Berths 212–224 (YTI) Container Terminal Improvements Project

FINAL

Environmental Impact Statement/ Environmental Impact Report

SCH# 2013041017
APP# 130204-020

October 2014

Prepared for:

Los Angeles Harbor Department
Environmental Management Division

U.S. Army Corps of Engineers



Prepared by:

ICF International

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Prepared for:

Los Angeles Harbor Department
Environmental Management Division
425 S. Palos Verdes Street
San Pedro, CA 90731
Contact: Laura Masterson
Phone: (310) 732-3679

Prepared by:

ICF International
1 Ada, Suite 100
Irvine, CA 92618
Contact: Chad Beckstrom
Phone: (949) 333-6625

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Acronyms and Abbreviations

AB	Assembly Bill
AQMP	Air Quality Management Plan
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
Bay-wide HRA	Bay-Wide Regional Human Health Risk Assessment
BMPs	best management practices
BNSF	Burlington Northern Santa Fe
BTEX	benzene, toluene, ethylbenzene and xylene
CAAP	Clean Air Action Plan
CAAQS	California Ambient Air Quality Standards
Calship	California Shipbuilding Company
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDF	confined disposal facility
CDFW	California Department of Fish and Wildlife
CEQ	Council for Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHEI	cargo handling emissions inventory
CMP	Congestion Management Program
CSTF	Contaminated Sediment Task Force
cy	cubic yards
D/C	demand to capacity ratio
DA	Department of the Army
DPM	diesel particulate matter
EAI	Environmental Audit, Inc.
ECAs	Emission Control Areas
EFH	Essential Fish Habitat
EIS/EIR	Environmental Impact Statement/ Environmental Impact Report
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESI	Environmental Ship Index
EV	electric vehicle
FEMA	Federal Emergency Management Agency
FRATIS	Freight Advanced Traveler Information System
FSAP	Final Sampling and Analysis Plan
g/bhp-hr	grams per brake horsepower-hour

HCBF	Harbor Community Benefit Foundation
HCM	Highway Capacity Manual
hp-hr	horsepower-hour
HRA	Health Risk Assessment
HTA	Harbor Trucking Association
I	Interstate
IT	information technology
LAHD	Los Angeles Harbor Department
LOS	level of service
METRO	Metropolitan Transportation
MLLW	Mean Lower Low Water
MOU	Memoranda of Understanding
MS4	Municipal Separate Storm Sewer System
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
nm	nautical miles
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOP	Notice of Preparation
NO_X	nitrogen oxide
OCPs	organochlorine pesticides
ODMDS	Ocean Dredged Material Disposal Site
PA/ED	Project Approval/Environmental Documentation
PCE	passenger car equivalents
PID	Photo Ionization Detector
PM	particulate matter
PM_{10}	inhalable particulate matter
Port	Port of Los Angeles
PRC	California Public Resources Code
ROD	Record of Decision
RMG	rail-mounted gantry crane
RTG	rubber tire gantry crane
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SHS	State Highway System
SIP	State Implementation Plan
SO_X	sulfur oxides
SR	State Route
SSHSP	site-specific health and safety plan
SUSMP	Standard Urban Stormwater Mitigation Plans
TAP	Technology Advancement Program
TEUs	twenty-foot equivalent units
TICTF	Terminal Island Container Transfer Facility
TITP	Terminal Island Treatment Plant

TMDL	Total Maximum Daily Load
TraPac MOU	Trans Pacific Containers Service Corporation Memorandum of Understanding
TRUs	transportation refrigeration units
Trust Fund	Port Community Mitigation Trust Fund
TSCA	Toxic Substances Control Act
UP	Union Pacific
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	U.S. Fish and Wildlife Service
V/C	vehicle to capacity
VMT	vehicle miles of travel
VOC	volatile organic compounds
VSRP	Vessel Speed Reduction Program
WDRs	waste discharge requirements
WRAP	Water Resources Action Plan
YTI	Yusen Terminal International
ZECMS	zero-emission container movement systems

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Chapter 1
Introduction

1.1 Final EIS/EIR Organization

This chapter presents background and introductory information for the Berths 212–224 Yusen Terminal International (YTI) Container Terminal Improvements Project (proposed Project), located in the industrial area of Terminal Island, within the Port of Los Angeles (Port). Additionally, this chapter discusses general changes and modifications made to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), which are mostly editorial in nature. Chapter 2, Response to Comments, presents information regarding the distribution of and comments on the Draft EIS/EIR, and the responses to these comments. Chapter 3, Modifications to the Draft EIS/EIR, presents the changes made to the text of the Draft EIS/EIR.

This Final EIS/EIR has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4341 et seq.) and in conformance with the Council for Environmental Quality (CEQ) Guidelines and the United States Army Corps of Engineers (USACE) NEPA Implementing Regulations. The document also fulfills the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR] 15000 et seq.). USACE is the NEPA lead agency for this proposed Project, and the Los Angeles Harbor Department (LAHD) is the CEQA lead agency.

1.2 Project Overview

This section provides an overview of the proposed Project. A description of alternatives to the proposed Project is provided in Chapter 2 of the Draft EIS/EIR. YTI has a long-term lease with the Port for operation of the terminal through 2016 with an option to extend to 2026. YTI plans to exercise the option to extend its lease through 2026. The proposed project horizon year is 2026, the final year of the lease extension. The proposed project area encompasses approximately 185 acres at Berths 212–224 on Terminal Island. The existing terminal consists of two operating berths, Berths 212–213 and Berths 214–216, and one non-operating berth, Berths 217–220. Physical improvements proposed at the existing YTI Terminal include dredging and installing sheet piles and king piles at Berths 214–216 and Berths 217–220, adding and replacing/extending wharf gantry cranes, extending the 100-foot gauge crane rail along the wharf deck to Berths 217–220, improving/repairing backlands across the entire site, and adding a new operational rail track within the existing Terminal Island Container

Transfer Facility (TICTF) on-dock rail yard. All improvements would occur within the existing boundaries of the YTI Terminal. The proposed Project does not include physical improvements at Berths 221–224 except for resurfacing of backland areas. Improvements at Berths 212–213 would be limited to raising the height and extending the booms of cranes, and resurfacing backland areas. All dredged material would be disposed of at an approved site, such as the LA-2 Ocean Dredge Material Disposal Site (ODMDS) (LA-2), the Berths 243–245 confined disposal facility (CDF), or another approved location. After construction, the terminal would have three operating berths. These improvements would enable the terminal to accommodate the projected fleet mix of larger container ships (up to 13,000 twenty-foot equivalent units [TEUs]) that are anticipated to call at the terminal through 2026, and the capacity of the terminal would increase from 1,692,000 TEUs to 1,913,000 TEUs annually.

1.3 Existing Conditions

1.3.1 Regional Context

The Port Complex, which includes the Port of Los Angeles and the Port of Long Beach, is located in the San Pedro Bay approximately 20 miles south of downtown Los Angeles and serves as one of the nation's primary gateways for international trade (Figure 2-1 in the Draft EIS/EIR). International trade is a key economic engine for the region and the country. The Port Complex serves as a vital link in the goods movement chain delivering goods for local markets as well as those shipped by truck and rail throughout the country. The Port Complex serves as the country's primary gateway for Asian-based trading partners. Approximately half of the cargo coming through the Ports is delivered by truck to the regional market, which is an area roughly 500 to 700 miles from the Port Complex. The local freeways that directly serve the Port Complex are Interstate (I) 110, I-710, State Route (SR) 47, and SR-103. The Alameda Corridor is the primary rail line between the Port and downtown Los Angeles railyards (Union Pacific [UP] East LA Yard and Burlington Northern Santa Fe [BNSF] Hobart Yard). Other rail lines extend from the downtown area north and east.

1.3.2 Project Setting

The Port consists of 7,500 acres and 43 miles of waterfront and provides a major gateway for international goods and services. The Port is administered by LAHD under the California Tidelands Trust Act of 1911. LAHD is chartered to develop and operate the Port to benefit maritime uses, and it functions as a property owner by leasing Port properties to more than 300 tenants. With 23 major cargo terminals, including dry and liquid bulk, container, breakbulk, automobile, and passenger facilities, the Port handled about 158 million metric revenue tons of cargo in fiscal year 2011/2012 (July 2011–June 2012) (POLA 2012). Of the 23 major cargo terminals, nine are container terminals and include 85 container cranes. In addition to cargo business operations, the Port is home to commercial fishing vessels, a shipyard, a boat repair facility, and recreational, community, and educational facilities.

1.3.3 Project Site and Surrounding Uses

The proposed project site encompasses a total of approximately 185 acres, including the YTI Terminal and a portion of the TICTF. The berths and container yard occupy approximately 157 acres, YTI's portion of the TICTF on-dock rail is approximately 24 acres, and an additional 4 acres located to the south of the main terminal are unused. The site is generally bounded on the north by confluence of the Cerritos and East Basin Channels, SA Recycling at Berths 210–211 to the east, Seaside Avenue and SR-47 to the south, and the East Basin Channel to the west (Figure ES-2 in the Draft EIS/EIR). Four bridges provide vehicular and rail access to Terminal Island from the mainland: the Vincent Thomas Bridge, the Schuyler Heim Bridge, the Gerald Desmond Bridge, and the Badger Avenue Railroad Lift Bridge.

Land uses in the proposed project vicinity support a variety of cargo handling operations, including container, liquid bulk, and dry bulk, as well as commercial fishing, seafood processing, and maritime support. To the southwest at Berths 226–236 is the Evergreen/STS container terminal, with whom YTI shares the TICTF on-dock railyard; the U.S. Customs Building is to the south of the proposed project area; the Navy Reserve Center former site is to the southeast; the Shell Liquid Bulk Terminal at Berths 167–169 and the Pasha Breakbulk Terminal at Berths 174–181 are across the East Basin Channel to the north; and the Vopak Liquid Bulk Terminal at Berths 187–191 is across Cerritos Channel to the north.

1.3.4 Historic Use of the Project Site

Berths 212–224 have a rich history dating back to the late 1920s, serving a variety of tenants including oil companies, lumber companies, shipbuilding and dismantling operations, and cargo terminals.

The first facilities at Berths 212–214 were originally constructed in the 1920s. From about 1941 through 1945, during World War II, California Shipbuilding Company (Calship) manufactured Liberty- and Victory-class transports at the site. Calship was the largest wartime shipbuilder in Los Angeles Harbor during World War II. Following the war, Calship was acquired by the National Metal and Steel Corporation, which was the final destination for many decommissioned U.S. Navy ships to be dismantled and exported as scrap metal.

Fellows and Stewart, a yacht builder, also occupied Berth 214 from 1949 through 1976, at which point Al Larson Boat Shop took over the site from 1977 through the mid-1980s. Al Larson Boat Shop was used for boat cleaning, painting, repair, refitting, and boat building. Proctor and Gamble also occupied a portion of the Berth 214 backland for warehousing operations from about 1961 through the mid-1980s.

Berth 215 once housed a liquid bulk transfer/storage facility and included oil storage tanks, office, storage, and pump buildings. Hancock Oil occupied Berth 215 from 1928 through 1958, when it was sold to Signal Oil. Signal Oil continued operations at the site until about 1965, at which time Gulf Oil took over the site and operated until the mid-1980s. Quaker oil also operated on the backlands portion of Berth 215 from about 1965 through 1980.

As early as 1927, Berths 216–217 were occupied by California Petroleum Corporation. Around 1929, the Texas Company (now Texaco) began operations at Berths 216–218 and remained on site until about 1968. Berths 216–218 were vacant for several years before Dow Chemical occupied a portion of the backlands until the mid-1980s. The Western Walker Company also occupied a portion of the backlands at Berths 216–218 from about 1929 through 1932.

Hammon Lumber Company operated at Berths 220–224 from about 1927 through about 1963, at which point this portion of the site began to operate as a cargo terminal. Berths 220–224 continued operations as a container terminal, and Indies Cargo Terminal expanded the cargo operations to include Berths 216–218 around 1985. YTI began operation at Berths 211–215 in 1990 and took over operation of Berths 216–224 in 1996.

1.4 Project Purpose

LAHD operates the Port under the legal mandates of the Port of Los Angeles Tidelands Trust (Los Angeles City Charter, Article VI, Section 601) and the California Coastal Act (PRC Division 20 Section 700 et seq.), which identify the Port and its facilities as a primary economic and coastal resource of the State of California and an essential element of the national maritime industry for the promotion of commerce, navigation, fisheries, and Harbor operations. Activities should be water dependent and LAHD must give highest priority to navigation, shipping, and necessary support and access facilities to accommodate the demands of foreign and domestic waterborne commerce. LAHD is chartered to develop and operate the Port to benefit maritime uses, and it functions as a landlord by leasing Port properties to more than 300 tenants.

1.4.1 CEQA Objectives

The overall proposed project objective is to optimize the container-handling efficiency and capacity of the Port to accommodate the projected fleet mix of larger container vessels (up to 13,000 TEUs) that are anticipated to call at the YTI Terminal through 2026. To meet the proposed project objective, the following more detailed objectives need to be met:

- optimize the use of existing land at the YTI Terminal and associated waterways in a manner that is consistent with LAHD's tidelands trust obligations;
- provide sufficient water depth to ensure the terminal's ability to accommodate larger container ships of up to 13,000 TEUs that are anticipated to call at the terminal through 2026;
- improve the container terminal berthing facilities at the YTI Terminal to accommodate the berthing and loading/unloading of the larger ships up to 13,000 TEUs that are anticipated to call at the terminal through 2026;
- increase on-dock rail facilities to accommodate projected daily peak increases in container movement into and out of the YTI Terminal resulting from the handling of larger ships; and
- improve the container terminal backlands to minimize ongoing needs for pavement repair and maintenance.

1.4.2 NEPA Purpose and Need

The purpose of the proposed Project is to improve maritime shipping and commerce by upgrading container terminal infrastructure in, over, and under water and on terminal backlands to accommodate the projected fleet mix of larger container ships (up to 13,000 TEUs) that are anticipated to call at the YTI Terminal through 2026. The proposed Project would optimize the terminal's efficiency and would improve maritime shipping and commerce. This would be accomplished through dredging to deepen two berths at the terminal, including the addition of subsurface king piles and sheet piles to stabilize the existing wharf structure, replacing or extending gantry cranes, extending the 100-foot gauge crane rail along the wharf deck to Berths 217–220, and adding a new operational rail track within the existing TICTF on-dock rail yard.

The proposed Project is needed for several reasons, primarily related to projected increases in the size of vessels in the fleet mix throughout the life of the proposed Project. Forecasts show that vessel fleets calling at the YTI Terminal will include larger vessels (up to 13,000 TEUs). The existing berths that would be upgraded as part of the proposed Project are currently dredged to -45 feet Mean Lower Low Water (MLLW)[1] but are not deep enough to accommodate the projected fleet mix through 2026. The deepest existing berth can only accommodate 8,500 TEU vessels. In addition to depth restrictions, the majority of the existing cranes and crane infrastructure cannot accommodate the larger vessels. The existing 50-foot gauge crane rail at Berths 217–220 is not of sufficient size or gauge to accommodate the type and size of cranes capable of efficiently loading and unloading the existing fleet mix calling at the terminal or the larger container ships expected to call through 2026. Currently, all operating cranes have a 100-foot width between the rails. A temporary 100-foot gauge rail extends partially onto Berths 217–220 to allow cranes to be moved out of the way for storage, but the temporary crane rail lacks the structural integrity to support operating cranes. Only four of the existing 14 cranes at the terminal are tall enough and have an outreach long enough to load and off-load the largest vessels anticipated to call at the terminal. Also, the TICTF on-dock rail yard at the YTI Terminal does not have the capacity to efficiently accommodate an increase in peak container volumes associated with larger container ships calling at the terminal. Consequently, an additional operational on-dock rail track is needed. Finally, the YTI Terminal container yard backlands are deteriorating and in need of repair and strengthening to prevent further damage to equipment and pavement throughout the life of the proposed Project.

1.4.3 Federal Scope of Analysis

In general, the scope of federal review for evaluating the potential impacts of a proposed project is focused on those aspects of the project that affect federal agency jurisdiction. USACE has jurisdiction over activities affecting navigable waters and other waters of the United States, as well as any transport of dredged material for the purpose of ocean disposal.

As presented in Section 1.5.1 of the Draft EIS/EIR, under federal law, "the District Engineer should establish the scope of the NEPA document to address the impacts of the specific activity requiring the Department of the Army (DA) permit and those portions of

[1] Mean Lower Low Water is the average height of the lowest tide recorded at a tide station each day during the recording period.

the entire project over which the District Engineer has sufficient control and responsibility to warrant Federal review" (33 Code of Federal Regulations (CFR) Part 325, Appendix B).

USACE regulations also identify four factors to be considered in determining "sufficient control and responsibility," which include:

1) whether or not the regulated activity represents merely a link in a corridor-type project;
2) whether there are aspects of the upland facility in the immediate vicinity of the regulated activity that affect the location and configuration of the regulated activity;
3) the extent to which the entire project would be within USACE jurisdiction; and
4) the extent of cumulative federal control and responsibility.

With respect to the first factor, the proposed Project is a container terminal improvement project, which consists of dredging, wharf improvements, overwater cranes, backlands, and rail infrastructure. Thus, it is not "merely a link" in a corridor-type project, such as a highway or a utility line crossing.

Considering the second factor, as the YTI Terminal is an existing container terminal in the Port, there is a physical link between the upland container yard/backlands and the adjacent wharves and associated cranes in and over waters of the United States that support YTI's operations. While this factor might suggest expanding the scope of analysis to include the upland container yard/backlands, the existing YTI Terminal is a fully functioning container terminal that has been operating at this location for many years, and, as such, many of the upland/backland impacts that would or could occur at the site under the proposed Project represent non-jurisdictional activities or operations and the resultant impacts could occur regardless of whether USACE's regulated activities, as proposed, are authorized.

In evaluating the third factor, the extent of waters of the United States that would be affected by the proposed Project represents a relatively small portion of the approximately 185-acre proposed project area. The proposed dredging at Berths 214–216 would impact approximately 70,000 square feet, and the dredging at Berths 217–220 would impact approximately 60,000 square feet of navigable waters of the United States.

For the fourth factor, other than the requirement to obtain the USACE permit, there is no other federal involvement on this site that would warrant broadening the federal scope of analysis, such as use, transfer, or sale of federal property; federal funding including cost sharing, guarantee, or financial assistance; or impact to federally listed historic resources, threatened or endangered species, designated critical habitat, or other federally recognized natural resources. There is also no other federal agency that controls the environmental effects of land development on the upland portions of the proposed project area, and state and local regulations would control the design of the proposed Project. Further, the federal and non-federal portions of the proposed Project could take place independently of each other. In summary, the environmental consequences of the whole proposed Project would not be essentially products of the federal action. Rather, they would be primarily the product of non-federal interest and designs.

Based on USACE regulations, including the four factors at 33 CFR 325, Appendix B, the appropriate scope of analysis for the federal action consists of permanent and temporary, direct and indirect impacts to waters of the United States associated with dredging, dredged material disposal, installation of subsurface king piles and sheet piles, wharf improvements, crane extension and/or replacement, and construction-related activities in uplands within the scope of federal control that would take place within 100 feet of the water's edge and are required to complete work and structures in waters of the United States, such as extension of the 100-foot crane rail (i.e., actions directly traceable to the proposed in/over/under water work and structures). Figure 2-10 in the Draft EIS/EIR shows the USACE permit area considered in the federal scope of analysis.

Based on the information provided by the proposed project proponent, USACE has also identified potentially significant cumulative impacts that would occur in conjunction with the proposed Project (i.e., federal and non-federal, past, present, and reasonably foreseeable projects in the vicinity of the Port). Therefore, USACE prepared an EIS for the proposed Project and its alternatives. While operational impacts in the uplands would occur outside the jurisdiction and permit authority of USACE, NEPA requires USACE to disclose all potentially significant direct, indirect, and cumulative impacts occurring as a result of a proposed permit action. Significance of the proposed Project or alternative under NEPA is defined by comparing the impacts of the proposed Project or alternative to the NEPA baseline (i.e., increment). This represents the incremental difference between implementation of the proposed Project or alternative and the future conditions that are likely to occur without federal action, in this case, the issuance of the USACE permit. The USACE permit decision would focus on direct and indirect impacts to the aquatic environment.

1.5 Proposed Project

This section describes the proposed improvements on the YTI Terminal, the anticipated construction phasing, and the anticipated terminal operations once the improvements are completed.

1.5.1 Proposed Project Elements

1.5.1.1 Overview

The proposed Project would be constructed in two phases over an approximately 22-month period, and is expected to begin in mid-2015. Phase I is expected to last approximately 12 months and would consist of deepening Berths 217–220 (including installation of sheet piles), extending the 100-foot gauge crane rail, expanding the TICTF, relocating two Port-owned cranes, relocating and realigning two YTI cranes, delivering and installing up to four new cranes, raising and extending up to six YTI cranes, and conducting backland surface improvements. Phase II is expected to take approximately 10 months and would involve deepening Berths 214–216 (including installation of king piles and sheet piles) and conducting backland surface improvements. No physical changes would occur at Berths 221–224 except for paving work in the backland area. The improvements to Berths 217–220, including the extension of the 100-foot gauge crane rail, would add a new operating berth at the YTI Terminal (currently at two operating berths, three after implementation of the proposed Project).

Below is a summary of the improvements that would occur at the terminal, with more detailed descriptions following.

- extending the height and outreach of up to six existing cranes;
- replacing up to four existing non-operating cranes;
- dredging and installing sheet piles and king piles at Berths 214–216 and 217–220;
- extending the existing 100-foot gauge landside crane rail to Berths 217–220;
- performing ground repairs and maintenance activities in the backlands area; and
- expanding the TICTF on-dock rail by adding a single operational rail track.

1.5.1.2 Terminal Improvements

Dredging and Pilings

The proposed improvements to Berths 214–216 include: (1) dredging to increase the depth from -45 to -53 feet MLLW (with an additional two feet of overdredge depth, for a total depth of -55 feet MLLW); and (2) installing sheet piles and king piles to accommodate the dredging activities and help to support and stabilize the existing wharf structure. Dredging would remove approximately 21,000 cubic yards (cy) of sediment from the berth. The king piles would be installed approximately 35 feet below the mudline and the sheet piles would be installed 15 feet below the mudline, across approximately 1,400 linear feet along the berth.

The proposed improvements at Berths 217–220 would include dredging to increase the depth from -45 to -47 feet MLLW (with an additional two feet of overdredge depth, for a total depth of -49 feet MLLW). Dredging would require the removal of approximately 6,000 cy of sediment. Sheet piles would be installed approximately 15 feet below the mudline and across approximately 1,200 linear feet along the berth.

All of the dredged material, approximately 27,000 cubic yards, would be disposed of at an approved site, which may include the LA-2 ocean disposal site, the Berths 243–245 CDF, or another approved location. A sediment characterization study was performed at Berths 212–224 in 2014 to determine the suitability of sediments from the proposed dredge footprint for unconfined aquatic disposal (AMEC 2014). Testing indicated that the majority of sediments within the Berths 212–224 footprint complied with the chemistry, toxicity, and bioaccumulation suitability requirements for ocean disposal (Title 40 CFR Parts 220–228), with some higher levels associated with unconsolidated surface (top-layer) sediments at Berths 214–216. Therefore, the majority of dredged material (21,800 cubic yards) would be suitable for placement at LA-2, and approximately two feet of surface sediments from Berths 214–216 (5,200 cubic yards) would be placed within the Berths 243–245 CDF or another upland location.

Crane Extension/Replacement

Currently, there are 10 operating wharf cranes (14 cranes total) at the terminal. Under the proposed Project, there would be up to 14 operating cranes and two non-operating cranes. The proposed Project includes raising and increasing the outreach of some of the existing cranes and replacing some existing cranes with super post-Panamax cranes. The four

existing largest super post-Panamax cranes (cranes 5–8) would remain and would not be modified. Up to six existing cranes (cranes 1–4 and 9–10) would be raised, and the booms would be extended to match the size of the four largest cranes (197 feet) to accommodate loading and unloading of 22-container-wide cargo vessels. A maximum of four new super post-Panamax cranes would be added to replace smaller cranes at the YTI Terminal. The existing non-operating cranes (cranes 11–12) would be moved to the far end of Berths 217–220 and stored for non-use. Additionally, the existing non-operating cranes owned by the Port (cranes P18–P19) would be relocated off site. The cranes are designed to move along the wharves and would be located where needed to efficiently load and unload vessels.

Extension of Wharf Crane Rail

The existing 100-foot gauge landside crane rail at Berths 212–216 would be extended by approximately 1,500 feet to accommodate 100-foot gauge cranes at Berths 217–220. Approximately 1,500 linear feet of existing 1,000-amp crane bus bar would be replaced with a new 1,500-amp system to provide power to the 100-foot gauge cranes.

Backland Improvements

Backland improvements would occur on approximately 160 acres of the 185-acre terminal and would consist of ground repairs and maintenance activities involving slurry sealing, deep cold planing, asphalt concrete overlay, construction of approximately 5,600 linear feet of concrete runways for rubber tire gantry (RTG) cranes, restriping, and possible removal/relocation/modification of underground conduits and pipes, as needed to accommodate the repairs.

TICTF Improvements

Expansion of the TICTF on-dock railyard would include the addition of a single 3,200-linear-foot operational rail loading track, including two turnouts, and reconstruction of a portion of the container terminal backlands to accommodate the rail expansion. These improvements would involve grading, paving, lighting, drainage, utility relocation/modifications, striping, relocation of an existing fence, and third-party utility modifications, relocations, or removals, as needed. The relocation of the fence would move approximately five acres from the YTI Terminal backlands to the TICTF.

1.5.1.3 Project Construction Phasing and Schedule

The proposed Project would be constructed in two phases: Phase I is expected to take approximately 12 months beginning in mid-2015, and Phase II is expected to take approximately 10 months beginning in mid-2016. During Phase I of construction, Berths 212–213 and Berths 214–216 would remain in operation. During Phase II of construction, Berths 212–213 and the newly improved Berths 217–220 would be in operation.

1.5.2 Proposed Project Operations

1.5.2.1 Lease Amendment

As part of the proposed Project, YTI would exercise the option to extend its lease for an additional ten-year period to 2026. The option to extend the term of the lease is included

in YTI's current Permit No. 692. Therefore, no permit amendment would be required for exercising this option. However, all mitigation measures, lease measures, and standard conditions included in this document for which YTI is responsible would be incorporated into Permit No. 692 through a lease amendment, and compliance would be enforced through the lease.

1.5.2.2 Terminal Operations

The YTI Terminal would continue operating as a container terminal similar to existing conditions. At this time, no foreseeable changes in the type of operations are expected through 2026.

Anticipated Throughput

The proposed Project would improve the container-handling efficiency of the existing YTI Terminal at the Port to accommodate the projected fleet mix of larger container vessels (up to 13,000 TEUs) that are anticipated to call at the YTI Terminal through 2026. The proposed Project would increase the throughput capacity of the YTI Terminal from 1,692,000 TEUs to 1,913,000 TEUs annually. The Draft EIS/EIR appropriately accounts for projected growth at the terminal up to its physical capacity limitations of the terminal to represent a worst-case scenario and to ensure all potential environmental impacts are disclosed. The Draft EIS/EIR analyzes the proposed Project at capacity in 2026 with the throughput ramping up in interim study years (2015, 2017, and 2020). The actual throughput levels for the proposed Project may be lower than the projected throughput at capacity as analyzed in the Draft EIS/EIR due to market conditions.

Ship Operations

Currently, the terminal can service up to three smaller vessels concurrently at the two operating berths. After construction of the proposed Project, up to two larger vessels and one smaller vessel could be berthed concurrently at the three operating berths. At the throughput capacity of approximately 1,913,000 TEUs, the terminal is anticipated to receive 206 ship calls by 2026, along with associated tugboats, which are used to safely guide container ships in and out of the harbor.

Rail Operations

Under the proposed Project, the volume of cargo passing through YTI's portion of the TICTF on-dock railyard is expected to increase from 347,405 TEUs in 2012 to 669,550 TEUs by 2026. The additional 3,200-foot rail track would increase the capacity of the YTI portion of TICTF from 567,000 TEUs to 680,400 TEUs, providing sufficient capacity to handle the full amount of anticipated demand for on-dock rail facilities associated with maximum terminal throughput. The percentage of terminal throughput that would be handled by on-dock rail is expected to remain at 35%. Loading, unloading, and hauling of rail cars would occur as it does under existing conditions.

In addition to transportation of cargo by on-dock rail, draying of containers to near- and off-dock facilities would continue to occur under the proposed Project, just as it occurs under existing conditions. Generally, trains are composed of containers that are all destined for one location. Where there is not a sufficient number of containers destined for the same location to make up a train, those containers are hauled to near- and off-dock facilities to be grouped with containers from other terminals bound for that same

destination. Trucks would haul those containers on public highways to and from off-dock railyards, including the UP Carson ICTF, the BNSF Hobart Yard in Vernon, the UP East Los Angeles Yard, and the proposed BNSF Southern California International Gateway. Local and national (long-haul) containers would be hauled to and from the terminal gates by trucks.

Truck Operations

Based on the anticipated mode splits for the proposed Project, the throughput capacity of 1,913,000 TEUs in 2026 would require a total of 4,470 peak daily and 1,236,402 annual truck trips. Of the approximately 1,243,450 TEUs transported by trucks in 2026, approximately 95,650 TEUs (approximately 5%) would be intermodal cargo trucked to off-dock railyards.

Cargo-handling Equipment

The existing types of cargo handling yard equipment are not expected to change as part of the proposed Project. As throughput increases, equipment may be added. In addition, yard equipment would be replaced or modified as needed to comply with California Air Resources Board (CARB) requirements as new requirements take effect.

Terminal Operating Hours

The terminal operating hours are not expected to change from existing conditions. The number of employees working at the terminal is expected to increase from a peak daily total of 533 in 2012 to approximately 845 in 2026. The terminal is run as a continuous operation, in which more employees are hired to supplement operations as needed.

1.6 Port of Los Angeles Environmental Initiatives

LAHD's Environmental Management Policy, as described in this section, was approved by the Harbor Commission on April 27, 2003. The purpose of the Environmental Management Policy is to provide an introspective, organized approach to environmental management; further incorporate environmental considerations into day-to-day Port operations; and achieve continual environmental improvement.

The Environmental Management Policy includes existing environmental initiatives for LAHD and its customers, such as the voluntary Vessel Speed Reduction Program (VSRP), Source Control Program, Least Tern Nesting Site Agreement, Hazardous Materials Management Policy, and the Clean Engines and Fuels Policy. In addition, the Policy encompasses initiatives such as the Environmental Management System (EMS) with LAHD's Construction and Maintenance Division and a Clean Marina Program. These programs are Port-wide initiatives to reduce environmental pollution. Many of the programs relate to the proposed Project. The following discussion includes details on a number of the programs and their goals.

1.6.1 LAHD's Environmental Policy

LAHD is committed to managing resources and conducting Port developments and operations in an environmentally and fiscally responsible manner. LAHD strives to improve the quality of life and minimize the impacts of its development and operations on the environment and surrounding communities. This is done through the continuous improvement of its environmental performance and the implementation of pollution-prevention measures, in a feasible and cost-effective manner that is consistent with LAHD's overall mission and goals and with those of its customers and the community.

To ensure this policy is successfully implemented, LAHD will develop and maintain an environmental management program that will:

- ensure that environmental policy is communicated to LAHD staff, its customers, and the community;
- ensure compliance with all applicable environmental laws and regulations;
- ensure that environmental considerations include feasible and cost-effective options for exceeding applicable regulatory requirements;
- define and establish environmental objectives, targets, and best management practices (BMPs), and monitor performance;
- ensure LAHD maintains a Customer Outreach Program to address common environmental issues; and
- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations through environmental awareness and communication with employees, customers, regulatory agencies, and neighboring communities.

LAHD is committed to the spirit and intent of this policy and the laws, rules, and regulations, which give it foundation.

1.6.2 Environmental Plans and Programs

LAHD has implemented a variety of plans and programs to reduce the environmental effects associated with operations at the Port. These programs include the San Pedro Bay Port Complex Clean Air Action Plan (CAAP), Water Resources Action Plan (WRAP), deepening the channels of the Port to accommodate larger and more efficient ships, and converting to electric and alternative-fuel vehicles. All of these efforts ultimately reduce environmental effects.

1.6.2.1 Clean Air Action Plan

The Ports of Los Angeles and Long Beach, with the participation and cooperation of the staff of the U.S. Environmental Protection Agency (EPA), CARB, and South Coast Air Quality Management District (SCAQMD), prepared the San Pedro Bay Port Complex CAAP, a planning and policy document that sets goals and implementation strategies to reduce air emissions and health risks associated with Port operations while allowing Port development to continue. In addition, the CAAP sought the reduction of criteria pollutant emissions to the levels that assure Port-related sources decrease their "fair share" of regional emissions to enable the South Coast Air Basin to attain state and

federal ambient air quality standards. Each individual CAAP measure is a proposed strategy for achieving these emissions reductions goals. The Ports approved the first CAAP in November 2006. Specific strategies to significantly reduce the health risks posed by air pollution from Port-related sources include:

- aggressive milestones with measurable goals for air quality improvements;
- specific goals set forth as standards for individual source categories to act as a guide for decision-making;
- recommendations to eliminate emissions of ultrafine particulates;
- technology advancement programs to reduce greenhouse gases; and
- public participation processes with environmental organizations and the business communities.

The CAAP focuses primarily on reducing diesel particulate matter (DPM), along with nitrogen oxide (NO_X) and sulfur oxides (SO_X). This reduces emissions and health risk and thereby allows for future Port growth while progressively controlling the impacts associated with growth. The CAAP includes emission control measures as proposed strategies that are designed to further these goals expressed as Source-Specific Performance Standards which may be implemented through the environmental review process, or could be included in new leases or Port-wide tariffs, Memoranda of Understanding (MOU), voluntary action, grants, or incentive programs.

The CAAP Update, adopted in November 2010, includes updated and new emission control measures as proposed strategies that support the goals expressed as the Source-Specific Performance Standards and the Project-Specific Standards. In addition, the CAAP Update includes the recently developed San Pedro Bay Standards, which establish emission and health risk reduction goals to assist the Ports in their planning for adopting and implementing strategies to significantly reduce the effects of cumulative Port-related operations.

The goals set forth as the San Pedro Bay Standards are the most significant addition to the CAAP and include both a Bay-wide health risk reduction standard and a Bay-wide mass emission reduction standard. Ongoing Port-wide CAAP progress and effectiveness will be measured against these Bay-wide Standards, which consist of the following reductions as compared to 2005 emissions levels:

- Health Risk Reduction Standard: 85% reduction in DPM by 2020
- Emission Reduction Standards:
  - by 2014, reduce emissions by 72% for DPM, 22% for NO_X, and 93% for SO_X
  - by 2023, reduce emissions by 77% for DPM, 59% for NO_X, and 92% for SO_X

The Project-Specific Standard remains as adopted in the original CAAP in 2006, that new projects meet the 10 in 1,000,000 excess residential cancer risk threshold, as determined by health risk assessments conducted subject to CEQA statutes, regulations, and guidelines, and implemented through required CEQA mitigations and/or lease negotiations. Although each Port has adopted the Project-Specific Standard as a policy,

the Board of Harbor Commissioners retain the discretion to consider and approve projects that exceed this threshold if the Board deems it necessary by adoption of a statement of overriding considerations at the time of project approval.

