	
Aroclor-1221	ND	200	1		Aroclor-1260	ND	79	1	
Aroclor-1232	ND	79	1		Aroclor-1262	ND	79	1	
Aroclor-1248	ND	79	1		Aroclor-1242	ND	79	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	96	50-130			2,4,5,6-Tetrachloro-m-Xylene	105	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: POLA APL Terminal			Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21W	**10-09-0576-7-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 21:54**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	86	1		Aroclor-1254	ND	86	1	
Aroclor-1221	ND	220	1		Aroclor-1260	ND	86	1	
Aroclor-1232	ND	86	1		Aroclor-1262	ND	86	1	
Aroclor-1248	ND	86	1		Aroclor-1242	ND	86	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	94	50-130			2,4,5,6-Tetrachloro-m-Xylene	102	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22W	**10-09-0576-8-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 22:12**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	69	1		Aroclor-1254	ND	69	1	
Aroclor-1221	ND	170	1		Aroclor-1260	ND	69	1	
Aroclor-1232	ND	69	1		Aroclor-1262	ND	69	1	
Aroclor-1248	ND	69	1		Aroclor-1242	ND	69	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	93	50-130			2,4,5,6-Tetrachloro-m-Xylene	99	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23W	**10-09-0576-9-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 23:42**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	68	1		Aroclor-1254	ND	68	1	
Aroclor-1221	ND	170	1		Aroclor-1260	ND	68	1	
Aroclor-1232	ND	68	1		Aroclor-1262	ND	68	1	
Aroclor-1248	ND	68	1		Aroclor-1242	ND	68	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	107	50-130			2,4,5,6-Tetrachloro-m-Xylene	118	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: POLA APL Terminal			Page 4 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24W	**10-09-0576-10-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/17/10 10:25**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	89	1		Aroclor-1254	ND	89	1	
Aroclor-1221	ND	220	1		Aroclor-1260	ND	89	1	
Aroclor-1232	ND	89	1		Aroclor-1262	ND	89	1	
Aroclor-1248	ND	89	1		Aroclor-1242	ND	89	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	93	50-130			2,4,5,6-Tetrachloro-m-Xylene	85	50-130		

APL-4C	**10-09-0576-11-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 00:18**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	85	1		Aroclor-1254	ND	85	1	
Aroclor-1221	ND	210	1		Aroclor-1260	ND	85	1	
Aroclor-1232	ND	85	1		Aroclor-1262	ND	85	1	
Aroclor-1248	ND	85	1		Aroclor-1242	ND	85	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	103	50-130			2,4,5,6-Tetrachloro-m-Xylene	105	50-130		

APL-5C	**10-09-0576-12-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 00:36**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	83	1		Aroclor-1254	ND	83	1	
Aroclor-1221	ND	210	1		Aroclor-1260	ND	83	1	
Aroclor-1232	ND	83	1		Aroclor-1262	ND	83	1	
Aroclor-1248	ND	83	1		Aroclor-1242	ND	83	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	76	50-130			2,4,5,6-Tetrachloro-m-Xylene	82	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: POLA APL Terminal			Page 5 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6C	**10-09-0576-13-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 00:54**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	89	1		Aroclor-1254	ND	89	1	
Aroclor-1221	ND	220	1		Aroclor-1260	ND	89	1	
Aroclor-1232	ND	89	1		Aroclor-1262	ND	89	1	
Aroclor-1248	ND	89	1		Aroclor-1242	ND	89	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	100	50-130			2,4,5,6-Tetrachloro-m-Xylene	107	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7C	**10-09-0576-14-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 01:12**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	76	1		Aroclor-1254	ND	76	1	
Aroclor-1221	ND	190	1		Aroclor-1260	ND	76	1	
Aroclor-1232	ND	76	1		Aroclor-1262	ND	76	1	
Aroclor-1248	ND	76	1		Aroclor-1242	ND	76	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	80	50-130			2,4,5,6-Tetrachloro-m-Xylene	94	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14C	**10-09-0576-15-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 01:30**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	88	1		Aroclor-1254	ND	88	1	
Aroclor-1221	ND	220	1		Aroclor-1260	ND	88	1	
Aroclor-1232	ND	88	1		Aroclor-1262	ND	88	1	
Aroclor-1248	ND	88	1		Aroclor-1242	ND	88	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	99	50-130			2,4,5,6-Tetrachloro-m-Xylene	110	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: POLA APL Terminal			Page 6 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15C	**10-09-0576-16-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/17/10 10:43**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	82	1		Aroclor-1254	ND	82	1	
Aroclor-1221	ND	200	1		Aroclor-1260	ND	82	1	
Aroclor-1232	ND	82	1		Aroclor-1262	ND	82	1	
Aroclor-1248	ND	82	1		Aroclor-1242	ND	82	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	83	50-130			2,4,5,6-Tetrachloro-m-Xylene	95	50-130		

APL-21C	**10-09-0576-17-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 02:06**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	75	1		Aroclor-1254	ND	75	1	
Aroclor-1221	ND	190	1		Aroclor-1260	ND	75	1	
Aroclor-1232	ND	75	1		Aroclor-1262	ND	75	1	
Aroclor-1248	ND	75	1		Aroclor-1242	ND	75	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	99	50-130			2,4,5,6-Tetrachloro-m-Xylene	114	50-130		

APL-22C	**10-09-0576-18-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 02:24**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	86	1		Aroclor-1254	ND	86	1	
Aroclor-1221	ND	220	1		Aroclor-1260	ND	86	1	
Aroclor-1232	ND	86	1		Aroclor-1262	ND	86	1	
Aroclor-1248	ND	86	1		Aroclor-1242	ND	86	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	96	50-130			2,4,5,6-Tetrachloro-m-Xylene	107	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: POLA APL Terminal			Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23C	**10-09-0576-19-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/14/10 02:42**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	79	1		Aroclor-1254	ND	79	1	
Aroclor-1221	ND	200	1		Aroclor-1260	ND	79	1	
Aroclor-1232	ND	79	1		Aroclor-1262	ND	79	1	
Aroclor-1248	ND	79	1		Aroclor-1242	ND	79	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	99	50-130			2,4,5,6-Tetrachloro-m-Xylene	111	50-130		

APL-24C	**10-09-0576-20-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/17/10 11:01**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	88	1		Aroclor-1254	ND	88	1	
Aroclor-1221	ND	220	1		Aroclor-1260	ND	88	1	
Aroclor-1232	ND	88	1		Aroclor-1262	ND	88	1	
Aroclor-1248	ND	88	1		Aroclor-1242	ND	88	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	85	50-130			2,4,5,6-Tetrachloro-m-Xylene	105	50-130		

APL-5C (DUPLICATE)	**10-09-0576-21-A**	**08/11/10 09:30**	**Tissue**	**GC 58**	**09/10/10**	**09/13/10 19:48**	**100910L19**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	84	1		Aroclor-1254	ND	84	1	
Aroclor-1221	ND	210	1		Aroclor-1260	ND	84	1	
Aroclor-1232	ND	84	1		Aroclor-1262	ND	84	1	
Aroclor-1248	ND	84	1		Aroclor-1242	ND	84	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	93	50-130			2,4,5,6-Tetrachloro-m-Xylene	102	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-502-4**	**N/A**	**Solid**	**GC 58**	**09/10/10**	**09/13/10 18:54**	**100910L19**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	10	1		Aroclor-1254	ND	10	1	
Aroclor-1221	ND	25	1		Aroclor-1260	ND	10	1	
Aroclor-1232	ND	10	1		Aroclor-1262	ND	10	1	
Aroclor-1248	ND	10	1		Aroclor-1242	ND	10	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	106	50-130			2,4,5,6-Tetrachloro-m-Xylene	127	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4W	**10-09-0576-1-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 12:39**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	150	1		Benzo (a) Anthracene	ND	150	1	
2-Methylnaphthalene	ND	150	1		Chrysene	ND	150	1	
Acenaphthylene	ND	150	1		Benzo (k) Fluoranthene	ND	150	1	
Acenaphthene	ND	150	1		Benzo (b) Fluoranthene	ND	150	1	
Fluorene	ND	150	1		Benzo (a) Pyrene	ND	150	1	
Phenanthrene	ND	150	1		Benzo (g,h,i) Perylene	ND	150	1	
Anthracene	ND	150	1		Indeno (1,2,3-c,d) Pyrene	ND	150	1	
Fluoranthene	ND	150	1		Dibenz (a,h) Anthracene	ND	150	1	
Pyrene	ND	150	1		1-Methylnaphthalene	ND	150	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	119	18-162			2-Fluorobiphenyl	94	14-146		
p-Terphenyl-d14	95	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5W	**10-09-0576-2-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 13:05**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	133	18-162			2-Fluorobiphenyl	83	14-146		
p-Terphenyl-d14	83	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6W	**10-09-0576-3-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 13:31**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	120	1		Benzo (a) Anthracene	ND	120	1	
2-Methylnaphthalene	ND	120	1		Chrysene	ND	120	1	
Acenaphthylene	ND	120	1		Benzo (k) Fluoranthene	ND	120	1	
Acenaphthene	ND	120	1		Benzo (b) Fluoranthene	ND	120	1	
Fluorene	ND	120	1		Benzo (a) Pyrene	ND	120	1	
Phenanthrene	ND	120	1		Benzo (g,h,i) Perylene	ND	120	1	
Anthracene	ND	120	1		Indeno (1,2,3-c,d) Pyrene	ND	120	1	
Fluoranthene	ND	120	1		Dibenz (a,h) Anthracene	ND	120	1	
Pyrene	ND	120	1		1-Methylnaphthalene	ND	120	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Nitrobenzene-d5	104	18-162		2-Fluorobiphenyl	95	14-146	
p-Terphenyl-d14	71	34-148					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7W	**10-09-0576-4-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 13:57**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	160	1		Benzo (a) Anthracene	ND	160	1	
2-Methylnaphthalene	ND	160	1		Chrysene	ND	160	1	
Acenaphthylene	ND	160	1		Benzo (k) Fluoranthene	ND	160	1	
Acenaphthene	ND	160	1		Benzo (b) Fluoranthene	ND	160	1	
Fluorene	ND	160	1		Benzo (a) Pyrene	ND	160	1	
Phenanthrene	ND	160	1		Benzo (g,h,i) Perylene	ND	160	1	
Anthracene	ND	160	1		Indeno (1,2,3-c,d) Pyrene	ND	160	1	
Fluoranthene	ND	160	1		Dibenz (a,h) Anthracene	ND	160	1	
Pyrene	ND	160	1		1-Methylnaphthalene	ND	160	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Nitrobenzene-d5	100	18-162		2-Fluorobiphenyl	87	14-146	
p-Terphenyl-d14	63	34-148					

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14W	**10-09-0576-5-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 14:23**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	98	18-162			2-Fluorobiphenyl	75	14-146		
p-Terphenyl-d14	58	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15W	**10-09-0576-6-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 14:49**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	160	1		Benzo (a) Anthracene	ND	160	1	
2-Methylnaphthalene	ND	160	1		Chrysene	ND	160	1	
Acenaphthylene	ND	160	1		Benzo (k) Fluoranthene	ND	160	1	
Acenaphthene	ND	160	1		Benzo (b) Fluoranthene	ND	160	1	
Fluorene	ND	160	1		Benzo (a) Pyrene	ND	160	1	
Phenanthrene	ND	160	1		Benzo (g,h,i) Perylene	ND	160	1	
Anthracene	ND	160	1		Indeno (1,2,3-c,d) Pyrene	ND	160	1	
Fluoranthene	ND	160	1		Dibenz (a,h) Anthracene	ND	160	1	
Pyrene	ND	160	1		1-Methylnaphthalene	ND	160	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	120	18-162			2-Fluorobiphenyl	81	14-146		
p-Terphenyl-d14	78	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21W	**10-09-0576-7-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 15:14**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	170	1		Benzo (a) Anthracene	ND	170	1	
2-Methylnaphthalene	ND	170	1		Chrysene	ND	170	1	
Acenaphthylene	ND	170	1		Benzo (k) Fluoranthene	ND	170	1	
Acenaphthene	ND	170	1		Benzo (b) Fluoranthene	ND	170	1	
Fluorene	ND	170	1		Benzo (a) Pyrene	ND	170	1	
Phenanthrene	ND	170	1		Benzo (g,h,i) Perylene	ND	170	1	
Anthracene	ND	170	1		Indeno (1,2,3-c,d) Pyrene	ND	170	1	
Fluoranthene	ND	170	1		Dibenz (a,h) Anthracene	ND	170	1	
Pyrene	ND	170	1		1-Methylnaphthalene	ND	170	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	126	18-162			2-Fluorobiphenyl	74	14-146		
p-Terphenyl-d14	89	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22W	**10-09-0576-8-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/17/10 15:40**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	94	18-162			2-Fluorobiphenyl	96	14-146		
p-Terphenyl-d14	56	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23W	**10-09-0576-9-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 02:00**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	63	18-162			2-Fluorobiphenyl	95	14-146		
p-Terphenyl-d14	109	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24W	**10-09-0576-10-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 02:26**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	180	1		Benzo (a) Anthracene	ND	180	1	
2-Methylnaphthalene	ND	180	1		Chrysene	ND	180	1	
Acenaphthylene	ND	180	1		Benzo (k) Fluoranthene	ND	180	1	
Acenaphthene	ND	180	1		Benzo (b) Fluoranthene	ND	180	1	
Fluorene	ND	180	1		Benzo (a) Pyrene	ND	180	1	
Phenanthrene	ND	180	1		Benzo (g,h,i) Perylene	ND	180	1	
Anthracene	ND	180	1		Indeno (1,2,3-c,d) Pyrene	ND	180	1	
Fluoranthene	ND	180	1		Dibenz (a,h) Anthracene	ND	180	1	
Pyrene	ND	180	1		1-Methylnaphthalene	ND	180	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	117	18-162			2-Fluorobiphenyl	80	14-146		
p-Terphenyl-d14	90	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4C	**10-09-0576-11-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 02:52**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	170	1		Benzo (a) Anthracene	ND	170	1	
2-Methylnaphthalene	ND	170	1		Chrysene	ND	170	1	
Acenaphthylene	ND	170	1		Benzo (k) Fluoranthene	ND	170	1	
Acenaphthene	ND	170	1		Benzo (b) Fluoranthene	ND	170	1	
Fluorene	ND	170	1		Benzo (a) Pyrene	ND	170	1	
Phenanthrene	ND	170	1		Benzo (g,h,i) Perylene	ND	170	1	
Anthracene	ND	170	1		Indeno (1,2,3-c,d) Pyrene	ND	170	1	
Fluoranthene	ND	170	1		Dibenz (a,h) Anthracene	ND	170	1	
Pyrene	ND	170	1		1-Methylnaphthalene	ND	170	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Nitrobenzene-d5	44	18-162		2-Fluorobiphenyl	39	14-146	
p-Terphenyl-d14	38	34-148					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C	**10-09-0576-12-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 03:18**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	170	1		Benzo (a) Anthracene	ND	170	1	
2-Methylnaphthalene	ND	170	1		Chrysene	ND	170	1	
Acenaphthylene	ND	170	1		Benzo (k) Fluoranthene	ND	170	1	
Acenaphthene	ND	170	1		Benzo (b) Fluoranthene	ND	170	1	
Fluorene	ND	170	1		Benzo (a) Pyrene	ND	170	1	
Phenanthrene	ND	170	1		Benzo (g,h,i) Perylene	ND	170	1	
Anthracene	ND	170	1		Indeno (1,2,3-c,d) Pyrene	ND	170	1	
Fluoranthene	ND	170	1		Dibenz (a,h) Anthracene	ND	170	1	
Pyrene	ND	170	1		1-Methylnaphthalene	ND	170	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Nitrobenzene-d5	83	18-162		2-Fluorobiphenyl	73	14-146	
p-Terphenyl-d14	77	34-148					