The Draft EIS/EIR analysis assumes compliance with applicable CAAP control measures. Proposed project-specific mitigation measures applied to reduce air emissions and public health impacts are consistent with the emission-reduction strategies of the CAAP.

1.6.2.2 Water Resources Action Plan

Both LAHD and the Port of Long Beach face ongoing challenges from contaminants that remain in Port sediments, flow into the harbor from Port land, and flow from upstream sources in the watershed, well beyond the Ports' boundaries. Therefore, the Ports undertook a collaborative, scientific effort to address existing and potential sources of water and sediment pollution. Building on the collaborative model developed by the CAAP, under the WRAP the Ports will continue to work together and with other stakeholders to achieve further progress in water and sediment quality improvement. The WRAP establishes a program of water quality improvement measures necessary to achieve the goals and targets that will be established by the Los Angeles RWQCB in upcoming regulations. The WRAP targets the four basic types of potential sources of pollutants to harbor waters (land use discharges, on-water discharges, sediments, and watershed discharges) and includes control measures zeroing in on known and potential sources of water and sediment contamination in the harbor area (POLA/POLB 2009).

1.6.2.3 Port of Los Angeles Sustainable Construction Guidelines

LAHD adopted the Port of Los Angeles Sustainable Construction Guidelines in February 2008 and revised them in November of 2009. The guidelines are used to establish air emission criteria for inclusion in bid specifications for construction. The guidelines reinforce and require sustainability measures during performance of the contracts, balancing the need to protect the environment, be socially responsible, and provide for the economic development of the Port. Future resolutions are anticipated to expand the guidelines to cover other aspects of construction, as well as planning and design. These guidelines support the Port Sustainability Program.

The intent of the guidelines is to facilitate the integration of sustainable concepts and practices into all capital projects at the Port and to phase in the implementation of these procedures in a practical, yet aggressive, manner (LAHD 2009). These guidelines are made a part of all construction specifications advertised for bids.

Significant features of the guidelines include, but are not limited to:

- all ships and barges used primarily to deliver construction-related materials for LAHD construction contracts shall comply with the VSRP and use low-sulfur fuel within 40 nautical miles of Point Fermin;
- harbor craft shall meet EPA Tier-3 engine emission standards;
- all dredging equipment shall be electric;
- on-road heavy-duty trucks shall comply with EPA 2007 on-road emission standards for inhalable particulate matter (PM_{10}) and NO_X;

- construction equipment (excluding on-road trucks, derrick barges, and harbor craft) shall meet Tier 3 emission off-road standards; the requirement will be raised to Tier 4 by January 1, 2015; in addition, construction equipment shall be retrofitted with a CARB-certified Level 3 diesel emissions control device;
- equipment will comply with SCAQMD Rule 403 regarding fugitive dust, and other fugitive dust control measures; and
- additional Best Management Practices, based largely on Best Available Control Technology (BACT), will be required on construction equipment (including on-road trucks) to reduce air emissions further.

1.6.2.4 Other Environmental Programs

Air Quality

Alternative Maritime Power. AMP reduces emissions from container vessels docked at the Port. Normally, ships shut off their propulsion engines when at berth, but use auxiliary diesel engines to power electrical needs such as lights, pumps, and refrigerator units. These engines emit an array of pollutants, primarily NO_X, SO_X, and particulate matter (PM_{10} and $PM_{2.5}$). The Port is in the process of providing shore-based electricity as an alternative to running the auxiliary engines (a process also referred to as cold ironing). The AMP program allows ships to "plug in" to shoreside electrical power while at dock instead of using on-board engines, a practice that will dramatically reduce emissions. Before being used at the Port, AMP was used commercially only by the cruise ship industry in Juneau, Alaska. Now, AMP facilities have been installed and are currently in use at China Shipping Terminal, Yusen Terminal, Evergreen Terminal, TraPac Terminal, Yang Ming Terminal, APL Terminal, APM Terminal, California United Terminals, and the Cruise Ship Terminal. AMP has been incorporated into the CAAP as a project-specific measure.

Off-Peak Program. Extending cargo terminal operations by five night and weekend work shifts, the Off-Peak Program, managed by PierPASS (an organization created by marine terminal operators) has been successful in increasing cargo movement, reducing the waiting time for trucks inside Port terminals, and reducing truck traffic during peak daytime commuting periods.

On-Dock Rail and the Alameda Corridor. Use of rail for long-haul cargo is acknowledged as an air quality benefit. Four existing on-dock railyards at the Port, including the existing TICTF on-dock facility on the proposed project site (another two on-dock yards are proposed—refer to Figure 1-7 in the Draft EIS/EIR), significantly reduce the number of short-distance truck trips (the trips that normally would convey containers to and from off-site railyards). Combined, these intermodal facilities eliminate an estimated 1,400,000 truck trips per year and the emissions and traffic congestion that go along with them. A partner in the Alameda Corridor project, LAHD is using the corridor to transport cargo to downtown railyards at 10 to 15 miles per hour faster. Use of the Alameda Corridor allows cargo to travel the 20 miles to downtown Los Angeles at a faster pace and promotes the use of rail versus truck. In addition, the Alameda Corridor eliminates 200 rail/street crossings and emissions produced by cars with engines idling while the trains pass.

Tugboat Retrofit Project. The engines of several tugboats in the Port were replaced with ultra-low-emission diesel engines. This was the first time such technology had been applied to such a large engine. Emissions testing showed a reduction of more than 80 tons of NO_X per year, nearly three times better than initial estimates. Under the Carl Moyer Program,[2] the majority of tugboats operating in the Port Complex have been retrofitted.

Electric and Alternative Fuel Vehicles. LAHD has converted more than 35% of its fleet to electric or alternative-fuel vehicles. These include heavy-duty vehicles and passenger vehicles. LAHD proactively has embarked on the use of emulsified fuels that are verified by CARB to reduce diesel particulates by more than 60% compared to diesel-powered equipment.

Electrified Terminal Operating Equipment. The 85 ship-loading cranes currently in use at the Port operate under electric power. In addition, numerous other terminal operations equipment has been fitted with electric motors.

Yard Equipment Retrofit Program. Over the past five years, diesel oxidation catalysts have been applied to nearly all yard tractors at the Port. This program has been carried out with Port funds and funding from the Carl Moyer Program.

Vessel Speed Reduction Program. Under this voluntary program, oceangoing vessels slow to 12 knots within 20 to 40 nautical miles of the entrance to Los Angeles Harbor, thus reducing emissions from main propulsion engines. Currently, approximately 94% of ships comply with the voluntary program within 20 nautical miles and 79% comply within 40 nautical miles.

Greenhouse Gas Reduction. Under a December 2007 agreement with the Attorney General's office, LAHD conducts annual comprehensive inventories of Port-related greenhouse gas emissions, tracking these emissions from their foreign sources to domestic distribution points throughout the United States. LAHD reports this data annually to the California Climate Action Registry. The annual reports include emissions of all ships bound to and from the Port terminals, encompassing points of origin and destination; emissions of all rail transit to and from Port terminals, encompassing major rail cargo destination and distribution points in the United States; and emissions of all truck transit to and from Port terminals, encompassing major truck destinations and distribution points. The Port-wide inventory will be conducted annually until Assembly Bill (AB) 32 regulations become effective.[3] Under the agreement, LAHD will also construct a 10-megawatt photovoltaic solar system to offset approximately 17,000 metric tons of carbon dioxide equivalent annually. In addition to the agreement with the Attorney General, many of the environmental programs described in this section (such as the Green Terminal Program, the Recycling Program, the Green Ports Program, and all of the air quality improvement programs described above) will serve to reduce greenhouse gas emissions.

[2] The Carl Moyer Program is a grant program implemented by CARB and administered by SCAQMD to fund the incremental cost of cleaner-than-required engines.

[3] The California Global Warming Solutions Act of 2006, also known as AB 32, requires CARB to adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with the program. In general, the bill requires CARB to reduce statewide greenhouse gas emissions to the equivalent of those in 1990 by 2020.

Water Quality

Clean Marinas Program. To help protect water and air quality in the harbor, LAHD developed a Clean Marinas Program. The program advocates that marina operators and boaters use BMPs—environmentally friendly alternatives to some common boating activities that could cause pollution or contaminate the environment. The program also includes several innovative clean water measures unique to the Port. The Clean Marinas Program features voluntary components and measures required through Port leases, CEQA mitigation requirements, or established federal, state, and local regulations.

Water Quality Monitoring. LAHD has been monitoring water quality at 31 established stations in San Pedro Bay since 1967, and the water quality today at the Port is among the best of any industrialized port in the world. Samples are tested on a monthly basis for dissolved oxygen, biological oxygen demand, and temperature. Other observations are noted, such as odor and color, as well as the presence of oil, grease, and floating solids. The overall results of this long-term monitoring initiative show the tremendous improvement in harbor water quality that has occurred over the last four decades.

Inner Cabrillo Beach Water Quality Improvements. The Port is one of the few industrial ports in the world to have a swimming beach. Inner Cabrillo Beach provides quiet water for families with small children. However, in recent years, upland runoff has resulted in high levels of bacteria in shoreline waters. LAHD has invested hundreds of thousands of dollars in water circulation/quality models and studies to investigate the problem. Recently, LAHD repaired storm drains and sewer lines, replaced poor quality beach sand with clean sand, removed the groin at the northern end of the beach, and installed a bird exclusion device, all as part of its commitment to make sure that Inner Cabrillo Beach continues to be an important regional recreational asset and, more importantly, to improve water quality. In 2004, the Los Angeles RWQCB adopted an Amendment to the Water Quality Control Plan to incorporate the Los Angeles Harbor Bacteria Total Maximum Daily Load (TMDL). The TMDL was developed to address impairments of water quality standards by coliform and beach closures at Inner Cabrillo Beach and the Main Ship Channel at the Port. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and allocates the pollutant loadings to point and nonpoint sources.

Habitat Management and Endangered Species

California Least Tern Site Management. The federal- and state-listed endangered California least tern (a species of small sea bird) nests from April through August on Pier 400 in the Port adjacent to the Pier 400 container terminal. Through an interagency nesting site agreement, LAHD maintains, monitors, and protects the approximately 15-acre nesting site on Pier 400.

Interagency Biomitigation Team. As part of the development of mitigation for the Deep-Draft Navigation Improvements, including the Pier 400 Landfill, the Port Complex helped establish an interagency mitigation team to evaluate and provide solutions for impacts of landfill and terminal construction on marine resources in the Ports. The primary agencies involved include USACE, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the California Department of Fish and Wildlife (CDFW). A number of mitigation agreements have been established

through this coordination, and the team continues to meet as necessary to address environmental issues associated with Port development and operations.

General Port Environmental Programs

Green Building Policy. In August 2007, LAHD adopted a Green Building Policy, which outlines the environmental goals for newly constructed and existing buildings, dictates the incorporation of solar power and technologies that are efficient with respect to the use of energy and water, dedicates staffing for the advancement and refinement of sustainable building practices, and maintains communication with other City of Los Angeles departments for the benefit of the community. The policy incorporates sustainable building design and construction guidelines based on the United States Green Building Council – Leadership in Energy and Environmental Design Green Building Rating System (POLA 2007).

Recycling. LAHD incorporates a variety of innovative environmental ideas into its construction projects. For example, when building an on-dock rail facility, LAHD saved nearly $1,000,000 and thousands of cubic yards of landfill space by recycling existing asphalt pavement instead of purchasing new pavement. LAHD also maintains an annual contract to crush and recycle broken concrete and asphalt. In addition, LAHD successfully has used recycled plastic products, such as fender piles and protective front-row piles, in many wharf construction projects.

1.7 Changes to the Draft EIS/EIR

This section of the Final EIS/EIR discusses general changes and modifications that have been made to the Draft EIS/EIR. Actual changes to the text, organized by Draft EIS/EIR chapters and sections, can be found in Chapter 3, Modifications to the Draft EIS/EIR, of this Final EIS/EIR.

Changes noted in Chapter 3 are identified by text strikeout and underline. These changes are referenced in Chapter 2, Responses to Draft EIS/EIR Comments, of this Final EIS/EIR, where applicable. The project description is presented above and summarized in the Executive Summary, incorporating the editorial changes noted in the Responses to Comments and other minor corrections. Changes to the Draft EIS/EIR include:

- addition of a lease measure to Section 3.2, Air Quality and Meteorology, and a mitigation measure to Section 3.6, Greenhouse Gas Emissions;
- modifications to mitigation measures in Section 3.2, Air Quality and Meteorology, and Section 3.8, Groundwater and Soils;
- changes to the environmental justice finding related to construction-related noise impacts;
- minor editorial corrections to Section 3.8, Groundwater and Soils; Chapter 5, Environmental Justice; and Chapter 7, Socioeconomics; and
- minor addition of background information in Section 3.8, Groundwater and Soils and Chapter 7, Socioeconomics.

The changes and clarifications presented in Chapter 3 were reviewed to determine whether or not they warranted recirculation of the Draft EIS/EIR prior to certification of the EIS/EIR according to CEQA and NEPA guidelines and statutes. The changes would not result in any new significant environmental impacts or a substantial increase in the severity of an existing environmental effect. In response to public comments, changes and clarifications have been made throughout the Draft EIS/EIR. There would be no new or increased significant effects on the environment due to the proposed changes, and no new alternatives have been identified that would reduce significant effects of the proposed Project. Therefore, the Draft EIS/EIR does not need to be recirculated, and the EIS/EIR can be certified without additional public review, consistent with PRC Section 21092.1 and State CEQA Guidelines Section 15088.5, and NEPA regulations in 40 CFR 1502 and 1503.

1.8 References

AMEC. 2014. Final. Sediment characterization report for Berths 212–224 YTI container terminal improvements project Los Angeles harbor. Submitted to: Port of Los Angeles, Environmental Management Division. May. 72 p. plus appendices

Los Angeles Harbor Department (LAHD). 2009. Port of Los Angeles Sustainable Construction Guidelines.

Port of Los Angeles (POLA). 2007. Executive Director's Report to the Board of Harbor Commissioners—Port of Los Angeles Green Building Policy. August 7. Available: http://www.portoflosangeles.org/Board/2007/August/081607_item8.pdf

———. 2012. Facts & Figures. San Pedro, CA.

Port of Los Angeles (POLA) and Port of Long Beach (POLB). 2009. *Water Resources Action Plan*. August. Available: http://www.portoflosangeles.org/DOC/WRAP_Final.pdf.

Chapter 2

Response to Comments

2.1 Distribution of the Draft EIS/EIR

The Draft EIS/EIR prepared by LAHD and USACE was distributed to the public and regulatory agencies on May 2, 2014, for a 45-day review period. Approximately 107 printed and digital copies (CD) of the Draft EIS/EIR were distributed to various government agencies, organizations, individuals, and Port tenants. EPA and USACE also published a Notice of Availability (NOA) of the Draft EIS/EIR in the Federal Register (Volume 79, No. 85, page 25130), and USACE published a Public Notice on May 5, 2014. LAHD, in cooperation with USACE, conducted a public hearing regarding the Draft EIS/EIR on May 20, 2014, to provide an overview of the proposed Project and alternatives and to accept public comments on the proposed Project, alternatives, and environmental document.

Printed and digital copies of the Draft EIS/EIR were available for review at the following locations:

- Los Angeles Harbor Department, Environmental Management Division, 222 W. 6th Street, Suite 1080, San Pedro, California 90731
- Los Angeles Public Library—Central Branch, 630 West 5th Street, Los Angeles, CA 90071
- Los Angeles Public Library—San Pedro Branch, 931 South Gaffey Street, San Pedro, CA 90731
- Los Angeles Public Library—Wilmington Branch, 1300 North Avalon, Wilmington, CA 90744

In addition to printed copies of the Draft EIS/EIR, digital copies were made available in response to specific requests. Due to the size of the document, the digital copies were prepared as a series of PDF files to facilitate downloading and printing. Members of the public were invited to request a CD containing the EIS/EIR. Digital copies of the Draft EIS/EIR on CD were available free of charge to interested parties.

The Draft EIS/EIR was available in its entirety on the Port web site at http://www.portoflosangeles.org/environmental/publicnotice.htm, with the public notice available online at http://www.spl.usace.army.mil/regulatory/POLA.htm. The EPA and USACE NOAs and USACE Public Notice were also made available online at http://www.federalregister.gov and http://www.spl.usace.army.mil/Missions/CivilWorks/Regulatory, respectively.

2.2 Comments on the Draft EIS/EIR

The public comment and response component of the NEPA/CEQA process serves an essential role. It allows the respective lead agencies to assess the impacts of a project based on the analysis of other responsible agencies, concerned citizens, or adjacent landowners and other interested parties, and it provides an opportunity to amplify and better explain the analyses that the lead agencies have undertaken to determine the potential environmental impacts of a project. To that extent, responses to comments are intended to provide complete and thorough explanations to commenting agencies and other interested parties, and to improve the overall understanding of the proposed Project for the decision-making bodies.

USACE and LAHD received 17 comment letters and verbal comments on the Draft EIS/EIR during the public review period. Table 2-1 presents a list of those agencies, organizations, and individuals who commented on the Draft EIS/EIR.

Table 2-1. Public Comments Received on the Draft EIS/EIR

Letter Code	*Date*	*Individual/Organization*	*Page*
Federal Government			
FEMA	May 5, 2014	Gregor Blackburn, CFM, Branch Chief, Floodplain Management and Insurance Branch: U.S. Department of Homeland Security, FEMA Region IX	2-16
EPA	June 16, 2014	Kathleen Martyn Goforth, Manager, Environmental Review Section: United States Environmental Protection Agency, Region IX	2-19
USDOI	June 16, 2014	Patricia Sanderson Port, Regional Environmental Officer: United States Department of the Interior, Office of Environmental Policy and Compliance, Pacific Southwest Region	2-35
FWS	June 17, 2014	Karen A. Goebel, Assistant Field Supervisor, Ecological Services, Carlsbad Fish and Wildlife Office: U.S. Department of Interior, Fish and Wildlife Service	2-37
NMFS	June 16, 2014	William W. Stelle, Jr., Regional Administrator, West Coast Region: United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service	2-40
State Government			
CCC	June 2, 2014	Larry Simon, Federal Consistency Coordinator: California Coastal Commission, Energy, Ocean Resources and Federal Consistency Division	2-50
DOT	June 12, 2014	Dianna Watson, IGR/CEQA Branch Chief: California Department of Transportation, District 7, Transportation Planning	2-52

Letter Code	*Date*	*Individual/Organization*	*Page*
OPR	June 17, 2014	Scott Morgan, Director, State Clearinghouse: California Governor's Office of Planning and Research, State Clearinghouse and Planning Unit	2-59
Regional and Local Government			
SCAQMD	June 27, 2014	Susan Nakamura, Director, Strategic Initiatives, South Coast Air Quality Management District	2-64
BOS	August 14, 2014	Ali Poosti, Division Manager, Wastewater Engineering Services Division, Los Angeles Bureau of Sanitation	2-100
Organizations			
EJ1	June 16, 2014	Adriano L. Martinez, Staff Attorney: Earthjustice: Communities for a Better Environment, Natural Resources Defense Council, Physicians for Social Responsibility – Los Angeles, San Pedro and Peninsula Homeowners Coalition, Sierra Club	2-104
EJ2	June 16, 2014	Adriano L. Martinez, Staff Attorney: Earthjustice: Communities for a Better Environment, Natural Resources Defense Council, Physicians for Social Responsibility – Los Angeles, San Pedro and Peninsula Homeowners Coalition, Sierra Club	2-107
HTA	June 16, 2014	Alex Cherin, Executive Director: Harbor Trucking Association	2-133
Individuals			
DC1	May 28, 2014	Dennis Crable, Crable & Associates	2-140
DC2	June 2, 2014	Dennis Crable, Crable & Associates	2-146
AH	June 16, 2014	Andrea Hricko, MPH, Professor of Clinical Preventive Medicine: Keck School of Medicine of USC	2-150
Draft EIS/EIR Public Hearing			
PH	May 20, 2014	Michele Grubbs, Vice President: Pacific Merchant Shipping Association	2-172

2.3 Responses to Comments

In accordance with NEPA (40 CFR Part 1503.4) and CEQA (Guidelines Section 15088), USACE and LAHD have evaluated the comments on environmental issues received from agencies and other interested parties and have prepared written responses to each comment pertinent to the adequacy of the environmental analyses contained in the Draft EIS/EIR. In implementing regulations 40 CFR Park 1503.4 of NEPA and specific compliance with State CEQA Guidelines Section 15088(b), the written responses address the environmental issues raised.

In addition, where appropriate, the basis for incorporating or not incorporating specific suggestions into the proposed Project is provided. In each case, USACE and LAHD have expended a good faith effort, supported by reasoned analysis, to respond to comments. This section includes responses not only to the written comments received during the 45-day public review period of the Draft EIS/EIR, but also verbal comments made at the public hearing for the Draft EIS/EIR. Some comments have prompted revisions to the text of the Draft EIS/EIR, which are referenced and shown in Chapter 3, Modifications to the Draft EIS/EIR. A copy of each comment letter is provided, and responses to each comment letter immediately follow.

2.3.1 Master Responses

Because a large number of the comment letters received had similar concerns, a set of master responses was developed to address common topics in a comprehensive manner. The following Master Responses section includes feedback on the following topics:

1) Feasible Mitigation

2) Zero Emission Technologies

3) Environmental Justice

4) Alternative Maritime Power (AMP) Requirements

Individual responses to all comment letters received on the Draft EIS/EIR are presented following the Master Responses and may refer to the Master Responses in total or in part.

2.3.1.1 Master Response 1: Feasible Mitigation

Several comments questioned whether all feasible mitigation measures have been identified within the Draft EIS/EIR to reduce impacts to the maximum degree. This response provides the CEQA and NEPA requirements for consideration of mitigation measures.

Mitigation is required only for significant environmental impacts (PRC 21100(b)(3); State CEQA Guidelines Sections 15126.4(a)(1)(A) and 15064(e)). CEQA provides that environmental analysis should emphasize feasible mitigation measures (PRC 21003(c)). An agency may, however, reject mitigation measures or project alternatives if it finds them to be "infeasible" (PRC 21081(a)(3); State CEQA Guidelines Section 15091(a)(3)). "Feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (PRC 21061.1; State CEQA Guidelines Section 15364). Consideration of feasibility of mitigation measures may also be based on practicality (*No Slo Transit, Inc. v. City of Long Beach* [1987] 197 Cal.App.3d 241, 257). In addition, while a lead agency is required to respond to comments proposing concrete, obviously feasible mitigation measures, it is not required to accept suggested mitigation measures (A Local and Regional Monitor (ALARM) v. City of Los Angeles (1993) 12 Cal. App. 4th 1773, 1809).

The NEPA (40 CFR 1500–1508) and USACE regulatory program regulations (33 CFR 320–332) provide authority for USACE to require mitigation for impacts on waters of the

United States (40 CFR 1508.14 and 1508.20; 33 CFR 320.4, 33 CFR 325.4, 33 CFR 325 Appendix B paragraph 9(5)(e), and 33 CFR 332). USACE also implements the EPA section 404(b)(1) Guidelines (40 CFR 230), which provide authority for USACE to require mitigation for impacts on waters of the United States, including special aquatic sites, when the impact results from a discharge of dredged or fill material. To determine mitigation requirements during the DA permit evaluation process, USACE applies established regulations and/or the 404(b)(1) Guidelines (if applicable), including the avoidance/minimization/compensation sequencing described in the USACE-EPA Memorandum of Understanding (1990) and the South Pacific Division procedures for determining compensatory mitigation ratios. Under Section 10 of the Rivers and Harbors Act (33 U.S.C. 403), which authorizes work and structures in, over, and under any navigable water of the United States, the required public interest review at 33 CFR 320.4 provides authority for USACE to require mitigation for impacts on navigable waters of the United States.

The Berths 212–224 YTI Terminal Improvements Project would not result in a discharge of dredged or fill material into waters of the United States; therefore, the 404(b)(1) Guidelines would not be applicable to this permit application. As a result, mitigation requirements for the proposed Project have been developed as part of the NEPA (EIS/EIR) process and USACE permit evaluation process to address potential impacts related to the proposed work and structures in, over, and under navigable waters of the United States, which are regulated under Section 10 of the Rivers and Harbors Act. More specifically, mitigation requirements associated with USACE's federal action on the proposed Project (i.e., potential issuance of a permit) are primarily guided by the required public interest review (33 CFR 320.4(a) and (r)). Pending EPA approval under Section 103 of the Marine Protection, Research and Sanctuaries Act (33 U.S.C. 1413), suitable dredged material may be transported, for the purpose of ocean disposal, to the LA-2 offshore dredged material disposal site. Pursuant to USACE implementing regulations (33 CFR 325.4), the Los Angeles District Regulatory Division has developed standard special conditions that are specific to transport of dredged material for the purpose of ocean disposal; such conditions are designed to avoid and minimize impacts on ocean resources and are always included on DA permits when ocean disposal of dredged material is approved.

LAHD and USACE have identified and propose to incorporate all feasible mitigation measures. No additional mitigation measures have been determined to be feasible to reduce significant impacts disclosed in the EIS/EIR. Many of the comments on mitigation feasibility focused on zero emission technologies and AMP requirements. These two topics and their feasibility are discussed in detail in Master Responses 2 and 4, respectively. The feasibility of other specific suggested measures is discussed in the individual responses below, as appropriate.

2.3.1.2 Master Response 2: Zero Emission Technologies

Several commenters have suggested that zero-emission container movement systems (ZECMS) or transport should be included as mitigation measures or components of the proposed Project. While under CEQA, an EIR must describe feasible mitigation measures that could minimize the project's significant impacts (State CEQA Guidelines Section 15126.4(a)(1)), an EIR need not identify and discuss or analyze in detail mitigation measures that are infeasible (see Master Response 1: Feasible Mitigation) (*Clover Valley Foundation v. City of Rocklin* [2011] 197 Cal.App.4th 200, 245; *Cherry*

Valley Pass Acres & Neighbors v. City of Beaumont [2010] 190 Cal.App.4th 316, 351). Similarly, an EIR need not include an infeasible alternative within the reasonable range of alternatives evaluated in detail. Feasible means "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (State CEQA Guidelines Section 15364). While zero-emission technologies are promising, zero-emission trucks and most ZECMS have not yet proven, through demonstration and evaluation, to be feasible in port operations. However, in recognition of the potential future promise of such technologies, LAHD has included lease measures in this document that require technology reviews and allow for the deployment of new technologies when they become commercially viable (LM AQ-1 and LM AQ-2). These lease measures will ensure that YTI reconsiders the feasibility of zero-emission technologies in the future as the technologies continue to develop.

The Technology Status Report – Zero Emission Drayage Trucks (TIAX 2011), prepared for the Ports of Los Angeles and Long Beach, examined the state of current zero-emission technologies and outlined a reasonable, programmatic approach to commercialization, based on thorough demonstration and evaluation. The report concludes that a two-phase demonstration approach to commercialization is needed. The first phase would be a small-scale (one to three units) demonstration to test basic technical performance. This would be followed by the second phase consisting of a broader, large-scale (ten to twenty units) demonstration to assess how the technologies fit into existing operations on a multi-unit basis.

In July 2011, at a joint meeting with the Harbor Commissions of the Ports of Los Angeles and Long Beach, staff presented the Roadmap for Zero Emissions (POLA & POLB 2011). This document, prepared by the two ports, expresses the ports' commitment to zero-emission technologies by establishing a reasonable framework for future identification, development, and testing of non-polluting technologies for moving cargo.

The TAP serves as the catalyst to identify, evaluate, and demonstrate new and emerging technologies applicable to the Port. The Ports of Los Angeles and Long Beach regularly meet with technology developers in order to stay informed about new and emerging technologies that may provide some options for reducing emissions from port operations. Furthermore, annual status reports on the TAP's completed and ongoing projects are provided on the TAP website at http://www.cleanairactionplan.org/programs/tap/default.asp. Recommendations from the TAP are taken to the Boards of Harbor Commissioners when selecting and funding projects.

ZECMS also present many operational concerns, such as charging/fueling and maintenance that need to be examined prior to full deployment into the fleet. Additionally, durability, loss of power potential, and safety need to be monitored through testing before stakeholders commit to large capital investments. The amount of existing data in these areas is extremely limited. Furthermore, without the completion of the real-world fleet testing with full loads and full duty cycles, including longer-term mechanical service and reliability over a sufficient demonstration period, a system that later proved to be unreliable would result in disruption and delay of cargo flow and trade at the Port Complex. See below for discussions of specific near-zero and zero emission container handling equipment.

Drayage Trucks

In 2006, LAHD co-funded with SCAQMD the world's first plug-in, battery-powered, heavy-duty truck prototype. Subsequently, through the Technology Advancement Program (TAP), the Ports of Los Angeles and Long Beach have funded a hydrogen fuel cell/battery hybrid. The TAP is currently considering several other zero-emission, heavy-duty truck technologies.

As part of the Port's Five-Year Strategic Plan adopted by the Board of Harbor Commissioners in April 2012, LAHD included an initiative to develop an action plan with a goal of 100% of the truck moves to proposed and existing near-dock rail yards by zero-emission trucks by 2020. These actions demonstrate LAHD's intent and commitment to advancing the use of zero–emission, heavy-duty trucks.

The Ports are currently conducting demonstration projects for two battery plug-in trucks and one hydrogen fuel cell hybrid truck. In June 2012, the battery plug-in truck was tested on a dynamometer using a port-specific duty cycle at University of California Riverside's Center for Environmental Research & Technology. The test provided a baseline for future improvements. Since the dynamometer testing, the battery-powered truck has been tested using empty and fully loaded containers that were loaned to the Port for these tests. In this testing, the unit has accumulated approximately 250 hours of use, but it has not yet been put into commercial drayage service. In February 2014, a heavy-duty battery electric truck that uses the ElecTruck drive system developed by TransPower successfully hauled a 75,000-pound load up and down the Gerald Desmond Bridge multiple times. These ElecTruck drive systems are being developed for demonstration in real-world drayage service as part of a zero-emission cargo transport demonstration program funded by a U.S. Department of Energy grant and in collaboration with SCAQMD and the Ports. After seven trucks that use the ElecTruck drive system are assembled and deployed, a 12-month demonstration period is planned by Port drayage truck operators.

The hydrogen fuel cell–powered truck has been used in isolated tests. One test, at a facility in Commerce, CA, included picking up fully loaded containers and traveling over a 6% grade. Another test was done by a national retailer picking up containers, crossing the Vincent Thomas Bridge, and delivering them to distribution centers. The truck achieved 200 miles on a single tank of hydrogen, and a demonstration of an extended range of 400 miles is planned. Both technologies have been promising in initial use and additional hours of usage are currently being accrued. In addition to the demonstrations projects mentioned above that are underway, information on planned zero-emission truck development can be found at the Port's website: http://www.portoflosangeles.org/environment/zero.asp.

It is important to note that the tests presented above do not provide enough data points to constitute a completed small-scale demonstration. A small-scale demonstration would consist of approximately one year (up to eighteen months if durability is questionable) of continuous demonstration to fully assess the technical capabilities and reliability of each technology. As stated in the TIAX report (TIAX 2011:21), "the lack of a real-world demonstration over an extended period of time makes it impossible to assess the viability of these technologies in drayage operations. For these reasons, it is not possible in this report to estimate the timing of large-scale commercial viability for this vehicle without further information and testing."

It is imperative to LAHD, its customers, and public safety that technologies be fully demonstrated and evaluated in order to be considered feasible for implementation at the scale requested by commenters, which is to convert the drayage truck fleet and cargo movement operations to 100% zero emissions. Continued collection of real-world, in-use data is essential, particularly when deploying technologies on public roads.

The technology of heavy-duty electric drive engines with the potential for zero emissions has advanced greatly in recent years. LAHD has been a leader in developing and testing zero-emission, heavy-duty trucks and has sent a clear message to technology providers that zero-emission technologies are needed as soon as practicable.

Commenters have stated that zero-emission truck technologies can be commercialized by 2016 and have identified potential zero-emission truck technology configurations that can be used for the proposed Project. Based on the information available at this time, that determination is speculative (see above analysis). There is no substantial evidence supporting the proposition that they will be commercialized by that time, nor is there any way to guarantee such an achievement. As discussed above, a programmatic approach to demonstration and commercialization must be completed before technologies can be viewed as commercially viable. One commenter identified four potential technology options for zero emission trucks: (1) battery-electric trucks; (2) fuel cell trucks; (3) hybrid-electric trucks with all-electric range; and (4) and zero-emission hybrid or battery-electric trucks with "wayside" power. None of these technologies has completed both levels of demonstration recommended by the TIAX report (TIAX 2011), nor has any been proven for full-scale implementation, including the commercialization that would follow such demonstrations. No electric or hydrogen hybrid technology has been adequately demonstrated. Demonstration projects for hybrid electric trucks with all-electric range and zero-emission hybrids with wayside power capabilities have conceptually been discussed, and some small-scale demonstrations are in the process of being implemented (e.g., the TransPower Battery Electric Trucks), but none yet have been adequately demonstrated. Accordingly, none of the four options is considered feasible at this time.

A commenter states that the Zero-Emission Catenary Hybrid Truck Market Study prepared by Gladstein, Neandross & Associates in March 2012 (Gladstein, Neandross & Associates 2012) identifies transport between the ports and near-dock railyards as a potential market that could use overhead catenary systems. LAHD has had ongoing discussions with SCAQMD on a potential demonstration project for a catenary system. This is also being discussed as a potential project through the Zero Emission Truck Regional Collaborative, which is made up of the Port of Los Angeles, Port of Long Beach, SCAQMD, Metropolitan Transportation (METRO), California Department of Transportation (Caltrans), Southern California Association of Governments (SCAG), and Gateway Cities Council of Governments. The Regional Collaborative, with SCAQMD as the lead agency, prepared and submitted an application for grant funding to help offset the cost of a demonstration of an overhead catenary system; however, the project was not selected for funding. As funding and project details are being worked out, there is currently no project in place. A catenary system would also need to be fully demonstrated before being considered a commercially viable option.

Although zero-emission trucks are currently in limited use, development and deployment of this technology involves the following four steps: (1) research and development; (2) technology development and demonstration; (3) pre-production deployment and

assessments; and (4) early production deployments. As a funding partner in those efforts, LAHD supports accelerating zero-emission technologies through the lease measures recommended for this EIS/EIR, among other commitments as described above.

The Technologies, Challenges & Opportunities I-710 Corridor Zero Emission Freight Corridor Vehicle Systems report (CALSTART 2012) is cited by a commenter as a recent analysis to support the technical feasibility of implementing zero-emission truck technologies in the I-710 Corridor project. The report includes a high-level preliminary assessment of some potential technologies that may be able to serve the I-710 corridor by 2035. The citations generally state the possibility of zero-emission technologies being in production before 2035 and even potentially within five to ten years. The CALSTART report also identifies several challenges that need to be overcome before commercialization and feasibility can be achieved. These challenges were generalized into three categories: Design Factors, Costs, and Economic/Business Case. Specific points raised by one of the commenters are:

- "Provided there is a strong focus on the commercialization process, this assessment finds commercial viability could occur well before 2035, indeed within the next decade." This comment is speculative and is contingent upon the trucking industry's "strong focus" on commercializing zero-emission technologies. The report does not provide a definitive timeline for commercialization or its feasibility.
- "A 'dual mode' or 'range extender' Hybrid Electric Vehicle (HEV) with some EV only capability was seen as the most feasible solution." The Ports are examining dual-mode and hybrid trucks as potential zero-emission options. However, there are currently no technologies with these capabilities that are being demonstrated; therefore, the technologies are not mature enough to include as mitigation.
- "A ZE truck to serve the I-710 freight corridor (in Alternatives 6B or 6C) is fully technically feasible and can be based on vehicle architectures and designs already in prototype status." As discussed above, LAHD has been active in funding demonstration projects for zero-emission trucks. While the technologies have had some success in initial testing, this has been on a limited test basis and there is not enough definitive data to determine if a technology is commercially viable. Throughout the document, the CALSTART report outlines several development steps that must be achieved before any of the technologies examined can be fully commercialized. The report states, "It is not advisable to jump directly to the desired outcome because competing technologies must be evaluated, tested, proven, and commercialized. The commercialization process and achieving feasibility for a complex product like a Class 8 truck includes significant engineering and development work, including demonstration and validation of early prototypes, building a small number of pre-production vehicles, and constructing a business case for moving to full production – over the course of several years" (CALSTART 2012:4). This supports LAHD's desire to fully test technologies before deployment.
- "A dual-mode hybrid or range-extended hybrid (possibly using a natural gas engine) with some engine-off driving capability (hence zero tailpipe emissions) coupled with corridor-supplied electrical power (lowest risk is believed to be a catenary system) was overwhelmingly identified as the most feasible system in

the 5-year time frame" and "Development timelines run from near term demonstrations within eighteen months to three years, to the potential for production in as few as five years." However, there are currently no demonstration projects underway. Without any demonstrations, a five-year timeframe is speculative. The five-year time frame would again be contingent on the trucking industry's focus on zero-emission technologies and funding assistance to speed development, validation, and deployment as described in the CALSTART report (CALSTART 2012:31).

- "Based on interview responses, technology is not considered a barrier to a zero emission freight truck. Fundamental research and development is not required. Additional development and demonstration of systems and system integration, and on fielding and validating prototype vehicles, would be valuable." This supports LAHD's intent to fully demonstrate and validate the performance of new technologies in this duty cycle. This testing is not only valuable but critical. Additionally, as mentioned above, the CALSTART report states that the commercialization process and achieving feasibility, including development, demonstration, and fabrication of test vehicles, would take several years (CALSTART 2012:4).
- "The report also noted the need to establish an economic case for a zero-emission corridor and its vehicles, including incentives, inducements and potential regulations. CALSTART recommended that developing this structure for a zero-emission freight corridor should be conducted in parallel with technology demonstration as soon as practicable. (Page 33)." Through actions and commitments, LAHD can help to catalyze the development of zero-emission technologies, but it is unrealistic for LAHD alone to be expected to drive the market for zero-emission trucks. It is not anticipated that isolated projects with specific duty cycles would be enough to individually drive a market for zero-emission trucks.

The CALSTART report also identifies economics/business case as a challenge that needs to be overcome before commercialization or feasibility can be achieved. There is a high capital cost associated with purchasing zero-emission trucks. In some cases, electric trucks can be more than triple ($100,000 to $300,000+) the cost of a diesel truck. There may also be operational cost increases if battery swapping or charging downtime is required. A full economic analysis considering the current business model must be conducted prior to determining that zero-emission technologies are feasible. The drayage trucking industry has recently made a large investment to comply with the San Pedro Bay Ports' Clean Truck Program. There are currently over 13,000 trucks in the Port Drayage Truck registry that meet or exceed EPA 2007 emission standards. At approximately $100,000 per truck, this represents an investment of approximately $1.3 billion by the trucking industry. Including a new mitigation measure that requires up to triple that investment so soon after a major industry investment is not economically practical and, therefore, infeasible at this time.

Although the I-710 Corridor Draft EIR/EIS has been released, the lead agency's decision is pending and no alternative has been selected. Therefore, it is premature and speculative to assume that either of the zero-emissions freight corridor alternatives for that project (6B or 6C) will be selected, and it would be similarly premature and speculative to include any assumptions in the proposed Project's Draft EIS/EIR regarding

zero-emissions trucks utilizing the I-710 corridor in the future year 2035, as was suggested by one commenter. Although an EIR should make reasonable forecasts (State CEQA Guidelines Section 15144), an EIR should not speculate about the effects of contingent future events (State Water Resources Control Bd. Cases [2006] 136 Cal.App.4th 674, 797).

Cargo Handling Equipment

LAHD is also focused on the development of zero-emission technologies for cargo-handling equipment and is in the process of developing and testing some off-road cargo-handling equipment. Different zero emission technologies for CHE and demonstration projects that have been completed or are currently underway are discussed below.

Zero Emission Yard Tractors

LAHD has funded numerous zero emission yard tractor projects through the TAP, including plug-in battery electric yard tractors and a hydrogen fuel cell yard tractor. However, the feasibility of zero emission technology for yard tractors or the likelihood of availability of zero emission yard tractors on the market in the near-term has not yet been shown. Testing of zero emission yard tractors has been ongoing since 2008, including demonstration projects funded by POLA, but testing and demonstration have not yet produced a viable candidate for large-scale testing or use in a marine terminal operation and duty cycle. In 2013, CARB selected the Ports of Los Angeles and Long Beach to provide grant funding for a two-year project to develop and demonstrate two electric yard tractors; this project is expected to be completed in 2015.

The Port has been proactive in working with manufacturers (such as Balqon and Transpower) to design and produce prototype plug-in electric yard tractors, which operate on lithium-ion batteries.

Initial testing of the Balqon yard tractors at the California Cartage Intermodal Facility indicated that the yard tractors were capable of operating for over 12 hours on a single charge. YTI participated with POLA in the initial testing of the Balqon plug-in electric yard tractor in 2008, which proved to be unsuitable for a marine terminal duty cycle; the equipment lasted only a few hours of one shift before requiring recharging. YTI also tested the Capacity of Texas Inc., Pluggable Hybrid Electric Terminal Truck (PHETT^{TM}) hybrid tractor in 2009, but this was never brought to market. The Port is now beginning to test six units of the Balqon yard tractor at the APMT and Evergreen Terminals. However, just like the electric drayage trucks, the yard tractors need to undergo extensive testing and demonstration at Port terminals to prove consistency, durability, and reliability.

The Port is currently constructing electric charging stations at the APM, Evergreen, and American President's Line (APL) Terminals. APM and Evergreen will each test three Balqon yard tractors for one year, and APL will test two Transpower yard tractors for one year. Information collected during these demonstration projects will dictate whether further larger scale demonstrations using 10 to 20 yard tractors are ready to take place. Once the larger scale demonstrations are deemed successful the electric yard tractors could be ready for commercialization.

The 2010 Hybrid Yard Hostler Demonstration and Commercialization Project was a TAP project that involved three hybrid (diesel-battery-electric) yard hostlers (also known as

yard tractors). These three hybrid yard tractors were put into service at the Port of Long Beach for a period of 6 months performing ship, rail, and dock work, with a goal of measuring the emissions of a conventional and hybrid yard tractor following cycles developed from monitoring in-use activities. Results indicated that at low loads the hybrid consumed about 7% more fuel and at high loads the hybrid saved about 3% fuel, while NO_X emissions were reduced at both load levels. Considering that the results did not indicate fuel savings for the hybrid yard hostler, further refinement of the hybrid drive system design was recommended to improve the yard tractors' fuel economy.

The LNG Yard Hostler Demonstration and Commercialization Project assessed the performance and emissions of three LNG yard tractors over 8 months from June 2006 to January 2007 at the Port of Long Beach. Results indicated that LNG yard tractors used about 30% more diesel gallon equivalents than diesel yard hostlers, had higher NO_X emissions, and had an incremental cost over a diesel yard truck of approximately $40,000. In addition, the permitting process for LNG fueling infrastructure varies, and the demand for LNG yard hostlers is expected to be unlikely without financial or regulatory incentives. These examples illustrate the difficulties and challenges that continue to face developers of zero emission yard tractors to bring the technology to the market.

Electric Rubber Tire Gantry Cranes

A standard rubber tire gantry crane (RTG) runs on diesel fuel and is used for stacking intermodal containers within the stacking areas of a container terminal. An electric RTG (ERTG) runs primarily on electric power provided by a bus bar, overhead conductor, or cable reel but retains diesel engine capabilities for moving between rows of containers. The extensive infrastructure makes ERTG systems extremely expensive to build and makes the layout and operations highly inflexible, which would be difficult to implement on an existing operational container terminal. As such, ERTG systems are best suited for master-planned terminals where the physical layout and operations are specifically designed to accommodate the ERTG system. The proposed Project is an existing terminal that was not designed for an ERTG layout and operation. Reconfiguring the terminal is beyond the scope of this proposed Project. The high up-front capital investment and operational restrictions make installation of an ERTG system a reasonable option on a 20–30 year operational timeframe, depending on the type of project being considered, rather than an existing terminal with a 9-year operational period, as is the case for the proposed Project. Additionally, between 2009 and 2013, YTI repowered its RTG equipment, which has a substantial remaining useful life, to Tier 4i engine standards at a cost of over $1.5 million.

For the reasons described above, widespread use of ERTGs at the Port is limited, and their use in the proposed Project is financially and operationally infeasible.

Rail-Mounted Gantry Cranes (RMGs)

Rail-Mounted Gantry Crane (RMG) systems involve similar financial and operational restrictions to those discussed above for ERTGs, though to a greater degree. RMGs operate on rail tracks, making them even more operationally restrictive than ERTGs. Additionally, the capital investment and intensity of construction required to develop an RMG system is greater than for ERTGs. As with ERTGs, RMG systems are best suited for master-planned terminals where the physical layout and operations are specifically designed to accommodate the RMG system and the operational period is long enough

(30 years or more) to justify the major capital investment and highly specific operational parameters, as opposed to a project with a 9-year operational period involving improvements to an existing container terminal, as is the case for the proposed Project. Additionally, between 2009 and 2013, YTI repowered its RTG equipment, which has a substantial remaining useful life, to Tier 4i engine standards at a cost of over $1.5 million. For the reasons described above, the use of RMGs for the proposed Project is financially and operationally infeasible.

Hybrid RTGs (EcoCrane)

In a demonstration project sponsored by the Ports of Los Angeles and Long Beach under the TAP, a hybrid RTG, EcoCrane™ equipped with an advanced energy capture and battery storage system was placed into testing in 2009 and eventually commissioned after initial engineering issues, in 2010. While the EcoCraneTM showed reductions in criteria air pollutant emissions, fuel consumption, and greenhouse gases, as compared to a conventional diesel-electric RTG crane, it experienced engineering issues related to inverter failure, battery/inverter compatibility, and generator failure. Based on lessons learned from this demonstration, a second-generation EcoCrane™ hybrid RTG system has been developed and will be tested at the West Basin Container Terminal at the Port of Los Angeles. As such, this technology is still in the testing phase and has not been demonstrated to be commercially viable.

Additionally, between 2009 and 2013, YTI repowered their RTG equipment, which has a substantial remaining useful life, to Tier 4i engine standards at a cost of over $1.5 million. The CARB regulations governing currently in-use CHE allow for the continued use of lower tier RTG engines if the engines are retrofitted with the highest level Verified Diesel Emission Control System available. YTI voluntarily elected to exceed the regulatory requirements by repowering all of its RTG equipment with Tier 4i engines, the cleanest engine that currently is available, and completed this conversion ahead of the compliance schedule set forth in the CARB regulations.

Even if technically feasible, the cost of replacing this RTG equipment with Hybrid RTGs would equal the entire cost of the new equipment, not merely the differential or incremental cost between the Tier 4i engines and the hybrid engines, and would lead to minimal reductions in emissions. Based on the cost of a single hybrid RTG engine conversion, the conversion is not cost effectiveness based on the emission reductions that would be achieved. As such, replacing the RTG fleet at the YTI Terminal is not feasible.

In addition to the minimal reduction in emissions achieved and the lack of cost-effectiveness, additional concerns associated with the use of hybrid RTGs include: safety hazards posed by potential leaks from battery packs; the need for additional labor staffing on the ground due to the reduced visibility from the size and location of the battery box; the logistical difficulties associated with the use of the batteries, which must be drained and "equalized" every 21 days, a process that requires eight hours to complete, thereby negatively impacting the use and efficacy of the RTGs; the increased stress fractures noted in equipment welds due to the additional battery weight on one side of the equipment; and the need to dispose of the batteries (which have a useful life of only three years) as hazardous waste.

Ship-to-Shore Cranes

Ship-to-shore cranes are large stationary dockside gantry cranes used for loading and unloading intermodal containers from container ships of various sizes at container terminals. All of the ship-to-shore cranes currently servicing container vessels at the Port are powered by electricity provided from the City of Los Angeles Department of Water and Power.

Conclusion

LAHD has supported and continues to support the development of zero-emission technologies through funding and implementation of demonstration projects and through partnerships with other interested parties and agencies. However, development and testing of many of these technologies are still in the early stages, and a timeline for commercial viability is speculative at this time, making them technologically infeasible. Those technologies that are commercially available, including ERTGs and RMGs, are operationally and financially infeasible due to the short operational period and scope of the proposed Project. As such, it is infeasible to require YTI to use zero-emission truck and/or cargo handling equipment through mitigation. However, LAHD has included lease measures in this document that require technology reviews and allow for the deployment of new technologies when they become commercially viable (LM AQ-1 and LM AQ-2). These lease measures will ensure that YTI reconsiders the feasibility of zero-emission technologies in the future as the technologies continue to develop.

2.3.1.3 Master Response 3: Environmental Justice

Environmental justice is generally defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. In the context of project development, it refers to disproportionate adverse human health and environmental effects on low income and minority populations and is a required assessment of federal projects by federal agencies under NEPA. The analysis of environmental justice impacts is not required under CEQA. As such, no environmental justice significance determinations were made pursuant to CEQA.

Under the methodology used in the EIS/EIR's analysis, if a significant unavoidable impact (under NEPA) for any resource area would impact low income or minority residents, it was identified as a disproportionate impact under NEPA. Because the proposed Project and its transportation corridors would result in adverse impacts on air quality and noise, and would occur in communities with a high percentage of low-income and minority populations, the Draft EIS/EIR concluded that there would be disproportionate impacts related to air quality and disproportionate cumulative noise impacts under NEPA. However, it was subsequently determined that the marina-based residential receptors that are cumulatively impacted by noise are not classified as a low-income and/or minority population. Please see pages 3-30 and 3-31 of Chapter 3, Modifications to the Draft EIS/EIR, for an updated environmental justice discussion based on this reclassification.

Several commenters stated that the proposed Project should not go forward because it violates environmental justice principles. Those comments raise policy issues, not issues of what is allowable under CEQA or NEPA.

USACE and LAHD are committed to mitigating disproportionate effects—like all significant effects—to the extent feasible. LAHD's primary means of mitigating the disproportionate effects of air quality impacts is to address the source(s) of the impact(s) through a variety of Port-wide clean air initiatives, including the CAAP, the sustainable Construction Guidelines, and the CAAP San Pedro Bay (Health) Standards. As part of the San Pedro Bay Standards, the Draft EIS/EIR included a Health Risk Assessment (HRA), which included a quantitative estimate of health risk impacts from air emissions associated with the proposed Project as well as existing and planned (cumulative) operations at the YTI Terminal and within the Port of Los Angeles. The health risk assessment shows that health impacts would be less than significant for residential communities on land under CEQA and NEPA; however, under the proposed Project and Alternative 3, maximum incremental cancer risk under CEQA would remain significant and unavoidable for marina-based residential receptors. However, the incremental cancer risk is not significant under NEPA. It should be noted that the significant and unavoidable cancer risk under CEQA only extends over approximately 25% of a single marina directly adjacent to the Henry Ford and Schuyler Heim bridges. As discussed above, these marina-based residential receptors are not classified as part of a minority and/or low-income community. This document also includes the maximum feasible mitigation to reduce impacts on low income and minority residents where possible.

LAHD is committed to addressing the overall off-Port impacts created by Port operations on surrounding communities and their residents. The Harbor Community Benefit Foundation (HCBF) is a nonprofit organization that administers the Port Community Mitigation Trust Fund (Trust Fund). The Trust Fund was established as a result of a Memorandum of Understanding (Trans Pacific Containers Service Corporation Memorandum of Understanding, executed on April 2, 2008, and known as the TraPac MOU) between appellants and the City of Los Angeles to settle appeals to the Board of Harbor Commissioner's certification of the Berths 136–147 [TraPac] Container Terminal Project Final Environmental Impact Statement/Final Environmental Impact Report (Final EIS/EIR). Pursuant to Exhibit B of the TraPac MOU, a specific list of Port expansion projects was established for which LAHD would contribute to the Trust Fund upon project implementation. The YTI Container Terminal Improvements Project is one of the projects listed in Exhibit B. As such, LAHD has estimated the proposed Project will contribute approximately $773,500 to the HCBF in accordance with the established calculation method if the proposed Project is implemented. The final amount will be determined at the time the Board considers whether to certify the Final EIS/EIR and approve the proposed Project.

The TraPac MOU does not allow the funding to be used as mitigation for direct project effects. Rather, the HCBF awards grants to a variety of projects and programs aimed at reducing health, environmental, and community impacts from Port operations in the communities of San Pedro and Wilmington. Even after identification of all feasible mitigation measures, as required by CEQA, NEPA, and USACE implementing regulations, significant unavoidable adverse impacts associated with air quality and meteorology, biological resources (under both CEQA and NEPA), and greenhouse gas emissions (under CEQA only) would remain after implementation of the mitigation measures. The environmental justice evaluation bases its identification of high and adverse impacts to minority and low-income populations upon these significant unavoidable adverse NEPA impacts. Executive Order 12898 (EO, 1995) requires each federal agency make achieving environmental justice part of its mission by identifying

and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations, and Indian tribes. While the EO does not establish or modify analysis thresholds under NEPA, preclude a proposed action from going forward, or establish a format for evaluating impacts on minority and low-income populations and Indian tribes, the EO does compel the NEPA lead agency to heighten attention on alternatives analysis, mitigation strategies, monitoring needs, and preferences expressed by the affected community or population.

To address the EO direction on attention to alternatives, the USACE evaluated the No Federal Action Alternative and a Reduced Project Alternative, in which the most substantial in- and over water work and structures were eliminated, but the upland redevelopments would occur similar to the proposed project. The No Federal Action Alternative did not meet the project purpose and need and was determined to be infeasible. The Reduced Project Alternative, rather than reduce impacts of most concern to low income and minority populations (i.e., air emissions and associated health impacts), resulted in greater project-related and cumulative impacts on air quality than the proposed Project because the reduced project alternative would result in a greater number of ship calls (and associated air emissions). Terminal operations, including ship calls, have been determined to be outside the USACE's federal control and responsibility and permit authority, but were disclosed and evaluated in the EIS/EIR in accordance with NEPA. Mitigation strategies and monitoring needs for environmental resources that cause impacts on low-income and minority populations, but are outside the USACE's federal control and responsibility, have been developed by the LAHD in coordination with community representatives to address preferences expressed by the affected communities; such measures were also disclosed and evaluated in the EIS/EIR. As a result, the USACE has determined the alternatives analysis in the EIS/EIR and the mitigation measures and monitoring efforts established and implemented by the LAHD address the impacts and the disproportionate effects thereof on low-income and minority communities to the maximum extent feasible, and demonstrate compliance with the EO.

2.3.1.4 Master Response 4: AMP Requirements

Mitigation Measure AQ-10 requires AMP for 95% of hoteling hours for NYK Line-operated vessels, not 95% of vessel calls. Environmental documents for other projects in the Ports of Los Angeles and Long Beach, including the Middle Harbor project, have included mitigation based on percentage of vessel calls, which is different from the mitigation measure for the proposed Project. An increase of hoteling hours to 100% as suggested by the commenters is not feasible due to a variety of operational constraints including customs, the time required to tie up and untie, and the time required to plug in to AMP infrastructure. Moreover, a requirement that 100% of vessel calls plug in does not necessarily achieve higher emissions reductions than a requirement of 95% hoteling hours. In fact, the 100% vessel plug-in requirement may result in even fewer emissions reductions for the following reasons.

When a vessel arrives at the Port, it typically relies on its auxiliary engines for a small amount of hoteling activity prior to actually plugging in which precludes achieving a 100% requirement. For example, the process of tying up at berth and actually plugging into AMP infrastructure can take up to three hours, according to CARB (14 CCR 93118.3, chapter 1, subchapter 7.5, subsection (d)(1)(D)). In addition, there are mandatory federal customs and immigration procedures that must be followed before

mechanical staff are allowed to enter onto a ship to convert to AMP. For these reasons, even if all ships plug in, not all hoteling emissions may be captured. As a result, the 95% hoteling hour requirement is actually an appropriate mitigation measure that necessarily assumes the ships will carry out these pre-AMP activities very quickly and plug into the AMP infrastructure.

Commenters have also requested, further referring to Middle Harbor, that the 95% hoteling requirement be advanced from 2026 to 2017, when the proposed Project commences. It should be noted that the CARB shore power regulation will require fleets to reduce hoteling emissions by 70% starting in 2017 and 80% starting in 2020. Mitigation measure AQ-10 sets additional requirements for NYK Line-operated ships. NYK projects that in 2017, all NYK Line-operated post-panamax ships (ships over 6,000 TEU) will be AMP capable.[1] NYK further projects that AMP-equipped ships will continue to be available in the marketplace for this class size of ships, and by the time the project commences in 2017, all of the berths at the YTI Terminal will be equipped with AMP. Therefore, this will serve to maximize near-term AMP usage to the highest possible level for the greater than 6,000 TEU AMP-capable ships.

The situation is different for NYK Line-operated ships that are smaller than 6,000 TEU. During the nine-year period from 2017 to 2026, NYK projects that it will only be able to more gradually transition the fleet of these smaller vessels that visit the Port of Los Angeles to AMP-capable ships through retrofit, new purchase, or charter. This is only possible because NYK's assessment of market conditions for vessels under 6,000 TEUs indicates that large numbers of AMP-capable ships in this size classification will not be available in the near to mid-term.[2] Therefore NYK projections indicate that the 2026 requirement of AQ-10 is feasible and appropriate and consistent with NYK's assessment of an anticipated longer term market availability of AMP-capable ships that are smaller than 6,000 TEUs.

In addition to NYK Line-operated vessels, third-party invitee shipping lines call at the YTI Terminal. YTI has no corporate relationship to these carriers. It has no control over these carriers and cannot compel them to comply with AMP requirements that are above and beyond what is mandated by CARB regulation. Therefore, a mitigation measure to require these third-party carriers that are non-NYK Line operated ships to meet AMP requirements in excess of CARB regulation is infeasible.

[1] See Attachment 1: Letter from Douglas Hansen, Director of Strategic Planning, YTI, to Mr. Chris Cannon, Environmental Management Division, Port of Los Angeles. Dated September 18, 2014. Re: Responses to Comments on Port of Los Angeles Draft EIR/EIS Report- Berths 212-224 Container Terminal Improvement Project

[2] Ibid.

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2.3.2 Federal Government Comments

Comment Letter FEMA

RECEIVED
MAY 0 9 2014
Regulatory Division

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

May 5, 2014

Theresa Stevens, PhD., Senior Project Manager
U. S. Army Corps of Engineers
Los Angeles District, Regulatory Division
Ventura Field Office
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Dear Dr. Stevens:

FEMA-1

This is in response to your request for comments on Notice of Availability of Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Berths 212-224 [YTI] Container Terminal Improvements Project, Los Angeles, Los Angeles County, California.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County (Community Number 065043) and City (Community Number 060137) of Los Angeles, Maps revised September 26, 2008. Please note that the City of Los Angeles, Los Angeles County, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

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- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

FEMA-1 cont.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Los Angeles floodplain manager can be reached by calling Gary L. Moore, City Engineer, at (213) 485-4935. The Los Angeles County floodplain manager can be reached by calling George De La O, Senior Civil Engineer, at (626) 458-7155.

If you have any questions or concerns, please do not hesitate to call Michael Hornick of the Mitigation staff at (510) 627-7260.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Gary L. Moore, City Engineer, City of Los Angeles
George De La O, Senior Civil Engineer, Los Angeles County, Department of Public Works
Garret Tam Sing/Salomon Miranda, State of California, Department of Water Resources, Southern District
Michael Hornick, NFIP Planner, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

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2.3.2.1 U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region IX

Response to Comment FEMA-1

Thank you for your comment. The comment letter has been forwarded to LAHD's Engineering Division for their consideration during the design process. The Project will be required to comply with the City's floodplain management building requirements, as applicable. The commenter correctly notes that the City of Los Angeles is a participant in the National Flood Insurance Program. As described in Section 3.15 of the Draft EIS/EIR, the majority of the proposed project site is mapped by FEMA as Flood Zone X (defined as areas of 0.2% annual chance flood; areas of one percent annual chance flood with average depths of less than one foot or with drainage areas less than one square mile; and areas protected by levees from one percent annual chance flood). A portion of the site adjacent to the Main Channel is mapped as Flood Zone AE (defined as special flood hazard areas that are subject to inundation by one percent annual chance flood). As described in the impact analysis in Section 3.15 of the Draft EIS/EIR, the proposed Project would not increase the potential for flooding at the site or increase the potential for people or property to be adversely affected by flooding. Site topography and the stormwater management system at the terminal would control flood conditions to minimize harm to people and property, and there are no sensitive terrestrial biological resources on the proposed project site. Therefore, construction and operation of the proposed Project would not result in significant impacts from flooding.

Comment Letter USEPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 16 2014

U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
2151 Alessandro Drive, Suite 110
Ventura CA 93001

ATTN: Theresa Stevens, Ph.D.

Subject: Draft Environmental Impact Statement/Environmental Impact Report for the Berths 212-224 (YTI) Container Terminal Improvements Project, (CEQ # 20140131)

The U.S. Environmental Protection Agency is providing comments on the Draft Environmental Impact Statement (DEIS) for the YTI Container Terminal Improvements Project. Our comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

USEPA-1 The applicant – the Port of Los Angeles – has made noteworthy long-term operational air quality improvements over the last nine years, specifically to reduce diesel particulates and health risks to nearby residents (see Inventory of Air Emissions – 2012, dated July 2013; (http://www.portoflosangeles.org/pdf/2012_Air_Emissions_Inventory.pdf). Construction and operation of the proposed renovations would result in greater emissions from the terminal.

USEPA-2 According to the DEIS, emissions from many aspects of the proposed project would be controlled through regulatory compliance, sustainable construction guidelines, project conditions, mitigation measures, and lease measures. EPA recommends the incorporation of additional measures into the proposed project that would require the adoption of available emission reduction technologies by container ships and rubber tired gantry cranes serving the Port. We also recommend that the Final EIS provide additional information about truck freight

USEPA-3 hauling efficiency (i.e., hauling both import and export freight in the same truck round-trip) to facilitate assessment of whether additional efficiency improvements are possible.

USEPA-4 With regard to water quality, we are concerned that the DEIS does not acknowledge the ecologically significant increase in mortality for amphipods that is predicted by the sediment toxicity testing results in Appendix F, Draft Sediment Characterization Report for Berths 212-224. Based on the information provided in the DEIS, EPA believes that sediment at Berths 212 – 216 is not suitable for ocean disposal.

USEPA-5 The DEIS concludes that the action alternatives' construction and operational adverse air quality impacts on the local community and the air basin would be significant, and that operations would also have significant cumulative adverse impacts on health. In addition, the DEIS predicts significant adverse impacts from greenhouse gas emissions and the introduction of nonnative species. It also acknowledges disproportionately high and adverse air quality and noise impacts

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USEPA-5 cont. to low-income and minority communities. Based on these impacts and our concerns about air and water quality, we have rated the DEIS as "Environmental Concerns – Insufficient Information" (EC-2, see the enclosed "Summary of EPA Rating Definitions"). Our concerns and recommendations are discussed further in the enclosed detailed comments.

USEPA-6 We appreciate the opportunity to review this DEIS and are available to discuss our comments. When the FEIS is released to the public, please send a copy to this office at the address above (mail code ENF 4-2). If you have any questions, please contact me at 415-972-3521, or contact Tom Kelly, the lead reviewer for this project, or Jeanne Geselbracht. Mr. Kelly can be reached at 415-972-3856 or kelly.thomasp@epa.gov; Ms. Geselbracht can be reached at 415-972-3853 or Geselbracht.jeanne@epa.gov.

Sincerely,

Kathleen Martyn Goforth, Manager
Environmental Review Section

Enclosure: Summary of EPA Rating Definitions
Detailed Comments

cc: Christopher Cannon, Port of Los Angeles
John Hummer, U.S. Maritime Administration
Susan Nakamura, South Coast Air Quality Management District
Cynthia Marvin, California Air Resources Board
Linda Frame, YTI
Richard Cameron, Port of Long Beach

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EPA DETAILED COMMENTS, DRAFT ENVIRONMENTAL IMPACT STATEMENT/DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE BERTHS 212-224 (YTI) CONTAINER TERMINAL IMPROVEMENTS PROJECT, LOS ANGELES COUNTY CALIFORNIA, JUNE 2014 (CEQ # 20140131)

Air Quality

Ocean-Going Container Vessels

USEPA-7 The DEIS notes that YTI, which is leasing Berths 212-221 from the Port of Los Angeles, is a wholly owned subsidiary of Nippon Yusen Kabushiki Kaisha or NYK Line (p. 1-5). NYK Line would likely be the primary shipping line served by the proposed Project, but the relative percentage by shipping lines is not specified in the DEIS. The DEIS describes the use of Alternate Marine Power to comply with the California Air Resources Board's regulations requiring an 80% reduction in hoteling emissions from ocean-going vessels at berth in California ports by 2020 (p. 3.2-41). The DEIS then proposes to exceed that requirement through mitigation measure MM AQ-10. It states that 95% of NYK Line container ships will connect to Alternate Marine Power by 2026. EPA acknowledges and appreciates this voluntary commitment by NYK Line. It is difficult, however, to assess the magnitude of the reduction that would be achieved through this measure, relative to the total emissions of the project, without know the percentage of NYK Line ships calling at the YTI terminal.

USEPA-8 The International Maritime Organization has required new engines to meet Tier II emissions standards since 2011. Tier III engines are available now, but are not required on new vessels until 2016. Tier II and III engines reduce NOx emissions by 20% and 80%, respectively, compared to older Tier I engines. We commend the Port of Los Angeles for its Environmental Ship Index Program (p. 3.2-28), which provides financial incentives for ocean cargo fleets to bring these newer and cleaner vessels to the Port of Los Angeles. Despite this incentive, the average age of container ships calling on the YTI Terminal in 2012 was ten years old, meeting only the IMO Tier I standards (p. 3.2-39).

USEPA-9 As the DEIS notes, existing container ships can be retrofitted to improve combustion, lower fuel use, and reduce emissions (3.2-41). It also states that 27% of ships calling on the YTI Terminal in 2012 were equipped with slide fuel valves (p. 3.2-41), but makes no commitment to retrofit ships (unequipped with slide valves) serving the YTI Terminal. We note that the Final EIS for the Port of Long Beach Pier S Terminal and Back Chanel Improvements project included an environmental control measure (AQ-4) that stated:

> "All OGV *(ocean-going vessels)* that call at the Project container terminal and that are capable of being so equipped shall have slide fuel valves installed on their main engines, or implement an equivalent emission reduction technology. This technology would reduce emissions of NOx and diesel particulate matter (DPM) from OGV main engines."

USEPA-10 The proposed project's significant impacts and disproportionately high and adverse effects to minority and low income communities call for the best efforts of all sectors in the chain

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USEPA-10 cont. of goods movement. As the primary beneficiary of the proposed project, the NYK Line has a significant opportunity to demonstrate leadership in this regard.

Recommendations:
Disclose, in the FEIS, the percentage of YTI terminal use that was represented by the NYK Line and each other ocean carrier line using the terminal in the baseline year (2012) and provide estimated percentages for the NYK Line versus other lines in future years, to the extent known (e.g. through current contracts).

USEPA-11 Encourage YTI's partner shipping lines to commit to mitigation measure AQ-10.

Encourage NYK Line, and other partners calling on the YTI Terminal, to develop an emissions reduction strategy through the use of Tier II and Tier III ships, slide fuel valves on auxiliary engines used for transit, and other measure to retrofit older ship engines.

Consider documenting commitments by NYK Line and other YTI partners in lease measures described in the FEIS.

Rubber-Tired Gantry Cranes

USEPA-12 The DEIS discusses the use of 11 diesel-powered rubber-tired gantry cranes (p. 2-10 and 2-12), without mention of hybrid diesel-electric retrofit technology. The Port's Technology Advancement Program prepared a final report, *Rubber-Tired Gantry Crane Hybridization Demonstration* in January 2012, noting, "Ports America will demonstrate this next generation EcoCrane™ at their West Basin Container" and "following successful completion of the [next generation] demonstration phase, it is expected that EcoPower Hybrid Systems, Inc. will seek EPA and CARB verification for the EcoCrane™ system." EPA verified the emissions reductions associated with this technology in June 2013.[1]

Recommendation for the FEIS:
Include a mitigation measure to ensure that rubber-tired gantry cranes are retrofitted to achieve emissions reductions equivalent to the Ecocrane Hybrid System.

Drayage Trucks

USEPA-13 As noted by EPA's SmartWay program, when a truck carrier cannot arrange for both an inbound and outbound shipment to a destination, such as the port, the resulting empty truck trip, also called a bobtail in the DEIS, increases traffic, fuel use, and transportation costs.[2] The DEIS indicates that the Port Area Travel Demand Model was used to estimate the number of one-way truck trips generated by the proposed project (p. 3.7-9). According to Port staff, the model estimated that only 29% of truck trips to the YTI terminal were dual transaction (carrying incoming and outgoing freight in the same roundtrip) in 2012, and that

[1] See EPA's letter to MJ EcoPower Hybrid Systems Inc., dated June 13, 2013 at http://www.epa.gov/cleandiesel/documents/verif-letter-eco-hybrid.pdf
[2] Improved Freight Logistics, A Glance at Clean Freight Strategies <http://www.epa.gov/smartway/forpartners/documents/trucks/techsheets-truck/EPA-420-F00-037.pdf>

USEPA-13 cont.

such trips would rise to 45% by 2026.[3] The DEIS, however, does not contain this information nor explain how dual transactions would increase in the future. Since nearly 50% of the export freight is empty containers, this appears to represent a potentially fruitful opportunity for increasing dual transactions.

Recommendation for the FEIS:
Clarify the number of trucks arriving at the YTI Terminal that involve single transactions, dual transactions, empty chassis, and any other categories of truck transactions.

Describe barriers that limited YTI dual transactions to 29% in 2012, particularly for empty containers, and describe plans to increase dual transactions to 45% by 2026.