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6C	**10-09-0576-13-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 04:11**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	180	1		Benzo (a) Anthracene	ND	180	1	
2-Methylnaphthalene	ND	180	1		Chrysene	ND	180	1	
Acenaphthylene	ND	180	1		Benzo (k) Fluoranthene	ND	180	1	
Acenaphthene	ND	180	1		Benzo (b) Fluoranthene	ND	180	1	
Fluorene	ND	180	1		Benzo (a) Pyrene	ND	180	1	
Phenanthrene	ND	180	1		Benzo (g,h,i) Perylene	ND	180	1	
Anthracene	ND	180	1		Indeno (1,2,3-c,d) Pyrene	ND	180	1	
Fluoranthene	ND	180	1		Dibenz (a,h) Anthracene	ND	180	1	
Pyrene	ND	180	1		1-Methylnaphthalene	ND	180	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	81	18-162			2-Fluorobiphenyl	83	14-146		
p-Terphenyl-d14	87	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7C	**10-09-0576-14-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 04:37**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	150	1		Benzo (a) Anthracene	ND	150	1	
2-Methylnaphthalene	ND	150	1		Chrysene	ND	150	1	
Acenaphthylene	ND	150	1		Benzo (k) Fluoranthene	ND	150	1	
Acenaphthene	ND	150	1		Benzo (b) Fluoranthene	ND	150	1	
Fluorene	ND	150	1		Benzo (a) Pyrene	ND	150	1	
Phenanthrene	ND	150	1		Benzo (g,h,i) Perylene	ND	150	1	
Anthracene	ND	150	1		Indeno (1,2,3-c,d) Pyrene	ND	150	1	
Fluoranthene	ND	150	1		Dibenz (a,h) Anthracene	ND	150	1	
Pyrene	ND	150	1		1-Methylnaphthalene	ND	150	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	92	18-162			2-Fluorobiphenyl	85	14-146		
p-Terphenyl-d14	73	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14C	**10-09-0576-15-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 05:03**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	180	1		Benzo (a) Anthracene	ND	180	1	
2-Methylnaphthalene	ND	180	1		Chrysene	ND	180	1	
Acenaphthylene	ND	180	1		Benzo (k) Fluoranthene	ND	180	1	
Acenaphthene	ND	180	1		Benzo (b) Fluoranthene	ND	180	1	
Fluorene	ND	180	1		Benzo (a) Pyrene	ND	180	1	
Phenanthrene	ND	180	1		Benzo (g,h,i) Perylene	ND	180	1	
Anthracene	ND	180	1		Indeno (1,2,3-c,d) Pyrene	ND	180	1	
Fluoranthene	ND	180	1		Dibenz (a,h) Anthracene	ND	180	1	
Pyrene	ND	180	1		1-Methylnaphthalene	ND	180	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	85	18-162			2-Fluorobiphenyl	87	14-146		
p-Terphenyl-d14	76	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15C	**10-09-0576-16-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 05:29**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	160	1		Benzo (a) Anthracene	ND	160	1	
2-Methylnaphthalene	ND	160	1		Chrysene	ND	160	1	
Acenaphthylene	ND	160	1		Benzo (k) Fluoranthene	ND	160	1	
Acenaphthene	ND	160	1		Benzo (b) Fluoranthene	ND	160	1	
Fluorene	ND	160	1		Benzo (a) Pyrene	ND	160	1	
Phenanthrene	ND	160	1		Benzo (g,h,i) Perylene	ND	160	1	
Anthracene	ND	160	1		Indeno (1,2,3-c,d) Pyrene	ND	160	1	
Fluoranthene	ND	160	1		Dibenz (a,h) Anthracene	ND	160	1	
Pyrene	ND	160	1		1-Methylnaphthalene	ND	160	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	112	18-162			2-Fluorobiphenyl	97	14-146		
p-Terphenyl-d14	96	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21C	**10-09-0576-17-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 05:55**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	150	1		Benzo (a) Anthracene	ND	150	1	
2-Methylnaphthalene	ND	150	1		Chrysene	ND	150	1	
Acenaphthylene	ND	150	1		Benzo (k) Fluoranthene	ND	150	1	
Acenaphthene	ND	150	1		Benzo (b) Fluoranthene	ND	150	1	
Fluorene	ND	150	1		Benzo (a) Pyrene	ND	150	1	
Phenanthrene	ND	150	1		Benzo (g,h,i) Perylene	ND	150	1	
Anthracene	ND	150	1		Indeno (1,2,3-c,d) Pyrene	ND	150	1	
Fluoranthene	ND	150	1		Dibenz (a,h) Anthracene	ND	150	1	
Pyrene	ND	150	1		1-Methylnaphthalene	ND	150	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	91	18-162			2-Fluorobiphenyl	87	14-146		
p-Terphenyl-d14	87	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22C	**10-09-0576-18-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 06:21**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	170	1		Benzo (a) Anthracene	ND	170	1	
2-Methylnaphthalene	ND	170	1		Chrysene	ND	170	1	
Acenaphthylene	ND	170	1		Benzo (k) Fluoranthene	ND	170	1	
Acenaphthene	ND	170	1		Benzo (b) Fluoranthene	ND	170	1	
Fluorene	ND	170	1		Benzo (a) Pyrene	ND	170	1	
Phenanthrene	ND	170	1		Benzo (g,h,i) Perylene	ND	170	1	
Anthracene	ND	170	1		Indeno (1,2,3-c,d) Pyrene	ND	170	1	
Fluoranthene	ND	170	1		Dibenz (a,h) Anthracene	ND	170	1	
Pyrene	ND	170	1		1-Methylnaphthalene	ND	170	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	98	18-162			2-Fluorobiphenyl	87	14-146		
p-Terphenyl-d14	85	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23C	**10-09-0576-19-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 06:48**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	160	1		Benzo (a) Anthracene	ND	160	1	
2-Methylnaphthalene	ND	160	1		Chrysene	ND	160	1	
Acenaphthylene	ND	160	1		Benzo (k) Fluoranthene	ND	160	1	
Acenaphthene	ND	160	1		Benzo (b) Fluoranthene	ND	160	1	
Fluorene	ND	160	1		Benzo (a) Pyrene	ND	160	1	
Phenanthrene	ND	160	1		Benzo (g,h,i) Perylene	ND	160	1	
Anthracene	ND	160	1		Indeno (1,2,3-c,d) Pyrene	ND	160	1	
Fluoranthene	ND	160	1		Dibenz (a,h) Anthracene	ND	160	1	
Pyrene	ND	160	1		1-Methylnaphthalene	ND	160	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	104	18-162			2-Fluorobiphenyl	93	14-146		
p-Terphenyl-d14	98	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24C	**10-09-0576-20-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 07:13**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	180	1		Benzo (a) Anthracene	ND	180	1	
2-Methylnaphthalene	ND	180	1		Chrysene	ND	180	1	
Acenaphthylene	ND	180	1		Benzo (k) Fluoranthene	ND	180	1	
Acenaphthene	ND	180	1		Benzo (b) Fluoranthene	ND	180	1	
Fluorene	ND	180	1		Benzo (a) Pyrene	ND	180	1	
Phenanthrene	ND	180	1		Benzo (g,h,i) Perylene	ND	180	1	
Anthracene	ND	180	1		Indeno (1,2,3-c,d) Pyrene	ND	180	1	
Fluoranthene	ND	180	1		Dibenz (a,h) Anthracene	ND	180	1	
Pyrene	ND	180	1		1-Methylnaphthalene	ND	180	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	106	18-162			2-Fluorobiphenyl	90	14-146		
p-Terphenyl-d14	96	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C (DUPLICATE)	**10-09-0576-21-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10 03:44**	**100910L20**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	170	1		Benzo (a) Anthracene	ND	170	1	
2-Methylnaphthalene	ND	170	1		Chrysene	ND	170	1	
Acenaphthylene	ND	170	1		Benzo (k) Fluoranthene	ND	170	1	
Acenaphthene	ND	170	1		Benzo (b) Fluoranthene	ND	170	1	
Fluorene	ND	170	1		Benzo (a) Pyrene	ND	170	1	
Phenanthrene	ND	170	1		Benzo (g,h,i) Perylene	ND	170	1	
Anthracene	ND	170	1		Indeno (1,2,3-c,d) Pyrene	ND	170	1	
Fluoranthene	ND	170	1		Dibenz (a,h) Anthracene	ND	170	1	
Pyrene	ND	170	1		1-Methylnaphthalene	ND	170	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	83	18-162			2-Fluorobiphenyl	81	14-146		
p-Terphenyl-d14	83	34-148							

Method Blank	**099-12-596-6**	**N/A**	**Solid**	**GC/MS BBB**	**09/10/10**	**09/17/10 10:30**	**100910L20**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	20	1		Benzo (a) Anthracene	ND	20	1	
2-Methylnaphthalene	ND	20	1		Chrysene	ND	20	1	
Acenaphthylene	ND	20	1		Benzo (k) Fluoranthene	ND	20	1	
Acenaphthene	ND	20	1		Benzo (b) Fluoranthene	ND	20	1	
Fluorene	ND	20	1		Benzo (a) Pyrene	ND	20	1	
Phenanthrene	ND	20	1		Benzo (g,h,i) Perylene	ND	20	1	
Anthracene	ND	20	1		Indeno (1,2,3-c,d) Pyrene	ND	20	1	
Fluoranthene	ND	20	1		Dibenz (a,h) Anthracene	ND	20	1	
Pyrene	ND	20	1		1-Methylnaphthalene	ND	20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	75	18-162			2-Fluorobiphenyl	72	14-146		
p-Terphenyl-d14	90	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4W	**10-09-0576-1-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 18:04**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	15	1		Dieldrin	ND	15	1	
2,4'-DDD	ND	15	1		Endosulfan I	ND	15	1	
2,4'-DDE	ND	15	1		Endosulfan II	ND	15	1	
2,4'-DDT	ND	15	1		Endosulfan Sulfate	ND	15	1	
4,4'-DDD	ND	15	1		Endrin	ND	15	1	
4,4'-DDE	ND	15	1		Endrin Aldehyde	ND	15	1	
4,4'-DDT	ND	15	1		Endrin Ketone	ND	15	1	
Aldrin	ND	15	1		Gamma Chlordane	ND	15	1	
Alpha Chlordane	ND	15	1		Gamma-BHC	ND	15	1	
Alpha-BHC	ND	15	1		Heptachlor	ND	15	1	
Beta-BHC	ND	15	1		Heptachlor Epoxide	ND	15	1	
Delta-BHC	ND	15	1		Methoxychlor	ND	15	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	60	50-135			Decachlorobiphenyl	81	50-135		

APL-5W	**10-09-0576-2-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 18:18**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	ND	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	60	50-135			Decachlorobiphenyl	82	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6W	**10-09-0576-3-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 18:33**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	12	1		Dieldrin	ND	12	1	
2,4'-DDD	ND	12	1		Endosulfan I	ND	12	1	
2,4'-DDE	ND	12	1		Endosulfan II	ND	12	1	
2,4'-DDT	ND	12	1		Endosulfan Sulfate	ND	12	1	
4,4'-DDD	ND	12	1		Endrin	ND	12	1	
4,4'-DDE	23	12	1		Endrin Aldehyde	ND	12	1	
4,4'-DDT	ND	12	1		Endrin Ketone	ND	12	1	
Aldrin	ND	12	1		Gamma Chlordane	ND	12	1	
Alpha Chlordane	ND	12	1		Gamma-BHC	ND	12	1	
Alpha-BHC	ND	12	1		Heptachlor	ND	12	1	
Beta-BHC	ND	12	1		Heptachlor Epoxide	ND	12	1	
Delta-BHC	ND	12	1		Methoxychlor	ND	12	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	328	50-135		2	Decachlorobiphenyl	81	50-135		

APL-7W	**10-09-0576-4-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 18:47**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	16	1		Dieldrin	ND	16	1	
2,4'-DDD	ND	16	1		Endosulfan I	ND	16	1	
2,4'-DDE	ND	16	1		Endosulfan II	ND	16	1	
2,4'-DDT	ND	16	1		Endosulfan Sulfate	ND	16	1	
4,4'-DDD	ND	16	1		Endrin	ND	16	1	
4,4'-DDE	ND	16	1		Endrin Aldehyde	ND	16	1	
4,4'-DDT	ND	16	1		Endrin Ketone	ND	16	1	
Aldrin	ND	16	1		Gamma Chlordane	ND	16	1	
Alpha Chlordane	ND	16	1		Gamma-BHC	ND	16	1	
Alpha-BHC	ND	16	1		Heptachlor	ND	16	1	
Beta-BHC	ND	16	1		Heptachlor Epoxide	ND	16	1	
Delta-BHC	ND	16	1		Methoxychlor	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135			Decachlorobiphenyl	79	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14W	**10-09-0576-5-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 19:02**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	ND	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	56	50-135			Decachlorobiphenyl	67	50-135		