Zero and Near Zero (tailpipe) Emission Technologies

USEPA-14

The air basin is unlikely to attain EPA's National Ambient Air Quality Standards (NAAQS) without widespread adoption of new technologies by the freight movement sector. By 2023, the South Coast Air Quality Management District expects heavy duty trucks, ships and commercial boats, and locomotives to represent the first, third and fifth largest sources, respectively, of nitrogen oxides in the South Coast Air Basin.[4] EPA provided funding for demonstration and deployment of new freight movement technologies by the Ports of Los Angeles and Long Beach, such as the replacement, repowering or retrofit of 27 pieces of equipment including port harbor craft.[5] We look forward to continued coordination on the development of zero and near zero freight transport technologies.

Recommendations for the FEIS:
Continue to demonstrate and deploy new technologies, particularly zero and near zero tailpipe emission technologies that could allow the air basin to attain the NAAQS within the timeframes required by the Clean Air Act.

Environmental Justice

USEPA-15

The DEIS acknowledges disproportionately high and adverse impacts to low-income and minority communities (AQ-2, 3, 4 and 7 and NOI-1). As the Council on Environmental Quality guidance on Environmental Justice notes, this determination does not preclude the Army Corps from proceeding with the proposed project, but should encourage consideration of alternatives, mitigation measures, monitoring needs, and preferences expressed by the affected community or population.[6]

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[3] Personal Communication between Shozo Yoshikawa, Port of Los Angeles and Tom Kelly, EPA on June 11, 2014.
[4] Final 2012 Air Quality Management Plan, South Coast Air Quality Management District, December 2012
[5] American Recovery and Reinvestment Act: Reducing Diesel Emissions at the Port of Los Angeles: The Port of Los Angeles was selected for $1,991,750 in funding to replace, repower, and/or retrofit a total of 27 pieces of equipment, including harbor craft, currently in operation at the port.
[6] Environmental Justice Guidance Under the National Environmental Policy Act, December 1997

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USEPA-15 cont.

The DEIS briefly discusses the Harbor Community Benefits Foundation (p. 7-28), noting that the Foundation provides funding for grants and projects that "assess, protect and improve public health, quality of life, and the natural environment (p. 7-28). For projects that commit to implementing all feasible mitigation, but still have remaining disproportionate impacts, a health based grant program is a sound method to partially reduce project-related impacts. The DEIS, however, contains little detail about the foundation grants and does not explain whether there is any relationship between the proposed project and the Foundation (e.g. would the applicant provide additional funding for future grants?).

Recommendations for the FEIS:
Expand the discussion of the Harbor Community Benefits Foundation, including:

- The goal(s) of Foundation grants (e.g. health education, improved access to healthcare, reduced exposures etc.);
- A summary of past and current grants; and
- Quantifiable measures of success.

Disclose whether the action alternatives would include additional funding for community projects or grants.

Water Resources

USEPA-16

Disposal of Contaminated Sediment

The DEIS is open-ended on the disposal location for sediment dredged from Berths 212 – 224, stating "all of the dredged material, approximately 27,000 cubic yards, would be disposed of at an approved site, which may include LA-2, the Berths 243-245 CDF *[Confined Disposal Facility]*, or another approved location" (p. 2-15). Section 3.15 of the DEIS appears to suggest that all the sediment is appropriate for ocean disposal: "… toxicity testing on sediments from the two composites showed no statistically or ecologically significant effects." This statement is inconsistent with the Appendix F - Draft Sediment Characterization Report, Berths 212-224. Table 3-3 of Appendix F (Solid Phase Toxicity Results) shows a 30% higher mortality for amphipods in Composite Sample A (representing sediment at Berths 212 – 216) than at the reference location (the LA-2 Ocean Dredged Material Disposal Site). As the Sediment Characterization Report notes, "the Composite A amphipod survival level (68 percent) is not within the allowable 20 percent reference survival window" (Appendix F, p. 4-3).

The Report appears to diminish the importance of the amphipod toxicity testing, stating in several sections that the result may be due to un-ionized ammonia;[7] however, it notes that the testing is acceptable for reporting (p. 3-12), and that control test animals had an acceptable survival rate (97%) in excess of the 90% threshold for an acceptable test. Pursuant to EPA Ocean Dumping Regulations at 40 CFR 227.13, bioassays are the primary basis to determine suitability for ocean disposal. EPA relies less heavily on sediment chemistry because many factors can affect chemical bioavailability. Additionally, many

[7] Un-ionized ammonia is likely to volatilize in the dredging process, so it would not be present when sediment is deposited at another location, such as LA-2.

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metals and organic contaminants exceeded Effects Range Low (ERL) concentrations,[8] where toxic effects are occasionally observed, but below Effects Range Medium (ERM), where toxic effects are more likely.

EPA is also particularly concerned about the concentration of pyrethroids. Pyrethroids are elevated in Composite A relative to Composite B (representing sediment at Berths 217 – 224), and not detected in the reference sample at LA-2 (<1.4 ug/L). According to a review of pyrethroid monitoring and toxicity for the California Stormwater Quality Association: [9]

> Over the past ten years, pyrethroid pesticides have become the predominant group of chemicals deployed for insect control in urban areas in California (TDC Environmental, 2010b), and are the primary cause of toxicity in urban water bodies in the state (Anderson et al., 2011).

USEPA-16 cont.

The concentration of total pyrethroids in Composite A was 4.5 ug/L. As Appendix F notes, total pyrethroids do not have ERL and ERM concentrations. We note the following from the California Stormwater Quality Association review:

> What is most notable about the information . . . is that the pyrethroids are generally toxic to the most sensitive aquatic arthropods at extremely low levels – generally at concentrations in the single-digit (or lower) nanograms per liter (ng/L) (parts per trillion) range.

Based on unambiguous bioassay results and absent additional data, EPA concludes that all of the sediments from Berths 212-216 are unsuitable for ocean disposal; however, additional sampling could show that contamination is localized and some of the sediment from this area may be suitable for ocean disposal.

> *Recommendations for the FEIS:*
> State that test results indicate that sediment at Berths 212 – 216 is not suitable for ocean disposal.

No Discharge Zone

The DEIS does not appear to discuss the California No Discharge Zone. Effective March 28, 2012, the following vessels will be prohibited from discharging all sewage, whether treated or not, while in California marine waters:

USEPA-17

- Large Passenger Vessels of 300 gross tons or greater that have berths or overnight accommodations for passengers.
- Large Oceangoing Vessels of 300 gross tons or greater, including private, commercial, government, or military vessels equipped with a holding tank that has

[8] ERL and ERM concentrations are benchmark concentrations developed in cooperation with National Oceanic and Atmospheric Administration.
[9] Review of Pyrethroid, Fipronil and Toxicity Monitoring Data from California Urban Watersheds, California Storm Water Quality Association, July 2013 < https://www.casqa.org/sites/default/files/library/technical-reports/casqa_review_of_pyrethroid_fipronil_and_toxicity_monitoring_data_-_july_2013.pdf>

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remaining capacity or containing sewage generated prior to entry in to California marine waters.

USEPA-17 cont.

EPA established this regulation under our Clean Water Act Section 312(f)(4)(A) authorities. For more information, see the joint EPA-CalEPA Fact Sheet for the California No Discharge Zone.[10]

Recommendation for the FEIS:
Discuss the California No Discharge Zone and measures that the Port of Los Angeles and YTI Terminal could take to raise awareness of it among the shipping lines serving the YTI terminal.

[10] http://www.epa.gov/region9/water/no-discharge/pdf/CaNdzFinal-RuleFactSheet.pdf

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SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

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2.3.2.2 United States Environmental Protection Agency, Region IX

Response to Comment USEPA-1

The comment is noted and appreciated and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment USEPA-2

See Master Response 1: Feasible Mitigation, Master Response 2: Zero Emission Technologies, and Master Response 4: AMP Requirements.

Response to Comment USEPA-3

YTI is currently testing an advanced intermodal logistics information technology system designed to improve drayage and container handling. This system, termed the Freight Advanced Traveler Information System (FRATIS), is a demonstration project sponsored and being tested by the United States Department of Transportation (USDOT). The FRATIS project seeks to improve the efficiency of freight operations by using several levels of real-time information to guide adaptive and effective decision making. Currently, freight routing, scheduling, and dispatch decisions are sometimes made with inadequate data, affecting planning and execution of intermodal orders. The FRATIS demonstration project is focused on: (1) improving communications and sharing intermodal logistics information between the truck drayage industry and port terminals such that terminals are less congested during peak hours; and (2) improving traveler information available to intermodal truck drayage fleets so that they can more effectively plan around traffic and port congestion. Together, these two areas of focus can result in significant improvements in intermodal efficiency, including reductions in truck trips, reductions in travel times, and improved terminal gate and processing efficiency. These benefits, in turn, will directly result in the public sector benefits of improved air quality, reduced traffic congestion, and increased fuel savings. Technologies that are being utilized during the demonstration test include: advanced traveler information, port terminal truck queue time measurement, automated ETA messaging to the terminals one day in advance of truck arrivals, direct messaging to trucks by terminals, and employment of an algorithm that will optimize truck deliveries and movements based on several key constraints (e.g., time of day, PIERPASS restrictions, terminal queue status). The primary user interfaces for these technologies are a web application for drayage truck dispatchers, a mobile application for drayage truck drivers, and messaging/alerts functionality for terminal operators. The FRATIS project entails the following two information technology (IT) applications:

- **Freight Specific Dynamic Travel Planning and Performance.** This IT application bundles all of the traveler information, dynamic routing, and performance monitoring elements that users need. This application will leverage existing data in the public domain, as well as emerging private sector applications, to provide benefits to both sectors. Other data includes: real-time freeway and key arterial speeds and volumes; incident information; road closure information; route restrictions; bridge heights; truck parking availability; cell

phone and/or Bluetooth movement/speed data; weather data; and real-time speed data from fleet management systems.

- **Drayage Optimization.** This IT application combines container load matching and freight information exchange systems to fully optimize drayage operations. This optimization helps to spread out truck arrivals at intermodal terminals throughout the day. Optimizing a freight carrier's itinerary requires a wide range of entities to participate in sharing their data (including rail carriers, metropolitan planning organizations, traffic management centers, customers, and the freight carriers themselves) in a manner that assesses all of the variables and produces an optimized itinerary. This requires the development of a complex set of algorithms that leverage data from multiple sources.

This demonstration project is currently in operational testing that began in December 2013. USDOT will be expanding the FRATIS project to two more container terminals at the Port Complex and eight more trucking companies in the next year. It is the desire of LAHD to expand this program to all container terminals at the Port Complex and as many trucking companies as possible. Assuming the demonstration is successful, it is assumed that the container terminals would implement to benefit from the efficiency and cost savings.

Response to Comment USEPA-4

The concerns over the sediment toxicity testing results in Appendix F, Draft Sediment Characterization Report for Berths 212–224 YTI Container Terminal Improvements Project, Los Angeles Harbor (AMEC 2013) should be alleviated by the results of the additional testing that was performed and included in the Final Sediment Characterization Report for Berths 212–224 YTI Container Terminal Improvements Project, Los Angeles Harbor (AMEC 2014). The results of the additional testing were included in Section 3.15, Water Quality, Sediments, and Oceanography, of the Draft EIS/EIR (see Section 3.15.2.3 and Table 3.15-1), but Appendix F contained the draft report because the final report was not available at the time of release of the Draft EIS/EIR. The full copy of the final report is included in this Final EIS/EIR as Revised Appendix F, and noted as a modification to Appendix F of the Draft EIS/EIR in Chapter 3, Modifications to the Draft EIS/EIR. The final report concluded that the vast majority of the sediment is suitable for ocean disposal. Only the top two feet of Composite A (Berths 214–216) were determined not to be suitable for ocean disposal, as described in more detail below.

Significant stratification was observed in sediment cores collected in Composite Area A. The top two feet of sediment consisted of unconsolidated silts, while the remaining bottom four to six feet of each core were hard clay material, similar to modeling clay. Composite sediment chemistry results and core stratification observations were presented to the Contaminated Sediment Task Force (CSTF) at its November 2013 meeting. After considering the results, the CSTF suggested further testing, using the frozen archived bottom samples collected in Composite Area A, to better evaluate disposal options. These Composite Area A bottom samples were subsequently tested and their sediment chemistry results were presented to the CSTF at its January 2014 meeting. This supplemental chemistry testing indicated low chemical levels in the bottom strata, pointing to the top two-foot strata in Area A as the source of the elevated contaminant levels previously noted in the overall Area A composite sample testing. It was concluded at the January 2014 CSTF meeting that the Composite A top two feet of unconsolidated silts (approximately 5,200 cubic yards) was not suitable for ocean disposal but could be

placed in the Berths 243–245 Contained Disposal Facility (CDF). The Composite Area A bottom material (approximately 15,800 cubic yards), as well as all of Composite Area B (approximately 21,800 cubic yards), were deemed suitable for ocean disposal.

Response to Comment USEPA-5

The comment summarizes the conclusions from the Draft EIS/EIR, which have been adequately analyzed and disclosed in the Draft EIS/EIR. LAHD and USACE, as joint lead agencies under CEQA and NEPA, respectively, acknowledge the EPA rating as EC-2, "Environmental Concerns – Insufficient Information." The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)). Please see Response to Comment USEPA-15 for additional information.

Response to Comment USEPA-6

The Final EIS/EIR will be distributed to the office address listed once published.

Response to Comment USEPA-7

Comment noted. LAHD and USACE acknowledge EPA's appreciation for NYK's voluntary commitment to exceed CARB's regulation requiring an 80% reduction in hoteling emissions from ocean-going vessels at berth in California ports by 2020. While the comment suggests that 95% of NYK-operated vessels will use AMP in 2026, it should be noted that MM AQ-10 is actually based on 95% of hoteling hours for NYK-operated vessels, not 95% of vessel calls. It is projected that approximately 56% of vessels calling at the YTI terminal in 2026 would be NYK-operated vessels (Hansen pers. comm. 2013). This information is noted as footnote no. 6 in Table B1.25 (Appendix B, Air Quality Appendices, in the Draft EIS/EIR). In the baseline year (2012), approximately 45% of calls were by NYK-operated vessels. Additionally, see Master Response 4: AMP Requirements.

Response to Comment USEPA-8

EPA commends LAHD for its Environmental Ship Index (ESI) Program, which provides financial incentives for ocean cargo fleets to bring newer and cleaner vessels to the Port of Los Angeles, which include vessels with Tier II now and Tier III engines beginning in 2016. LAHD acknowledges that the average age of container ships calling on the YTI Terminal in 2012 was ten years old. This conservative assumption was carried through the analysis because the mix of older and newer ships calling at YTI in future years cannot be accurately predicted and was conservatively assumed to remain unchanged from the 2012 baseline scenario. Additionally, it should be noted that the ESI includes points for other methods of reducing emissions, not solely the use of Tier II and Tier III engines, including use of low sulfur fuel, AMP capability, and confirmation that a vessel is reporting distance sailed and fuel consumption. Additionally, it should be noted that NYK is a current participant in ESI and has been since the inception of the program at the Port. Vessel Speed Reduction Program (VSRP) is a separate incentive program that rewards ships slowing to 12 knots up to 40 nautical miles from the Port of Los Angeles. Furthermore, the following lease measure will be added in response to comments, and is noted as modifications to the Draft EIS/EIR in Chapter 3 of this Final EIS/EIR:

LM AQ-3 Container Ship Engine Emissions Reduction Technology Improvements. The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.

Response to Comment USEPA-9

Thank you for your comment. See Master Response 1: Feasible Mitigation. Based on recent information contained within the Man Slide Valve Low-Load Emissions Test Final Report (Starcrest Consulting Group LLC et. al. 2013), LAHD is in the process of reevaluating the effectiveness of slide valves for reducing NOx emissions based on new engine tests, and is reluctant to require slide valves as mitigation until the new effectiveness parameters have been established because there is evidence that they may be less effective than previously thought when operating at low speeds. In the meantime, to be consistent with the Port's 2012 annual emission inventory documents, the Draft EIS/EIR used the current published slide valve effectiveness assumptions (25% reduction for particulate matter [PM] and 30% for NO_X) during transit. These reductions were applied for 32% of the vessels for YTI (based on the current ship fleet slide valve percentage) for the mitigated and unmitigated scenarios for the baseline and all study years. These reductions were assumed for annual emissions only. No slide valves were assumed for calculation of peak-day, peak 8-hour, or peak hour emissions in order to present a conservative analysis of peak emissions.

As shown in Tables 3-31 and 3-34 in Appendix B2, OGV transit emissions account for no more than 2% of the overall project contribution for both annual PM_{10} and annual NO_X concentrations with and without mitigation. As such, if emission reductions from slide valves had not been assumed, the additional contribution to the annual NO_X concentrations would be approximately 0.1 $\mu g/m^3$ for both operational emissions and combined construction and operation emissions. For the annual PM_{10} concentration, the additional contribution would be approximately 0.03 $\mu g/m^3$. These extremely minor increases in annual NO_X and PM concentrations would be virtually imperceptible when rounded to the nearest 0.1 $\mu g/m^3$ and would have no effect on the impact determinations made in the Draft EIS/EIR.

The corresponding increase in cancer risk for both residential and occupational receptors associated with the extremely minor increase in PM_{10} emissions described above would be approximately 0.1 per million or less. Therefore, all impacts determined to be less than significant in the Draft EIS/EIR would remain less than significant, and all impacts determined to be significant in the Draft EIS/EIR would remain significant. Further, all cancer burden results would increase by no more than 0.07 cancer cases, resulting in all impacts remaining less than significant, both with and without mitigation.

The highest proposed project chronic hazard index, before subtracting baseline, is 0.7 after adjusting for no slide valve credit. Therefore, all chronic hazard index increments would remain less than significant, both for CEQA and NEPA, both with and without mitigation.

As described above, some emission reduction credit for slide valves was assumed in the annual emissions analysis in the Draft EIS/EIR, consistent with 2012 published slide valve effectiveness assumptions. However, there has been recent information contained within the Man Slide Valve Low-Load Emissions Test Final Report (Starcrest Consulting

Group LLC et. al. 2013) that brings into question the actual emission reductions resulting from slide valves at low loads. As such, LAHD does not propose mitigation requiring slide valves at this time. The actual emission reductions achieved in the analysis with the inclusion of reduction credit for slide valves was extremely minimal and, had these reductions not been assumed, none of the significance determinations made in the Draft EIS/EIR would change.

Response to Comment USEPA-10

See Master Response 1: Feasible Mitigation and Master Response 3: Environmental Justice.

Response to Comment USEPA-11

See Responses to Comments USEPA-7, USEPA-8, and USEPA-9. Additionally, see Master Response 1: Feasible Mitigation. The commitments, mitigation measures, and lease measures that are applicable to the proposed Project are documented in the Draft EIS/EIR and in the Mitigation Monitoring and Reporting Plan that would be adopted separately by the Los Angeles Board of Harbor Commissioners. Additionally, the following lease measure will be added, and is noted as modifications to the Draft EIS/EIR in Chapter 3 of this Final EIS/EIR:

LM AQ-3 Container Ship Engine Emissions Reduction Technology Improvements. The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.

Response to Comment USEPA-12

Comment noted. EcoCrane™ (hybrid diesel-electric retrofit technology for RTGs) was approved by EPA in July 2013. At the time that most of the analysis was done, EPA had not yet approved EcoCrane, so it was not a feasible mitigation at that time. The analysis is conservatively based on pre-EcoCrane technology because there is no guarantee of how widely available this technology might be. In a demonstration project sponsored by the Ports of Los Angeles and Long Beach under the TAP, a hybrid RTG, EcoCrane™ equipped with an advanced energy capture and battery storage system was placed into testing in 2009 and eventually commissioned after initial engineering issues, in 2010. While the EcoCraneTM showed reductions in criteria air pollutant emissions, fuel consumption and greenhouse gases, as compared to a conventional diesel-electric RTG crane, it experienced engineering issues related to inverter failure, battery/inverter compatibility, and generator failure. Based on lessons learnt from this demonstration, a second-generation EcoCrane™ hybrid RTG system has been developed and will be tested at the West Basin Container Terminal at the Port of Los Angeles. As such, this technology is still in the testing phase and has not been demonstrated to be commercially viable.

Additionally, between 2009 and 2013, YTI repowered their RTG equipment, which has a substantial remaining useful life, to Tier 4i engine standards at a cost of over $1.5 million. The CARB regulations governing currently in-use CHE allow for the continued use of lower tier RTG engines if the engines are retrofitted with the highest level Verified Diesel Emission Control System available. YTI voluntarily elected to exceed the regulatory requirements by repowering all of its RTG equipment with Tier 4i

engines, the cleanest engine that currently is available, and completed this conversion ahead of the compliance schedule set forth in the CARB regulations. The cost of replacing this RTG equipment with Hybrid RTGs would equal the entire cost of the new equipment, not merely the differential or incremental cost between the Tier 4i engines and the hybrid engines, and lead to minimal reductions in emissions.

LAHD has included mitigation measures and lease measures in the Draft EIS/EIR that facilitate the use of newer technologies as feasible, including the replacement of as-good or better technology to improve emissions performance (MM AQ-8) and periodic review of new technology by tenants to determine the feasibility in terms of cost, and technical and operational feasibility, of implementing such technology (LM AQ-1). Also, please note that YTI has replaced three diesel fork lifts with propane equipment and will replace heavy equipment with alternative fuel options when those options are feasible and available. See Master Response 1: Feasible Mitigation Measures and Master Response 2: Zero Emission Technologies.

Response to Comment USEPA-13

A summary of the 2012 baseline truck transactions is as follows: approximately 487,000 total inbound and outbound gate transactions and 33,000 bare chassis moves with approximately 140,500 being dual transaction.

Some existing operational parameters that have resulted in the 29% dual transactions include, but are not limited to: extensive fragmentation in the drayage and vessel operating industries, lack of port-wide and common appointment systems, fluctuating terminal hours of operations due to fluctuating volumes, fragmented chassis supply/management, and limited streets turns. The expected consolidation in the vessel operating and drayage industry is expected to lead to improved container management. Additionally, the Ports of Los Angeles/Long Beach, in collaboration with all industry partners are currently evaluating or implementing various measures to improve the velocity of container movement throughput the supply chain, which includes increasing dual transactions. These measures include: the development of a chassis management system; extended hours of operations, which is expected to occur over time simply due to increasing volumes and infrastructure capacity constraints (e.g., fixed size of terminals and gates); extended and common appointment systems; enhanced container management (e.g., "free-flow" container staging implemented by terminal operators for high volume shippers or 3PL); and the deployment of information technology (IT) systems to enhance container terminal management and drayage operations. See Response to Comment USEPA-3 for an in-depth discussion of those IT systems.

Response to Comment USEPA-14

See Master Response 2: Zero Emission Technologies.

Response to Comment USEPA-15

Comment noted. The information contained in this response has also been included in Section 3.2.4, Changes Made to Chapter 7, Socioeconomics, of the Final EIS/EIR.

The Port Community Mitigation Trust Fund was established in 2008 as a result of an MOU (known as the TraPac MOU) between appellants and the City of Los Angeles to settle appeals to the Board of Harbor Commissioners' certification of the Berths 136–147

[TraPac] Container Terminal Project Final EIS/EIR. The HCBF is a nonprofit organization that administers the Trust Fund.

Per Exhibit B of the TraPac MOU, a specific list of Port expansion projects was established for which LAHD would contribute funds to the Trust Fund upon project implementation. The YTI Container Terminal Improvements Project is one of the projects listed in Exhibit B. As such, LAHD has estimated it will contribute approximately $773,500 to the HCBF per the established calculation method if the proposed Project is implemented in accordance with the provisions of the TraPac MOU. The final amount will be determined at the time the Board considers whether to certify the Final EIR and approve the proposed Project.

The TraPac MOU specifies that contributions will be made to the HCBF per the established calculation for throughput in exceedance of existing capacity. As such, if a project alternative is approved that results in an increased terminal capacity, a contribution would be made to the Trust Fund. For this project, Alternative 3 would result in the same throughput in the horizon year as the proposed Project. Therefore, should Alternative 3 be approved, the Harbor Department would contribute the same funds to the HCBF as if the proposed Project was approved. Because Alternatives 1 and 2 do not result in an increase in terminal capacity, no contributions would be made to the HCBF should one of these two alternatives be approved.

The TraPac MOU does not allow the funding to be used as mitigation for direct project effects. The HCBF awards funding to a variety of projects and programs aimed at reducing health, environmental, and community impacts from Port operations in the communities of San Pedro and Wilmington. Projects and programs that have been granted funds from the HCBF include:

- Construction of a dedicated respiratory clinic at the Wilmington Family Health Center;
- Operation of the Long Beach Alliance for Children with Asthma and the Children's Clinic, which provide home visits and low- and no-cost respiratory care for families;
- Purchase of compressed natural gas buses by the Boys & Girls Club of Los Angeles to provide transportation between the Boys & Girls Club and the Harbor Community Clinic;
- Guided community exercise programs and health education provided by the Tzu Chi Community Clinic;
- Additional respiratory and asthma services for the Harbor Community Clinic in San Pedro and Rainbow Services;
- Establishment of a support network for Harbor area residents with Chronic Obstructive Pulmonary Disease, by Breathe California of Los Angeles County;
- Registration of the Harbor Community Clinic as a Certified Enrollment Entity to assist residents with respiratory illnesses in enrolling in health plans under the California Health Benefit Exchange;
- Expansion of a summer fellowship program on Port operations and respiratory health with Los Angeles Biomed;

- Hiring of a Community Health Worker for the Harbor community through the Robert F. Kennedy Institute;
- Bringing St. Mary's mobile care clinic to Wilmington for no-cost medical care for low-income individuals; and
- Continued support of the Bridge for Health program, which supports individuals with respiratory illnesses in Harbor communities through The Children's Clinic.

Please see the HCBF website at http://hcbf.org/ for further information on past and current grants. See Appendix C, Grant Project Reporting and Evaluation Guidelines, of the HCBF Strategic Plan 2013-2016, also available on the HCBF website at http://hcbf.org/wp-content/uploads/2012/07/2013.05.17-HCBF-Strategic-Plan-2013-2016.pdf, for information on how the HCBF quantifies the success of the projects and programs its funds. The HCBF monitors performance and success of the projects and programs receiving its grants.

Although the HCBF projects and programs aim to reduce off-site impacts of Port operations, any future air quality or health benefits associated with the proposed Project's funding contribution was not quantified or applied as mitigation for the purposes of the Draft EIS/EIR. Projects administered through the HCBF would contribute to reducing cumulative impacts, but this was not quantified in the Draft EIS/EIR.

See also Master Response 3: Environmental Justice.

Response to Comment USEPA-16

See Response to Comment USEPA-4.

Response to Comment USEPA-17

Comment noted. LAHD does not allow for the discharge of sewage (treated or untreated) within the Port. Port of Los Angeles Tariff No. 4 describes the rates, charges, rules, and regulations of the Port. A summary of the No Discharge Zone is included in the Port of Long Beach and Port of Los Angeles Vessel Discharge Rules and Regulations (available at www.portoflosangeles.org/DOC/WRAP_Vessel_Discharge_Rules.pdf). Discharge of sewage is specifically addressed in Section 3.3.28 of the Vessel Discharge Rules and Regulations. A discussion of the No Discharge Zone has been added to Section 3.15, Water Quality, Sediments, and Oceanography, of the Draft EIS/EIR, and the additions are shown in Chapter 3 of this Final EIS/EIR, Modifications to the Draft EIS/EIR. Terminal operators and vessels entering the harbor are required to comply with the rules and regulations of the Port.

Comment Letter USDOI

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Pacific Southwest Region
333 Bush Street, Suite 515
San Francisco, CA 94104

IN REPLY REFER TO:
(ER 14/0284)

Filed Electronically

16 June 2014

Theresa Stevens, Ph.D.
U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
Ventura Field Office
2151 Alessandro Drive, Suite 110
Ventura CA 93001

Subject: Review of the Draft Environmental Impact Statement (DEIS) for the Berths 212-224 [YTI] Container Terminal Project at the Port of Los Angeles, Los Angeles County, CA

Dear Dr. Stevens:

USDOI-1 The Department of the Interior has received and reviewed the subject document and has no comments to offer.

Thank you for the opportunity to review this project.

Sincerely,

Patricia Sanderson Port

Patricia Sanderson Port
Regional Environmental Officer

cc:
Director, OEPC

OEPC Staff Contact, Loretta B. Sutton, Loretta_Sutton@ios.doi.gov

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2.3.2.3 United States Department of the Interior

Response to Comment DOI-1

Thank you for your comment. LAHD and USACE acknowledge the U.S. Department of the Interior's review and that no comments are provided. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Comment Letter FWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
FWS-LA-14B0240-14I0366

JUN 17 2014

Aaron O. Allen, Ph.D.
North Coast Branch Regulatory Division
U.S. Army Corps of Engineers, Los Angeles District
Ventura Field Office
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Attention: Theresa Stevens, Ph.D., Project Manager

Subject: Informal Section 7 Consultation for the Berths 212-224 Yusen Terminals, Inc., Container Terminal Project, Port of Los Angeles, Los Angeles County, California

Dear Dr. Allen:

FWS-1 This letter is in response to your May 12, 2014, email request for informal consultation pursuant to section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*) for the proposed Berths 212-224 Yusen Terminals, Inc., Container Terminal Project in the Port of Los Angeles, Los Angeles County, California. You have requested our concurrence that the proposed project is not likely to adversely affect the federally endangered California least tern (*Sternula antillarum browni*, tern). This consultation is based on information provided with your request and the joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the project dated May 2014.

The proposed project will improve the container-handling efficiency of existing terminal space within the Inner Harbor to accommodate larger container vessel needs projected through 2026. The project includes dredging a total of 27,000 cubic yards of sediment to increase the depth at Berths 214-216 to -53 feet mean lower low water (MLLW) and the depth at Berths 217-220 to -47 feet MLLW. Sheet piles and/or king piles will be installed below the mud line to stabilize the existing wharves over a total distance of approximately 2,600 feet. The number of operational cranes will be increased from 10 to 14, and vessel traffic will increase from 162 to 206 ship calls annually by 2026. Construction will take place in two phases and will be completed in approximately 22 months (i.e., mid-2015 through mid-2017). A detailed project description, including proposed measures to avoid and minimize potential effects to terns, is included in the EIS/EIR.

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Aaron O. Allen, Ph.D. (FWS-LA-14B0240-14I0366)

FWS-1 cont.

The proposed project is located about 2.5 miles from a tern nesting site maintained by the Port of Los Angeles on Pier 400. Potential effects to terns from the proposed project include: (1) reduced foraging success as a result of construction-related disturbance and increased turbidity levels, and (2) increased potential for collisions with ships due to increased vessel traffic within the harbor. Noise and disturbance associated with installation of the wharf stabilization structures and backland improvements could discourage terns from foraging in the vicinity of the project site. According to the EIS/EIR, sound pressure waves associated with pile driving are expected to cause fish to leave the project area. While foraging by terns has been documented in the Inner Harbor where the project will occur, they prefer shallow waters of the Outer Harbor that are closer to the nesting site. Measures described in the EIS/EIR (e.g., water quality monitoring and management as necessary) will be implemented to limit the extent of turbidity from dredging to approximately 1,000 feet from the project site. Because impacts to foraging habitat will be limited to the Inner Harbor and several hundred acres of shallow water foraging habitat will be available for use by terns in the Outer Harbor, we do not anticipate construction of the proposed project to impact tern foraging success. Operation of the proposed project will increase vessel traffic by 44 ships per year by 2026; however, a Vessel Speed Reduction Program (i.e., 12 knots within 40 miles of Point Fermin) will minimize the potential for collisions with terns. Therefore, we concur with your determination that the proposed project is not likely to adversely affect the tern.

With our concurrence, the interagency consultation requirements of section 7 of the Act have been satisfied. Although our concurrence ends informal consultation, obligations under section 7 of the Act shall be reconsidered if (1) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (2) this action is subsequently modified in a manner that was not considered in this assessment, or (3) a new species is listed or critical habitat designated that may be affected by the action.

With respect to (1) above, our conclusions are based on the availability of other shallow water foraging areas for terns in San Pedro Bay during the construction of the proposed project. If other projects with the potential to impact shallow water foraging areas are scheduled to occur concurrently with the proposed project, our office should be contacted to determine if reinitiation of consultation is warranted. We appreciate your coordination on the above project. If you have any questions regarding this letter, please contact Fish and Wildlife Biologist Christine Medak at 760-431-9440, extension 298.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor

cc:
Bryant Chesney, NOAA National Marine Fisheries Service
Loni Adams, California Department of Fish and Wildlife

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2.3.2.4 U.S. Department of the Interior, Fish and Wildlife Service

Response to Comment FWS-1

Thank you for your comment. LAHD and USACE acknowledge the U.S. Fish and Wildlife Service's concurrence of determination that the proposed project is not likely to adversely affect the federally listed as endangered California least tern and satisfaction of the interagency consultation requirements pursuant to Section 7 of the Endangered Species Act of 1973. No further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Comment Letter NMFS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

June 16, 2014

Kimberly M. Colloton, PMP
Colonel, US Army
Commander and District Engineer
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, California 90053-2325

Dear Colonel Colloton:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the U.S. Army Corps of Engineers (Corps) Environmental Impact Statement (EIS; SPL-2013-00113-TS) for dredging and pile placement at Berths 212-224 in the Port of Los Angeles, California. NMFS offers the following comments pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Marine Mammal Protection Act (MMPA) and the Fish and Wildlife Coordination Act (FWCA).

Proposed Action

The applicant proposes to dredge approximately 21,000 cubic yards of material from Berths 214-216 from -45 feet Mean Lower Low Water (MLLW) to -53 feet MLLW with a two foot overdredge and 6,000 cubic yards from Berths 217-220 from -45 feet MLLW to -47 feet MLLW with a two foot overdredge. In addition, 1,400 linear feet of sheet and king piles would be added to Berths 214-216 and 1,200 linear feet of sheet piles would be added to Berths 217-220. The majority of sediment has met the ocean disposal guidelines and would be placed at the LA-2 disposal site and contaminated sediments would be disposed of at the Berth 243-245 Confined Disposal Facility. King piles would be placed 35 feet below the mudline and sheet piles would be 15 feet below the mudline via a combination of vibratory and impact hammers. The tops of both pile types would extend slightly above the mudline.

Magnuson-Stevens Fishery Conservation and Management Act Comments

Action Area

The proposed project occurs within essential fish habitat (EFH) for various federally managed fish species within Coastal Pelagic Species and Pacific Coast Groundfish Fishery Management Plans (FMPs). In addition, the project occurs within estuarine habitat, which is designated as a habitat area of particular concern (HAPC) for various federally managed fish species within the Pacific Groundfish FMP. HAPC are described in the regulations as subsets of EFH which are

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rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under MSA; however, federal projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process.

Effects of the Action

NMFS-1 The adverse effects of dredging on EFH may include 1) direct/removal/burial of organisms; 2) turbidity/siltation effects, including light attenuation from turbidity; 3) contaminant release and uptake, including nutrients, metals and organics; 4) release of oxygen consuming substances; 5) entrainment; 6) noise disturbances; and 7) alteration to hydrodynamic regimes and physical habitat.