APL-15W	**10-09-0576-6-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 19:16**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	16	1		Dieldrin	ND	16	1	
2,4'-DDD	ND	16	1		Endosulfan I	ND	16	1	
2,4'-DDE	ND	16	1		Endosulfan II	ND	16	1	
2,4'-DDT	ND	16	1		Endosulfan Sulfate	ND	16	1	
4,4'-DDD	ND	16	1		Endrin	ND	16	1	
4,4'-DDE	ND	16	1		Endrin Aldehyde	ND	16	1	
4,4'-DDT	ND	16	1		Endrin Ketone	ND	16	1	
Aldrin	ND	16	1		Gamma Chlordane	ND	16	1	
Alpha Chlordane	ND	16	1		Gamma-BHC	ND	16	1	
Alpha-BHC	ND	16	1		Heptachlor	ND	16	1	
Beta-BHC	ND	16	1		Heptachlor Epoxide	ND	16	1	
Delta-BHC	ND	16	1		Methoxychlor	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	65	50-135			Decachlorobiphenyl	79	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21W	**10-09-0576-7-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 19:31**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	17	1		Dieldrin	ND	17	1	
2,4'-DDD	ND	17	1		Endosulfan I	ND	17	1	
2,4'-DDE	ND	17	1		Endosulfan II	ND	17	1	
2,4'-DDT	ND	17	1		Endosulfan Sulfate	ND	17	1	
4,4'-DDD	ND	17	1		Endrin	ND	17	1	
4,4'-DDE	ND	17	1		Endrin Aldehyde	ND	17	1	
4,4'-DDT	ND	17	1		Endrin Ketone	ND	17	1	
Aldrin	ND	17	1		Gamma Chlordane	ND	17	1	
Alpha Chlordane	ND	17	1		Gamma-BHC	ND	17	1	
Alpha-BHC	ND	17	1		Heptachlor	ND	17	1	
Beta-BHC	ND	17	1		Heptachlor Epoxide	ND	17	1	
Delta-BHC	ND	17	1		Methoxychlor	ND	17	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	72	50-135			Decachlorobiphenyl	71	50-135		

APL-22W	**10-09-0576-8-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 19:45**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	16	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	54	50-135			Decachlorobiphenyl	72	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23W	**10-09-0576-9-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 19:59**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	19	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	92	50-135			Decachlorobiphenyl	88	50-135		

APL-24W	**10-09-0576-10-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/17/10 12:55**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	18	1		Dieldrin	ND	18	1	
2,4'-DDD	ND	18	1		Endosulfan I	ND	18	1	
2,4'-DDE	ND	18	1		Endosulfan II	ND	18	1	
2,4'-DDT	ND	18	1		Endosulfan Sulfate	ND	18	1	
4,4'-DDD	ND	18	1		Endrin	ND	18	1	
4,4'-DDE	ND	18	1		Endrin Aldehyde	ND	18	1	
4,4'-DDT	ND	18	1		Endrin Ketone	ND	18	1	
Aldrin	ND	18	1		Gamma Chlordane	ND	18	1	
Alpha Chlordane	ND	18	1		Gamma-BHC	ND	18	1	
Alpha-BHC	ND	18	1		Heptachlor	ND	18	1	
Beta-BHC	ND	18	1		Heptachlor Epoxide	ND	18	1	
Delta-BHC	ND	18	1		Methoxychlor	ND	18	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	72	50-135			Decachlorobiphenyl	78	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4C	**10-09-0576-11-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 20:28**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	17	1		Dieldrin	ND	17	1	
2,4'-DDD	ND	17	1		Endosulfan I	ND	17	1	
2,4'-DDE	ND	17	1		Endosulfan II	ND	17	1	
2,4'-DDT	ND	17	1		Endosulfan Sulfate	ND	17	1	
4,4'-DDD	ND	17	1		Endrin	ND	17	1	
4,4'-DDE	46	17	1		Endrin Aldehyde	ND	17	1	
4,4'-DDT	ND	17	1		Endrin Ketone	ND	17	1	
Aldrin	ND	17	1		Gamma Chlordane	ND	17	1	
Alpha Chlordane	ND	17	1		Gamma-BHC	ND	17	1	
Alpha-BHC	ND	17	1		Heptachlor	ND	17	1	
Beta-BHC	ND	17	1		Heptachlor Epoxide	ND	17	1	
Delta-BHC	ND	17	1		Methoxychlor	ND	17	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135			Decachlorobiphenyl	83	50-135		

APL-5C	**10-09-0576-12-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 20:43**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	17	1		Dieldrin	ND	17	1	
2,4'-DDD	ND	17	1		Endosulfan I	ND	17	1	
2,4'-DDE	ND	17	1		Endosulfan II	ND	17	1	
2,4'-DDT	ND	17	1		Endosulfan Sulfate	ND	17	1	
4,4'-DDD	ND	17	1		Endrin	ND	17	1	
4,4'-DDE	38	17	1		Endrin Aldehyde	ND	17	1	
4,4'-DDT	ND	17	1		Endrin Ketone	ND	17	1	
Aldrin	ND	17	1		Gamma Chlordane	ND	17	1	
Alpha Chlordane	ND	17	1		Gamma-BHC	ND	17	1	
Alpha-BHC	ND	17	1		Heptachlor	ND	17	1	
Beta-BHC	ND	17	1		Heptachlor Epoxide	ND	17	1	
Delta-BHC	ND	17	1		Methoxychlor	ND	17	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	68	50-135			Decachlorobiphenyl	64	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6C	**10-09-0576-13-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 20:57**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	18	1		Dieldrin	ND	18	1	
2,4'-DDD	ND	18	1		Endosulfan I	ND	18	1	
2,4'-DDE	ND	18	1		Endosulfan II	ND	18	1	
2,4'-DDT	ND	18	1		Endosulfan Sulfate	ND	18	1	
4,4'-DDD	ND	18	1		Endrin	ND	18	1	
4,4'-DDE	50	18	1		Endrin Aldehyde	ND	18	1	
4,4'-DDT	ND	18	1		Endrin Ketone	ND	18	1	
Aldrin	ND	18	1		Gamma Chlordane	ND	18	1	
Alpha Chlordane	ND	18	1		Gamma-BHC	ND	18	1	
Alpha-BHC	ND	18	1		Heptachlor	ND	18	1	
Beta-BHC	ND	18	1		Heptachlor Epoxide	ND	18	1	
Delta-BHC	ND	18	1		Methoxychlor	ND	18	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	77	50-135			Decachlorobiphenyl	78	50-135		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7C	**10-09-0576-14-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 21:12**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	15	1		Dieldrin	ND	15	1	
2,4'-DDD	ND	15	1		Endosulfan I	ND	15	1	
2,4'-DDE	ND	15	1		Endosulfan II	ND	15	1	
2,4'-DDT	ND	15	1		Endosulfan Sulfate	ND	15	1	
4,4'-DDD	ND	15	1		Endrin	ND	15	1	
4,4'-DDE	48	15	1		Endrin Aldehyde	ND	15	1	
4,4'-DDT	ND	15	1		Endrin Ketone	ND	15	1	
Aldrin	ND	15	1		Gamma Chlordane	ND	15	1	
Alpha Chlordane	ND	15	1		Gamma-BHC	ND	15	1	
Alpha-BHC	ND	15	1		Heptachlor	ND	15	1	
Beta-BHC	ND	15	1		Heptachlor Epoxide	ND	15	1	
Delta-BHC	ND	15	1		Methoxychlor	ND	15	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	65	50-135			Decachlorobiphenyl	64	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14C	**10-09-0576-15-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 21:26**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	18	1		Dieldrin	ND	18	1	
2,4'-DDD	ND	18	1		Endosulfan I	ND	18	1	
2,4'-DDE	ND	18	1		Endosulfan II	ND	18	1	
2,4'-DDT	ND	18	1		Endosulfan Sulfate	ND	18	1	
4,4'-DDD	ND	18	1		Endrin	ND	18	1	
4,4'-DDE	56	18	1		Endrin Aldehyde	ND	18	1	
4,4'-DDT	ND	18	1		Endrin Ketone	ND	18	1	
Aldrin	ND	18	1		Gamma Chlordane	ND	18	1	
Alpha Chlordane	ND	18	1		Gamma-BHC	ND	18	1	
Alpha-BHC	ND	18	1		Heptachlor	ND	18	1	
Beta-BHC	ND	18	1		Heptachlor Epoxide	ND	18	1	
Delta-BHC	ND	18	1		Methoxychlor	ND	18	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	86	50-135			Decachlorobiphenyl	81	50-135		

APL-15C	**10-09-0576-16-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 21:41**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	16	1		Dieldrin	ND	16	1	
2,4'-DDD	ND	16	1		Endosulfan I	ND	16	1	
2,4'-DDE	ND	16	1		Endosulfan II	ND	16	1	
2,4'-DDT	ND	16	1		Endosulfan Sulfate	ND	16	1	
4,4'-DDD	ND	16	1		Endrin	ND	16	1	
4,4'-DDE	55	16	1		Endrin Aldehyde	ND	16	1	
4,4'-DDT	ND	16	1		Endrin Ketone	ND	16	1	
Aldrin	ND	16	1		Gamma Chlordane	ND	16	1	
Alpha Chlordane	ND	16	1		Gamma-BHC	ND	16	1	
Alpha-BHC	ND	16	1		Heptachlor	ND	16	1	
Beta-BHC	ND	16	1		Heptachlor Epoxide	ND	16	1	
Delta-BHC	ND	16	1		Methoxychlor	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	78	50-135			Decachlorobiphenyl	75	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21C	**10-09-0576-17-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 21:55**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	15	1		Dieldrin	ND	15	1	
2,4'-DDD	ND	15	1		Endosulfan I	ND	15	1	
2,4'-DDE	ND	15	1		Endosulfan II	ND	15	1	
2,4'-DDT	ND	15	1		Endosulfan Sulfate	ND	15	1	
4,4'-DDD	ND	15	1		Endrin	ND	15	1	
4,4'-DDE	49	15	1		Endrin Aldehyde	ND	15	1	
4,4'-DDT	ND	15	1		Endrin Ketone	ND	15	1	
Aldrin	ND	15	1		Gamma Chlordane	ND	15	1	
Alpha Chlordane	ND	15	1		Gamma-BHC	ND	15	1	
Alpha-BHC	ND	15	1		Heptachlor	ND	15	1	
Beta-BHC	ND	15	1		Heptachlor Epoxide	ND	15	1	
Delta-BHC	ND	15	1		Methoxychlor	ND	15	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	77	50-135			Decachlorobiphenyl	82	50-135		

APL-22C	**10-09-0576-18-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 22:10**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	17	1		Dieldrin	ND	17	1	
2,4'-DDD	ND	17	1		Endosulfan I	ND	17	1	
2,4'-DDE	ND	17	1		Endosulfan II	ND	17	1	
2,4'-DDT	ND	17	1		Endosulfan Sulfate	ND	17	1	
4,4'-DDD	ND	17	1		Endrin	ND	17	1	
4,4'-DDE	53	17	1		Endrin Aldehyde	ND	17	1	
4,4'-DDT	ND	17	1		Endrin Ketone	ND	17	1	
Aldrin	ND	17	1		Gamma Chlordane	ND	17	1	
Alpha Chlordane	ND	17	1		Gamma-BHC	ND	17	1	
Alpha-BHC	ND	17	1		Heptachlor	ND	17	1	
Beta-BHC	ND	17	1		Heptachlor Epoxide	ND	17	1	
Delta-BHC	ND	17	1		Methoxychlor	ND	17	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135			Decachlorobiphenyl	77	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23C	**10-09-0576-19-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 22:24**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	16	1		Dieldrin	ND	16	1	
2,4'-DDD	ND	16	1		Endosulfan I	ND	16	1	
2,4'-DDE	ND	16	1		Endosulfan II	ND	16	1	
2,4'-DDT	ND	16	1		Endosulfan Sulfate	ND	16	1	
4,4'-DDD	ND	16	1		Endrin	ND	16	1	
4,4'-DDE	64	16	1		Endrin Aldehyde	ND	16	1	
4,4'-DDT	ND	16	1		Endrin Ketone	ND	16	1	
Aldrin	ND	16	1		Gamma Chlordane	ND	16	1	
Alpha Chlordane	ND	16	1		Gamma-BHC	ND	16	1	
Alpha-BHC	ND	16	1		Heptachlor	ND	16	1	
Beta-BHC	ND	16	1		Heptachlor Epoxide	ND	16	1	
Delta-BHC	ND	16	1		Methoxychlor	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	76	50-135			Decachlorobiphenyl	76	50-135		

APL-24C	**10-09-0576-20-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 22:39**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	18	1		Dieldrin	ND	18	1	
2,4'-DDD	ND	18	1		Endosulfan I	ND	18	1	
2,4'-DDE	ND	18	1		Endosulfan II	ND	18	1	
2,4'-DDT	ND	18	1		Endosulfan Sulfate	ND	18	1	
4,4'-DDD	ND	18	1		Endrin	ND	18	1	
4,4'-DDE	50	18	1		Endrin Aldehyde	ND	18	1	
4,4'-DDT	ND	18	1		Endrin Ketone	ND	18	1	
Aldrin	ND	18	1		Gamma Chlordane	ND	18	1	
Alpha Chlordane	ND	18	1		Gamma-BHC	ND	18	1	
Alpha-BHC	ND	18	1		Heptachlor	ND	18	1	
Beta-BHC	ND	18	1		Heptachlor Epoxide	ND	18	1	
Delta-BHC	ND	18	1		Methoxychlor	ND	18	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135			Decachlorobiphenyl	81	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C (DUPLICATE)	**10-09-0576-21-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**09/10/10**	**09/16/10 22:53**	**100910L18**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	17	1		Dieldrin	ND	17	1	
2,4'-DDD	ND	17	1		Endosulfan I	ND	17	1	
2,4'-DDE	ND	17	1		Endosulfan II	ND	17	1	
2,4'-DDT	ND	17	1		Endosulfan Sulfate	ND	17	1	
4,4'-DDD	ND	17	1		Endrin	ND	17	1	
4,4'-DDE	51	17	1		Endrin Aldehyde	ND	17	1	
4,4'-DDT	ND	17	1		Endrin Ketone	ND	17	1	
Aldrin	ND	17	1		Gamma Chlordane	ND	17	1	
Alpha Chlordane	ND	17	1		Gamma-BHC	ND	17	1	
Alpha-BHC	ND	17	1		Heptachlor	ND	17	1	
Beta-BHC	ND	17	1		Heptachlor Epoxide	ND	17	1	
Delta-BHC	ND	17	1		Methoxychlor	ND	17	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	78	50-135			Decachlorobiphenyl	77	50-135		

Method Blank	099-14-202-1	N/A	Solid	GC 51	09/10/10	09/16/10 17:49	100910L18

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	2.0	1		Dieldrin	ND	2.0	1	
2,4'-DDD	ND	2.0	1		Endosulfan I	ND	2.0	1	
2,4'-DDE	ND	2.0	1		Endosulfan II	ND	2.0	1	
2,4'-DDT	ND	2.0	1		Endosulfan Sulfate	ND	2.0	1	
4,4'-DDD	ND	2.0	1		Endrin	ND	2.0	1	
4,4'-DDE	ND	2.0	1		Endrin Aldehyde	ND	2.0	1	
4,4'-DDT	ND	2.0	1		Endrin Ketone	ND	2.0	1	
Aldrin	ND	2.0	1		Gamma Chlordane	ND	2.0	1	
Alpha Chlordane	ND	2.0	1		Gamma-BHC	ND	2.0	1	
Alpha-BHC	ND	2.0	1		Heptachlor	ND	2.0	1	
Beta-BHC	ND	2.0	1		Heptachlor Epoxide	ND	2.0	1	
Delta-BHC	ND	2.0	1		Methoxychlor	ND	2.0	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	110	50-135			Decachlorobiphenyl	107	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4W	**10-09-0576-1-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 16:59**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.124	0.0900	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5W	**10-09-0576-2-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:01**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.104	0.0843	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6W	**10-09-0576-3-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:03**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0964	0.0726	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7W	**10-09-0576-4-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:05**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.100	0.0982	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14W	**10-09-0576-5-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:07**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.101	0.0826	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15W	**10-09-0576-6-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:14**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0950	0.599		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21W	**10-09-0576-7-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:16**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.103	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22W	**10-09-0576-8-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:19**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0862	0.0826	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23W	**10-09-0576-9-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:21**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.0993	0.0820	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24W	**10-09-0576-10-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:23**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.107	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4C	**10-09-0576-11-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:25**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.102	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C	**10-09-0576-12-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:27**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0998	0.599		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6C	**10-09-0576-13-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:30**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.107	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7C	**10-09-0576-14-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:32**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0907	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14C	**10-09-0576-15-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:34**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.106	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15C	**10-09-0576-16-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:41**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0982	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21C	**10-09-0576-17-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:43**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0894	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22C	**10-09-0576-18-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:46**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.103	0.599		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23C	**10-09-0576-19-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:48**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0943	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24C	**10-09-0576-20-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:50**	**100914L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.106	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C (DUPLICATE)	**10-09-0576-21-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**09/14/10**	**09/15/10 17:52**	**100914L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.101	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-17**	**N/A**	**Solid**	**Mercury**	**09/14/10**	**09/14/10 18:05**	**100914L04**

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-18**	**N/A**	**Solid**	**Mercury**	**09/14/10**	**09/15/10 16:47**	**100914L07**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4W	**10-09-0576-1-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 20:28**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	14.6	0.940	0.5		Nickel	2.50	0.0752	0.5	
Cadmium	ND	0.376	0.5		Selenium	1.94	0.376	0.5	
Chromium	3.31	0.0752	0.5		Silver	ND	0.376	0.5	
Copper	9.42	0.376	0.5		Zinc	79.0	7.52	0.5	
Lead	1.35	0.376	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5W	**10-09-0576-2-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 20:33**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.6	0.880	0.5		Nickel	1.98	0.0704	0.5	
Cadmium	ND	0.352	0.5		Selenium	1.51	0.352	0.5	
Chromium	2.57	0.0704	0.5		Silver	ND	0.352	0.5	
Copper	9.71	0.352	0.5		Zinc	127	7.04	0.5	
Lead	1.15	0.352	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6W	**10-09-0576-3-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 20:50**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	13.4	0.758	0.5		Nickel	11.9	0.0606	0.5	
Cadmium	ND	0.303	0.5		Selenium	1.86	0.303	0.5	
Chromium	26.0	0.0606	0.5		Silver	ND	0.303	0.5	
Copper	10.4	0.303	0.5		Zinc	133	6.06	0.5	
Lead	1.09	0.303	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7W	**10-09-0576-4-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 20:55**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	14.4	1.02	0.5		Nickel	14.6	0.0820	0.5	
Cadmium	ND	0.410	0.5		Selenium	1.59	0.410	0.5	
Chromium	29.5	0.0820	0.5		Silver	ND	0.410	0.5	
Copper	12.1	0.410	0.5		Zinc	112	8.20	0.5	
Lead	1.32	0.410	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14W	**10-09-0576-5-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 20:59**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	13.1	0.862	0.5		Nickel	7.02	0.0690	0.5	
Cadmium	ND	0.345	0.5		Selenium	1.61	0.345	0.5	
Chromium	13.3	0.0690	0.5		Silver	ND	0.345	0.5	
Copper	9.67	0.345	0.5		Zinc	79.3	6.90	0.5	
Lead	1.41	0.345	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15W	**10-09-0576-6-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:04**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.2	0.992	0.5		Nickel	4.53	0.0794	0.5	
Cadmium	ND	0.397	0.5		Selenium	1.61	0.397	0.5	
Chromium	8.04	0.0794	0.5		Silver	ND	0.397	0.5	
Copper	11.0	0.397	0.5		Zinc	194	7.94	0.5	
Lead	1.64	0.397	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21W	**10-09-0576-7-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:08**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	15.4	1.08	0.5		Nickel	16.8	0.0862	0.5	
Cadmium	ND	0.431	0.5		Selenium	1.83	0.431	0.5	
Chromium	34.6	0.0862	0.5		Silver	ND	0.431	0.5	
Copper	14.8	0.431	0.5		Zinc	272	8.62	0.5	
Lead	1.07	0.431	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22W	**10-09-0576-8-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:12**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	14.2	0.862	0.5		Nickel	3.20	0.0690	0.5	
Cadmium	ND	0.345	0.5		Selenium	1.56	0.345	0.5	
Chromium	4.36	0.0690	0.5		Silver	ND	0.345	0.5	
Copper	9.99	0.345	0.5		Zinc	83.2	6.90	0.5	
Lead	1.11	0.345	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23W	**10-09-0576-9-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:17**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.5	0.856	0.5		Nickel	9.84	0.0685	0.5	
Cadmium	ND	0.342	0.5		Selenium	1.88	0.342	0.5	
Chromium	19.3	0.0685	0.5		Silver	ND	0.342	0.5	
Copper	10.7	0.342	0.5		Zinc	74.6	6.85	0.5	
Lead	1.32	0.342	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24W	**10-09-0576-10-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:21**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.6	1.12	0.5		Nickel	6.19	0.0893	0.5	
Cadmium	ND	0.446	0.5		Selenium	1.62	0.446	0.5	
Chromium	11.0	0.0893	0.5		Silver	ND	0.446	0.5	
Copper	10.5	0.446	0.5		Zinc	101	8.93	0.5	
Lead	1.18	0.446	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-4C	**10-09-0576-11-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:26**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	22.5	1.07	0.5		Nickel	9.63	0.0855	0.5	
Cadmium	ND	0.427	0.5		Selenium	1.77	0.427	0.5	
Chromium	12.9	0.0855	0.5		Silver	ND	0.427	0.5	
Copper	10.5	0.427	0.5		Zinc	83.1	8.55	0.5	
Lead	1.47	0.427	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C	**10-09-0576-12-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 21:30**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	26.3	1.04	0.5		Nickel	8.70	0.0833	0.5	
Cadmium	ND	0.417	0.5		Selenium	2.17	0.417	0.5	
Chromium	14.9	0.0833	0.5		Silver	ND	0.417	0.5	
Copper	13.7	0.417	0.5		Zinc	114	8.33	0.5	
Lead	2.60	0.417	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-6C	**10-09-0576-13-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:19**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.1	1.12	0.5		Nickel	8.18	0.0893	0.5	
Cadmium	ND	0.446	0.5		Selenium	1.37	0.446	0.5	
Chromium	9.99	0.0893	0.5		Silver	ND	0.446	0.5	
Copper	14.3	0.446	0.5		Zinc	86.4	8.93	0.5	
Lead	2.26	0.446	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-7C	**10-09-0576-14-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:23**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.1	0.947	0.5		Nickel	10.3	0.0758	0.5	
Cadmium	0.469	0.379	0.5		Selenium	1.99	0.379	0.5	
Chromium	14.4	0.0758	0.5		Silver	0.403	0.379	0.5	
Copper	15.5	0.379	0.5		Zinc	114	7.58	0.5	
Lead	2.35	0.379	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-14C	**10-09-0576-15-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:28**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.4	1.11	0.5		Nickel	6.96	0.0885	0.5	
Cadmium	ND	0.442	0.5		Selenium	1.47	0.442	0.5	
Chromium	7.85	0.0885	0.5		Silver	ND	0.442	0.5	
Copper	10.4	0.442	0.5		Zinc	78.3	8.85	0.5	
Lead	1.76	0.442	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-15C	**10-09-0576-16-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:32**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.2	1.02	0.5		Nickel	11.8	0.0820	0.5	
Cadmium	0.456	0.410	0.5		Selenium	1.62	0.410	0.5	
Chromium	17.4	0.0820	0.5		Silver	ND	0.410	0.5	
Copper	18.4	0.410	0.5		Zinc	109	8.20	0.5	
Lead	3.12	0.410	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-21C	**10-09-0576-17-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:37**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	23.1	0.933	0.5		Nickel	9.03	0.0746	0.5	
Cadmium	0.891	0.373	0.5		Selenium	1.78	0.373	0.5	
Chromium	9.98	0.0746	0.5		Silver	0.575	0.373	0.5	
Copper	16.6	0.373	0.5		Zinc	116	7.46	0.5	
Lead	2.58	0.373	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-22C	**10-09-0576-18-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 20:24**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	25.3	1.08	0.5		Nickel	7.16	0.0862	0.5	
Cadmium	ND	0.431	0.5		Selenium	1.61	0.431	0.5	
Chromium	8.17	0.0862	0.5		Silver	ND	0.431	0.5	
Copper	17.2	0.431	0.5		Zinc	104	8.62	0.5	
Lead	2.44	0.431	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-23C	**10-09-0576-19-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:41**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.8	0.984	0.5		Nickel	9.00	0.0787	0.5	
Cadmium	0.741	0.394	0.5		Selenium	1.79	0.394	0.5	
Chromium	11.9	0.0787	0.5		Silver	ND	0.394	0.5	
Copper	17.6	0.394	0.5		Zinc	113	7.87	0.5	
Lead	3.03	0.394	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-24C	**10-09-0576-20-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:46**	**100914L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	19.6	1.11	0.5		Nickel	5.25	0.0885	0.5	
Cadmium	0.646	0.442	0.5		Selenium	1.54	0.442	0.5	
Chromium	5.39	0.0885	0.5		Silver	ND	0.442	0.5	
Copper	13.2	0.442	0.5		Zinc	118	8.85	0.5	
Lead	2.05	0.442	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received:	09/08/10
Work Order No:	10-09-0576
Preparation:	EPA 3050B
Method:	EPA 6020
Units:	mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-5C (DUPLICATE)	**10-09-0576-21-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10 22:50**	**100914L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	26.1	1.05	0.5		Nickel	8.86	0.0840	0.5	
Cadmium	ND	0.420	0.5		Selenium	1.99	0.420	0.5	
Chromium	13.3	0.0840	0.5		Silver	ND	0.420	0.5	
Copper	13.8	0.420	0.5		Zinc	114	8.40	0.5	
Lead	2.74	0.420	0.5						

Method Blank	**099-12-411-19**	**N/A**	**Solid**	**ICP/MS 04**	**09/14/10**	**09/14/10 17:31**	**100914L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.125	0.5		Nickel	ND	0.0100	0.5	
Cadmium	ND	0.0500	0.5		Selenium	ND	0.0500	0.5	
Chromium	ND	0.0100	0.5		Silver	ND	0.0500	0.5	
Copper	ND	0.0500	0.5		Zinc	ND	1.00	0.5	
Lead	ND	0.0500	0.5						

Method Blank	**099-12-411-20**	**N/A**	**Solid**	**ICP/MS 04**	**09/14/10**	**09/14/10 19:53**	**100914L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.125	0.5		Nickel	ND	0.0100	0.5	
Cadmium	ND	0.0500	0.5		Selenium	ND	0.0500	0.5	
Chromium	ND	0.0100	0.5		Silver	ND	0.0500	0.5	
Copper	ND	0.0500	0.5		Zinc	ND	1.00	0.5	
Lead	ND	0.0500	0.5						

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-0575-1	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	80	81	80-120	1	0-20	
Cadmium	95	94	80-120	1	0-20	
Chromium	96	94	80-120	1	0-20	
Copper	75	76	80-120	1	0-20	3
Lead	99	101	80-120	2	0-20	
Nickel	81	82	80-120	1	0-20	
Selenium	90	91	80-120	0	0-20	
Silver	95	95	80-120	0	0-20	
Zinc	76	77	80-120	1	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

AMEC Earth & Environmental		Date Received	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
10-09-0575-1	**Sediment**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	82	83	75-125	2	0-20	
Cadmium	93	95	75-125	3	0-20	
Chromium	88	87	75-125	1	0-20	
Copper	82	79	75-125	2	0-20	
Lead	97	98	75-125	1	0-20	
Nickel	82	82	75-125	0	0-20	
Selenium	94	92	75-125	2	0-20	
Silver	93	95	75-125	2	0-20	
Zinc	75	77	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-22C	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	108	108	80-120	0	0-20	
Cadmium	98	100	80-120	2	0-20	
Chromium	108	108	80-120	1	0-20	
Copper	104	109	80-120	3	0-20	
Lead	101	102	80-120	1	0-20	
Nickel	104	106	80-120	2	0-20	
Selenium	107	106	80-120	1	0-20	
Silver	103	104	80-120	1	0-20	
Zinc	96	100	80-120	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