NMFS-2 Many fishery species forage on infaunal and bottom-dwelling organisms, such as polychaete worms, crustaceans, and other prey types. Dredging may adversely affect these prey species at the site by directly removing or burying these organisms. Recolonization studies suggest that recovery (generally meaning the later phase of benthic community development after disturbance when species that inhabited the area prior to disturbance begin to re-establish) may not be quite as straightforward, and can be regulated by physical factors including particle size distribution, currents and compaction/stabilization process following disturbance. Rates of recovery listed in the literature range from several months to several years for estuarine muds to up to two to three years for sands and gravels. Recolonization can also take up to one to three years in areas of strong current but up to ten years in areas of low current. Thus, forage resources for fish that feed on the benthos may be reduced while recovery is achieved.

NMFS-3 Although not the cause of direct introductions, artificial structures and associated substrate within bays and harbors provide increased opportunity for non-native species colonization (Cohen et al 2002; Bulleri and Champman 2010). Non-native species cause economic and ecological damage worldwide by diminishing habitat quality, displacing native species and damaging infrastructure. The addition of king and sheet piles may provide substrate for non-native species to colonize.

NMFS-4 Another potential project concern is the spread of the invasive alga, *Caulerpa taxifolia*, from project activities. As you may be aware, this alga had been introduced to our coastline. Though it was eradicated for a substantial cost, *Caulerpa* is listed on the Global Invasive Species Database's "100 of the World's Worst Invasive Species" and may be introduced again. This alga can destroy local ecosystems, impact commercial fisheries and adversely affect navigation and recreational opportunities. Although it is not known to be present within Oceanside Harbor, it had been detected in two other locations in Southern California. If the invasive alga is present within the project area, the dredging activities may adversely affect EFH by promoting its spread and increasing negative ecosystem impacts.

NMFS-5 Pile driving can generate intense underwater sound pressure waves that may adversely affect the ecological functioning of EFH. While larger, mobile species may be able to avoid the impact area; eggs and larvae are typically carried by currents and would not be able to escape. In 2008, NMFS, in collaboration with the U.S. Fish and Wildlife Service, California Department of Fish

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NMFS-5 cont.

and Game and state transportation agencies, established the interim criteria for injury to fish from pile driving activities. The interim criteria identified the onset of injury from impact pile driving to occur at sound pressure levels of 206 dB peak and 187 dB accumulated sound exposure level (SEL) for fish equal or greater than 2 grams. For those fish less than 2 grams, the accumulated SEL was set at 183 dB. While sound impacts are considered for marine mammals in the EIS, they are not considered for fishes. Based on these criteria and the summary table of underwater sound levels produced by sheet and king pile installation, NMFS believes fishes both greater and less than 2 grams would experience noise impacts.

EFH Conservation Recommendations

NMFS-6

As described in the above effects analysis, NMFS has determined that the proposed action would adversely affect EFH for various federally managed fish species within the Pacific Coast Groundfish and Coastal Pelagic Species FMPs. Therefore, pursuant to section 305(b)(4)(A) of the MSA, NMFS offers the following EFH conservation recommendations to avoid, minimize, mitigate, or otherwise offset the adverse effects to EFH.

NMFS-7

The applicant has proposed to perform a pre-construction eelgrass survey in compliance with the Southern California Eelgrass Mitigation Policy and a *Caulerpa* survey in accordance with the *Caulerpa* Control Protocol. NMFS concurs that a *Caulerpa* survey is appropriate, but does not believe an eelgrass survey is necessary given the location of the project and lack of historic eelgrass in the project footprint.

1) The Corps should notify NMFS of the date of commencement of dredging activities not less than 14 calendar days prior to commencing work and shall notify NMFS of the date of completion of operations. In addition, the Corps should provide NMFS a summary of dredging operations including the exact volume of dredged sediment, size of dredge area, and the corresponding spatial data. This information is important for cumulative impact analyses and may be useful for identifying future conservation recommendations for dredging projects in the Port environment.

Statutory Response Requirement

NMFS-8

Please be advised that regulations at section 305(b)(4)(B) of the MSA and 50 CFR 600.920(k) of the MSA require your office to provide a written response to this letter within 30 days of its receipt and at least 10 days prior to final approval of the action. A preliminary response is acceptable if final action cannot be completed within 30 days. Your final response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH conservation recommendations, you must provide an explanation of the reasons for not implementing those recommendations. The reasons must include the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

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Supplemental Consultation

NMFS-9 Pursuant to 50 CFR 600.920(l), the Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations.

Marine Mammal Protection Act Comments

Harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*) are the two marine mammal species most likely to be found in the area, particularly sea lions, which are known to haul out on man-made structures for extended periods of time. Marine mammals are protected under the Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1361 et. seq.). Under the MMPA, it is generally illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as harassing, hunting, capturing, or killing, or attempting to harass, hunt, capture, or kill any marine mammal. Except with respect to military readiness activities and certain scientific research conducted by, or on behalf of, the Federal Government, "harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

NMFS-10 Of the proposed components of the project, NMFS considers in-water pile installation to constitute a potential impact to pinnipeds, given what we know about the effects of anthropogenic noise on marine mammals. Concern has arisen that sounds introduced into the sea by man-made devices (e.g., pile-driving using a hammer or vibratory) could have a deleterious effect on marine mammals by causing stress, interfering with communication and predator/prey detection, and changing behavior. More significantly, acoustic overexposure to loud sounds can lead to a temporary or permanent loss of hearing (termed a temporary or permanent threshold shift). NMFS is currently in the process of finalizing safety criteria for marine mammals exposed to underwater sound. Based on information we have from other pile replacement projects where piles with large diameters were driven, consultation with experts, and published literature, mitigation and monitoring around these other pile-driving operations appeared to be sufficient to reduce any impacts to marine mammals. These projects were primarily in large bays, where marine mammals are likely to be found foraging, transiting, or remaining for longer periods of time. Given the location of this project, we expect a few pinnipeds, likely sea lions, may occasionally transit the area and remain for a short period of time. Furthermore, there are no known areas at or near the project areas where sea lions regularly haul out. Therefore, we believe the risk of harassment to be very low. However, we would appreciate being notified if any aberrant marine mammal behavior is observed during pile driving operations, vessel activity or construction in general.

In the unlikely event of an injury or mortality of a marine mammal due to this project, please immediately contact our California stranding coordinator, Justin Viezbicke, at (562) 980-3230.

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Fish and Wildlife Coordination Act Comments

NMFS-11

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development [16 U.S.C. 661]. The FWCA establishes a consultation requirement for Federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage [16 U.S.C 662(a)]. Consistent with this consultation requirement, NMFS provides recommendations and comments to Federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA allows the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the MSA. NMFS has determined that subtidal habitat will be negatively impacted by proposed project activities. As such, EFH Conservation Recommendations provided above also serve as FWCA recommendations to compensate for these negative impacts.

Please contact Mr. Adam Obaza at (562)980-4044 or via email at Adam.Obaza@noaa.gov if you have any questions concerning this EFH consultation or require additional information. Please contact Ms. Christina Fahy at (562) 980-4023 or via email at Christina.Fahy@noaa.gov regarding any questions with respect to the MMPA.

Sincerely,

for William W. Stelle, Jr.
Regional Administrator

Literature Cited

Bulleri, F. and M.G. Chapman. 2010. The introduction of coastal infrastructure as a driver of change in marine environments. Journal of Applied Ecology 47: 26-53

Cohen, A.N., L.H. Harris, B.L. Bingham, J.T. Carlton, J.W. Chapman, C.C. Lambert, G. Lambert, J.C. Ljubenkov, S.N. Murray, L.C. Rao, K. Reardon and E. Schwindt. 2002. Project report for the Southern California Exotics Expedition 2000: A rapid assessment survey of exotic species in sheltered waters

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2.3.2.5 U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service

Response to Comment NMFS-1

Comment noted. As discussed in Section 3.3 and Appendix C3 of the Draft EIS/EIR, the proposed Project is in an area of the Port designated as Essential Fish Habitat (EFH) for federally managed species described in the Coastal Pelagic Species Management Plan and the Pacific Coast Groundfish Management Plan. The status of federally managed fish species and effects of the proposed Project, including dredging activities, on them and other marine species as well as EFH are further discussed below.

LAHD and Port of Long Beach conduct regular biological surveys of the Los Angeles and Long Beach Harbor, most recently in 2008. Of the 95 species included under the Coastal Pelagic and Pacific Coast Groundfish management plans, 19 adult species have been observed within the Harbor during biological surveys, although most have been collected sporadically and in low numbers. Of the 19 species, only two are likely to occur in the proposed project vicinity: *Engraulis mordax* (northern anchovy) and *Sardinops sagax* (Pacific sardine). In the 2008 survey, the northern anchovy was the most abundant species in both the Inner and Outer Harbor areas; Pacific sardine was less abundant. These surveys also showed a stable incidence of non-indigenous species, and increased diversity and abundance of native marine species, since the prior survey.

As stated in the comment letter and described in Appendix C3 of the Draft EIS/EIR, state-issued waste discharge requirements (WDRs) and BMPs implemented during construction and operations would result in less-than-significant impacts on water quality and EFH. The proposed in- and over-water construction requires a permit from USACE, and WDRs and Section 401 water quality certification from the Los Angeles RWQCB. During construction and dredging, a water quality monitoring program would be implemented by LAHD with oversight by USACE and Los Angeles RWQCB, and as required by special conditions of the USACE permit.

Response to Comment NMFS-2

As noted in the comment, recolonization timelines generally refer to the establishment of communities similar to those found at the location at the time of disturbance. This may take years, as stated in the comment; however, this does not mean the habitat is abiotic between time of impact and the time the site is considered recovered. As in terrestrial systems, reutilization of the benthic habitat will occur in successional stages, with the first colonizers likely to settle within days to weeks (depending on project timing related to seasonal larval dispersal) following the disturbance. These will be followed by other species that may displace those that settled initially. Merkel (2010) found that benthic infauna biomass and density (i.e., benthic forage resources) were not notably different from pre-dredge conditions 5 months after dredging in San Diego Bay, although community composition took up to 24 months to recover to pre-dredge condition. Ultimately, the community may have different dominant species from the original community, based on species tolerances to different physical factors, as stated by the commenter, or as a result of random distribution of the organisms that settle at the site. Except for a short period following the impact, organisms present during all stages of recovery would be available as a forage resource to bottom-feeding fish.

Response to Comment NMFS-3

As discussed under Impact BIO-4 in the Draft EIS/EIR (Section 3.3, Biological Resources), sheet pile and king piles to stabilize the wharf in the proposed project area would be installed within a few feet of the existing wharf and would provide some new hard substrate usable as habitat by both native and non-native marine organisms. However, the king piles would be installed approximately 35 feet below the mudline and the sheet piles would be installed 15 feet below the mudline, and both would protrude only slightly above the seafloor. New hard substrate would be created at a depth of about -49 feet MLLW, which is likely too deep to support algae. As discussed in Section 3.3.2.2 of the Draft EIS/EIR (Section 3.3, Biological Resources), of the 334 species recorded in the riprap/piling communities in the Port Complex in 2008, only 12 were determined to be non-native, or 4% of the community assemblage (SAIC 2010).

Response to Comment NMFS-4

As discussed in Section 3.3 and Appendix C3 of the Draft EIS/EIR, LAHD would conduct an underwater survey for *Caulerpa* prior to construction, consistent with NMFS requirements in the *Caulerpa* Control Protocol. If any *Caulerpa* is found, an eradication plan would be developed and implemented in conjunction with NMFS and CDFW, and construction would be delayed until subsequent surveys demonstrate full eradication has been achieved. This species has not been detected in the Port Complex and was eradicated from known areas of occurrence in Southern California.

Response to Comment NMFS-5

Section 3.3 of the Draft EIS/EIR (Impact BIO-4) discusses impacts on fish from construction, and specifically pile driving. The Draft EIS/EIR acknowledges that pile driving creates underwater sound that could cause acoustic impacts on fish, particularly at the onset. Additionally, while the Draft EIS/EIR does not specifically reference fish less than two grams, it does note that smaller fish are more susceptible to acoustic injury. The species most likely to suffer mortality would be northern anchovy, Pacific sardine, and topsmelt. However, due to the limited potential impact area and the availability of suitable habitat for these species in adjacent areas, LAHD and USACE determined that the proposed Project would not result in a substantial decline in these populations. Additionally, with implementation of MM BIO-1, the pile driving would initiate with a soft start, which would minimize potential impacts on fish, which are expected to avoid or leave the area.

Response to Comment NMFS-6

Comment noted. LAHD and USACE acknowledge that NMFS has determined that the proposed Project would adversely affect EFH for various federally managed fish species within the Pacific Coast and Coastal Pelagic Species Fishery Management Plans. Section 3.3 and Appendix C3 of the Draft EIS/EIR adequately analyze the impacts on EFH, and MM BIO-1 is included to reduce impacts to less-than-significant levels. The recommended conservation measures are addressed in Response to Comment NMFS-7 below.

Response to Comment NMFS-7

Comment noted. LAHD and USACE acknowledge the conservation recommendations to avoid, minimize, mitigate, or otherwise offset the adverse effects on EFH, and they

concur that a *Caulerpa* survey is appropriate. LAHD and USACE also note that NMFS does not believe an eelgrass survey is necessary given the location of the proposed Project and lack of historic eelgrass in the proposed project footprint. With respect to notification, USACE and LAHD agree to NMFS's request. LAHD would notify NMFS no less than 14 calendar days prior to commencing construction, dredging, and disposal operations associated with the proposed Project. LAHD would also notify NMFS no less than 5 calendar days prior to completion of construction, dredging, and disposal operations. In addition, USACE will provide NMFS with a summary of dredging operations including the exact volume of dredged sediment, size of dredge area, and corresponding spatial data.

Response to Comment NMFS-8

As discussed in Section 3.3 of the Draft EIS/EIR and this response to comments section, it is LAHD's and USACE's determination that the construction and operation of the proposed Project would not result in substantial adverse project-related or cumulative impacts on marine biological resources or EFH.

As required by regulations at Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and 50 CFR 600.920(k), a written preliminary response to this comment letter was provided on June 25, 2014, from Aaron O. Allen, Ph.D., Chief, North Coast Branch, Regulatory Division of USACE, addressed to Chris Yates, Assistant Regional Administrator, NMFS. This Final EIS/EIR and the responses above constitute USACE's final response to the comments and proposed conservation recommendations in NMFS's letter; pursuant to the MSA, they will be transmitted to NMFS at least 10 days in advance of USACE's final action on the proposed Project. USACE will also prepare a Record of Decision (ROD) for the proposed Project, which will include the final response to the proposed conservation recommendations in your letter.

Response to Comment NMFS-9

Comment noted. Should the proposed Project be substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS's EFH conservation recommendations, USACE will reinitiate EFH consultation with NMFS pursuant to 50 CFR 600.920(1).

Response to Comment NMFS-10

Comment noted. Section 3.3 of the Draft EIS/EIR adequately discloses the potential impacts on pinnipeds and other marine mammals from in-water pile installation. Implementation of MM BIO-1 would require the initiation of pile driving with a soft start and the establishment of a 300-meter-radius safety zone around the pile-driving site that would be monitored for pinnipeds and cetaceans by a qualified marine mammal observer, thereby minimizing potential impacts on pinnipeds and other marine mammals. LAHD and USACE acknowledge NMFS's conclusions that, given the location of the proposed Project, few pinnipeds are expected, the most likely being sea lions that may occasionally travel the area and remain for short periods of time. Further, the comment notes that there are no known areas at or near the project areas where sea lions regularly haul out, and, therefore, the risk of harassment is believed to be very low. LAHD and USACE concur with NMFS's conclusions related to impacts on marine mammals. Consultation with a stranding coordinator concerning aberrant behavior, injury, or mortality of marine

mammals is a standard condition of LAHD marine mammal monitoring plans, which are reviewed and approved by NMFS prior to project initiation.

Response to Comment NMFS-11

Comment noted. LAHD and USACE acknowledge NMFS's determination under the Fish and Wildlife Coordination Act (16 USC 661) that subtidal habitat will be negatively impacted by the proposed project activities. Section 3.3 of the Draft EIS/EIR adequately analyzes the impacts on subtidal habitat, and Section 3.3.4.1 identifies appropriate best management practices that would be implemented to minimize impacts to subtidal habitat. The EFH Conservation Recommendations are addressed in Response to Comment NMFS-7 above.

As discussed in Response to Comment NMFS-7, LAHD would notify NMFS no less than 14 calendar days prior to commencing construction, dredging, and disposal operations associated with the proposed Project. LAHD would also notify NMFS no less than 5 calendar days prior to completion of construction, dredging, and disposal operations. In addition, USACE would provide NMFS with a summary of dredging operations including the exact volume of dredged sediment, size of dredge area, and corresponding spatial data.

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2.3.3 State Government Comments

Comment Letter CCC

From: Simon, Larry@Coastal [mailto:Larry.Simon@coastal.ca.gov]
Sent: Monday, June 02, 2014 11:22 AM
To: Ceqacomments; Stevens, Theresa SPL (Theresa.Stevens@usace.army.mil)
Cc: Padilla, Al@Coastal
Subject: Draft EIS/EIR for Berths 212-224 Container Terminal Improvements Project

CCC-1 I have reviewed the Notice of Availability for the above-referenced document. The Port of Los Angeles will need to submit a consistency certification to the Coastal Commission for its proposed disposal at the LA-2 ocean disposal site of project dredged sediments. That submittal will need to include a suitability determination for ocean disposal of these sediments.

Larry Simon
Federal Consistency Coordinator
Energy, Ocean Resources and
Federal Consistency Division
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219
larry.simon@coastal.ca.gov
www.coastal.ca.gov

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2.3.3.1 California Coastal Commission

Response to Comment CCC-1

Thank you for your review of and comment on the Draft EIS/EIR. LAHD acknowledges the requirement to submit a Federal Coastal Zone Management Act consistency certification to the Coastal Commission for the proposed disposal of dredged sediments at the LA-2 ocean disposal site (as indicated in Table 1-3 of the Draft EIS/EIR), which will include a suitability determination for ocean disposal of these sediments. For reference, see Revised Appendix F of this Final EIS/EIR (noted as a modification to Appendix F of the Draft EIS/EIR in Chapter 3, Modifications to the Draft EIS/EIR), Final Sediment Characterization Report for Berths 212–224 YTI Container Terminal Improvements Project, Los Angeles Harbor (AMEC 2014), which includes a suitability analysis and reference to the approval of suitability at the January 2014 CSTF meeting for open water/ocean disposal of the bottom material from Composite A (approximately 15,800 cubic yards), and all of Composite B (approximately 21,800 cubic yards).

Comment Letter DOT

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN, JR., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, TRANSPORTATION PLANNING
IGR/CEQA BRANCH
100 MAIN STREET, MS # 16
LOS ANGELES, CA 90012-3606
PHONE: (213) 897-9140
FAX: (213) 897-1337

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CITY OF LOS ANGELES
JUN 17 2014
ENV MGMT DIV
HARBOR DEPARTMENT

June 12, 2014

Mr. Christopher Cannon
Director of Environmental Management
425 S. Palos Verdes Street
San Pedro, CA 90731

U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
Venture Field Office
c/o Theresa Stevens, Ph.D.
2151 Alessandro Drive, Suite 110
Ventura, CA 93001

IGR/CEQA No. 140506AL-DEIR
Ref. IGR/CEQA No. 130415AL-NOP
Berths 212-224 [YTI] Container Terminal Improvements Project
Vic. LA-710 / PM 4.96, LA-47 / PM 3.5, LA-110/ R0.93
SCH # 2013041017

Dear Mr. Cannon and Ms. Stevens:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The proposed project involves the construction and operation of terminal improvements within the YTI Terminal; these consist of dredging and installing sheet piles and king piles, adding and replacing/extending wharf cranes, extending the 100-foot gage crane rail, improving/repairing backlands, and expanding the TICTF on-dock rail.

Caltrans goal is to assist the City to disclose defensible and complete environmental documents in the CEQA process and to protect the public safety on the State facilities. Below are Caltrans' major concerns with the Draft Environmental Impact Report (DEIR) for the Berths 212-224 [YTI] Container Terminal Improvements Project:

DOT-1

1. Caltrans submitted a comment letter dated April 25, 2013, on the Notice of Preparation (NOP) and met with the Lead Agency on June 13, 2013 and had a telephone conference with the Lead Agency on July 18, 2013, to discuss Caltrans' concerns about the project's impact on the US-101 freeway and on/off ramps. The traffic consultant acknowledged Caltrans' concerns and it was understood by both parties that the traffic procedures for analyzing impacts to the State highway system would follow standard statewide procedures outlined in Caltrans Traffic Study Guide. In the meeting, it was agreed that the Lead Agency will submit model assumptions, ports trip generation/distribution for Caltrans comment. To be able to determine how far and how much the project impact

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DOT-1 cont.

would be, please submit the select zone analysis and missing information from the EIR for Caltrans review.

DOT-2

2. Caltrans' Guide for the Preparation of Traffic Impact Studies, December 2002, "The level of service (LOS) for operating State highway facilities is based upon measures of effectiveness (MOEs). . . . If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained." Many of the existing freeways' LOS are operating at LOS "F" during the peak hours at the project vicinity, so any further degradation of the MOE would constitute a potential significant impact. When additional traffic trips are assigned to those freeways, existing freeway condition should be maintained.

DOT-3

3. The intent of the CMP is to assist federal, state and local agencies in developing and implementing comprehensive planning strategies to handle traffic congestion. (Gov. Code, § 60588) Unfortunately, the CMP process does not adequately evaluate the impacts to the SHS (State Highway System) for CEQA purposes, nor does it make the City the final authority over highway safety issues. As the owner and operator of the SHS facilities, Caltrans provides comments on environmental documents and the analysis of impacts to the SHS.

   The EIR only used the Los Angeles County Congestion Management Program (CMP) criteria. However, the CMP fails to provide adequate information as to direct and cumulative impacts to the freeway mainline and ramps, per CEQA. For example, the CMP does not adequately address cumulative transportation impacts and does not analyze for safety, weaving problems, or delay. The CMP improperly uses a percentage criterion for determining the significance of traffic impacts on freeways. The use of a "ratio theory" or "comparative approach" such as the CMP's 2% increase in V/C, improperly measures a project's incremental impact relative to the existing cumulative effect rather than measuring the combined effects of the proposed project and other relevant past, present, and future projects.

DOT-4

4. Currently, many segment of the freeway Level of Service (LOS) for I-710, I-405, SR-91, and I-110 are operating at LOS F. Any additional trips will worsen the existing freeway condition in measuring delay, density, or speed. On page 4-6 of the DEIR, there are a total of 94 present or reasonably foreseeable future projects in the project vicinity. The DEIR did not include an adequate cumulative traffic analysis for the freeways, which would include the trips generated from the Port of Los Angeles Master Plan.

DOT-5

5. The report should include Exhibits showing: designated truck routes from/into the proposed site, generated trip distribution in/out of the site, volumes/Geometry/LOS.

DOT-6

6. The impact analysis to be calculated for truck lane movement not for overall intersection. For example, the designated truck route to use left turn pocket at analyzed intersection, therefore, the LOS of this movement to be calculated and shown as well as overall intersection LOS. The analysis should include the queuing, the adequacy of storage length, and the turning radius of truck turns where it is applicable.

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DOT-7 7. The impact analysis to be recalculated (Table 3.7-18) where no project alternative for year 2026 should have same capacity as baseline year 2012. No trip credit should be given in the analysis for the State facilities when the berth is not currently in operation.

DOT-8 8. The on/off ramps to be analyzed based on designated truck route to and from proposed site. An analysis of the off-ramps in the project vicinity should utilize the Highway Capacity Manual (HCM) 85th percentile queuing methodology with the actual signal timing at the ramps' termini.

DOT-9 9. The Highway Capacity Methodology to be used to analyze state facilities. Please refer the project's traffic consultant to Caltrans' traffic study guide Website below:

http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf

DOT-10 10. Caltrans recommends that the Lead Agency develop a funding mechanism of its own to implement transportation improvements on the State highway system. These funds may serve as matching funds to attract State and Federal funds. The farir share to be calculated based on impacted movement not overall intersection. Thus, the other projects generated traffic on impacted movement to be considered for calculation of the fare share.

DOT-11 Caltrans is majorly concerned that the project impacts may result in unsafe conditions due to additional traffic congestion, unsafe queuing, and difficult maneuvering. These concerns need to be adequately addressed in the DEIR. In summary, without the necessary traffic analysis, Caltrans cannot recognize the DEIR as adequately identifying and mitigating the project's impacts to the State highway facilities.

In the spirit of mutual cooperation, we would like to invite the lead agency, Port of Los Angeles to the Caltrans office to discuss traffic impact and fair share contributions towards planned freeway improvements. Please contact this office at your earliest convenience to schedule a meeting in the near future.

If you have any questions, please feel free to contact Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 140506AL.

Sincerely,

DIANNA WATSON
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

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2.3.3.2 California Department of Transportation

Response to Comment DOT-1

Thank you for your comment. The analysis has been conducted for the proposed Project and its alternatives using the Highway Capacity Manual (HCM) methodology as prescribed in Caltrans' "Guide for the Preparation of Traffic Impact Studies" (December 2002). All requested information is included in the Draft EIS/EIR: the model assumptions are described in the Draft EIS/EIR in Section 3.7 on page 3.7-20; details involved in the preparation of traffic forecasts, including regional growth and the Port's growth, are provided in the Draft EIS/EIR in Section 3.7 on pages 3.7-20 through 3.7-22; and the proposed Project's trip generation is detailed in Table 3.7-18 on page 3.7-52. The distribution of the proposed Project's trips were obtained from the select zone assignment performed using the model detailed in the pages noted above. Select zone plots were provided to Caltrans District 7 on September 9, 2014 in response to this comment. Table 2-2 below summarizes the large-format plots that were sent to Caltrans.

Table 2-2. Freeway Mainline Screening

Freeway	Segment		Direction	Number of Lanes [1]	Capacity [2]	Trigger @ 1% [3]	YTI Build-Net Project Trips		Trigger Exceeded?
							AM	PM	
I-710	Begin of Freeway	Ocean/Harbor Scenic/Pico	NB	3	6,000	60	9	6	No
			SB	2	4,000	40	11	4	No
I-710	Ocean/Harbor Scenic/Pico	Shoreline Dr.	NB	3	6,000	60	8	4	No
			SB	3	6,000	60	10	4	No
I-710	Shoreline Dr.	Anaheim St.	NB	4	8,000	80	8	4	No
			SB	3	6,000	60	10	4	No
I-710	Anaheim St.	Pacific Coast Highway	NB	3	6,000	60	8	4	No
			SB	3	6,000	60	11	4	No
I-710	Pacific Coast Highway	Willow St.	NB	3	6,000	60	10	5	No
			SB	3	6,000	60	14	5	No
I-710	Willow St.	I-405 Freeway	NB	3	6,000	60	11	9	No
			SB	3	6,000	60	14	6	No
I-710	I-405 Freeway	Del Amo Blvd.	NB	4	8,000	80	14	9	No
			SB	4	8,000	80	18	6	No
I-710	Del Amo Blvd.	SR-91 Freeway	NB	5	10,000	100	13	8	No
			SB	4	8,000	80	17	6	No
SR-47	I-110 Freeway	Harbor Blvd.	WB	2	4,000	40	10	15	No
			EB	2	4,000	40	11	5	No
SR-47	Harbor Blvd.	Ocean Blvd.	WB	2/3	4,000	40	12	16	No
			EB	2/3	4,000	40	12	6	No
SR-47	Ocean Blvd.	New Dock St.	NB	3	6,000	60	0	0	No
			SB	3	6,000	60	0	0	No
SR-47	New Dock St.	Heim Lift Bridge	NB	3	6,000	60	26	23	No
			SB	3	6,000	60	37	17	No

Table 2-2. Freeway Mainline Screening

Freeway	Segment		Direction	Number of Lanes [1]	Capacity [2]	Trigger @ 1% [3]	YTI Build-Net Project Trips		Trigger Exceeded?
SR-47	Heim Lift Bridge	Henry Ford Ave.	NB	3	6,000	60	26	23	No
			SB	3	6,000	60	37	17	No
SR-103	Henry Ford Ave.	Anaheim St.	NB	3	6,000	60	9	12	No
			SB	3	6,000	60	12	5	No
SR-103	Anaheim St.	Pacific Coast Highway	NB	2	4,000	40	9	11	No
			SB	2	4,000	40	11	4	No
SR-103	Pacific Coast Highway	Willow St.	NB	2	4,000	40	2	7	No
			SB	2	4,000	40	2	1	No
I-110	SR-47	Channel St.	NB	2	4,000	40	8	7	No
			SB	3	6,000	60	6	3	No
I-110	Channel St.	C St.	NB	4	8,000	80	8	7	No
			SB	4	8,000	80	6	3	No
I-110	C St.	Anaheim St.	NB	4	8,000	80	8	7	No
			SB	4	8,000	80	6	3	No
I-110	Anaheim St.	Pacific Coast Highway	NB	4	8,000	80	8	7	No
			SB	4	8,000	80	6	3	No
I-110	Pacific Coast Highway	Sepulveda Blvd.	NB	4	8,000	80	8	6	No
			SB	4	8,000	80	6	3	No
I-110	Sepulveda Blvd.	Carson St.	NB	4	8,000	80	6	5	No
			SB	4	8,000	80	6	3	No
I-110	Carson St.	Torrance Blvd.	NB	4	8,000	80	6	5	No
			SB	4	8,000	80	6	3	No
I-110	Torrance Blvd.	I-405 Freeway	NB	3/4	6,000	60	3	3	No
			SB	3/4	6,000	60	4	2	No
I-405	Vermont Ave.	I-110 Freeway	NB	3	6,000	60	2	1	No
			SB	3	6,000	60	2	1	No
I-405	I-110 Freeway	Avalon Blvd.	NB	4	8,000	80	0	0	No
			SB	4	8,000	80	0	0	No
I-405	Avalon Blvd.	Carson St.	NB	4	8,000	80	0	0	No
			SB	4	8,000	80	2	1	No
I-405	Carson St.	Wilmington Ave.	NB	4	8,000	80	0	0	No
			SB	4	8,000	80	2	1	No
I-405	Wilmington Ave.	Alameda St.	NB	4	8,000	80	0	0	No
			SB	4	8,000	80	1	0	No
I-405	Alameda St.	I-710 Freeway	NB	4	8,000	80	0	0	No
			SB	4	8,000	80	0	0	No
I-405	I-710 Freeway	Wardlow Rd.	NB	4	8,000	80	0	0	No
			SB	4	8,000	80	0	0	No
SR-91	Vermont Ave.	I-110 Freeway	WB	3	6,000	60	0	0	No
			EB	3	6,000	60	0	0	No

Table 2-2. Freeway Mainline Screening

Freeway	Segment		Direction	Number of Lanes [1]	Capacity [2]	Trigger @ 1% [3]	YTI Build-Net Project Trips		Trigger Exceeded?
SR-91	I-110 Freeway	Avalon Blvd.	WB	5	10,000	100	0	0	No
			EB	4	8,000	80	0	0	No
SR-91	Avalon Blvd.	Central Ave.	WB	5	10,000	100	0	0	No
			EB	4	8,000	80	0	0	No
SR-91	Central Ave.	Wilmington Ave.	WB	4	8,000	80	1	0	No
			EB	4	8,000	80	0	0	No
SR-91	Wilmington Ave.	Alameda Str.	WB	4	8,000	80	0	0	No
			EB	4	8,000	80	0	0	No
SR-91	Alameda St.	Long Beach Blvd.	WB	5	10,000	100	0	0	No
			EB	5	10,000	100	0	0	No
SR-91	Long Beach Blvd.	I-710 Freeway	WB	5	10,000	100	0	0	No
			EB	5	10,000	100	0	0	No
SR-91	I-710 Freeway	Cherry St.	WB	5	10,000	100	1	1	No
			EB	5	10,000	100	2	2	No

[1] Number of lanes does not include auxiliary or HOV lanes.

[2] Per "Agreement Between City of Los Angeles and Caltrans District 7," assumes a capacity of 2,000 vehicles per hour per lane (vphpl).

[3] Assumes worst case threshold: 1% of capacity if LOS E or F, using 2,000 vphpl capacity.

Response to Comment DOT-2

Comment noted. The analysis of freeway segments has been conducted for the required scenarios under CEQA and NEPA for the proposed Project and its alternatives using the Highway Capacity Manual (HCM) methodology as prescribed in Caltrans' "Guide for the Preparation of Traffic Impact Studies" (December 2002). The results of the analyses are summarized in Sections 3.7 and 4.2.7 of the Draft EIS/EIR. Additionally, using the "Agreement Between City of Los Angeles and Caltrans District 7 On Freeway Impact Analysis Procedures," executed in October 2013, an assessment was conducted to further verify that additional State Highway System (SHS) locations beyond that contained in the Draft EIS/EIR do not need to be analyzed, as the criteria for warranting analysis was not satisfied (see select zone plots provided to Caltrans via e-mail on September 2, 2014). From Tables 3.7-23 and 3.7-24 in the Draft EIS/DEIR, it is also evident from the demand to capacity ratio (D/C) changes that additional locations do not need to be analyzed.

Tables 3.7-23 and 3.7-24 compare future year cumulative conditions without and with the proposed Project to determine potential State Highways Systems (SHS) impacts as prescribed in "Guide for the Preparation of Traffic Impact Studies." As shown, for all locations projected to operate at densities between 26 (level of service [LOS] D) and 45 (LOS E) passenger car equivalents (PCE)/lane/mile during peak hours, the densities would change a very nominal amount (less than 1%) due to the proposed Project. For those locations projected to operate with densities greater than 45 (LOS F) PCE/lane/mile, which actually exceeds the intended bounds of the Highway Capacity Manual (HCM) equations and LOS definitions due to oversaturated/unstable traffic flow conditions, the D/C method is considered to be more appropriate, and was used to

determine potential impacts. Therefore, based upon the results of the D/C assessment, it was determined there would be no significant SHS impacts.

To specifically address comment DOT-2, a queuing analysis was conducted at all SHS off-ramp intersections using the HCM methodology (see results in Table 2-3 below). As shown, none of the turn lane storage lengths are exceeded at any of the analyzed intersections.

It is also important to note that the Caltrans "Guide for the Preparation of Traffic Impact Studies" and the "Agreement Between City of Los Angeles and Caltrans District 7 On Freeway Impact Analysis Procedures" do not prescribe any criteria for the determination of a significant impact. These documents do not stipulate that "any further degradation of the MOE [measures of effectiveness] would constitute a potential significant impact," as stated in the comment letter from Caltrans. Furthermore, deeming any increase in vehicle density (or delay for intersections) at any prevailing LOS as a significant impact is not considered appropriate from a traffic engineering and transportation planning perspective. Therefore, as the CEQA lead agency, LAHD has exercised its discretion in selecting a reasonable significance criterion in the absence of such criteria from Caltrans.