ACCREDITED IN ACCORDANCE WITH nelac

AMEC Earth & Environmental		Date Received	09/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-09-0576
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
APL-22C	**Tissue**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914S02**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	99	105	75-125	5	0-20	
Cadmium	95	97	75-125	2	0-20	
Chromium	101	106	75-125	4	0-20	
Copper	96	101	75-125	5	0-20	
Lead	96	98	75-125	2	0-20	
Nickel	98	100	75-125	2	0-20	
Selenium	100	103	75-125	3	0-20	
Silver	98	98	75-125	0	0-20	
Zinc	78	90	75-125	6	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

AMEC Earth & Environmental	Date Received:	09/08/10
9210 Sky Park Court, Suite 200	Work Order No:	10-09-0576
San Diego, CA 92123-4302	Preparation:	N/A
	Method:	SM 2540 B

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
APL-22C	**Tissue**	**N/A**	**09/13/10**	**09/13/10**	**A0913TSD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	11.6	11.3	3	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

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

Date Received:	09/08/10
Work Order No:	10-09-0576
Preparation:	N/A
Method:	SM 2540 B

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
APL-5C (DUPLICATE)	**Tissue**	**N/A**	**09/14/10**	**09/14/10**	**A0914TSD3**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	11.9	11.8	1	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 7471A Total
Method: EPA 7471A

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-0867-21	**Solid**	**Mercury**	**09/14/10**	**09/14/10**	**100914S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	105	105	71-137	0	0-14	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 7471A Total
Method: EPA 7471A

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-22C	**Tissue**	**Mercury**	**09/14/10**	**09/15/10**	**100914S07**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	84	82	76-136	3	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3545
Method: EPA 8082

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-22C	**Tissue**	**GC 58**	**09/10/10**	**09/13/10**	**100910S19**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	110	120	50-135	9	0-25	
Aroclor-1260	123	131	50-135	6	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-22C	**Tissue**	**GC/MS BBB**	**09/10/10**	**09/18/10**	**100910S20**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	84	82	21-133	2	0-20	
Acenaphthylene	78	69	33-145	13	0-20	
Acenaphthene	78	76	40-106	3	0-20	
Fluorene	84	77	59-121	9	0-20	
Phenanthrene	86	80	54-120	7	0-20	
Anthracene	35	43	27-133	19	0-20	
Fluoranthene	91	87	26-137	5	0-20	
Pyrene	67	56	6-156	19	0-46	
Benzo (a) Anthracene	66	63	33-143	6	0-20	
Chrysene	75	64	17-168	15	0-20	
Benzo (k) Fluoranthene	150	92	24-159	48	0-20	4
Benzo (b) Fluoranthene	117	73	24-159	46	0-20	4
Benzo (a) Pyrene	78	72	17-163	7	0-20	
Benzo (g,h,i) Perylene	47	43	0-219	7	0-20	
Indeno (1,2,3-c,d) Pyrene	98	86	0-171	13	0-20	
Dibenz (a,h) Anthracene	99	83	0-227	17	0-20	
1-Methylnaphthalene	77	82	80-120	6	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/08/10
Work Order No: 10-09-0576
Preparation: EPA 3545
Method: EPA 8081B

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-22C	**Tissue**	**GC 51**	**09/10/10**	**09/17/10**	**100910S18**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
4,4'-DDD	93	85	50-135	10	0-25	
4,4'-DDE	85	78	50-135	5	0-25	
4,4'-DDT	86	79	50-135	8	0-25	
Aldrin	67	65	50-135	2	0-25	
Alpha-BHC	66	64	50-135	3	0-25	
Beta-BHC	120	118	50-135	2	0-25	
Delta-BHC	79	80	50-135	1	0-25	
Dieldrin	67	65	50-135	2	0-25	
Endosulfan I	68	61	50-135	10	0-25	
Endosulfan II	70	69	50-135	1	0-25	
Endosulfan Sulfate	64	63	50-135	3	0-25	
Endrin	75	74	50-135	2	0-25	
Endrin Aldehyde	34	17	50-135	65	0-25	3,4
Endrin Ketone	95	87	50-135	9	0-25	
Gamma-BHC	78	76	50-135	2	0-25	
Heptachlor	61	59	50-135	2	0-25	
Heptachlor Epoxide	61	59	50-135	2	0-25	
Methoxychlor	74	71	50-135	4	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-411-19	**Solid**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	99	102	80-120	3	0-20	
Cadmium	97	98	80-120	1	0-20	
Chromium	106	105	80-120	1	0-20	
Copper	102	105	80-120	3	0-20	
Lead	95	94	80-120	1	0-20	
Nickel	99	103	80-120	4	0-20	
Selenium	101	99	80-120	2	0-20	
Silver	103	102	80-120	1	0-20	
Zinc	99	102	80-120	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-411-20	**Solid**	**ICP/MS 04**	**09/14/10**	**09/14/10**	**100914L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	100	102	80-120	2	0-20	
Cadmium	99	101	80-120	2	0-20	
Chromium	104	106	80-120	2	0-20	
Copper	107	106	80-120	1	0-20	
Lead	97	97	80-120	0	0-20	
Nickel	102	102	80-120	1	0-20	
Selenium	101	100	80-120	1	0-20	
Silver	104	107	80-120	3	0-20	
Zinc	103	102	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-17	**Solid**	**Mercury**	**09/14/10**	**09/14/10**	**100914L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	97	96	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-18	**Solid**	**Mercury**	**09/14/10**	**09/15/10**	**100914L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	105	106	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 3545
Method: EPA 8082

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-502-4	**Solid**	**GC 58**	**09/10/10**	**09/13/10**	**100910L19**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	102	116	50-135	12	0-25	
Aroclor-1260	113	127	50-135	12	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-596-6	**Solid**	**GC/MS BBB**	**09/10/10**	**09/17/10**	**100910L20**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Naphthalene	98	99	21-133	2-152	1	0-25	
Acenaphthylene	89	89	33-145	14-164	1	0-25	
Acenaphthene	97	97	48-108	38-118	1	0-25	
Fluorene	104	101	59-121	49-131	3	0-25	
Phenanthrene	94	94	54-120	43-131	0	0-25	
Anthracene	45	46	27-133	9-151	3	0-25	
Fluoranthene	92	91	26-137	8-156	1	0-25	
Pyrene	103	91	28-106	15-119	12	0-25	
Benzo (a) Anthracene	87	85	33-143	15-161	2	0-25	
Chrysene	91	91	17-168	0-193	0	0-25	
Benzo (k) Fluoranthene	112	104	24-159	2-182	7	0-25	
Benzo (b) Fluoranthene	102	105	24-159	2-182	3	0-25	
Benzo (a) Pyrene	85	85	17-163	0-187	0	0-25	
Benzo (g,h,i) Perylene	99	96	0-227	0-265	3	0-25	
Indeno (1,2,3-c,d) Pyrene	117	110	0-171	0-200	6	0-25	
Dibenz (a,h) Anthracene	111	107	0-219	0-256	4	0-25	
1-Methylnaphthalene	100	91	40-160	20-180	10	0-25	

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

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0576
Preparation: EPA 3545
Method: EPA 8081B

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-202-1	**Solid**	**GC 51**	**09/10/10**	**09/17/10**	**100910L18**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
4,4'-DDD	92	91	50-135	36-149	1	0-25	
4,4'-DDE	93	98	50-135	36-149	5	0-25	
4,4'-DDT	98	103	50-135	36-149	6	0-25	
Aldrin	80	84	50-135	36-149	6	0-25	
Alpha-BHC	91	95	50-135	36-149	4	0-25	
Beta-BHC	89	93	50-135	36-149	5	0-25	
Delta-BHC	96	93	50-135	36-149	3	0-25	
Dieldrin	77	83	50-135	36-149	7	0-25	
Endosulfan I	73	77	50-135	36-149	6	0-25	
Endosulfan II	77	82	50-135	36-149	6	0-25	
Endosulfan Sulfate	81	88	50-135	36-149	8	0-25	
Endrin	80	87	50-135	36-149	7	0-25	
Endrin Aldehyde	76	73	50-135	36-149	5	0-25	
Endrin Ketone	110	107	50-135	36-149	3	0-25	
Gamma-BHC	96	98	50-135	36-149	2	0-25	
Heptachlor	73	94	50-135	36-149	25	0-25	
Heptachlor Epoxide	67	72	50-135	36-149	7	0-25	
Methoxychlor	91	95	50-135	36-149	4	0-25	

Total number of LCS compounds : 18
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-09-0576

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

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

CHAIN OF CUSTODY RECORD

DATE: 09/08/10

PAGE: 1 OF 2

LABORATORY CLIENT: AMEC Earth & Environmental			CLIENT PROJECT NAME / NUMBER: POLA APL Terminal
ADDRESS: 9210 Sky Park Court, Suite 200			P.O. NO.:
CITY: San Diego	STATE: CA	ZIP: 92123	PROJECT CONTACT: Chris Stransky
TEL: 858-300-4350	FAX: 858-300-4301	E-MAIL: chris.stransky@amec.com	LAB CONTACT OR QUOTE NO.: Bob Stearns
			SAMPLER(S): (SIGNATURE) Nautilus Env. - Nathan Hall
			LAB USE ONLY 09-0576

TURNAROUND TIME: Standard

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS:

See attached Table 5 for target detection limits.
Report in dry weight
Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Trace Metals (6020/6010B): As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn	Mercury (7471A)	Individual PAHs only (8270C)	Chlorinated Pesticides (8081A)	PCB Aroclors (8082)	% Solids
1	APL-4W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
2	APL-5W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
3	APL-6W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
4	APL-7W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
5	APL-14W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
6	APL-15W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
7	APL-21-W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
8	APL-22W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
9	APL-23W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
10	APL-24W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X

Relinquished by: (Signature) AMEC	Received by: (Signature)	Date: 09/08/10	Time: 1330
Relinquished by: (Signature)	Received by: (Signature)	Date: 9/8/10	Time: 1645
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

02/24/10 Revision

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

CHAIN OF CUSTODY RECORD

DATE: 09/08/10

PAGE: 2 OF 2

LABORATORY CLIENT: AMEC Earth & Environmental		CLIENT PROJECT NAME / NUMBER: POLA APL Terminal	P.O. NO.:
ADDRESS: 9210 Sky Park Court, Suite 200		PROJECT CONTACT: Chris Stransky	LAB CONTACT OR QUOTE NO.: Bob Stearns
CITY: San Diego	STATE: CA ZIP: 92123	SAMPLER(S): (SIGNATURE) Nautilus Env. - Nathan Hall	LAB USE ONLY 09-0576
TEL: 858-300-4350	FAX: 858-300-4301	E-MAIL: chris.stransky@amec.com	

TURNAROUND TIME: Standard

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS:

See attached Table 5 for target detection limits.
Report in dry weight
Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Trace Metals (6020/6010B): As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn	Mercury (7471A)	Individual PAHs only (8270C)	Chlorinated Pesticides (8081A)	PCB Aroclors (8082)	% Solids
11	APL-4C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
12	APL-5C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
13	APL-6C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
14	APL-7C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
15	APL-14C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
16	APL-15C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
17	APL-21-C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
18	APL-22C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
19	APL-23C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
20	APL-24C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X

Relinquished by: (Signature) AMEC	Received by: (Signature) CE	Date: 09/08/10	Time: 1330
Relinquished by: (Signature)	Received by: (Signature)	Date: 9/9/10	Time: 1645
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

02/24/10 Revision

0576

Table 5. Chemical Analyses for Sediment and Tissue Samples

Analyte	Analysis Method	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total solids	160.3	0.1 %	N/A
Total organic carbon	9060	0.1 %	N/A
Total ammonia	350.2M[c]	0.2 mg/kg	N/A
Total & soluble sulfides	376.2M[c]	0.1 mg/kg	N/A
Arsenic	6020/6010B[d]	0.1 mg/kg	0.25 mg/kg
Cadmium	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.1 mg/kg	0.02 mg/kg
Selenium	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	2.0 mg/kg	1.0 mg/kg
TRPH	418.1M[d]	5.0 mg/kg	N/A
PAHs[e]	8270C[d]	20 µg/kg	20 µg/kg
Chlorinated pesticides[f]	8081A[d]	0.5 – 30 µg/kg	0.5 - 2.0 µg/kg
PCBs[g]	8082[d]	20 µg/kg	20 µg/kg
Phenols	8270C[d]	20 – 100 µg/kg	N/A
Phthalates	8270C[d]	10 µg/kg	N/A
Organotins	Rice/Krone[h]	1.0 µg/kg	N/A

Notes;

[a] Sediment minimum detection limits are on a dry-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc. and CRG Marine Laboratories Inc.

[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition APHA et al. 1995.

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

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

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

[g] Includes Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

mg/kg - milligrams per kilogram (parts per million)

mg/L - milligrams per liter

µg/kg -micrograms per kilogram (parts per billion)

N/A – not analyzed

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

TRPH - total recoverable petroleum hydrocarbons

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-09-0576

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 09/08/10

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

Temperature 2.0 °C + 0.5 °C (CF) = 2.5 °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 ☐ Metals Only ☐ PCBs Only **Initial:** BD

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

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

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

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

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

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

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

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

Calscience
Environmental
Laboratories, Inc.

October 22, 2010

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

Subject: **Calscience Work Order No.: 10-10-0792**
Client Reference: POLA APL Terminal

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 10/8/2010 and analyzed in accordance with the attached chain-of-custody.

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

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

CASE NARRATIVE

Calscience Work Order No.: 10-10-0792
Project Name: POLA APL Terminal

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

Sample Condition on Receipt

Ten tissue samples were received for this project on October 8, 2010. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 2.5°C. The samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending homogenization and chemistry testing.

Tests Performed

Trace Metals by EPA 6020
Mercury by EPA 7471A
Chlorinated Pesticides by EPA 8081B
PCB Aroclors by EPA 8082
PAHs by EPA 8270C SIM
Percent Solids by SM 2540B

Data Summary

All samples were homogenized prior to analytical preparation.