Response to Comment DOT-3

See also Response to Comment DOT-2. The Los Angeles County Congestion Management Program (CMP) adopted by METRO provides the guidelines for impact evaluation of the CMP Highway Network and is a requirement under CEQA and NEPA. The CMP analyses provide evaluation of both direct and cumulative impacts. The commenter incorrectly states that the Draft EIS/EIR did not include an adequate cumulative traffic analysis for the freeways. The commenter is directed to the traffic forecasts for the future (2026) conditions in the Traffic Study. These forecasts were generated using the Port Travel Demand Model, which accounts for all Ports of Los Angeles and Long Beach traffic growth, including the projects outlined in the Port Master Plan, and is contained in the model being utilized for the I-710 Corridor Project EIR/EIS and the latest SCAG Regional Transportation Plan model as described in Section 3.7 and Section 4.2.7 of the Draft EIS/EIR. Section 15130 (b)(1)(A and B) of the State CEQA Guidelines allows an EIR to rely on a list of cumulative projects or projections contained in adopted plans, stating "such projections may be supplemented with additional information such as a regional modeling program." The reliance on regional traffic models was upheld in *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 408 Cal.App.4th 899.

Response to Comment DOT-4

See Responses to Comments DOT-2 and DOT-3.

Response to Comment DOT-5

The designated truck routes were represented accurately in the Port Travel Demand Model, and the select zone assignment plots for the proposed project site were provided to Caltrans District 7 on September 9, 2014. Additionally, the traffic volumes, geometry, and LOS for all analyzed locations are included in the Traffic Appendices to the Draft EIS/EIR (Appendix D).

Response to Comment DOT-6

To specifically address comments DOT-2 and DOT-6, a queuing analysis was conducted at all SHS off-ramp intersections using the HCM methodology (see results in Table 2-3). As shown, none of the turn lane storage lengths are exceeded at any of the analyzed intersections.

Table 2-3. Freeway Off-Ramp Queue Analysis

#	Intersection	Movement Group	Storage Length (feet) [a]	Future 2026 Proposed Project Conditions: Volume (vehicles per hour) AM	MD	PM	85% Queue Length (feet) [d] AM	MD	PM	Exceeds Storage Length [e]
8.	Henry Ford Ave/Terminal Island Fwy ramps & Pier A Way SR-103 NB off-ramp	NBL	250	15	33	18	25	40	25	NO
		NBT	1,585	1,140	734	783	343	185	213	
		NBR	150 [b]	72	86	53	0	0	0	
		OFF-RAMP	2,020							
10.	Terminal Island Fwy (SR-103) & Willow St. SR-103 NB off-ramp	NBL	555	234	342	471	43	45	98	NO
		NBLT	555	19	6	7	50	48	100	
		NBR	585	344	368	758	48	38	15	
		OFF-RAMP	[c]							
11.	Ocean Ave/SR-47 SB off-ramp & New Dock St. SR-47 SB off-ramp	SBLTR	745	288	179	95	316	128	130	NO
		SBR	745	759	396	281	285	47	48	
		OFF-RAMP	1,110							
13.	Terminal Island Fwy (SR-47) & Ocean Blvd ramps WB SR-47 WB off-ramp	WBL	560	51	45	101	50	25	60	NO
		WBT	1,250	222	190	164	105	55	48	
		WBR	200 [b]	54	87	123	0	0	0	
		OFF-RAMP	1,250							
17.	Pier S Way & Ocean Blvd. ramps EB SR-47 EB off-ramp	EBL	325	248	170	135	69	52	39	NO
		EBT	965	1,351	985	1,334	210	140	205	
		OFF-RAMP	965							

Notes:

EB: eastbound lane; EBL: eastbound left lane; EBT: eastbound through lane; NB: northbound lane; NBL: northbound left lane; NBLT: northbound left turn lane; NBR: northbound right lane; NBT: northbound through lane; SB: southbound lane; SBLTR: southbound left/through/right combination lane; SBR: southbound right lane; WB: westbound lane; WBL: westbound left lane; WBR: westbound right lane; WBT: westbound through lane

[a] Most constrained storage length for each lane group reported. Measured from stop bar to end of lane. Overall off-ramp storage length measured from stop bar to freeway mainline.

[b] Free-flow movement; therefore, no queue length reported for this movement.

[c] Freeway ends at this location. No off-ramp at this location to measure.

[d] Based on HCM 2010 methodology.

[e] The results of queuing analysis include the following evaluations:
LANE: Storage capacity exceeded in turn pocket only.
YES: Storage capacity exceeded in entire ramp, resulting in back-up into the mainline.
NO: Storage capacity has not been exceeded.

Response to Comment DOT-7

The YTI Terminal is currently in operation and the Year 2026 No Project Alternative provides projections of growth at the terminal that would occur without the proposed Project. Table 3.7-18 in the Draft EIS/EIR details the trip generation estimates. Analyses and comparison of Project Conditions to both CEQA and NEPA baselines reflective of Existing (2012) and Future (2026) without Project Conditions, respectively, have been conducted and are provided in Tables 3.7-21 and 3.7-22 of the Draft EIS/EIR.

Response to Comment DOT-8

See Response to Comment DOT-6. Table 2-3 provides a summary of the results from the HCM 85th-percentile queuing analyses at the off-ramps in the proposed Project's vicinity.

Response to Comment DOT-9

See Response to Comment DOT-2. Both the HCM Methodology as required by Caltrans and the vehicle to capacity (V/C) Methodology per CMP requirements have been used to analyze the state facilities. The results, including density (from HCM) and V/C ratio and LOS (from CMP), are included in Tables 3.7-21 to 3.7-24; 3.7-33 to 3.7-36; 3.7-40 to 3.7-43; 4-5; and 4-6 of the Draft EIS/EIR.

Response to Comment DOT-10

As indicated in the Draft EIS/EIR and Response to Comment DOT-2, the proposed Project would not have any significant impacts on traffic or transportation patterns; therefore, mitigation or a "funding mechanism" is not required. However, LAHD has and continues to demonstrate its commitment to collaborating with Caltrans and partnering agencies in addressing future traffic conditions on the I-710. LAHD is a technical partner to Caltrans and METRO for the Project Approval/Environmental Documentation (PA/ED) phase of the I-710 Corridor Project. The I-710 Corridor Project Draft EIR/EIS proposes improvements to the entire 20-mile corridor to accommodate all Year 2035 Port of Los Angeles, Port of Long Beach, and regional traffic. Year 2035 Port of Los Angeles and Port of Long Beach traffic represents buildout conditions at the Ports. The corridor area includes the mainline freeway and adjacent arterial street system. The I-710 Corridor Project EIR/EIS utilizes HCM methodologies (weaving, mainline, ramp diverge/merge), which is appropriate for a transportation facility environmental document and preliminary engineering. LAHD contributed $5 million for the PA/ED phase, and participates directly and extensively by providing technical guidance/input for the preliminary engineering; the Administrative, Draft, and Final EIR/EIS; and the Caltrans Project Report. This input is also provided on all technical studies, including (but not limited to): air quality; transportation; goods movement; rail/intermodal; and alternative technology. For these studies, LAHD provided all Ports of Los Angeles and Long Beach traffic volumes for direct incorporation into the I-710 Corridor Project EIR/EIS model (which is a focus model of the SCAG Regional Transportation Plan model).

Response to Comment DOT-11

See Responses to Comments DOT-1 through DOT-10.

Comment Letter OPR

EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

KEN ALEX
DIRECTOR

June 17, 2014

CITY OF LOS ANGELES
JUN 19 2014
ENV MGMT DIV
HARBOR DEPARTMENT

Christopher Cannon
Port of Los Angeles, Dept. of Env. Mgmt Div.
425 South Palos Verdes Street
San Pedro, CA 90731

Subject: Berths 212-224 [YTI] Container Terminal Improvements Project
SCH#: 2013041017

Dear Christopher Cannon:

OPR-1 The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on June 16, 2014, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

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Document Details Report
State Clearinghouse Data Base

SCH# 2013041017
Project Title Berths 212-224 [YTI] Container Terminal Improvements Project
Lead Agency Los Angeles, Port of

Type EIR Draft EIR

Description The proposed Project includes performing deepening and improvements at Berths 214-216 and Berths 217-220, extending a 100-guage crane rail to Berths 217-220, expanding the Terminal Island Container Transfer Facility (TICTF) by adding a single loading track, raising up to six existing cranes and replacing up to four existing cranes, and improving backlands, which involves replacing and reconstructing asphalt and concrete.

Lead Agency Contact

Name Christopher Cannon
Agency Port of Los Angeles, Dept. of Env. Mgmt Div.
Phone (310) 732-7675 **Fax**
email
Address 425 South Palos Verdes Street
City San Pedro **State** CA **Zip** 90731

Project Location

County Los Angeles
City
Region
Lat / Long 33° 45' 13.74" N / 113° 15' 32.06" W
Cross Streets New Dock Street & Pier S Avenue
Parcel No. 7440-023-911
Township **Range** **Section** **Base**

Proximity to:

Highways SR 47, 103, 710, 110
Airports
Railways Port of LA Red Car Line
Waterways Los Angeles Harbor
Schools POLA HS
Land Use LU - General / Bulk Cargo (Non-Hazardous Industrial and Commercial) Zoning - [Q]M3-1

Project Issues Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Drainage/Absorption; Geologic/Seismic; Noise; Public Services; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Water Quality; Water Supply; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Boating and Waterways; California Coastal Commission; Department of Fish and Wildlife, Region 5; Department of Parks and Recreation; Resources, Recycling and Recovery; California Highway Patrol; Caltrans, District 7; Air Resources Board; Air Resources Board, Major Industrial Projects; Regional Water Quality Control Board, Region 4; Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission; State Lands Commission

Date Received 05/01/2014 **Start of Review** 05/01/2014 **End of Review** 06/16/2014

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2.3.3.3 California Governor's Office of Planning and Research

Response to Comment OPR-1

Thank you for the review and comment on the Draft EIS/EIR. LAHD acknowledges that the State Clearinghouse submitted the Draft EIS/EIR to selected state agencies for review, and that no state agencies submitted comments to the State Clearinghouse by the close of the public review period on June 16, 2014. LAHD did receive comments from the California Coastal Commission on June 2, 2014, and provides a response above in Response to Comment CCC-1. In addition, the California Department of Transportation, District 7, submitted comments on June 12, 2014; those comments are addressed above in Responses to Comments DOT-1 through DOT-11. Further, LAHD acknowledges that, as the lead agency, it has complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to CEQA.

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2.3.4 Regional and Local Government Comments

Comment Letter SCAQMD

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

E-Mailed: June 27, 2014
ceqacomments@portla.org
Theresa.stevens@usace.army.mil

June 27, 2014

Chris Cannon
Director of Environmental Management
Los Angeles Harbor Department
P.O. Box 151
San Pedro, CA 90733-0151

U.S. Army Corps of Engineers
Los Angles District, Regulatory Division
Ventura Field Office
ATTN: Theresa Stevens, Ph. D
2151 Alessandro Drive, Suite 110
Ventura, CA 93001

Review of the Draft Environmental Impact Statement/Report (Draft EIS/EIR) for the Proposed Berths 212-224 (YTI) Container Terminal Improvements Project

SCAQMD-1 The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the Draft EIS/EIR for the Proposed Berths 212-224 (YTI) Container Terminal Improvements Project. The proposed Project involves deepening two existing berths, adding one additional berth, modifying and replacing cranes, adding on-dock rail track, and constructing backland improvements. At completion, the modifications will increase the terminal capacity by approximately 13 percent from 1,692,000 TEUs to 1,913,000 and result in a 10 and 13 percent increase in resulting truck and train trips, respectively over the No Project Alternative.

SCAQMD-2 The proposed Project is also one of two major port projects that are currently going through the approval process (Yang Ming being the other one). It is important that these projects are developed in a complementary and coordinated manner to achieve the long-term goal of reducing the significant air quality impacts the Ports of Los Angeles creates in the South Coast Air Basin.

SCAQMD-3 Based on the Draft EIS/EIR, the proposed Project will cause significant impacts after mitigation for construction and operation. The proposed project's regional emissions impacts from construction under CEQA will remain significant after mitigation for PM2.5, NOx, CO, and VOC. PM2.5 is significant after mitigation in 2015. Construction impacts also cause exceedances of the significance thresholds for the localized impacts

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SCAQMD-3 cont.

from NO_2 and PM10 during both construction years (2015 and 2016). The proposed project's regional operational emissions impacts under CEQA will remain significant after mitigation for NOx, CO, and VOC. Peak day operational emissions impacts also cause exceedances of the localized significance thresholds for NO_2 and PM10. SCAQMD staff is also concerned that the modeling conducted for this EIR demonstrates that emissions from this terminal exceed the federal ambient air quality standard for NO_2 during long-term operations. Further, the proposed Projects impacts on cancer risk show that even after mitigation, the maximum predicted cancer risk is above 10 in 1 million for occupational and marina-residential receptors in comparison to the future CEQA baseline (31 in 1 million for occupational, and 11 in I million for marina-residential), which is above the significance threshold.

SCAQMD-4

Exceedances of the SCAQMD significance thresholds even after implementation of proposed mitigation measures necessitate the lead agency to mandate additional mitigation measures. These findings of significance show that all feasible mitigation measures including zero emission technologies such as battery-electric truck technologies are necessary, and should be incorporated as enforceable project requirements. Further,

SCAQMD-5

although the DEIR states that on-dock rail is already being maximized at this facility, given the significant air quality impacts related to other rail yard projects proposed for development off port, the lead agency should reconsider this conclusion and provide additional analysis showing the possibilities for increasing on-dock rail beyond what is currently proposed. In Attachment A, the SCAQMD staff has provided a discussion of

SCAQMD-6

changes to existing mitigation measures and some additional mitigation measures which the lead agency should implement. Attachment A also includes specific comments on the Draft EIS/EIR's modeling and emission quantification analysis and assumptions.

SCAQMD-7

Pursuant to Public Resources Code Section 21092.5, please provide the SCAQMD staff with written responses to all comments contained herein prior to the adoption of the Final EIS/EIR. Further, staff is available to work with the lead agency to address these issues and any other questions that may arise. Please contact me, at (909) 396-3105, if you have any questions regarding the enclosed comments.

Sincerely,

Susan Nakamura

Susan Nakamura
Director, Strategic Initiatives

SN:EE:IM:JK
Attachments

1

ATTACHMENT A

SCAQMD-8

Zero Emission Container Transport System

- The proposed Project will increase the number of containers at the YTI terminal. The change to the on-dock rail yard as proposed has insufficient capacity to handle the increase in containers. As a result, the number of annual truck trips to near or off-dock rail yards will increase by 10% over the No Project Alternative (Table 3.2-7). Because of the significant NOx regional emissions and NO_2 localized impacts from the proposed Project operations (including trucking activities) identified in the Draft EIS/EIR, CEQA requires the lead agency to implement all feasible mitigation (CEQA Guidelines 15126.4). The proposed project should include a measure that requires transport of containers using a zero-emission technology that does not create tailpipe emissions from the vehicle or system that is transporting containers. Zero-emission container transport technologies can be commercialized in sufficient time to begin operational deployment between the YTI terminal and the near-dock railyards. An update to the discussion of zero-emission truck technologies and their current state of commercialization previously submitted with our comments to the Draft and Recirculated Draft Environmental Impact Report (Recirculated DEIR) for the Southern California International Gateway (SCIG) Project in 2012 is also included in this comment letter as Attachment B.

SCAQMD-9

Compatibility with the 2010 CAAP and San Pedro Bay Standards

- The proposed Project is not consistent with the San Pedro Bay Standards. As outlined in the 2010 Update to the Clean Air Action Plan (CAAP)[1] the San Pedro Bay Standards represent the health risk and emissions reduction goals for the ports through the year 2023. According to the San Pedro Bay Standards, environmental analysis of each proposed port project, such as the YTI Container Improvement Project must include a review of newly feasible and available project-related emission control technologies, if any, that if imposed on the proposed project, would contribute to achievement of the 85% risk reduction goal of the Health Risk Reduction Standard and the various emission reduction goals of the Emission Reduction Standards outlined in the CAAP. The proposed Project is inconsistent with this goal.

  One example of the inconsistency with the San Pedro Bay Standards is that all projects must meet the 10 in 1,000,000 (10 in 1 million) in excess residential cancer risk threshold, as determined by health risk assessments conducted subject to CEQA statute, regulations and guidelines, and implemented through required CEQA mitigations associated with lease negotiations. However, the proposed Projects impacts on cancer risk shows that even after mitigation, the maximum predicted cancer risk is above 10 in 1 million for occupational and marina-residential receptors in comparison to the future CEQA baseline (31 in 1 million for occupational, and 11 in 1 million for marina-residential), which is above the significance threshold.

[1] San Pedro Bay Ports Clean Air Action Plan 2010 Update, http://www.portoflosangeles.org/CAAP/12_21_2010_CAAP_update_full_text.pdf

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The Final EIS/EIR should provide a comparison of the proposed Project's with the San Pedro Bay Standards. As specified in the 201 Update to the CAAP, the evaluation should be based on the following criteria[2]:

- Projects must meet the 10 in 1 million excess residential cancer risk threshold, as determined by health risk assessments conducted subject to CEQA statute, regulations and guidelines, and implemented through required CEQA mitigations associated with lease negotiations.
- Projects that exceed the SCAQMD CEQA significance threshold for criteria pollutants must implement the maximum available controls and feasible mitigations for any emissions increases.
- The contribution of emissions from a particular project to the cumulative effects, in conjunction with CAAP and other adopted/implemented control measures, will allow for the timely achievement of the San Pedro Bay Standards.

SCAQMD-9 cont.

Criteria Pollutant Impacts

- *NO_2 Ambient Air Quality Standard Exceedance*

Table 3.2-35 of the EIR shows that the mitigated incremental project impact (36 $\mu g/m^3$), when added to the background (164 $\mu g/m^3$), yields a total project impact of 200 $\mu g/m^3$. This concentration causes an exceedance of the federal 1-hr NO_2 ambient air quality standard (188 $\mu g/m^3$) during long-term operations. Although the exceedance is dominated by the background concentration, the location of the background monitor within about a quarter mile of the project site indicates that the YTI terminal is a significant contributor to the high background.

SCAQMD-10

SCAQMD staff is concerned that a potential future exceedance of an ambient air quality standard may be caused in whole or in large part by a single facility. Besides affecting public health, exceedances of ambient air quality standards can have other repercussions (e.g., economic, regulatory, etc.) to the region due to the federal mandates to address the exceedance. The primary sources contributing to these exceedances in the dispersion modeling are locomotives, trucks, and ships, depending on location. Because of the limited paths to reduce emissions from these sources through traditional regulatory mechanisms, this CEQA document may represent the most effective way of addressing this exceedance. The Final EIR should therefore require additional mitigation to ensure that this project will not cause an exceedance of the NO_2 ambient air quality standard.

- *Maps of Criteria Pollutant Impacts*

SCAQMD-11

The EIR and appendices contain tables and text describing the dispersion modeling of criteria pollutants, however no maps are provided showing the extent of those impacts. The only maps provided (e.g., Figure 3-16 in Appendix B2) only show the points of maximum impact. Maps that show contours of all areas affected

[2] San Pedro Bay Ports Clean Air Action Plan 2010 Update, http://www.portoflosangeles.org/CAAP/12_21_2010_CAAP_update_full_text.pdf

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SCAQMD-11 cont.

significantly by NO_2 and other criteria pollutants should be provided in the Final EIR, similar to what is shown for cancer risks.

- *Source Contributions of Criteria Pollutant Impacts*

SCAQMD-12

Table 3-34 from Appendix B2 of the DEIR presents a useful breakdown of source contributions at the points of maximum impact for each criteria pollutant. The Final EIR should include an expansion of this table showing source contributions at other key areas. For example, the dispersion modeling files provided to SCAQMD staff show that 1-hr NO_2 concentrations exceed federal ambient air quality standards in an area surrounding the project, and also in residential areas in San Pedro. As shown in Table 3-34, referenced above, locomotives are the key contributor at the point of maximum impact. However from the dispersion modeling files it appears that ocean going vessels are the key contributor for residential areas in San Pedro. The Final EIR should illustrate these differences, and tailor mitigation accordingly.

On Dock Rail

- Section 2.9.2.3 of the DEIR states that additional on dock rail beyond what is proposed for the project is not possible for this facility. Three reasons are provided:

  1. There are infrastructure limitations between the marine terminals and the Alameda Corridor
  2. Not all intermodal cargo can be placed on a train on-dock due to the time needed to build a train for some cargo. Building trains sourced from multiple locations is easier and faster off port at near or off dock rail yards.
  3. Not all intermodal cargo needs to travel by train, most only travels by truck.

SCAQMD-13

SCAQMD staff appreciates this rationale, however conditions may change in the future that allow greater use of on dock rail. For example, if rail infrastructure limitations are addressed in the future (e.g,. the bottleneck at Badger Bridge), then the only remaining impediment to increasing on dock rail may be the on dock rail yards themselves. Given the significant impacts to the community from proposed near dock rail yards, the YTI project should allow the flexibility to increase on dock use in the future. As one example, though not necessarily a recommendation, if the TICTF rail yard were rebuilt to include electric wide span gantry cranes to allow greater throughput, access was allowed at all on dock rail yards from other terminals, and rail infrastructure limitations were addressed, then the percentage of on-dock rail may be able to significantly increase. The Final EIR should present additional analysis of ways that on dock rail can be increased in the future, even if the analysis doesn't assume that all new cargo throughput utilizes on dock rail (as already dismissed in Section 2.9.2.3).

CEQA Baseline

- The Draft EIS/EIR should include a realistic baseline which accurately reflects the improvements in air quality that will occur, independent of the proposed project. The Draft EIS/EIR uses a CEQA baseline for determination of air quality impacts from criteria pollutants based on calendar year 2012 which corresponds to the release of

SCAQMD-14

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SCAQMD-14 cont.

the Notice of Preparation (NOP) for the proposed Project. For analysis purposes under Air Quality Impacts AQ-1 through AQ-5, this baseline is held constant and compared to future years under the proposed Project. However, this approach uses a comparison between the proposed Project impacts and a baseline that is not reflective of future emission reductions from existing air quality rules and regulations. As mentioned in previously submitted comment letters, the SCAQMD staff believes that CEQA not only allows but actually requires a determination of significant impacts that does not credit the project with unrelated improvements in air quality that will occur anyway. The lead agency did take this baseline approach when determining significance for cancer and other health risks of the proposed Project, and for consistency, this approach should be used when determining significance for regional criteria emissions.

The purpose of CEQA is to disclose environmental impacts from the proposed Project to the public and decision makers. Not taking into account future emission reductions from existing air quality rules in the baseline masks adverse impacts and results in the appearance that the proposed Project benefits air quality, while in fact the effect of implementing existing rules and regulations is contributing most of the air quality benefits. CEQA's intent is to provide the public and decision makers the actual changes to the environment from the proposed Project.

Mitigation Measures

- *MM AQ-3: Fleet Modernization for On-road Trucks (used during construction)*

SCAQMD-15

MM AQ-3 of the Draft EIS/EIR requires that all on-road heavy-duty diesel trucks used during construction should comply with the EPA 2007 on-road PM and NOx emission standards. Because of the significant NOx and NO_2 impacts, the Draft EIS/EIR should require as part of this mitigation measure, use of the trucks that emit the lowest levels of NOx available. Specifically, trucks used during construction should operate on engines with the lowest certified NOx emissions levels (i.e., meeting a 0.2 g/bhp-hr NOx emission level), and if the cleanest available truck does not meet the EPA NOX emission level of 0.2 g/bhp-hr, then those meeting the 2007 on-road NOx emission standards may be used. Mitigation Measure MM AQ-3 should also apply during circumstances where a piece of compliant equipment becomes available during the timeframe of construction.

- *MM AQ-6: Construction Best Management Practices (BMPs)*

SCAQMD-16

Mitigation Measure MM AQ-6 of the Draft EIS/EIR requires the lead agency to implement BMPs contained in the LAHD Sustainable Construction Guidelines to reduce fugitive dust air emissions during construction. The Draft EIS/EIR is clear on how construction equipment and on-road trucks used during construction are consistent with the Guidelines. However, it is far from evident what the list of fugitive dust construction BMPs are for the proposed Project. At minimum, the fugitive dust prevention BMPs should be specified in the Draft EIS/EIR and include the control measures contained in the SCAQMD CEQA Air Quality Analysis Handbook available at the following link: *http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/fugitive-dust*

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SCAQMD-17

- *MM AQ-9: Cleaner OGV Engines*

  As the Draft EIS/EIR acknowledges, the majority of the NOx emissions impacts are caused by ocean going vessels (OGV) transiting to and from the YTI terminal. The lead agency has proposed mitigation measure MM AQ-9 (Vessel Speed Reduction) which reduces NOx emissions from OGV during transit. Because the project will have significant regional and localized air quality impacts related to NOx emissions and NO_2 concentrations, the lead agency must implement additional feasible mitigation measures for all sources, including OGV.

  Considering that the transit emissions from ocean going vessels are a substantial portion of the NOx emissions from the proposed Project, the Final EIS/EIR should include a mitigation measure for vessels to meet the cleanest new engine standards to preferentially call at the YTI terminal. By January 1, 2016 for vessels operating in the west coast ECA, IMO compliant Tier 3 vessels meet a NOx limit of 3.4 g/kW-hr. This NOx emission limit represents a 400% decrease in the NOx emission rate from uncontrolled OGV engines. Implementing a preferential low emission OGV mitigation measure will potentially reduce residual NOx emissions from OGV, below significance.

  The SCAQMD staff notes that such a measure was included in the Draft EIS/EIR for the APL Terminal Berths 302 – 306 released in 2011, as well as being included as a key implementation component of the 2010 CAAP update Control Measure OGV5. As stated in the text for OGV5: "Further, the ports shall also consider developing a targeted outreach program and/or establishing of an incentive program geared toward facilitating the early introduction of lower emitting OGVs and their preferential deployment to the ports of Long Beach and Los Angeles."[3] While the Draft EIS/EIR does state that the Environmental Ship Index (ESI) Program instituted in May 2012 is the method by which OGV5 is implemented Port-wide, the lead agency should include a OGV preferential deployment incentive program as a lease agreement for the proposed Project, especially given the air quality impacts from the proposed Project OGV emissions.

SCAQMD-18

- *MM AQ-10: OGV Alternative Marine Power (AMP)*

  MM AQ-10 requires that by 2026, NYK Line operated ships calling at the YTI Terminal must use AMP for 95% of total hoteling hours while hoteling at the YTI terminal. The SCAQMD staff is encouraged that the lead agency is proposing to go beyond the CARB statewide regulation which requires 80% of at-berth emissions be reduced by on-shore power (or other equivalent methods). However, because the project will have significant regional and localized air quality impacts related to NOx emissions, the lead agency must strengthen this mitigation measure for all sources by including the following:

  – Accelerate the 95% requirement for NYK Line operated ships (56% of total) to 2017 because this is the first year that AMP will be available for use at Berths 217-220, and there is no reasonable explanation for delaying the implementation to 2026.

[3] San Pedro Bay Ports Clean Air Action Plan 2010 Update, pg.119
http://www.portoflosangeles.org/CAAP/12_21_2010_CAAP_update_full_text.pdf

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SCAQMD-18 cont.

– Apply the 95% requirement to non-NYK Line ships calling at the YTI Terminal (44% of total). The Draft EIS/EIR currently applies an 80% reduction to non-NYK Line ships calling at the YTI Terminal (Appendix B, Table B1.25) which mirrors the CARB Shore-side Power regulation requirement. However, since AMP will be available at all berths beginning in 2017, non-NYK Line ships have the capability to take advantage of this extra AMP capacity and if properly equipped, should be mandated to utilize shore power (in fact, the CARB regulation requires it).

- *Rail Mitigation Measure*

SCAQMD-19

The Draft EIS/EIR does not contain any mitigation measures for rail operations. Instead the lead agency relies on existing CAAP measure RL-2 (*Class 1 Line-haul and Switcher Fleet Modernization*) to further reduce emissions from Class 1 locomotives operating at the YTI terminal. The CAAP control measure RL-2 relies on the existing CARB MOUs and the existing U.S. EPA 2008 locomotive engine rulemaking to achieve emission reductions from rail operations. In addition, there is a complete absence of any discussion of the existing CAAP measure RL-3 (*New and Redeveloped Rail Yards*). Under CAAP Measure RL-3 the Port of Los Angeles should incorporate the cleanest locomotive technologies at new rail facilities, or modifications to existing rail facilities located on Port property. Since the Proposed Project includes expansion of the existing on-dock railyard, this in effect constitutes a modification to an existing rail facility on Port property and RL-3 should apply.

SCAQMD-20

While most of the switching and building of trains under the proposed Project is done by PHL, line haul locomotives do operate at the proposed Project site and the total annual number of on-dock rail trips is predicted to increase by 18% over the life of the project as compared to the no project alternative. Rail emissions represent the third highest contributor to NOx, after mitigation.

In order to address these discrepancies and reduce the impacts from locomotive operations under Air Quality Impacts AQ-3 and AQ-4, the lead agency should add mitigation that requires accelerated introduction of Tier 4 line haul locomotives used at the YTI on-dock railyard.

- *Low Emission Drayage Trucks*

SCAQMD-21

Because the project will have significant regional and localized air quality impacts related to NOx emissions and NO_2 concentrations, the lead agency must implement additional feasible mitigation measures for all sources, including drayage trucks. NOx and PM emissions from diesel vehicles are substantially higher than emissions from zero-emission vehicles such as electric trucks. Even the cleanest combustion engine technology will have associated local NOx emissions impacts substantially above zero-emission technologies. Zero-emissions technologies such as those discussed in Attachment B thus must be included as mitigation measures for significant NO_2 concentrations. The deployment of zero-emissions technologies will also provide additional co-benefits in terms of additional reduction in diesel fine particulates and cancer risk.

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SCAQMD-22

- *Zero-Emission Yard Trucks*

  The Draft EIS/EIR for the proposed Project lacks any additional mitigation measures for cargo handling equipment (CHE). Instead it relies on implementation of CARB's Mobile Cargo Handling Equipment Regulation as a project element. Due to the operational air quality impacts being significant after mitigation for NOx (regional) and PM10 (localized), additional mitigation is needed. Going beyond CARB's regulation is required and the lead agency should include a mitigation measure requiring a specific percentage of yard trucks to be zero emissions. Zero-emission yard trucks offer substantial reductions in NOx and PM emissions compared to diesel yard trucks and are currently nearing the completion of their in-use testing. The SCAQMD staff anticipates their commercial availability within a two-year time frame which is well within the near-term operation schedule of the proposed Project.

SCAQMD-23

- *Additional Mitigation Needed to Address Cumulative and Environmental Justice Impacts*

  State CEQA 13 Guidelines (14 California Code of Regulations [CCR] 15130) require a reasonable analysis of the cumulatively considerable impacts of a proposed Project. The conclusion of the Draft EIS/EIR is that after mitigation, the proposed Project would result in a cumulatively considerable and unavoidable contribution to an existing significant cumulative impact from regional impacts for PM2.5, NOx, CO, and VOC emissions under CEQA construction, and NOx, CO, and VOC emissions for operation. In addition, the proposed Project after mitigation would make a cumulatively considerable and unavoidable contribution to localized impacts from PM10 and NO_2. It is also clear that the proposed Project's cumulative impacts from cancer risks are above the significance threshold for occupational and marina-residential receptors in comparison to the future CEQA baseline.

  In addition, the Environmental Justice section of the Draft EIS/EIR states that, "Because the area surrounding the proposed Project site is predominantly minority and low-income, Impacts AQ-1 *[regional VOCs, CO, NOx, and PM2.5 impacts]*, AQ-2 *[localized NO_2 and PM impacts for construction]*, AQ-3 *[regional NOx and VOC]*, and AQ-4 *[localized NO_2 and PM impacts]* would constitute a disproportionately high and adverse effect on minority and low-income populations." These pollutants are associated with chronic respiratory diseases such as asthma as well as declines in pulmonary function, especially in children.

  The Draft EIS/EIR includes no additional mitigation measures to address these cumulative and environmental justice impacts. The lead agency needs to supplement the existing mitigation measures with new or enhanced emission reduction strategies for the proposed Project in order to reduce the cumulative and environmental justice impacts from the proposed Project and all other port-related projects. The strategies that should be considered have been stated above and include enhancements to MM AQ-3, MM AQ-9, MM AQ-10, as well as a separate rail mitigation measure and zero-emission container transport proposal.

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Proposed Project Emission Quantification Analysis and Assumptions

SCAQMD-24

- *Unavailability of DEIR Modeling and Emission Calculation Files*
  SCAQMD staff originally requested electronic copies of all modeling and supporting emission calculation files in our May 3, 2013 NOP comment letter. These files were not provided to us with the release of the Draft EIR, nor were they available online. We again requested these files on May 28, 2014 and did not receive a cd until June 10, 2014, six days before the end of the comment period. Due to the lateness of our receipt of these files, the lead agencies granted an extension to our review until June 30, 2014. However, as part of our review, we discovered that some of the files still were not included on the cd. These files included crucial connections between the dispersion modeling inputs and the emission calculations (files received June 26, 2014) as well as emission calculations related to trucks (file not received). Review of these detailed calculations and modeling take considerable time, and this is made more difficult when time is wasted attempting to work around unknown missing information.

  SCAQMD staff has previously commented to the port how crucial it is to receive a complete set of files for review (e.g., SCIG project comment letters from 2/1/12, 2/14/12, 11/14/12, 3/6/13). We are concerned that despite our repeated and consistent requests that the lead agency still has not implemented procedures for making the technical analysis of the DEIR available to the public or our agency. We have attempted to provide an expedited review in the two and half weeks granted to us, however this shortened period and the missing files, have made a complete review impossible. In the future, we strongly encourage the port to provide complete sets of air quality analyses to our agency at the beginning of review periods, as required by CEQA.

SCAQMD-25

- *Quantification of Mitigation Measure MM AQ-4 Impacts*

  It is unclear how the mitigated impacts from MM AQ-4 (Tier 4 Construction Equipment) were taken into account in the Draft EIS/EIR mitigated construction emissions. The emission quantification methodology found in Table B1.6 of Appendix B of the Draft EIS/EIS uses the LAHD Sustainable Construction Guidelines - Table A: Compliance Step-Down Schedule to determine mitigated emissions. The Step-Down schedule provides criteria to allow non-tier 4 equipment use. However, MM AQ-4 states *"[E]xcept vessels, harbor craft, on-road trucks, and dredging equipment . . . [a]ll diesel-powered construction equipment greater than 50 hp must meet EPA Tier 4 off-road emission standards."* The SCAQMD staff is concerned with the methodology used to calculate the emissions using the Step-Down Schedule. The emission calculation sheet Table B1.6 in Appendix B of the Draft EIS/EIR uses the assumptions shown in the following table to determine the offroad equipment fleet mix. Further clarification should be provided to explain this assumed low level of compliance with the Tier 4 mandate of MM AQ-4. Further, it is not clear why some of the 'steps' in the Step-Down Schedule are skipped, such as Tier 4 interim engines, or Tier 2 equipment with Level 3 DECS. This discrepancy should be corrected in the Final EIS/EIR.

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SCAQMD-25 cont.