All results and reporting limits were dry weight corrected.

A laboratory duplicate was performed on sample APL-18C.

Holding times

The samples were received past the EPA recommended holding time for PCBs by EPA 8082, OC Pesticides by EPA 8081B, PAHs by EPA 8270C and Mercury by EPA 7471A. All samples were stored frozen prior to the holding time expiration, and remained in that condition until received by Calscience on 10/8/10. Given that the samples were frozen prior to the expiration of the recommended holding times, and based upon standard industry practice for these matrices, the results have not been flagged as exceeding the holding time.

Calibration

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

Reporting Limits

The Method Detection Limits were met.

Blanks

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

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test and all parameters were within the specified control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable test on project samples, and all parameters were within the specified control limits with the following exceptions.

Sample APL-10C was used for matrix spiking and the MS and MSD recoveries for Endrin Aldehyde were outside the established control limits due to matrix interference. Yet, the data are flagged and released with no further action since the associated LCS and LCSD recoveries were within the established control limits.

Surrogates

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

The PCB Aroclors surrogate, 2, 4, 5, 6- Tetrachloro-m-Xylene, was above the established control limits in samples APL-10W and APL-12W due to matrix interference. Since the percent recovery for the second surrogate was in control, and the samples were non-detect for PCBs, the results are released with no further action.

Due to matrix interference, one of the three PAH surrogates, P-Terphenyl-d14, was above the established control limits in samples APL-12W, APL-13W and APL-18W. However, the results are released with no further qualification since the percent recoveries for the additional two surrogates and all three of the Method Blank surrogates were in control.

Acronyms

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: N/A
Method: SM 2540 B

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2C	**10-10-0792-1-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	13.8	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10C	**10-10-0792-2-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.3	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12C	**10-10-0792-3-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.0	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13C	**10-10-0792-4-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C	**10-10-0792-5-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.8	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2W	**10-10-0792-6-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	18.3	0.100	1		%

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: N/A
Method: SM 2540 B

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10W	**10-10-0792-7-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	15.4	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12W	**10-10-0792-8-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	15.2	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13W	**10-10-0792-9-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	14.3	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18W	**10-10-0792-10-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	16.1	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C (LAB DUP)	**10-10-0792-11-A**	**08/11/10 09:30**	**Tissue**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	12.8	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-1,522**	**N/A**	**Solid**	**N/A**	**10/12/10**	**10/12/10 16:00**	**A1012TSB1**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8082
Units: ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2C	**10-10-0792-1-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 01:04**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	72	1		Aroclor-1254	ND	72	1	
Aroclor-1221	ND	180	1		Aroclor-1260	ND	72	1	
Aroclor-1232	ND	72	1		Aroclor-1262	ND	72	1	
Aroclor-1248	ND	72	1		Aroclor-1242	ND	72	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	86	50-130			2,4,5,6-Tetrachloro-m-Xylene	74	50-130		

APL-10C	**10-10-0792-2-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 01:23**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	70	1		Aroclor-1254	ND	70	1	
Aroclor-1221	ND	170	1		Aroclor-1260	ND	70	1	
Aroclor-1232	ND	70	1		Aroclor-1262	ND	70	1	
Aroclor-1248	ND	70	1		Aroclor-1242	ND	70	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	103	50-130			2,4,5,6-Tetrachloro-m-Xylene	70	50-130		

APL-12C	**10-10-0792-3-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 01:42**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	71	1		Aroclor-1254	ND	71	1	
Aroclor-1221	ND	180	1		Aroclor-1260	ND	71	1	
Aroclor-1232	ND	71	1		Aroclor-1262	ND	71	1	
Aroclor-1248	ND	71	1		Aroclor-1242	ND	71	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	84	50-130			2,4,5,6-Tetrachloro-m-Xylene	67	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8082
Units: ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13C	**10-10-0792-4-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 02:01**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	70	1		Aroclor-1254	ND	70	1	
Aroclor-1221	ND	180	1		Aroclor-1260	ND	70	1	
Aroclor-1232	ND	70	1		Aroclor-1262	ND	70	1	
Aroclor-1248	ND	70	1		Aroclor-1242	ND	70	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	83	50-130			2,4,5,6-Tetrachloro-m-Xylene	84	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C	**10-10-0792-5-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 02:20**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	78	1		Aroclor-1254	ND	78	1	
Aroclor-1221	ND	200	1		Aroclor-1260	ND	78	1	
Aroclor-1232	ND	78	1		Aroclor-1262	ND	78	1	
Aroclor-1248	ND	78	1		Aroclor-1242	ND	78	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	83	50-130			2,4,5,6-Tetrachloro-m-Xylene	79	50-130		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2W	**10-10-0792-6-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 02:39**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	55	1		Aroclor-1254	ND	55	1	
Aroclor-1221	ND	140	1		Aroclor-1260	ND	55	1	
Aroclor-1232	ND	55	1		Aroclor-1262	ND	55	1	
Aroclor-1248	ND	55	1		Aroclor-1242	ND	55	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	121	50-130			2,4,5,6-Tetrachloro-m-Xylene	97	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

AMEC Earth & Environmental	Date Received:	10/08/10
9210 Sky Park Court, Suite 200	Work Order No:	10-10-0792
San Diego, CA 92123-4302	Preparation:	EPA 3545
	Method:	EPA 8082
	Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10W	**10-10-0792-7-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 02:58**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	65	1		Aroclor-1254	ND	65	1	
Aroclor-1221	ND	160	1		Aroclor-1260	ND	65	1	
Aroclor-1232	ND	65	1		Aroclor-1262	ND	65	1	
Aroclor-1248	ND	65	1		Aroclor-1242	ND	65	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	87	50-130			2,4,5,6-Tetrachloro-m-Xylene	133	50-130		2

APL-12W	**10-10-0792-8-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 03:17**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	66	1		Aroclor-1254	ND	66	1	
Aroclor-1221	ND	160	1		Aroclor-1260	ND	66	1	
Aroclor-1232	ND	66	1		Aroclor-1262	ND	66	1	
Aroclor-1248	ND	66	1		Aroclor-1242	ND	66	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	81	50-130			2,4,5,6-Tetrachloro-m-Xylene	133	50-130		2

APL-13W	**10-10-0792-9-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 03:36**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	70	1		Aroclor-1254	ND	70	1	
Aroclor-1221	ND	170	1		Aroclor-1260	ND	70	1	
Aroclor-1232	ND	70	1		Aroclor-1262	ND	70	1	
Aroclor-1248	ND	70	1		Aroclor-1242	ND	70	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	84	50-130			2,4,5,6-Tetrachloro-m-Xylene	128	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18W	**10-10-0792-10-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 03:56**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	62	1		Aroclor-1254	ND	62	1	
Aroclor-1221	ND	160	1		Aroclor-1260	ND	62	1	
Aroclor-1232	ND	62	1		Aroclor-1262	ND	62	1	
Aroclor-1248	ND	62	1		Aroclor-1242	ND	62	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	80	50-130			2,4,5,6-Tetrachloro-m-Xylene	127	50-130		

APL-18C (LAB DUP)	**10-10-0792-11-A**	**08/11/10 09:30**	**Tissue**	**GC 31**	**10/14/10**	**10/20/10 04:15**	**101014L02**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	78	1		Aroclor-1254	ND	78	1	
Aroclor-1221	ND	200	1		Aroclor-1260	ND	78	1	
Aroclor-1232	ND	78	1		Aroclor-1262	ND	78	1	
Aroclor-1248	ND	78	1		Aroclor-1242	ND	78	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	74	50-130			2,4,5,6-Tetrachloro-m-Xylene	76	50-130		

Method Blank	**099-12-502-5**	**N/A**	**Solid**	**GC 31**	**10/14/10**	**10/20/10 00:44**	**101014L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	10	1		Aroclor-1254	ND	10	1	
Aroclor-1221	ND	25	1		Aroclor-1260	ND	10	1	
Aroclor-1232	ND	10	1		Aroclor-1262	ND	10	1	
Aroclor-1248	ND	10	1		Aroclor-1242	ND	10	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	109	50-130			2,4,5,6-Tetrachloro-m-Xylene	84	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2C	**10-10-0792-1-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 03:28**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	111	18-162			2-Fluorobiphenyl	82	14-146		
p-Terphenyl-d14	87	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10C	**10-10-0792-2-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 03:54**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	109	18-162			2-Fluorobiphenyl	82	14-146		
p-Terphenyl-d14	87	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12C	**10-10-0792-3-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 04:20**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	105	18-162			2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	88	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13C	**10-10-0792-4-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 04:46**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	109	18-162			2-Fluorobiphenyl	74	14-146		
p-Terphenyl-d14	89	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C	**10-10-0792-5-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 05:12**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	160	1		Benzo (a) Anthracene	ND	160	1	
2-Methylnaphthalene	ND	160	1		Chrysene	ND	160	1	
Acenaphthylene	ND	160	1		Benzo (k) Fluoranthene	ND	160	1	
Acenaphthene	ND	160	1		Benzo (b) Fluoranthene	ND	160	1	
Fluorene	ND	160	1		Benzo (a) Pyrene	ND	160	1	
Phenanthrene	ND	160	1		Benzo (g,h,i) Perylene	ND	160	1	
Anthracene	ND	160	1		Indeno (1,2,3-c,d) Pyrene	ND	160	1	
Fluoranthene	ND	160	1		Dibenz (a,h) Anthracene	ND	160	1	
Pyrene	ND	160	1		1-Methylnaphthalene	ND	160	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	102	18-162			2-Fluorobiphenyl	81	14-146		
p-Terphenyl-d14	89	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2W	**10-10-0792-6-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 05:38**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	110	1		Benzo (a) Anthracene	ND	110	1	
2-Methylnaphthalene	ND	110	1		Chrysene	ND	110	1	
Acenaphthylene	ND	110	1		Benzo (k) Fluoranthene	ND	110	1	
Acenaphthene	ND	110	1		Benzo (b) Fluoranthene	ND	110	1	
Fluorene	ND	110	1		Benzo (a) Pyrene	ND	110	1	
Phenanthrene	ND	110	1		Benzo (g,h,i) Perylene	ND	110	1	
Anthracene	ND	110	1		Indeno (1,2,3-c,d) Pyrene	ND	110	1	
Fluoranthene	ND	110	1		Dibenz (a,h) Anthracene	ND	110	1	
Pyrene	ND	110	1		1-Methylnaphthalene	ND	110	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	162	18-162			2-Fluorobiphenyl	79	14-146		
p-Terphenyl-d14	146	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10W	**10-10-0792-7-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 06:04**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	130	1		Benzo (a) Anthracene	ND	130	1	
2-Methylnaphthalene	ND	130	1		Chrysene	ND	130	1	
Acenaphthylene	ND	130	1		Benzo (k) Fluoranthene	ND	130	1	
Acenaphthene	ND	130	1		Benzo (b) Fluoranthene	ND	130	1	
Fluorene	ND	130	1		Benzo (a) Pyrene	ND	130	1	
Phenanthrene	ND	130	1		Benzo (g,h,i) Perylene	ND	130	1	
Anthracene	ND	130	1		Indeno (1,2,3-c,d) Pyrene	ND	130	1	
Fluoranthene	ND	130	1		Dibenz (a,h) Anthracene	ND	130	1	
Pyrene	ND	130	1		1-Methylnaphthalene	ND	130	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	136	18-162			2-Fluorobiphenyl	77	14-146		
p-Terphenyl-d14	136	34-148							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12W	**10-10-0792-8-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 06:30**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	130	1		Benzo (a) Anthracene	ND	130	1	
2-Methylnaphthalene	ND	130	1		Chrysene	ND	130	1	
Acenaphthylene	ND	130	1		Benzo (k) Fluoranthene	ND	130	1	
Acenaphthene	ND	130	1		Benzo (b) Fluoranthene	ND	130	1	
Fluorene	ND	130	1		Benzo (a) Pyrene	ND	130	1	
Phenanthrene	ND	130	1		Benzo (g,h,i) Perylene	ND	130	1	
Anthracene	ND	130	1		Indeno (1,2,3-c,d) Pyrene	ND	130	1	
Fluoranthene	ND	130	1		Dibenz (a,h) Anthracene	ND	130	1	
Pyrene	ND	130	1		1-Methylnaphthalene	ND	130	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	143	18-162			2-Fluorobiphenyl	90	14-146		
p-Terphenyl-d14	185	34-148		2					

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13W	**10-10-0792-9-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 06:56**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	140	1		Benzo (a) Anthracene	ND	140	1	
2-Methylnaphthalene	ND	140	1		Chrysene	ND	140	1	
Acenaphthylene	ND	140	1		Benzo (k) Fluoranthene	ND	140	1	
Acenaphthene	ND	140	1		Benzo (b) Fluoranthene	ND	140	1	
Fluorene	ND	140	1		Benzo (a) Pyrene	ND	140	1	
Phenanthrene	ND	140	1		Benzo (g,h,i) Perylene	ND	140	1	
Anthracene	ND	140	1		Indeno (1,2,3-c,d) Pyrene	ND	140	1	
Fluoranthene	ND	140	1		Dibenz (a,h) Anthracene	ND	140	1	
Pyrene	ND	140	1		1-Methylnaphthalene	ND	140	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	129	18-162			2-Fluorobiphenyl	84	14-146		
p-Terphenyl-d14	157	34-148		2					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18W	**10-10-0792-10-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 07:22**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	120	1		Benzo (a) Anthracene	ND	120	1	
2-Methylnaphthalene	ND	120	1		Chrysene	ND	120	1	
Acenaphthylene	ND	120	1		Benzo (k) Fluoranthene	ND	120	1	
Acenaphthene	ND	120	1		Benzo (b) Fluoranthene	ND	120	1	
Fluorene	ND	120	1		Benzo (a) Pyrene	ND	120	1	
Phenanthrene	ND	120	1		Benzo (g,h,i) Perylene	ND	120	1	
Anthracene	ND	120	1		Indeno (1,2,3-c,d) Pyrene	ND	120	1	
Fluoranthene	ND	120	1		Dibenz (a,h) Anthracene	ND	120	1	
Pyrene	ND	120	1		1-Methylnaphthalene	ND	120	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Nitrobenzene-d5	133	18-162			2-Fluorobiphenyl	87	14-146		
p-Terphenyl-d14	192	34-148		2					

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C (LAB DUP)	**10-10-0792-11-A**	**08/11/10 09:30**	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10 07:48**	**101013L13**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	160	1		Benzo (a) Anthracene	ND	160	1	
2-Methylnaphthalene	ND	160	1		Chrysene	ND	160	1	
Acenaphthylene	ND	160	1		Benzo (k) Fluoranthene	ND	160	1	
Acenaphthene	ND	160	1		Benzo (b) Fluoranthene	ND	160	1	
Fluorene	ND	160	1		Benzo (a) Pyrene	ND	160	1	
Phenanthrene	ND	160	1		Benzo (g,h,i) Perylene	ND	160	1	
Anthracene	ND	160	1		Indeno (1,2,3-c,d) Pyrene	ND	160	1	
Fluoranthene	ND	160	1		Dibenz (a,h) Anthracene	ND	160	1	
Pyrene	ND	160	1		1-Methylnaphthalene	ND	160	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	98	18-162			2-Fluorobiphenyl	91	14-146		
p-Terphenyl-d14	101	34-148							

Method Blank	**099-12-596-7**	**N/A**	**Solid**	**GC/MS BBB**	**10/13/10**	**10/18/10 02:09**	**101013L13**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	20	1		Benzo (a) Anthracene	ND	20	1	
2-Methylnaphthalene	ND	20	1		Chrysene	ND	20	1	
Acenaphthylene	ND	20	1		Benzo (k) Fluoranthene	ND	20	1	
Acenaphthene	ND	20	1		Benzo (b) Fluoranthene	ND	20	1	
Fluorene	ND	20	1		Benzo (a) Pyrene	ND	20	1	
Phenanthrene	ND	20	1		Benzo (g,h,i) Perylene	ND	20	1	
Anthracene	ND	20	1		Indeno (1,2,3-c,d) Pyrene	ND	20	1	
Fluoranthene	ND	20	1		Dibenz (a,h) Anthracene	ND	20	1	
Pyrene	ND	20	1		1-Methylnaphthalene	ND	20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	84	18-162			2-Fluorobiphenyl	65	14-146		
p-Terphenyl-d14	80	34-148							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2C	**10-10-0792-1-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 14:23**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	33	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	70	50-135			Decachlorobiphenyl	67	50-135		

APL-10C	**10-10-0792-2-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 14:38**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	30	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	79	50-135			Decachlorobiphenyl	69	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg
Project: POLA APL Terminal			Page 2 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12C	**10-10-0792-3-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 14:52**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	35	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	69	50-135			Decachlorobiphenyl	62	50-135		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13C	**10-10-0792-4-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 15:06**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	32	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135			Decachlorobiphenyl	72	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg
Project: POLA APL Terminal			Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C	**10-10-0792-5-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 15:21**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	16	1		Dieldrin	ND	16	1	
2,4'-DDD	ND	16	1		Endosulfan I	ND	16	1	
2,4'-DDE	ND	16	1		Endosulfan II	ND	16	1	
2,4'-DDT	ND	16	1		Endosulfan Sulfate	ND	16	1	
4,4'-DDD	ND	16	1		Endrin	ND	16	1	
4,4'-DDE	34	16	1		Endrin Aldehyde	ND	16	1	
4,4'-DDT	ND	16	1		Endrin Ketone	ND	16	1	
Aldrin	ND	16	1		Gamma Chlordane	ND	16	1	
Alpha Chlordane	ND	16	1		Gamma-BHC	ND	16	1	
Alpha-BHC	ND	16	1		Heptachlor	ND	16	1	
Beta-BHC	ND	16	1		Heptachlor Epoxide	ND	16	1	
Delta-BHC	ND	16	1		Methoxychlor	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	85	50-135			Decachlorobiphenyl	71	50-135		

APL-2W	**10-10-0792-6-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 15:35**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	11	1		Dieldrin	ND	11	1	
2,4'-DDD	ND	11	1		Endosulfan I	ND	11	1	
2,4'-DDE	ND	11	1		Endosulfan II	ND	11	1	
2,4'-DDT	ND	11	1		Endosulfan Sulfate	ND	11	1	
4,4'-DDD	ND	11	1		Endrin	ND	11	1	
4,4'-DDE	15	11	1		Endrin Aldehyde	ND	11	1	
4,4'-DDT	ND	11	1		Endrin Ketone	ND	11	1	
Aldrin	ND	11	1		Gamma Chlordane	ND	11	1	
Alpha Chlordane	ND	11	1		Gamma-BHC	ND	11	1	
Alpha-BHC	ND	11	1		Heptachlor	ND	11	1	
Beta-BHC	ND	11	1		Heptachlor Epoxide	ND	11	1	
Delta-BHC	ND	11	1		Methoxychlor	ND	11	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	67	50-135			Decachlorobiphenyl	68	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg
Project: POLA APL Terminal			Page 4 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10W	**10-10-0792-7-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 15:50**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	13	1		Dieldrin	ND	13	1	
2,4'-DDD	ND	13	1		Endosulfan I	ND	13	1	
2,4'-DDE	ND	13	1		Endosulfan II	ND	13	1	
2,4'-DDT	ND	13	1		Endosulfan Sulfate	ND	13	1	
4,4'-DDD	ND	13	1		Endrin	ND	13	1	
4,4'-DDE	ND	13	1		Endrin Aldehyde	ND	13	1	
4,4'-DDT	ND	13	1		Endrin Ketone	ND	13	1	
Aldrin	ND	13	1		Gamma Chlordane	ND	13	1	
Alpha Chlordane	ND	13	1		Gamma-BHC	ND	13	1	
Alpha-BHC	ND	13	1		Heptachlor	ND	13	1	
Beta-BHC	ND	13	1		Heptachlor Epoxide	ND	13	1	
Delta-BHC	ND	13	1		Methoxychlor	ND	13	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	63	50-135			Decachlorobiphenyl	62	50-135		

APL-12W	**10-10-0792-8-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 16:04**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	13	1		Dieldrin	ND	13	1	
2,4'-DDD	ND	13	1		Endosulfan I	ND	13	1	
2,4'-DDE	ND	13	1		Endosulfan II	ND	13	1	
2,4'-DDT	ND	13	1		Endosulfan Sulfate	ND	13	1	
4,4'-DDD	ND	13	1		Endrin	ND	13	1	
4,4'-DDE	ND	13	1		Endrin Aldehyde	ND	13	1	
4,4'-DDT	ND	13	1		Endrin Ketone	ND	13	1	
Aldrin	ND	13	1		Gamma Chlordane	ND	13	1	
Alpha Chlordane	ND	13	1		Gamma-BHC	ND	13	1	
Alpha-BHC	ND	13	1		Heptachlor	ND	13	1	
Beta-BHC	ND	13	1		Heptachlor Epoxide	ND	13	1	
Delta-BHC	ND	13	1		Methoxychlor	ND	13	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	65	50-135			Decachlorobiphenyl	63	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg
Project: POLA APL Terminal			Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13W	**10-10-0792-9-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 16:19**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	14	1		Dieldrin	ND	14	1	
2,4'-DDD	ND	14	1		Endosulfan I	ND	14	1	
2,4'-DDE	ND	14	1		Endosulfan II	ND	14	1	
2,4'-DDT	ND	14	1		Endosulfan Sulfate	ND	14	1	
4,4'-DDD	ND	14	1		Endrin	ND	14	1	
4,4'-DDE	ND	14	1		Endrin Aldehyde	ND	14	1	
4,4'-DDT	ND	14	1		Endrin Ketone	ND	14	1	
Aldrin	ND	14	1		Gamma Chlordane	ND	14	1	
Alpha Chlordane	ND	14	1		Gamma-BHC	ND	14	1	
Alpha-BHC	ND	14	1		Heptachlor	ND	14	1	
Beta-BHC	ND	14	1		Heptachlor Epoxide	ND	14	1	
Delta-BHC	ND	14	1		Methoxychlor	ND	14	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	61	50-135			Decachlorobiphenyl	62	50-135		

APL-18W	**10-10-0792-10-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 16:33**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	12	1		Dieldrin	ND	12	1	
2,4'-DDD	ND	12	1		Endosulfan I	ND	12	1	
2,4'-DDE	ND	12	1		Endosulfan II	ND	12	1	
2,4'-DDT	ND	12	1		Endosulfan Sulfate	ND	12	1	
4,4'-DDD	ND	12	1		Endrin	ND	12	1	
4,4'-DDE	ND	12	1		Endrin Aldehyde	ND	12	1	
4,4'-DDT	ND	12	1		Endrin Ketone	ND	12	1	
Aldrin	ND	12	1		Gamma Chlordane	ND	12	1	
Alpha Chlordane	ND	12	1		Gamma-BHC	ND	12	1	
Alpha-BHC	ND	12	1		Heptachlor	ND	12	1	
Beta-BHC	ND	12	1		Heptachlor Epoxide	ND	12	1	
Delta-BHC	ND	12	1		Methoxychlor	ND	12	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	59	50-135			Decachlorobiphenyl	64	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081B
		Units:	ug/kg
Project: POLA APL Terminal			Page 6 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C (LAB DUP)	**10-10-0792-11-A**	**08/11/10 09:30**	**Tissue**	**GC 51**	**10/14/10**	**10/19/10 16:48**	**101014L01**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	16	1		Dieldrin	ND	16	1	
2,4'-DDD	ND	16	1		Endosulfan I	ND	16	1	
2,4'-DDE	ND	16	1		Endosulfan II	ND	16	1	
2,4'-DDT	ND	16	1		Endosulfan Sulfate	ND	16	1	
4,4'-DDD	ND	16	1		Endrin	ND	16	1	
4,4'-DDE	30	16	1		Endrin Aldehyde	ND	16	1	
4,4'-DDT	ND	16	1		Endrin Ketone	ND	16	1	
Aldrin	ND	16	1		Gamma Chlordane	ND	16	1	
Alpha Chlordane	ND	16	1		Gamma-BHC	ND	16	1	
Alpha-BHC	ND	16	1		Heptachlor	ND	16	1	
Beta-BHC	ND	16	1		Heptachlor Epoxide	ND	16	1	
Delta-BHC	ND	16	1		Methoxychlor	ND	16	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	82	50-135			Decachlorobiphenyl	62	50-135		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-202-2**	**N/A**	**Solid**	**GC 51**	**10/14/10**	**10/19/10 14:09**	**101014L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Toxaphene	ND	2.0	1		Dieldrin	ND	2.0	1	
2,4'-DDD	ND	2.0	1		Endosulfan I	ND	2.0	1	
2,4'-DDE	ND	2.0	1		Endosulfan II	ND	2.0	1	
2,4'-DDT	ND	2.0	1		Endosulfan Sulfate	ND	2.0	1	
4,4'-DDD	ND	2.0	1		Endrin	ND	2.0	1	
4,4'-DDE	ND	2.0	1		Endrin Aldehyde	ND	2.0	1	
4,4'-DDT	ND	2.0	1		Endrin Ketone	ND	2.0	1	
Aldrin	ND	2.0	1		Gamma Chlordane	ND	2.0	1	
Alpha Chlordane	ND	2.0	1		Gamma-BHC	ND	2.0	1	
Alpha-BHC	ND	2.0	1		Heptachlor	ND	2.0	1	
Beta-BHC	ND	2.0	1		Heptachlor Epoxide	ND	2.0	1	
Delta-BHC	ND	2.0	1		Methoxychlor	ND	2.0	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
2,4,5,6-Tetrachloro-m-Xylene	95	50-135			Decachlorobiphenyl	80	50-135		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2C	**10-10-0792-1-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 13:52**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0868	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10C	**10-10-0792-2-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 13:55**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0837	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12C	**10-10-0792-3-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 13:57**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0855	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13C	**10-10-0792-4-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 13:59**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0843	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C	**10-10-0792-5-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 14:01**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0936	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2W	**10-10-0792-6-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 18:19**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0654	0.599		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10W	**10-10-0792-7-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 18:21**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0778	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12W	**10-10-0792-8-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 18:24**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0788	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13W	**10-10-0792-9-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 18:26**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0837	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18W	**10-10-0792-10-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 18:28**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0744	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C (LAB DUP)	**10-10-0792-11-A**	**08/11/10 09:30**	**Tissue**	**Mercury**	**10/12/10**	**10/12/10 18:17**	**101012L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0936	0.599		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-19**	**N/A**	**Solid**	**Mercury**	**10/12/10**	**10/12/10 13:37**	**101012L01**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0120	0.599		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received:	10/08/10
Work Order No:	10-10-0792
Preparation:	EPA 3050B
Method:	EPA 6020
Units:	mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2C	**10-10-0792-1-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:30**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.9	0.906	0.5		Nickel	5.57	0.0725	0.5	
Cadmium	0.554	0.362	0.5		Selenium	1.64	0.362	0.5	
Chromium	7.46	0.0725	0.5		Silver	0.381	0.362	0.5	
Copper	15.8	0.362	0.5		Zinc	114	7.25	0.5	
Lead	2.91	0.362	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10C	**10-10-0792-2-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:32**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.6	0.874	0.5		Nickel	5.84	0.0699	0.5	
Cadmium	0.668	0.350	0.5		Selenium	1.64	0.350	0.5	
Chromium	6.82	0.0699	0.5		Silver	0.461	0.350	0.5	
Copper	14.2	0.350	0.5		Zinc	113	6.99	0.5	
Lead	2.97	0.350	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12C	**10-10-0792-3-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:34**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	20.1	0.893	0.5		Nickel	5.33	0.0714	0.5	
Cadmium	0.430	0.357	0.5		Selenium	1.51	0.357	0.5	
Chromium	6.89	0.0714	0.5		Silver	0.442	0.357	0.5	
Copper	13.6	0.357	0.5		Zinc	108	7.14	0.5	
Lead	2.79	0.357	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13C	**10-10-0792-4-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:40**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.6	0.880	0.5		Nickel	4.91	0.0704	0.5	
Cadmium	0.504	0.352	0.5		Selenium	1.46	0.352	0.5	
Chromium	6.06	0.0704	0.5		Silver	0.444	0.352	0.5	
Copper	14.1	0.352	0.5		Zinc	114	7.04	0.5	
Lead	2.66	0.352	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C	**10-10-0792-5-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:42**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	24.7	0.977	0.5		Nickel	5.26	0.0781	0.5	
Cadmium	0.586	0.391	0.5		Selenium	1.61	0.391	0.5	
Chromium	6.04	0.0781	0.5		Silver	0.679	0.391	0.5	
Copper	14.0	0.391	0.5		Zinc	118	7.81	0.5	
Lead	2.81	0.391	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-2W	**10-10-0792-6-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:43**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	11.6	0.683	0.5		Nickel	1.47	0.0546	0.5	
Cadmium	ND	0.273	0.5		Selenium	1.23	0.273	0.5	
Chromium	4.09	0.0546	0.5		Silver	ND	0.273	0.5	
Copper	7.39	0.273	0.5		Zinc	59.3	5.46	0.5	
Lead	0.948	0.273	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-10W	**10-10-0792-7-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:45**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.4	0.812	0.5		Nickel	2.02	0.0649	0.5	
Cadmium	ND	0.325	0.5		Selenium	1.27	0.325	0.5	
Chromium	4.88	0.0649	0.5		Silver	ND	0.325	0.5	
Copper	8.26	0.325	0.5		Zinc	73.4	6.49	0.5	
Lead	1.17	0.325	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-12W	**10-10-0792-8-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:47**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	13.5	0.822	0.5		Nickel	2.54	0.0658	0.5	
Cadmium	ND	0.329	0.5		Selenium	1.44	0.329	0.5	
Chromium	5.97	0.0658	0.5		Silver	ND	0.329	0.5	
Copper	8.78	0.329	0.5		Zinc	123	6.58	0.5	
Lead	1.66	0.329	0.5						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA APL Terminal