Fleet Mix Assumption from Appendix B1 Table B1.6

Engine Standard	Percentage of Fleet in 2015
Tier 4 final	50%
Tier 3 – Level 3 DECS	20%
Tier 1 – Level 3 DECS	10%
Tier 2 – Level 2 DECS	10%
Tier 1 – Level 2 DECS	10%

SCAQMD-26

- *Quantification of Cumulative Impacts*

Air quality impacts from cumulative impacts in the Draft EIS/EIR (page 4-28 for criteria and toxic air pollutant emissions and pages 4-75 to 4-76 for greenhouse gas emissions) were qualitatively analyzed. The lead agency assessed cumulative impacts by assuming project air quality impacts, which exceeded significance thresholds, were then significant under cumulative air quality impacts. However, the severity of this cumulative impact is not clear with this simple determination of significance. SCAQMD staff recommends that the Final EIS/EIR include a quantification of cumulative air quality impacts that includes other proposed projects in the POLA area.

SCAQMD-27

Figure 4-1 in the Draft EIS/EIR incorrectly identifies the location of other projects contributing to the overall cumulative project impact. For example, the ICTF modernization project and the SCIG projects are both shown south of Pacific Coast Highway. The SCIG project is dominantly located north of PCH, while the ICTF project is located north of SCIG. The locations of all cumulative projects should be checked and updated as necessary on this map in the Final EIS/EIR.

SCAQMD-28

- *Quantification of Idling Activity at the YTI Terminal*

Page 3.2-46 of the Draft EIS/EIR indicates that heavy-duty diesel-fueled idling emissions were developed assuming six minutes of idling for trucks arriving at the gate, eight minutes for trucks leaving the gate and 10 minutes on-site. Additional clarifying information should be provided to support this assumption. This clarification should include information about:

  - Existing idling times, including during peak periods,
  - An analysis of queuing impacts once the facility is operating at full built out capacity, and
  - Confirmation that there are not other idling locations associated with the project other than those specified above.

SCAQMD-29

- *Morbidity and Mortality Methodology.*

On page 3.2-56 of the Draft EIS/EIR, the lead agency describes the methodology that was used to determine when a mortality and morbidity analysis would be conducted for the proposed Project. Mortality is a measure of the number of deaths in a population, scaled to the size of that population, per unit time. Morbidity refers to the number of individuals who have contracted a disease during a given time period (the incidence rate) or the number who currently have that disease (the prevalence rate), scaled to the size of the population. The Draft EIS/EIR determined that mortality and

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morbidity significance would be identified by air dispersion modeling where the incremental operational emissions would result in off-site 24-hour PM2.5 concentrations that exceed the SCAQMD significance criterion of 2.5 $\mu g/m^3$.

SCAQMD-29 cont.

The SCAQMD staff does not agree with using a screening threshold of an incremental increase of 2.5 $\mu g/m^3$ for determining mortality and morbidity. The SCAQMD's PM2.5 significance threshold of 2.5 $\mu g/m^3$ is designed to determine the significance of localized impacts on nearby receptors, and was made consistent to existing permitting requirements under our Rule 1303. The PM2.5 significance threshold of 2.5 $\mu g/m^3$ was not intended to be used as a screening tool to further analyze mortality and morbidity impacts.

The lead agency set precedent for conducting mortality and morbidity analyses in three of its own previous EIRs: TraPac, China Shipping, and San Pedro Waterfront EIRs. In all three cases there was no threshold used to determine if an analysis for mortality and morbidity would be done. The SCAQMD staff considers this to be sufficient precedent for the POLA to continue this practice for the proposed Project. The PM mortality analysis in the Draft EIS/EIR should therefore instead use the methods described in CARB's 2008 guidance document.[4]

- *Meteorological Data*

SCAQMD-30

Page B2 -21 of Appendix B2 of the Draft EIS/EIR indicates that 2006-2007 meteorological data from the Terminal Island Water Reclamation Plant (TITP) was used for dispersion modeling for both criteria pollutants and toxic air contaminants (TACs). This meteorological data does not appear to have been validated by SCAQMD staff. The lead agency should provide SCAQMD the protocol for developing the meteorological data and demonstrate that U.S. EPA and SCAQMD procedures were followed.

Page B2-21 of the Air Quality Appendix B of the Draft EIS/EIR indicates that the POLA's consultant ENVRON evaluated the completeness of the meteorological data by quarter, the average wind speed and visually examined the wind pattern based on wind roses between the 2006-2007 meteorological data and data collected between 2009 and 2012; however, no additional information (e.g., evaluation criteria, statistical analysis, etc.) was provided to support this assertion.

SCAQMD-31

The Federal one-hour NO_2 NAAQS is the 3-year average of the 98th percentile of the yearly distribution of one-hour daily maximum NO_2 concentrations. Since only one year of meteorological data was used for air dispersion modeling, the project proponent used the 8^{th} highest NO_2 concentration to represent the 3-year average of the 98th percentile of the yearly distribution of one-hour daily maximum NO_2 concentrations. This could have resulted in an over estimation of the NO_2 concentration since the highest concentrations may have occurred on the same day. However, multiple years of met data may reveal other peaks that are not captured by the single year that was used.

[4] Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California, 10/24/2008. http://www.arb.ca.gov/research/health/pm-mort/PMmortalityreportFINALR10-24-08.pdf

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SCAQMD-32 In addition, the information derived from the 2006-2007 meteorological data in the TITP does not include sufficient data to estimate the 98th percentile of the yearly distribution of one-hour daily maximum NO_2 concentrations correctly. The SCAQMD staff recommends that additional verification of the meteorological data be provided, or that criteria and TAC concentration be remodeled with SCAQMD meteorological data collected at the Long Beach station. The SCAQMD Long Beach meteorological data can be downloaded by using the following link: http://www.aqmd.gov/docs/default-source/air-quality/meterorological-data/aermod-ready-meteorological-data/table-1-meteorological-sites/aermod-table-1-long-beach.exe?sfvrsn=4.

SCAQMD-33 Page B2-22 of Air Quality Appendix B2, states that 1-hour ozone concentrations from the Long Beach Ambient Air Quality Monitoring Stations were used in AERMOD. If new met data is used, then the ozone files should also be updated to correspond to the new met data period.

- *Air Dispersion Modeling Parameters*

SCAQMD-34 SCAQMD requires that the urban air dispersion option be used for air dispersion modeling. An urban population of 664,078 was used in the input files for air dispersion modeling. Air dispersion modeling with urban populations less than two million may result in concentrations that resemble modeling with the rural dispersion option. Since the rural dispersion option typically generates more conservative concentrations than the urban dispersion option, the concentrations in the Draft EIS/DEIR may be too conservative. The SCAQMD staff recommends that concentrations be remodeled using the Los Angeles County population of 9,862,049.

SCAQMD-35 Ozone evaluation concentration is listed as 0.056 ppm in the air dispersion input files, but this value does not match values in Table 3.2-2. Please clarify the source of this value.

- *Health Risk Assessment (HRA)*

SCAQMD-36 Page B3-8 of Appendix B3 – Health Risk Assessment of the DEIR states that boiler emission TAC emissions were speciated using ARB Speciation 112 for distillate. The boiler emission factors in the file OperationalCalculations22_AQMD.xlsb state that they are using a residual oil emission factor. It is unclear from the narrative whether the actual fuel used in the boilers is fuel oil or diesel. Hence, it is unclear if the correct ARB speciation profile was used. Further clarification should be provided in the Final EIS/EIR.

SCAQMD-37 Carcinogenic health risks to student receptors were estimated using the following parameters: 581 liters per kilogram-day breathing rate, six hours per day daily exposure, 180 days per year and six years of exposure (page B3-39 of Appendix B3 of the Draft EIS/EIR). The fewest number of years allowed in current OEHHA risk guidance is nine years. The student health risk in the Final EIS/EIR should be based on no less than a nine- year exposure duration in the Final EIS/EIR.

- *Emission factors*

SCAQMD-38 Mitigated emissions from on-road vehicles were estimated using Clean Truck Program (CTP) emission factors (EF_OnroadEngine spreadsheet in the file

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SCAQMD-38 cont.

Construction Calculations_8_OceanDisposal_CargoShip_AQMD.xlb). It is unclear how the CTP emission factors were developed. The Final EIS/EIR should include documentation of how the CTP emission factors were developed.

SCAQMD-39

The 20 percent HCFC-22 loss from refrigeration units on ocean-going vessels in Table B1.33 of Appendix B1 of the Draft EIS/EIR is referenced as being based on the UN Environmental Programme 2006 and 2010 Reports from the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee. However, based on the reference, an annual loss of 20 percent seems too low. Table 5-6 in the 2010 Report from the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee lists 30 percent loss HCFC-22 for all ships. The SCAQMD staff recommends using the 30 percent loss rate unless documentation is provided in the Final EIS/EIR for the 20 percent value.

SCAQMD-40

SCAQMD staff could not replicate annual horsepower-hour values with CARB's cargo handling emissions inventory model (CHEI) for operational equipment. The Final EIS/EIR should include documentation on the development of the annual horsepower-hour values in the CARB CHEI model or the version of the CHEI model used if the values were obtained from a previous version of the current CARB CHEI model.

SCAQMD-41

Genset emission factors for TRU's seem to be lower than cited references (ARB ATCM and CalEEMod Appendix D). The following table provides an example of the differences between the NOx emissions in the DEIR and CalEEMod Appendix D). The Final EIS/EIR should include documentation on the development of the genset emission factors for the TRU's .

Year	Draft EIS/EIR NOx, g/bhp-hr	CalEEMod Appendix D NOx, g/bhp-hr
2012	5.38	5.485
2013	4.96	5.263
2014	4.54	5.048
2015	4.12	4.858
2016	3.68	4.685
2017	3.56	4.522
2018	3.457	4.366
2019	3.353	4.215
2020	3.25	4.075

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ATTACHMENT B
SCAQMD COMMENTS ON DRAFT EIS/EIR FOR THE PROPOSED BERTHS 212-224 (YTI) CONTAINER TERMINAL PROJECT
ZERO-EMISSION TRUCK TECHNOLOGIES

Overview

The SCAQMD comments regarding the Draft EIS/EIR for the Proposed Berths 212-224 (YTI) Container Terminal Improvements Project strongly support the inclusion of a zero-emission component into the proposed project. The specific technology or technologies used to implement this component would be determined by the lead agency. In our comments on the SCIG Recirculated Draft EIS/EIR[5] we provided Attachment B which discussed the state of development of zero-emission truck technologies. Based on this discussion we concluded that the deployment of electric trucks was feasible early in the lifetime of the proposed Project. The following discussion includes an update to the previously submitted attachment and again focuses on electric truck technologies.

SCAQMD-42

Zero emission technologies for transport applications, including heavy trucks, are developing rapidly and can, with appropriate actions by the lead agency and other entities, be deployed early in the operational phase of the proposed Project. Any of several types of zero-emission truck technologies could be used. As is described below, these include, but are not limited to, on-road technologies such as battery-electric trucks, fuel cell trucks, hybrid-electric trucks with all-electric range (which could be coupled with natural gas or other power for range extension), and zero-emission hybrid or battery-electric trucks with "wayside" power (such as electricity from overhead wires).

Several recent analyses have supported the technical feasibility of implementing zero emission truck technologies in the I-710 corridor. For example, AQMD and LA Metro co-funded preparation by CALSTART of a report titled, "Technologies, Challenges & Opportunities I-710 Corridor Zero Emission Freight Corridor Vehicle Systems." The report was released in June and examines whether a Class 8 truck could be developed that would meet the zero-emission needs of the I-710 project alternatives described in the Draft EIR/EIS. CALSTART prepared the report with input from a wide range of industry experts. Among the findings are the following:

> "The development of a vehicle or vehicle system (truck and infrastructure power source) that can move freight through the I-710 Corridor with zero emissions has no major technological barriers. In fact, there are several technical approaches that can achieve the desired outcome. Solutions can be developed based on existing designs and technical knowledge, and require no fundamental research or technology breakthroughs. Small-scale demonstrations can begin immediately and commercialization of proven designs can certainly be achieved by 2035, the horizon year of the I-710 Corridor Project. Provided there is a strong focus on the

[5] http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2012/november/southern-california-international-gateway-august-2012.pdf?sfvrsn=4

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commercialization process, this assessment finds commercial viability could occur well before 2035, indeed within the next decade." [6]

The report also noted an unprompted and "particularly striking" degree of consensus by experts around the most promising and commercially viable approaches. The report states:

> "A 'dual mode' or 'range extender' Hybrid Electric Vehicle (HEV) with some EV-only capability was seen as the most feasible solution, particularly if combined with an infrastructure power source such as catenary or in-road, which would allow for smaller battery packs aboard the vehicles." [7]

The report concluded by stating:[8]

- "A ZE truck to serve the I-710 freight corridor (in Alternatives 6B or 6C) is fully technically feasible and can be based on vehicle architectures and designs already in prototype status.
  - Several manufacturers and suppliers have existing systems and prototype trucks ranging from near-zero- to full zero-emissions. These include dual-mode hybrids; plug-in hybrids; range-extender battery electrics; hydrogen fuel cell EVs, and battery electric trucks.
- "A zero-emissions freight truck can be developed for potential production well within the proposed timing of the corridor project. Indeed, such a truck could be developed in advance of the corridor's actual construction.
- There is a high degree of agreement on the near-term technical approaches that are most promising for a zero-emissions truck over the next five years to meet the stated requirements of the I-710 freight corridor alternatives 6B & 6C.
  - A dual-mode hybrid or range-extended hybrid (possibly using a natural gas engine) with some engine-off driving capability (hence zero tailpipe emissions) coupled with corridor-supplied electrical power (lowest risk is believed to be a catenary system) was overwhelmingly identified as the most feasible system in the 5-year time frame.
- Other possible less likely near-term solutions included in-road power, all-battery trucks with fast charge or battery swap, zero-emission equivalent engines (virtually zero NOx and PM) and exotic fuel engines.
- A single-purpose truck is considered less likely to be successful, while a multiple purpose truck is considered much more likely. Manufacturers in particular believe a successful system must be useful beyond the corridor or its production cannot be justified or sustained.
- Based on interview responses, technology is not considered a barrier to a zero-emission freight truck. Fundamental research and development is not required. Additional development and demonstration of systems and system integration, and on fielding and validating prototype vehicles, would be valuable.

SCAQMD-42 cont.

[6] http://www.metro.net/projects_studies/zero_emission/images/CALSTART_I-710_TCO_Report.pdf, pg.2
[7] http://www.metro.net/projects_studies/zero_emission/images/CALSTART_I-710_TCO_Report.pdf, pg.4,7
[8] http://www.metro.net/projects_studies/zero_emission/images/CALSTART_I-710_TCO_Report.pdf, pg.31

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- Development timelines run from near term demonstrations within eighteen months to three years, to the potential for production in as few as five years, assuming market demand was sufficient to justify moving to production. Funding assistance will be needed to speed development, validation and deployment. It will also be likely needed to support purchase. Longer-term solutions were not examined here, as the 5-year time frame best fit the I-710 project."

The report also noted the need to establish an economic case for a zero-emission corridor and its vehicles, including incentives, inducements and potential regulations. CALSTART recommended that developing this structure for a zero-emission freight corridor should be conducted in parallel with technology demonstration as soon as practicable (Page 33).

Reasons for Zero-Emission Transport

As is described in the SCAQMD comment letter regarding the Draft EIS/EIR for the Proposed Berths 212-224 (YTI) Container Terminal Improvements Project, deployment of zero-emission technologies for transport between the YTI Terminal and the near dock railyards will mitigate significant project impacts as required by CEQA.

SCAQMD-42 cont.

In addition, zero emission transport is important for the following reasons:

- In the 2010 Update to the San Pedro Bay Ports Clean Air Action Plan, the ports underscored their commitment to air quality improvement by adopting San Pedro Bay Standards. These targets for port air quality programs are comprised of two components: 1) reduction in health risk from port-related diesel particulate matter (DPM) emissions in residential areas surrounding the ports, and 2) "fair share" reduction of port-related air emission to assist the region in achieving federal air quality standards. These components reflect the ports' stated goals of reducing health risks to local communities from port-related sources, and reducing emissions to support the attainment of health-based ambient air quality standards on a regional level.

  Specifically, the ports' Health Risk Reduction Standard is to reduce the population-weighted cancer risk of ports-related DPM emissions by 85% by 2020, relative to 2005 conditions, in highly impacted communities located near port sources and throughout the residential areas in the port region. The San Pedro Bay Emission Reduction Standards are to, by 2014, reduce emissions by 22% for nitrogen oxides, 93% for sulfur oxides, and 72% for DPM; and to, by 2023, reduce emissions by 59% for nitrogen oxides, 93% for sulfur oxides and 77% for DPM.

  While the ports have made significant progress toward meeting these goals, as reflected in each port's annual emission inventories, emissions forecasts indicate that CAAP measures and existing emissions control regulations will not be adequate to achieve and maintain the San Pedro Bay Standards. Implementation of zero-emission technology options would provide significant benefits to the ports, bringing them closer to achieving the San Pedro Bay Standards, addressing

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community concerns about pollution from port operations and projects, and assisting the region in attaining National Ambient Air Quality Standards. The South Coast Air Quality Management District and the California Air Resources Board have determined that, in order to attain currently-adopted federal ozone standards, zero-emission technologies will need to be broadly deployed in transportation sources. Absent timely adoption of sufficient plans and measures to attain the national standards as required by the Clean Air Act, federal transportation funds for infrastructure projects will be jeopardized, and restrictions on construction of stationary sources will be imposed.

- Deployment of zero-emission technologies for the transport corridor between the YTI Terminal and the near-dock railyards is particularly important for the following reasons:
  - Emissions in this transport corridor occur relatively close to locations where people live, work and go to school.
  - These areas are also impacted by cumulative emissions from other port-related sources: ships, harbor craft, cargo handling equipment, locomotives and trucks.
  - Achieving emission reductions beyond current regulations and CAAP measures, as needed to attain the San Pedro Bay Standards, will be relatively challenging in the case of some port-related sources (e.g. vessel main engines) compared to further reducing emissions from other sources such as trucks.
  - The transport corridor to near dock rail yards is in an area where existing regulations and CAAP measures are projected to achieve a lower percentage level of risk reduction than other areas. *See* 2010 CAAP Update, Figure 2.2: Percent Reduction in DPM-Related Health Risk Between 2005 and 2020 for Areas Located Closest to the Ports (p.35).
  - The transport corridor to near dock rail yards--as a high volume, relatively short (approximately five mile)--route, is particularly suited to deployment of new technologies such as electric trucks, which ultimately could be deployed by the ports, and then in broader areas as technologies evolve.
- In addition to air quality benefits, utilization of zero-emission technologies could be a significant strategy for reducing greenhouse gas (GHG) emissions. Each port, in cooperation with their respective cities, has initiated a process to quantify, evaluate and implement strategies to reduce GHG emissions from their administrative operations as well as from port-related activities of their tenants and customers.
- Finally, energy security (i.e. reducing dependence on foreign oil) is also a significant consideration as the ports transition into the future. Uncertainty about

SCAQMD-42 cont.

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potential future supplies of oil and rising costs provide another reason for moving away from technologies that rely on petroleum to technologies that are powered by electricity, ideally produced using renewable energy sources.

Zero-Emission Truck Technologies

A variety of zero-emission truck technologies can be available for deployment early in the life of the proposed Project if the port requires them. The following is a discussion of key technology options.

Zero-Emission Trucks

Zero-emission trucks can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or by "wayside" electricity from outside sources such as overhead catenary wires, as is currently used for transit buses and heavy mining trucks (discussed below). All technologies eliminate fuel combustion and utilize electric drive as the means to achieve zero emissions and higher system efficiency compared to conventional fossil fuel combustion technology. Hybrid-electric trucks with all electric range can provide zero emissions in certain corridors and flexibility to travel extended distances (e.g. outside the region) powered from fossil fuels (e.g. natural gas) or fuel cells.

SCAQMD-42 cont.

Vehicles employing electrified drive trains have seen dramatic growth in the passenger vehicle market in recent years, evidenced by the commercialization of various hybrid-electric cars, and culminating in the sale of all-electric, plug in, and range extended electric vehicles in 2011. A significant number of new electric light-duty vehicles will come on the market in the next few years. The medium- and heavy-duty markets have also shown recent trends toward electric drive technologies in both on-road and off-road applications, leveraging the light-duty market technologies and component supply base. Indeed, the California-funded Hybrid Truck and Bus Voucher Incentive Project (HVIP) website currently lists more than 75 hybrid-electric on-road trucks and buses available for order from eight manufacturers.

Battery-Electric Trucks

Battery-electric vehicles operate continuously in zero-emissions mode by utilizing electricity from the grid stored on the vehicle in battery packs. Battery-electric technology has been tested, and even commercially deployed for years in other types of heavy-duty vehicles (e.g., shuttle buses). Technologically mature prototypes have recently become available to demonstrate in drayage truck applications. (TIAX, *Technology Status Report - Zero Emission Drayage Trucks*, 1 (June 2011)). Improving on vehicle efficiency and assembly costs over earlier prototypes, TransPower is currently developing heavy-duty battery electric trucks for demonstration in real world drayage service as part of a zero emission cargo transport demonstration program funded by the U.S. Department of Energy. Each demonstration truck will be capable of moving a fully loaded container on highway and over the steep Vincent Thomas and Desmond Gerald bridges at the San Pedro Bay Port. The truck will be equipped with lithium batteries providing 70 to 100 miles of operating range per charge depending on the payload and duty cycle. TransPower recently completed a first demonstration truck, EDD-1 and has

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partnered with Total Transportation Services to deploy the truck in revenue drayage service by July 2014. TransPower will build six more electric drayage trucks for this demonstration. In addition to TransPower, Balqon and US Hybrid are also working to develop and demonstrate battery electric drayage trucks under this program. Battery electric trucks can be connected to "wayside power" (such as overhead catenary wires) to extend range.

SCAQMD-42 cont.



Figure 1 TransPower Battery Electric Truck (EDD-1)



Figure 2 Balqon Battery Electric Truck

Fuel Cell Battery-Electric Trucks

Fuel cell vehicles utilize an electrochemical reaction of hydrogen and oxygen in fuel cell "stacks" to generate electricity onboard a vehicle to power electric motors. Fuel cells are typically combined with battery packs, potentially with plug-in charging capability, to extend the operating range of a battery-electric vehicle. Because the process is combustion free, there are no emissions of criteria pollutants or CO_2.

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Fuel cell vehicles are less commercially mature than battery-electric technologies, but have been successfully deployed in transit bus applications, are beginning to be deployed in passenger vehicles, and are beginning to be demonstrated in heavy duty truck port applications.



SCAQMD-42 cont.

Figure 3 Vision Zero-Emission Fuel Cell Battery Electric Truck

Hybrid-Electric with All-Electric Range (AER) Trucks

Hybrid vehicles combine a vehicle's traditional internal combustion engine with an electric motor. Hybrid-electric heavy-duty trucks that improve fuel mileage are in commercial operation today. Hybrid-electric technologies can also be designed to allow all electric propulsion for certain distances, similar to the Chevrolet Volt passenger automobile which is currently being marketed. For example, the large vehicle drive-train manufacturer Meritor has developed such a heavy-duty truck and it has been demonstrated by Walmart Inc. in the Detroit area. This "dual mode" vehicle was developed as part of a U.S. Department of Energy program. Besides the advantages of increased range flexibility, dual-mode hybrid trucks can incorporate smaller battery packs as compared to those for all-battery electric trucks. This saves weight and cost while increasing range. The Meritor truck is powered solely by battery power (i.e. produces zero emissions) at speeds less than 48 mph. These plug-in hybrid trucks can also be designed to intelligently and selectively use their stored electrical energy. The selective use of the stored electrical energy could result in meaningful gains in drive system efficiency and emissions reductions while utilizing a modestly sized battery. By targeting the use of the electrical energy at the least efficient operating points or greatest polluting operating regimes of the internal combustion engine, the utilization of the electrical energy can be best leveraged to yield the greatest gains, as is being investigated by an ongoing Class 8 PHEV development project by Volvo Powertrain.

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Figure 4: Dual-Mode Hybrid (Meritor)

Trucks With Wayside Power (e.g. "Trolley Trucks")

One largely existing technology that could be used to move trucks regionwide is wayside power to power motors and/or charge vehicle batteries. Wayside power from overhead catenary wires is commonly provided to on-road transit buses, and has been used for heavy mining trucks. An example of how wayside power is feasible would be to outfit a battery-electric or hybrid AER truck with a connection to overhead catenary wires. Many cities operate electric transit buses that drive on streets with overhead wires, as well as streets without them. In such cities, "dual-mode" buses have capability to disconnect from the overhead wire and drive like a conventional bus. In Boston and other cities, such buses are propelled "off wire" by diesel engines. In Rome, such buses are propelled off wire by battery power to the same electric motors used on wire. The batteries are charged as the bus operates on the wired roadways. Figure 4 shows a dual-mode electric and battery-electric transit bus with detachable catenary connection in Rome, Italy.[9]

SCAQMD-42 cont.



Figure 5 Dual-Mode Battery Electric Transit Bus (Rome)

The AQMD funded and provided input to a study titled Zero-Emission Catenary Hybrid Truck Market Study. This study was prepared by Gladstein, Neandross & Associates and was released in late March 2012, and presented at the ACT Expo in May. The study explores the potential market for zero-emission trucks, including hybrid electric trucks with all electric range, that receive wayside power, such as from overhead electric catenary wires. Potential markets include the I-710, transport between the ports and near-

[9] Other proposals have been evaluated and awarded by the SCAQMD and the CEC to develop catenary trucks and hybrid trucks with AER. Similarly, in 2010, Volvo announced an award by the Swedish Energy Agency to develop a "slide in" technology for both automobiles and trucks which would provide wayside power from the road to the vehicle using a connection from the bottom of the vehicle to a slot in the roadway (http://www.energimyndigheten.se/en/Press/Press-releases/New-initiatives-in-electrical-vehicles/).

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dock railyards, and a potential east-west freight corridor. The report concludes that such technologies could provide standard operating range for local or regional trucks and could have similar or lower cost compared to other zero-emission technologies.[10]

The Zero-Emission Catenary Hybrid Truck Market Study[11] states "As the I-710 expansion project moves forward, decisions will be made about the best technologies to reduce truck related emissions and traffic congestion from the corridor. In 2004, the local communities along the I-710 identified their preferred strategy, an expansion of the I-710 including the addition of a four lane dedicated roadway for trucks. Since that time, much work has been done to evaluate the feasibility of zero emission trucks on the proposed dedicated roadway. The concept of zero emission trucks has gathered significant support by some I-710 project committee members and the concept looks very promising for inclusion in the ultimate project recommendation, due in 2012. Whether the recommendation would specify catenary systems, other wayside power options, or opportunity charging, the truck platform considered in this market study would be easily adapted to suit the selected zero emission system. The zero emission system selected by the I-710 project committee could be strongly influenced by a working system serving the near-dock rail yards at the ports. The benefits of using the same system for the CA-47/103 and the I-710 are significant."

SCAQMD-42 cont.

The global technology manufacturer Siemens has developed a prototype truck to catenary wire connection for this purpose. Figure 5 shows a photo of this system on a prototype roadway in Germany. The truck is a hybrid electric with zero emission all electric operation when operated under the overhead wire. The truck automatically senses the wire which allows the driver to raise the pantograph connection while driving at highway speeds. The pantograph automatically retracts when the truck leaves the lane with catenary power. The powered lane can be shared by cars and traditional trucks. The truck may be operated off the powered lane propelled by a diesel engine, or could be configured with battery or fuel cell power sources.



Figure 6 Truck Catenary (Siemens)

As applied to hybrid AER trucks, wayside power could provide zero-emission operation and battery charging on key transport corridors, allowing the vehicle to operate beyond

[10] http://www.gladstein.org/tmp/ZETECH_Market_Study_FINAL_2012_03_08.pdf
[11] http://www.gladstein.org/tmp/ZETECH_Market_Study_FINAL_2012_03_08.pdf

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such corridors in zero-emission mode. As the battery is depleted, the vehicle would have the flexibility for extended operation on fossil fuel power.

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2.3.4.1 South Coast Air Quality Management District

Response to Comment SCAQMD-1

Thank you for your review and comment on the Draft EIS/EIR. The comment includes a factual description of the proposed Project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15130; 40 CFR 1503.4 (a)(5)).

Response to Comment SCAQMD-2

Comment noted. The Yang Ming project is appropriately identified as a cumulative project in Chapter 4 of the Draft EIS/EIR, and the impacts of the proposed Project and its contribution toward cumulative impacts have been analyzed in accordance with other past, present, and foreseeable future projects in accordance with the cumulative impact requirements of both CEQA and NEPA (State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment SCAQMD-3

Comment noted. The comment summarizes the conclusions presented in Section 3.2 of the Draft EIS/EIR. The air quality and health risk impacts resulting from the proposed Project and alternatives have been adequately disclosed in the Draft EIS/EIR. The comment does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15130; 40 CFR 1503.4 (a)(5)).

Response to Comment SCAQMD-4

See Master Response 1: Feasible Mitigation and Master Response 2: Zero Emissions Technologies.

Response to Comment SCAQMD-5

The estimated capacity of the TICTF on-dock railyard is predicated on 24-hour operations to enable the maximum amount of time for unloading/loading and railcar switching, which cannot occur concurrently due to labor safety rules/practices. As discussed in Section 2.9.2.3 of the Draft EIS/EIR, it is operationally infeasible to increase on-dock rail beyond what is already being considered because rail access improvements outside the terminal would be necessary to substantially increase on-dock rail use beyond the usage estimated for the proposed Project; the mode of transport of containers is based on the destination or origin of the product being transported, which is dictated by market demands and is in no way under the control of YTI; rail infrastructure does not reach most of the destinations where intermodal goods are delivered; and, finally, maximizing on-dock rail is already a commitment in the Port's rail policy, and the proposed project analyses assume that the use of on-dock rail would be maximized.

Response to Comment SCAQMD-6

Thank you for your comment. The comment is general and does not reference any specific section of the Draft EIS/EIR. Specific comments in Attachment A of the comment letter related to mitigation, modeling, and emission quantification analysis and

assumptions are annotated, and responses to comments are provided below where appropriate. Therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment SCAQMD-7

Comment noted. In this chapter, LAHD and USACE are providing SCAQMD staff with written responses to all their comments. These will be provided to the SCAQMD prior to the adoption of the Final EIS/EIR in accordance with PRC 21092.5.

Response to Comment SCAQMD-8

The commenter's statement that the on-dock railyard as proposed has insufficient capacity to handle the increase in containers under the proposed Project is incorrect. The capacity of the improved on-dock railyard is sufficient to handle the expected increase in on-dock rail demand throughout the life of the proposed Project (through 2026). See also Master Response 2: Zero Emission Technologies and SCAQMD-5.

Response to Comment SCAQMD-9

We acknowledge that the proposed Project exceeds the 10 in 1 million cancer risk threshold for occupational and marina-based residential receptors, and does not exceed the threshold for land-based residential receptors. The impacts have been properly assessed and disclosed in accordance with the requirements of CEQA. Specifically, the proposed Project complies with all applicable CAAP control measures. Additionally, all feasible mitigation has been included in the Final EIS/EIR (see Master Response 1: Feasible Mitigation). It should be noted that the CAAP does not set a project-specific standard for cancer risk for occupational receptors. It should also be noted that the exceedance of the 10 in 1 million standard under CEQA only extends over approximately 25% of a single marina directly adjacent to the Henry Ford and Schuyler Heim bridges. The Board retains the discretion to consider and approve projects that exceed San Pedro Bay Standards if the Board deems it necessary. The Board must make findings pursuant to the exceedance and adopt a statement of overriding considerations should they choose to approve the proposed Project.

Response to Comment SCAQMD-10

Comment noted. The first part of the comment restates the impact that has been disclosed in the Draft EIS/EIR. LAHD acknowledges that SCAQMD is concerned that potential future exceedance of ambient air quality standards may be caused in whole or in large part by a single facility. It is not possible to tell from the background concentration how much of it is due to operations at the YTI Terminal. There are other area facilities and mobile sources not related to the YTI operation that may contribute as much or more to the background concentration. SCAQMD acknowledges that the primary sources contributing to background concentration are locomotives, trucks, and ships. However, contrary to SCAQMD's statement that this CEQA document may represent the most effective way of addressing this exceedance, these sources are best addressed on a port-wide basis and not on a project-specific basis. Regardless of whether the proposed Project is a significant contributor to the background concentrations, the appropriate methodology for determining the project impacts under both CEQA and NEPA is to evaluate the incremental change between the baseline and the future conditions with the proposed Project.

See also Master Response 1: Feasible Mitigation.

Response to Comment SCAQMD-11

Comment noted. For pollutants that exceed the threshold, contours showing affected areas have been developed and are provided following this response. These isopleths are provided following Response to Comment SCAQMD-42 for informational purposes only, and do not result in changes to the conclusions regarding the significance of the impacts previously disclosed in the Draft EIS/EIR.

Response to Comment SCAQMD-12

See Response to Comment SCAQMD-11 for a discussion of the geographical areas affected by pollutants that exceed the threshold. The comment correctly points out that the source contributions to modeled criteria pollutant concentrations vary from one location to the next. It is the Port's practice to provide source contribution tables only at the point of maximum impact. Source contribution tables are provided for informational purposes only and are not necessary in the determination of significant impacts. Additional source contribution tables corresponding to other locations around the project site would not affect the mitigation measures nor result in a different tailoring of mitigation measures, as all feasible mitigation has been applied. See Master Response 1: Feasible Mitigation.

Response to Comment SCAQMD-13

Comment noted. Nothing in the proposed Project precludes future expansion of on-dock rail should a market-driven need arise. However, the capacity of the improved TICTF on-dock railyard is sufficient to handle the expected increase in on-dock rail demand throughout the life of the proposed Project (through 2026). It should be noted that Section 1.2.3.3 of the Draft EIS/EIR provides a discussion on the intermodal cargo demand and capacity and states that a goal of the ports is to maximize on-dock rail operations within the ports. To achieve this goal, the ports encourage the marine terminals to schedule round-the-clock shifts and optimize labor rules, and the railroads have increased operational efficiencies, and hence capacity, at on-dock facilities. Furthermore, both ports plan to expand their rail infrastructure over the next ten years. The proposed changes are expected to increase on-dock rail capacity by more than threefold. Table 1-2 in Chapter 1, Introduction, identifies the existing and planned on-dock railyards within the Port Complex. If all of the proposed changes can be constructed on the assumed timetable, projected on-dock railyard use will reach approximately 11,500,000 TEUs by 2035 (this includes the proposed YTI on-dock railyard expansion).

Response to Comment SCAQMD-14

Consistent with CEQA guidelines (State CEQA Guidelines Sections 15064(d) and 15125(a)), the air quality impact analysis compares future proposed project conditions to actual 2012 baseline conditions. To provide the reader with the best estimate of future proposed project conditions, the analysis appropriately accounts for the influence of current air quality rules and regulations on future proposed project emissions. Including regulations in analysis is consistent with CEQA case law and standard practices in air emissions modeling. For example, emissions reduction regulations are included in CARB EMFAC and OFFROAD emissions models, which are frequently updated based

on new regulations. This is the same approach SCAQMD has used on other environmental documents. The comment suggests that the 2012 baseline should be adjusted in such a way as to make the air quality analysis "not credit the project with unrelated improvements in air quality that will occur anyway." Such an adjustment would result in an artificial baseline that is not representative of past or future conditions. Therefore, for clarity and objectivity, the Draft EIS/EIR simply compares proposed future conditions to actual past conditions.