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-13W	**10-10-0792-9-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:49**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	13.4	0.874	0.5		Nickel	1.88	0.0699	0.5	
Cadmium	ND	0.350	0.5		Selenium	1.27	0.350	0.5	
Chromium	5.23	0.0699	0.5		Silver	ND	0.350	0.5	
Copper	8.37	0.350	0.5		Zinc	80.5	6.99	0.5	
Lead	1.16	0.350	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18W	**10-10-0792-10-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:51**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	11.6	0.776	0.5		Nickel	2.46	0.0621	0.5	
Cadmium	ND	0.311	0.5		Selenium	1.15	0.311	0.5	
Chromium	5.11	0.0621	0.5		Silver	ND	0.311	0.5	
Copper	7.83	0.311	0.5		Zinc	80.4	6.21	0.5	
Lead	0.981	0.311	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
APL-18C (LAB DUP)	**10-10-0792-11-A**	**08/11/10 09:30**	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:53**	**101011L07**

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

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	23.5	0.977	0.5		Nickel	5.52	0.0781	0.5	
Cadmium	0.615	0.391	0.5		Selenium	1.70	0.391	0.5	
Chromium	5.53	0.0781	0.5		Silver	0.654	0.391	0.5	
Copper	14.9	0.391	0.5		Zinc	122	7.81	0.5	
Lead	2.71	0.391	0.5						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-411-21**	**N/A**	**Solid**	**ICP/MS 04**	**10/11/10**	**10/13/10 13:16**	**101011L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.125	0.5		Nickel	ND	0.0100	0.5	
Cadmium	ND	0.0500	0.5		Selenium	ND	0.0500	0.5	
Chromium	ND	0.0100	0.5		Silver	ND	0.0500	0.5	
Copper	ND	0.0500	0.5		Zinc	ND	1.00	0.5	
Lead	ND	0.0500	0.5						

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3050B
Method: EPA 6020

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-2C	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10**	**101011S07**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	96	106	80-120	7	0-20	
Cadmium	95	101	80-120	5	0-20	
Chromium	97	104	80-120	6	0-20	
Copper	90	98	80-120	8	0-20	
Lead	101	104	80-120	3	0-20	
Nickel	96	103	80-120	7	0-20	
Selenium	99	108	80-120	9	0-20	
Silver	101	104	80-120	2	0-20	
Zinc	85	95	80-120	5	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

ACCREDITED IN ACCORDANCE WITH nelac

AMEC Earth & Environmental		Date Received	10/08/10
9210 Sky Park Court, Suite 200		Work Order No:	10-10-0792
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
APL-2C	**Tissue**	**ICP/MS 04**	**10/11/10**	**10/13/10**	**101011S07**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	101	103	75-125	2	0-20	
Cadmium	98	99	75-125	1	0-20	
Chromium	102	101	75-125	1	0-20	
Copper	94	96	75-125	2	0-20	
Lead	100	104	75-125	4	0-20	
Nickel	98	101	75-125	2	0-20	
Selenium	101	100	75-125	0	0-20	
Silver	104	103	75-125	1	0-20	
Zinc	90	89	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

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

Date Received:	10/08/10
Work Order No:	10-10-0792
Preparation:	N/A
Method:	SM 2540 B

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
APL-12C	**Tissue**	**N/A**	**10/12/10**	**10/12/10**	**A1012TSD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	14.0	14.2	1	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 7471A Total
Method: EPA 7471A

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-2C	**Tissue**	**Mercury**	**10/12/10**	**10/12/10**	**101012S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	83	76	76-136	9	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8082

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-12C	**Tissue**	**GC 31**	**10/14/10**	**10/20/10**	**101014S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	128	130	50-135	1	0-25	
Aroclor-1260	101	103	50-135	2	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-2C	**Tissue**	**GC/MS BBB**	**10/13/10**	**10/18/10**	**101013S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	99	95	21-133	4	0-20	
Acenaphthylene	96	96	33-145	0	0-20	
Acenaphthene	92	92	40-106	0	0-20	
Fluorene	90	87	59-121	3	0-20	
Phenanthrene	94	89	54-120	5	0-20	
Anthracene	67	65	27-133	4	0-20	
Fluoranthene	67	62	26-137	7	0-20	
Pyrene	92	90	6-156	2	0-46	
Benzo (a) Anthracene	94	91	33-143	4	0-20	
Chrysene	96	93	17-168	3	0-20	
Benzo (k) Fluoranthene	108	106	24-159	2	0-20	
Benzo (b) Fluoranthene	102	95	24-159	7	0-20	
Benzo (a) Pyrene	117	113	17-163	4	0-20	
Benzo (g,h,i) Perylene	58	57	0-219	3	0-20	
Indeno (1,2,3-c,d) Pyrene	77	71	0-171	8	0-20	
Dibenz (a,h) Anthracene	82	75	0-227	9	0-20	
1-Methylnaphthalene	94	87	80-120	8	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 10/08/10
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8081B

Project POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
APL-10C	**Tissue**	**GC 51**	**10/14/10**	**10/19/10**	**101014S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
4,4'-DDD	77	78	50-135	1	0-25	
4,4'-DDE	66	65	50-135	1	0-25	
4,4'-DDT	82	83	50-135	2	0-25	
Aldrin	65	64	50-135	1	0-25	
Alpha-BHC	71	70	50-135	1	0-25	
Beta-BHC	90	90	50-135	0	0-25	
Delta-BHC	76	76	50-135	0	0-25	
Dieldrin	65	65	50-135	0	0-25	
Endosulfan I	69	69	50-135	1	0-25	
Endosulfan II	67	67	50-135	0	0-25	
Endosulfan Sulfate	65	64	50-135	0	0-25	
Endrin	81	81	50-135	0	0-25	
Endrin Aldehyde	30	30	50-135	3	0-25	3
Endrin Ketone	88	90	50-135	2	0-25	
Gamma-BHC	85	82	50-135	4	0-25	
Heptachlor	66	65	50-135	1	0-25	
Heptachlor Epoxide	56	56	50-135	1	0-25	
Methoxychlor	75	71	50-135	4	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-10-0792
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-411-21	**Solid**	**ICP/MS 04**	**10/11/10**	**10/13/10**	**101011L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	98	99	80-120	0	0-20	
Cadmium	98	104	80-120	5	0-20	
Chromium	104	107	80-120	2	0-20	
Copper	97	102	80-120	5	0-20	
Lead	100	104	80-120	3	0-20	
Nickel	98	101	80-120	3	0-20	
Selenium	102	101	80-120	2	0-20	
Silver	106	104	80-120	1	0-20	
Zinc	101	104	80-120	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-10-0792
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-19	**Solid**	**Mercury**	**10/12/10**	**10/12/10**	**101012L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	98	97	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8082

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-502-5	**Solid**	**GC 31**	**10/14/10**	**10/20/10**	**101014L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	134	134	50-135	0	0-25	
Aroclor-1260	128	123	50-135	4	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-596-7	**Solid**	**GC/MS BBB**	**10/13/10**	**10/17/10**	**101013L13**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Naphthalene	99	98	21-133	2-152	0	0-25	
Acenaphthylene	97	100	33-145	14-164	3	0-25	
Acenaphthene	92	95	48-108	38-118	3	0-25	
Fluorene	87	91	59-121	49-131	4	0-25	
Phenanthrene	96	97	54-120	43-131	1	0-25	
Anthracene	68	67	27-133	9-151	1	0-25	
Fluoranthene	81	89	26-137	8-156	10	0-25	
Pyrene	86	99	28-106	15-119	15	0-25	
Benzo (a) Anthracene	99	102	33-143	15-161	3	0-25	
Chrysene	103	108	17-168	0-193	5	0-25	
Benzo (k) Fluoranthene	95	101	24-159	2-182	6	0-25	
Benzo (b) Fluoranthene	91	95	24-159	2-182	5	0-25	
Benzo (a) Pyrene	111	107	17-163	0-187	4	0-25	
Benzo (g,h,i) Perylene	96	103	0-227	0-265	6	0-25	
Indeno (1,2,3-c,d) Pyrene	104	92	0-171	0-200	12	0-25	
Dibenz (a,h) Anthracene	100	110	0-219	0-256	10	0-25	
1-Methylnaphthalene	94	92	40-160	20-180	3	0-25	

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

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-10-0792
Preparation: EPA 3545
Method: EPA 8081B

Project: POLA APL Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-202-2	**Solid**	**GC 51**	**10/14/10**	**10/19/10**	**101014L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
4,4'-DDD	77	68	50-135	36-149	12	0-25	
4,4'-DDE	90	81	50-135	36-149	11	0-25	
4,4'-DDT	113	97	50-135	36-149	15	0-25	
Aldrin	83	75	50-135	36-149	10	0-25	
Alpha-BHC	90	81	50-135	36-149	10	0-25	
Beta-BHC	89	81	50-135	36-149	10	0-25	
Delta-BHC	82	73	50-135	36-149	12	0-25	
Dieldrin	86	74	50-135	36-149	15	0-25	
Endosulfan I	85	75	50-135	36-149	12	0-25	
Endosulfan II	79	70	50-135	36-149	12	0-25	
Endosulfan Sulfate	92	78	50-135	36-149	16	0-25	
Endrin	89	78	50-135	36-149	13	0-25	
Endrin Aldehyde	75	64	50-135	36-149	15	0-25	
Endrin Ketone	109	92	50-135	36-149	17	0-25	
Gamma-BHC	92	83	50-135	36-149	10	0-25	
Heptachlor	92	84	50-135	36-149	9	0-25	
Heptachlor Epoxide	64	61	50-135	36-149	5	0-25	
Methoxychlor	103	89	50-135	36-149	14	0-25	

Total number of LCS compounds : 18
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-10-0792

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

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

CHAIN OF CUSTODY RECORD

DATE: 10/08/10

PAGE: 1 OF 2

LABORATORY CLIENT: AMEC Earth & Environmental

ADDRESS: 9210 Sky Park Court, Suite 200

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4350 FAX: 858-300-4301 E-MAIL: chris.stransky@amec.com

CLIENT PROJECT NAME / NUMBER: POLA APL Terminal

P.O. NO.:

PROJECT CONTACT: Chris Stransky

LAB CONTACT OR QUOTE NO.: Bob Stearns

SAMPLER(S): (SIGNATURE) Nautilus Env. - Nathan Hall

LAB USE ONLY 10-0792

TURNAROUND TIME: Standard

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS:

See attached Table 5 for target detection limits.
Report in dry weight
Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Trace Metals (6020/6010B): As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn	Mercury (7471A)	Individual PAHs only (8270C)	Chlorinated Pesticides (8081A)	PCB Aroclors (8082)	% Solids
1	APL-2C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
2	APL-10C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
3	APL-12C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
4	APL-13C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
5	APL-18C	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X

Relinquished by: (Signature)	Received by: (Signature)	Date: 10/08/10	Time: 1243
Relinquished by: (Signature)	Received by: (Signature) Dannyle CCL	Date: 10/8/10	Time: 19:10
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

02/24/10 Revision

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

CHAIN OF CUSTODY RECORD

DATE: 10/08/10

PAGE: 2 OF 2

LABORATORY CLIENT: AMEC Earth & Environmental

ADDRESS: 9210 Sky Park Court, Suite 200

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4350 FAX: 858-300-4301 E-MAIL: chris.stransky@amec.com

CLIENT PROJECT NAME / NUMBER: POLA APL Terminal

P.O. NO.:

PROJECT CONTACT: Chris Stransky

LAB CONTACT OR QUOTE NO.: Bob Stearns

SAMPLER(S): (SIGNATURE) Nautilus Env. - Nathan Hall

LAB USE ONLY 10-0792

TURNAROUND TIME: Standard

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS:

See attached Table 5 for target detection limits.
Report in dry weight
Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Trace Metals (6020/6010B): As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn	Mercury (7471A)	Individual PAHs only (8270C)	Chlorinated Pesticides (8081A)	PCB Aroclors (8082)	% Solids
6	APL-2W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
7	APL-10W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
8	APL-12W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
9	APL-13W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X
10	APL-18W	POLA APL Terminal	8/11/2010	930	Tissue	1	X	X	X	X	X	X

Relinquished by: (Signature)	Received by: (Signature)	Date: 10/08/10	Time: 1243
Relinquished by: (Signature)	Received by: (Signature) Dannyle CZL	Date: 10/8/10	Time: 19:10
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

02/24/10 Revision

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-10-0792

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC DATE: 10/08/10

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

Temperature 2.0 °C + 0.5 °C (CF) = 2.5 °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: VB2

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: VB2

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

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

CONTAINER TYPE:

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

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

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

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

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

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

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