The comment states that an adjusted baseline approach was used in the Draft EIS/EIR for cancer and other health risks, and therefore should be used when determining significance for regional criteria pollutant emissions. The Draft EIS/EIR used an adjusted baseline approach only for cancer risk (not for other health risks), and for a very specific reason. Cancer risk is uniquely based on an accumulation of exposure to pollutants over many years, up to 70 years for a residential lifetime. Therefore, the assessment of baseline cancer risk is faced with the paradox of evaluating emissions from a fixed point in time (2012) over a 70-year exposure period. To resolve the paradox, the baseline cancer risk was determined two ways: (1) by assuming 2012 emissions remain fixed over the entire 70-year exposure period (referred to as the "CEQA Baseline"), and (2) by assuming the 2012 emissions attenuate over the 70-year period in response to existing rules and regulations (the "Future CEQA Baseline"). In contrast to cancer risk, the assessment of regional criteria pollutant emissions involves a simple comparison of emissions in a specific future year to 2012 baseline emissions. This is consistent with SCAQMD CEQA guidance on determining significance (SCAQMD 2011) of those pollutants and ambient standards for which concentrations are calculated as an increment between the proposed Project and a baseline and whether the increment exceeds the SCAQMD thresholds. Therefore, in this circumstance it was not necessary or appropriate to employ the "Future CEQA Baseline" approach that was used for cancer risk.

Response to Comment SCAQMD-15

LAHD acknowledges the comment and agrees to modify Mitigation Measure MM AQ-3 to be consistent with the recommendation contained in the comment, as follows:

MM AQ-3 **Fleet Modernization for On-road Trucks Used during Construction.** Trucks with a Gross Vehicle Weight Rating (GVWR) of 19,500 pounds (lbs) or greater, including import haulers and earth movers, must comply with EPA ~~2007~~2010 on-road emission standards.

This modification to Mitigation Measure MM AQ-3 is noted in Chapter 3 of this Final EIS/EIR, Modifications to the Draft EIS/EIR. This change does not affect significance findings in the Draft EIS/EIR or reduce the effectiveness of the mitigation measure.

Response to Comment SCAQMD-16

Comment noted. While Mitigation Measure MM AQ-6 does not list specific fugitive dust construction BMPs, it does reference a process that will be implemented by LAHD to select additional BMPs in order to further reduce air emissions during construction. LAHD will determine the BMPs once the contractor identifies and secures a final equipment list. At a minimum, these measures will include those specified in the SCAQMD CEQA Air Quality Analysis Handbook. It should be noted that because the effectiveness of this measure has not been established and includes some emission

reduction technology that may already be incorporated into equipment as part of the Tier level requirement in MM AQ-3 and MM AQ-4, it is not quantified in this study. It may also be noted that the analysis used 3.2-hour watering interval, resulting in 61% fugitive dust control efficiency (SCAQMD handbook, Table XI-A, based on the WRAP handbook), as part of the proposed Project. MM-7 specifies a 2-hour watering interval, which results in 74% fugitive dust control efficiency (WRAP handbook).

To address the fugitive dust mitigation comment, additional BMPs from the LAHD Sustainable Construction Guidelines have been added to Mitigation Measure MM AQ-7. Therefore, Mitigation Measure MM AQ-7 has been revised as follows, and is included in Chapter 3, Modifications to the Draft EIS/EIR:

MM AQ-7 **Additional Fugitive Dust Controls.** Contractor must ~~apply water to disturbed surfaces at intervals of 2 hours.~~ adhere to the following control measures, at a minimum:

- Active grading sites shall be watered at intervals of 2 hours.
- Traffic speeds on all unpaved roads must be limited to 15 mph or less.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site, and disturbed areas shall be stabilized if construction is delayed.
- Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
- Materials shall be stabilized while loading, unloading, and transporting to reduce fugitive dust emissions.
- Belly-dump truck seals shall be checked regularly to remove trapped rocks to prevent possible spillage.
- Track-out regulations shall be followed and water shall be provided while loading and unloading to reduce visible dust plumes.
- Waste materials shall be hauled off site immediately.

Response to Comment SCAQMD-17

See Master Response 1: Feasible Mitigation.

NO_X engine emission rate limits for new engines are as follows: Tier I and Tier II limits effective 2000 and 2011 are global limits, whereas Tier III limits, effective in 2016, apply only in NO_X Emission Control Areas (ECAs). NO_X emission reductions due to Tier III engine limits were conservatively excluded from the analysis because they apply to newly built engines, and the number of newly built Tier III vessels associated with the proposed Project and alternatives would not be guaranteed. In addition, at the time of the analysis, a draft amendment was being considered to postpone the date for the Tier III NO_X standards' implementation within ECAs from 2016 to 2021. The draft amendment did not pass, and Tier III limits will be effective for engines built in 2016. The analysis is conservative, as it does not take credit for any Tier III ship engines that may call at YTI Terminal. It should be noted that NYK Line is a current participant in the ESI program and has been since the inception of the program at the Port.

The following lease measure will be added, and it is noted as a modification to the Draft EIS/EIR in Chapter 3 of this Final EIS/EIR:

LM AQ-3 Container Ship Engine Emissions Reduction Technology Improvements. The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.

Response to Comment SCAQMD-18

See Master Response 4: AMP Requirements.

Response to Comment SCAQMD-19

Comment noted. CAAP Measure RL-2 is identified in the Draft EIS/EIR as a measure that can contribute to emissions reductions, and is discussed in Table 3.2-32, which compares mitigation to CAAP measures. However, RL2 applies to Class 1 railroads, and nothing in the proposed Project allows for negotiations of terms with the Class 1 railroads. As such, imposing mitigation on those railroads is infeasible. CAAP measure RL-3 does not apply to this project as suggested by the commenter. Mitigation RL3 is applicable to near-dock railyards, as indicated in the title of the measure—New and Redeveloped Near-Dock Rail Yards—and throughout the discussion of the measure in the CAAP. The railyard being expanded in the proposed Project is an on-dock railyard.

Response to Comment SCAQMD-20

The DEIS/EIR based its air quality modeling and emissions estimates on the EPA national locomotive fleet projections for line haul locomotives, since individual railroads do not project fleet mixes years into the future. The EPA assumed the penetration of Tier 4 locomotives into the national fleet, which is reflected in the locomotive emission factors used in the DEIS/EIR. For example, the EPA assumed that Tier 4 locomotives will comprise 13% of the national fleet by 2017, 26% by 2020, and 52% by 2026. The EPA's projections are based on assumptions regarding the retirement of existing locomotives in the fleet, and the commercial availability of Tier 4 locomotives as replacements or additions to the fleet.

Tier 4 locomotives will use a new, untested technology that does not currently exist at a size adequate for line-haul locomotive engines. As a result, the rate at which operationally proven Tier 4 locomotives can be manufactured and made commercially available in the future is uncertain. Therefore, it is infeasible to commit in advance to purchase and deploy Tier 4 locomotives in excess of the percentages assumed by the EPA when those locomotives have not yet been designed, tested, or deployed. Moreover, it is infeasible to require the Class I railroads to geographically redistribute their locomotives to provide a higher percentage of Tier 4 locomotives at the proposed Project's on-dock railyard. Locomotives stay connected to hundreds of trains going to and from California to many different destinations throughout of the United States. This operating procedure requires that many hundreds, if not thousands, of locomotives enter and leave California each day. For a national rail carrier to switch out locomotives going into a specific yard would require additional large switching yards, be prohibitively expensive for both the railroad and its customers, and disrupt the national transportation system. Therefore, mitigation that requires accelerated introduction of Tier 4 line haul locomotives used at the YTI on-dock rail yard is infeasible.

Response to Comment SCAQMD-21

See Master Response 2: Zero Emission Technologies.

Response to Comment SCAQMD-22

See Master Response 2: Zero Emission Technologies.

Response to Comment SCAQMD-23

See Master Response 1: Feasible Mitigation, Master Response 2: Zero Emission Technology, and Master Response 3: Environmental Justice. Also see Response to Comment SCAQMD-19.

Response to Comment SCAQMD-24

Thank you for your comment. LAHD acknowledges that electronic copies of all modeling and supporting emission calculation files were not included with the release of the Draft EIS/EIR. Upon SCAQMD's request, LAHD granted SCAQMD an extension to submit comments until June 30, 2014, and provided the files via CD (which were received by SCAQMD on May 28, 2014). Regrettably, some files were still missing and were subsequently provided to SCAQMD for review (received by SCAQMD on June 26, 2014). LAHD recognizes the importance of submitting the files to SCAQMD for review, and will work to develop procedures for making the files available to SCAQMD upon release of draft environmental documents in the future. The comment does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15130; 40 CFR 1503.4 (a)(5)).

Response to Comment SCAQMD-25

MM AQ-4 specifies Tier 4 construction equipment. The proposed Project will strive to use Tier 4 engines during construction. The analysis, however, did not take credit for all Tier 4 engines and conservatively assumed LAHD's Sustainable Construction Guidelines (step-down schedule). It should be noted that the step-down schedule is more stringent than EPA standards, which are for new engines, and is more stringent than CARB

regulations. Unmitigated emission factors were derived from CARB's Offroad2011 module, which accounts for the latest regulatory requirements. These emission factors yield a composite NO_X emission factor of 5 grams per brake horsepower-hour (g/bhp-hr) for 2015 and 4.5 g/bhp-hr in 2016. LAHD's step-down schedule as used in the analysis yields an NO_X composite emission factor of 2.58 g/bhp-hr; i.e., lower than the CARB inventory, derived from CARB's Offroad2011 module. These composite emissions factors were used as a way to confirm that the analysis was more stringent than regulatory requirements.

Response to Comment SCAQMD-26

Comment noted. LAHD and USACE disagree that the quantification of cumulative air quality impacts that includes other proposed projects in the Port area is necessary to determine the significance of the cumulative impact or the proposed Project's contribution to the cumulative impact. Section 15130(a) of the State CEQA Guidelines requires that an EIR discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Similarly, 40 CFR 1508.27(b)(7) requires that federal agencies evaluate the significance of direct, indirect, and cumulative impacts in terms of an impact's context and intensity. Further, Section 15130(b) of the State CEQA Guidelines notes that the discussion of cumulative impacts need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness. The cumulative impact from past, present, and reasonably foreseeable future projects has been adequately discussed in Chapter 4 of the Draft EIS/EIR, and was determined to be cumulatively significant for air emissions under both CEQA and NEPA. To determine whether the proposed Project's and the alternatives' impacts are cumulatively considerable, LAHD and USACE need only determine the incremental effect, which has been quantified in the Draft EIS/EIR, and adequately disclosed to be a cumulatively considerable impact. To quantify all other projects in the area would be impractical and unreasonable. Therefore, the Draft EIS/EIR appropriately analyzed and disclosed the cumulative impacts of the proposed Project.

Response to Comment SCAQMD-27

Comment noted. Figure 4-1 of the Draft EIS/EIR has been updated to show the correct locations of the cumulative projects considered as part of the cumulative impact analysis. The revised Figure 4-1 is included as a modification to the Draft EIS/EIR in Chapter 3, Modifications to the Draft EIS/EIR.

Response to Comment SCAQMD-28

The drayage truck idling times on site and at the terminal in-gate and out-gate were provided by YTI and cover all of the truck idling that would occur at the terminal. YTI confirmed that the idling times are reasonable estimates for all future analysis years for the proposed Project and alternatives, as well as 2012 baseline conditions. State law limits idling to ten minutes, and YTI has a process in place to enforce this requirement.

Response to Comment SCAQMD-29

CARB has linked mortality and morbidity effects to elevated levels of ambient $PM_{2.5}$ concentrations. Therefore, LAHD views the potential for mortality and morbidity effects as closely tied to the assessment of $PM_{2.5}$ concentration impacts in the EIS/EIR (Impact

AQ-4). If operation of the proposed Project was found to cause a significant $PM_{2.5}$ concentration impact, then quantification of mortality and morbidity effects would be performed as part of an extended discussion of the $PM_{2.5}$ significance finding. Table 3.2-36 of the Draft EIS/EIR shows that the proposed Project would not create a significant $PM_{2.5}$ concentration impact. It therefore follows that substantial adverse mortality and morbidity effects associated with the proposed Project are not expected, and quantification is not warranted in accordance with the LAHD protocol Methodology for Addressing Mortality and Morbidity in Port of Los Angeles CEQA Documents (POLA 2011). The methodology generally follows the approach of California Air Resources Board's (CARB's) Proposed Emission Reduction Plan for Ports and Goods Movement in California (2006) and Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California (2008). This approach represents LAHD's current policy on mortality and morbidity, which has evolved since its earlier CEQA documents, when mortality and morbidity were emerging as issues of concern.

Response to Comment SCAQMD-30

A modeling protocol for the Bay-Wide Regional Human Health Risk Assessment (Bay-wide HRA, available at http://www.cleanairactionplan.org/reports/documents.asp as Appendix B), which was part of the technical analysis supporting the San Pedro Bay CAAP, was reviewed and approved by SCAQMD in 2007. The 2006–2007 meteorological data from the Terminal Island Treatment Plant (TITP) station (and other Port Complex stations) was first processed in 2008 following that modeling protocol, except that necessary updates to the methodology were made as recommended by the 2008 EPA AERMOD Implementation Guide. These necessary updates focused on methodology used to determine surface characteristics (i.e., Bowen ratio, Albedo, and Surface Roughness). We understand that a more recent AERMOD Implementation Guide was published in March 2009, but no changes have been made to the meteorological data processing procedure. The meteorological data were then used in multiple Port EIRs prepared by the LAHD. The processed AERMOD-ready datasets were also sent to SCAQMD in April 2010.

In 2013, the 2006–2007 data were reprocessed using then most-recent EPA AERMET version 12345 and AERSURFACE version 13016. Month-to-season allocation and the land use sector were defined following the Bay-wide HRA modeling protocol. The precipitation condition (i.e., wet, dry, or average) used to estimate Bowen Ratio was determined in comparison to the 30-year historical data at representative stations as dictated by the Bay-wide HRA modeling protocol.

Response to Comment SCAQMD-31

Wind roses for the two data periods in question are provided following Response to Comment SCAQMD-42. The completeness criterion was ten percent by quarter, and was achieved during all time periods presented for TITP. However, please note that ENVIRON performed comparisons of the September 2006 to August 2007 data to the 2009–2012 data for each of the Port Complex meteorological stations, and as a whole the 2006–2007 data was more complete than the later years.

Appendix W Guidance (EPA 2005; 8.3.1.2(b) available at http://www.epa.gov/scram001/guidance/guide/appw_05.pdf) was followed, indicating

that "at least one year of site-specific data is required." The meteorological station at the TITP is close enough to the YTI Terminal (less than 0.5 mile) to be considered site-specific data; please see discussion in Attachment I in the Bay-Wide Regional HRA (http://www.cleanairactionplan.org/civica/filebank/blobdload.asp?BlobID=2439). Also, please note that the 8th-highest daily, maximum 1-hour average is presented for the models (as indicated in the table notes, e.g., Table 3.2-26 in the Draft EIS/EIR).

Response to Comment SCAQMD-32

The SCAQMD Long Beach station is approximately nine miles from the proposed Project and would not be as representative of project conditions as the TITP station. Please also see Responses to Comments SCAQMD-30 and SCAQMD-31.

Response to Comment SCAQMD-33

Comment noted. The update of ozone files is not applicable, as new meteorological data will not be used. See Response to Comment SCAQMD-31.

Response to Comment SCAQMD-34

The AERMOD dispersion modeling for the Draft EIS/EIR used the urban dispersion option with a conservatively small urban population of 664,078, which represents the Long Beach-Wilmington-San Pedro area. Sensitivity tests conducted by LAHD show that the larger Los Angeles County population of 9,862,049, recommended by the SCAQMD, results in average annual concentrations about 2% lower than what is reported in the Draft EIS/EIR. Therefore, use of the higher urban population recommended by the SCAQMD would not result in any new significance findings.

Response to Comment SCAQMD-35

Table 3.2-2 of the Draft EIS/EIR shows measurements in the area related to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) over the most recent three years available (2010 through 2012), while the ozone concentrations in our air dispersion files is aligned with the measured values during the meteorological period modeled (September 2006 to August 2007). The ozone evaluation concentration is only used to replace missing ozone hourly measurements (less than 5% of hours), and was conservatively calculated as the 98th percentile of all the ozone measurements during that year.

Response to Comment SCAQMD-36

Ship boiler emissions were analyzed using residual heavy fuel oil, containing 2.7% sulfur. Fuel correction factors were not applied (mistakenly) as they were applied to propulsion and auxiliary engines. Ships would ultimately use distillate fuel oil, not residual fuel oil. However, ship boiler mass emissions, calculated using residual fuel, are more conservative (i.e., result in higher emissions) than what would have resulted if distillate fuel oil was used in the analysis. As such, the mistaken use of residual fuel oil does not result in an underrepresentation of emissions. The toxicity analysis used in the HRA was done based on distillate fuel, which is the correct fuel. No further analysis is required.

Response to Comment SCAQMD-37

In the Draft EIS/EIR, LAHD and USACE evaluated potential cancer risks to students in two different ways. The first approach used reasonable student exposure assumptions of 6 hours per day, 180 days per year for 6 years while breathing 581 L/kg-d. The 6-year exposure was consistent with the approach used for previous EIRs and EISs prepared by LAHD and USACE for projects in the Port of Los Angeles. Those results are presented in Impact AQ-7 in the Draft EIS/EIR and show no significant cancer risks for students for any proposed project alternative. Student cancer risks were also conservatively estimated based on a 70-year exposure period (all other aforementioned exposure assumptions remained the same). The results of this more conservative approach are shown below in Table 2-4. No significant cancer risks were identified for students for any proposed project alternative under this more conservative 70-year exposure assumption. LAHD and USACE recognize and acknowledge that the fewest number of years allowed in OEHHA risk guidance is 9 years. LAHD and USACE have the discretion to analyze impacts according to a reasonable methodology and are not bound to follow guidance from other regulatory agencies. Because the Draft EIS/EIR included the conservative analysis of 70-year exposure for student receptors, it does not result in overlooking any potentially significant health risk impacts for a 9-year exposure. In the future, LAHD and USACE will follow the OEHHA guidance for 9-year exposure in conducting cancer risk assessments.

Table 2-4. Maximum Cancer Risk Impacts per Million for Student Receptors Assuming 70-Year Exposure

Project Alternative	Project	CEQA Baseline	**CEQA Increment**	Future CEQA Baseline	**Future CEQA Increment**	NEPA Baseline	**NEPA Increment**
Proposed Project without Mitigation	3.9	8.4	**-0.4**	2.9	**1.2**	3.4	**0.5**
Proposed Project with Mitigation	3.6	8.4	**-0.4**	2.9	**1.0**	3.4	**0.3**
Alt. 1: No Project	3.4	8.4	**-0.4**	2.9	**0.7**	N/A	**N/A**
Alt. 2: No Federal Action without Mitigation	3.4	8.4	**-0.4**	2.9	**0.7**	No impact	**No impact**
Alt. 2: No Federal Action with Mitigation	3.2	8.4	**-0.4**	2.9	**0.7**	No impact	**No impact**
Alt. 3: Reduced Project without Mitigation	3.9	8.4	**-0.3**	2.9	**1.2**	3.4	**0.5**
Alt. 3: Reduced Project with Mitigation	3.6	8.4	**-0.4**	2.9	**1.1**	3.4	**0.4**

Note: The CEQA Increment, Future CEQA Increment, and NEPA Increment (shown in bold) are compared to a significance threshold of 10 in 1 million

Response to Comment SCAQMD-38

The drayage truck emissions forecast was developed from 2011 activity data and emissions calculation methodology as described in the Port's 2011 emissions inventory

report[3]. The 2011 data and methodology were used to develop estimates of 2011 vehicle activity in terms of number of trips and number of vehicle miles of travel (VMT) that were "grown" to future years using throughput forecast as developed by LAHD. Emission factors representing the future drayage truck fleet were developed using the emission estimating model EMFAC2011 emissions rates by model year run and the forecasted drayage truck trip based model year distribution for each future calendar year of concern.

Future model year distributions were developed using a series of adjustments to the 2011 model year distribution to account for changes to the fleet, including the 2012 truck ban per LAHD's Clean Truck Program, fleet attrition or turnover, and growth in activity that would require more trucks and/or higher truck activity. The following key assumptions underlie the forecast methodology for heavy duty vehicles:

- Starting with 2012 calendar year, pre-2007 model years were removed to account for the 2012 pre-2007 truck ban[4].
- For 2023 and later, pre-2010 model years were removed to account for CARB's "Regulations to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use On-Road Diesel-Fueled Vehicles"[5].
- A percentage of truck trips in each model year was removed to account for attrition (e.g., caused by accidents, moving out of the service area).

Between 2012 and 2022, trips were added to model years 2007 and newer to make up the number of trips removed due to the pre-2007 ban and due to attrition, and to account for projected growth in the overall number of trips. For 2023+, trips were added to model years 2010 and newer to make up the number of trips removed due to the pre-2010 ban and due to attrition, and to account for projected growth in the overall number of trips.

The additional trips were allocated to model years 2007 or 2010 and newer using the percentages in the average age distribution over 2005 through 2007, a period before the implementation of LAHD's truck programs. This period was selected to reflect the "normal" distribution of truck model years without the influence of the truck ban or replacement programs to project which model year trucks would be selected to replace those lost to attrition or the ban, or to account for additional trips resulting from cargo throughput growth.

Response to Comment SCAQMD-39

The analysis conservatively used 20% for refrigerant loss in reefers. Although Table 6-5 (Table 5-6 was incorrectly referenced in the SCAQMD comment) in the 2010 Report from the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee lists 30% loss of HCFC-22, the supporting text in the same reference identifies a range of 20% to 40%. Reefer ships are only part of the baseline and were not included in future study years because reefer ships only visited the terminal during the baseline year and are not anticipated to call at the YTI Terminal in the future. As such, the use of 20% for

3 http://www.portoflosangeles.org/pdf/2011_Air_Emissions_Inventory.pdf

4 http://www.portoflosangeles.org/ctp/idx_ctp.asp

5 http://www.arb.ca.gov/msprog/onrdiesel/documents/TBFinalReg.pdf

refrigerant loss is conservative as it results in a lower baseline. The use of 30% would increase GHG emissions in the baseline and decrease project impacts.

Response to Comment SCAQMD-40

The horsepower-hour (hp-hr) values obtained from the cargo handling emissions inventory (CHEI) model were Port-specific values. They were determined by taking the annual usage (in hours per year) for each Port equipment type, multiplied by the "AvgOfBHP" value, multiplied by the corresponding load factor, and summing over all model years. The resulting hp-hr values were then used to derive the Port-specific emission factors (in grams/hp-hr) used in the cargo handling equipment emission calculations for the proposed Project and alternatives. The CHEI model was downloaded from the CARB website on July 9, 2012.

Response to Comment SCAQMD-41

CalEEMod does not have emission factors for transportation refrigeration units (TRUs), only for generator sets. CARB Airborne Toxic Control Measures (ATCM) regulate PM emissions from TRUs and associated Gensets; NO_X emissions, though not specifically identified in the ATCM, are also reduced as cleaner engines are used to meet the PM requirements. CalEEMod was used for all emission factors except NO_X and PM. NO_X and PM emission factors were obtained from CARB's Offroad TRU module—composite emission factors for each year were obtained by normalizing for engine population in the CARB fleet. The TRU_CARB Output.xlsx file was also included with the response sent to SCAQMD.

Response to Comment SCAQMD-42

See Master Response 2: Zero Emission Technologies.

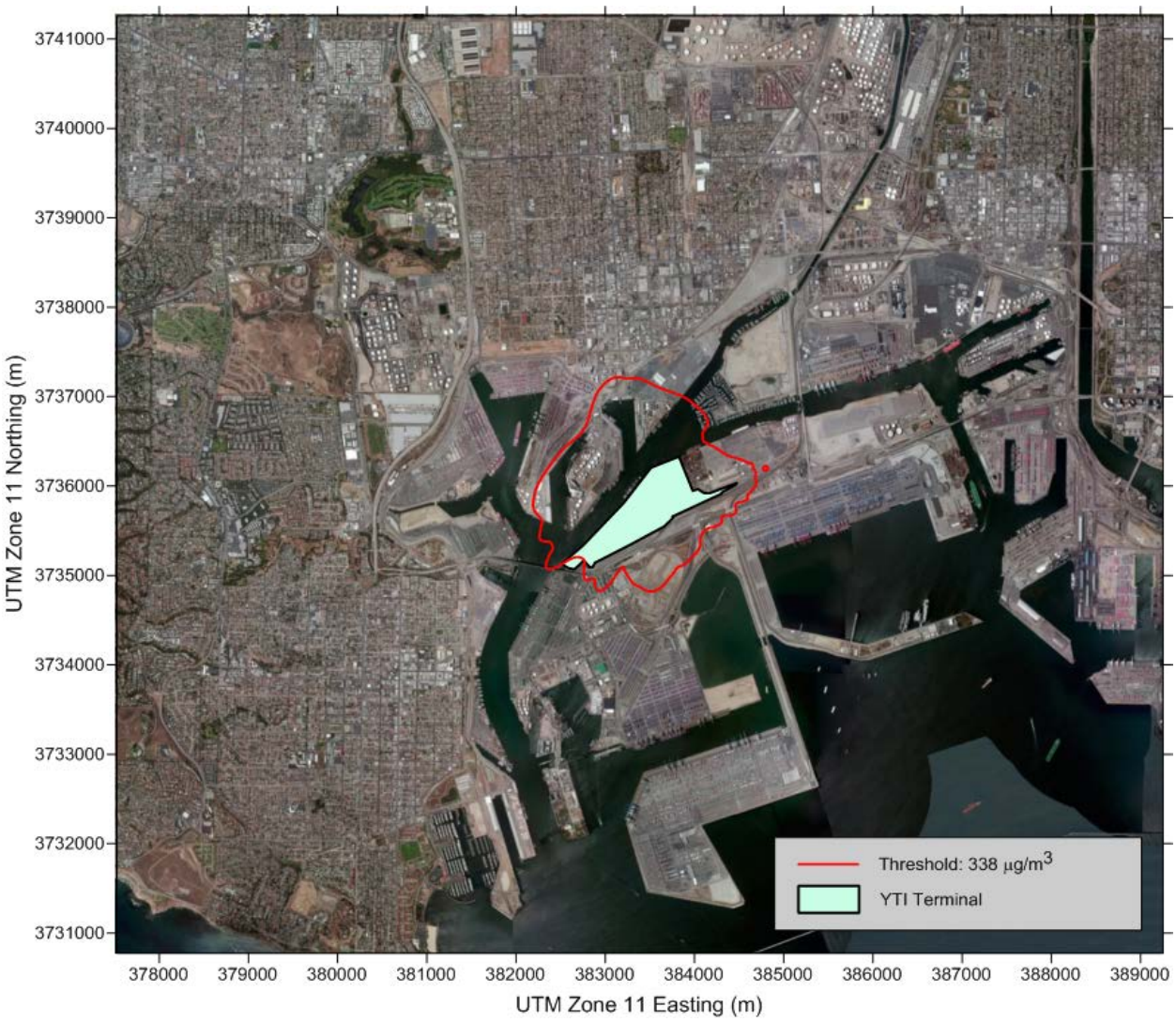


Figure R.1: Mitigated Proposed Project State 1-hr NO_2: Construction

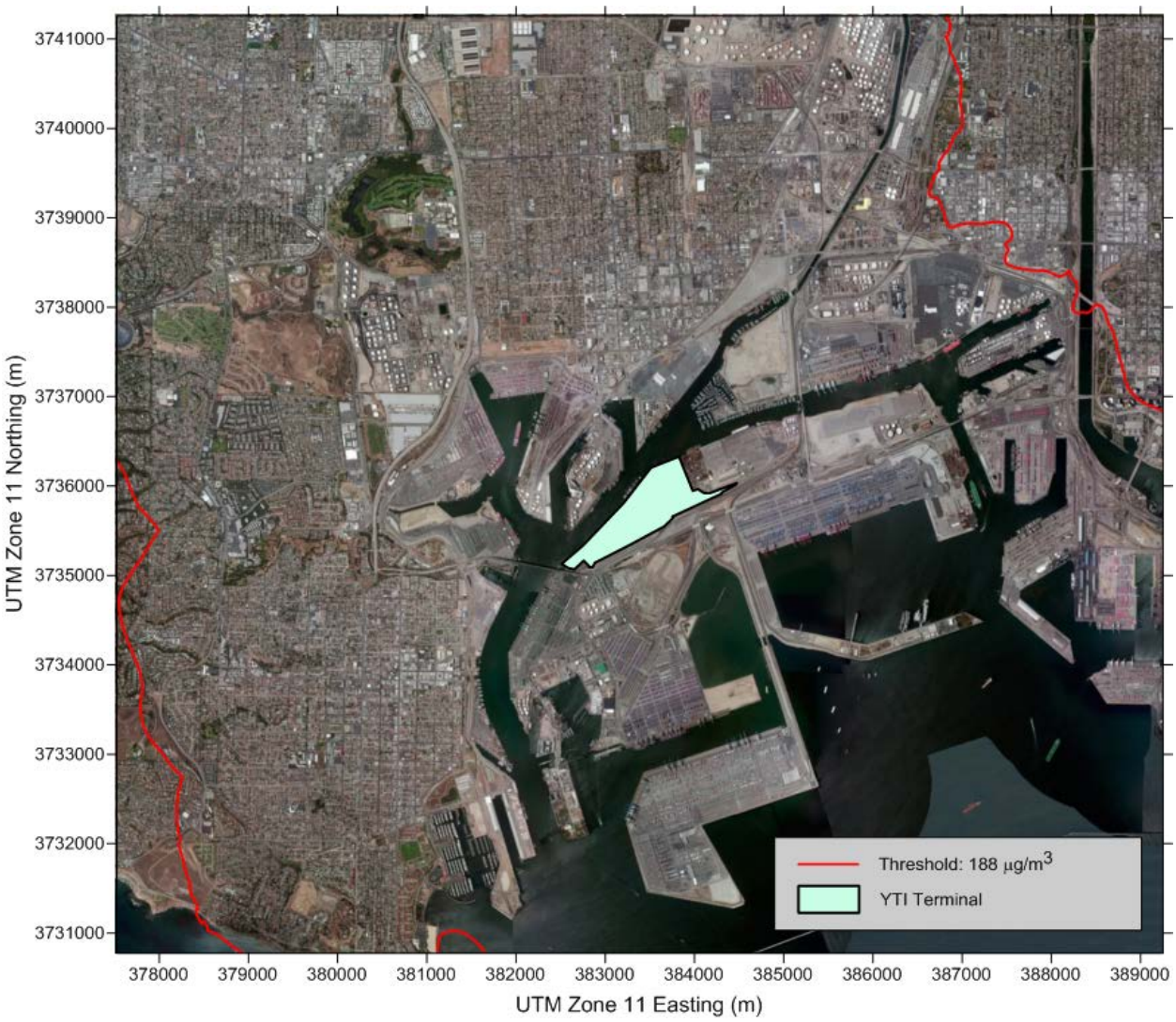


Figure R.2: Mitigated Proposed Project Federal 1-hr NO_2: Construction

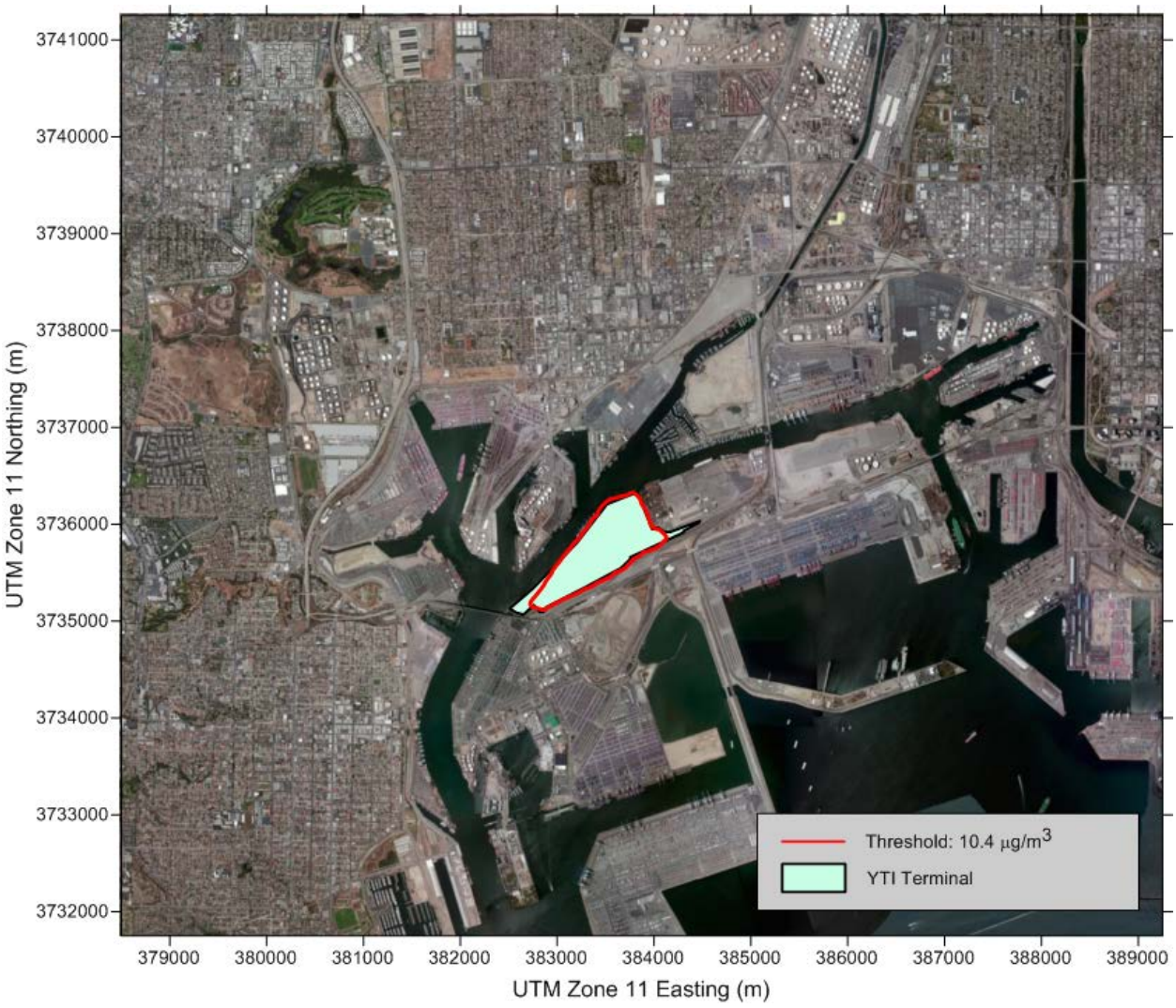


Figure R.3: Mitigated Proposed Project 24-hr PM_{10} (CEQA Increment): Construction

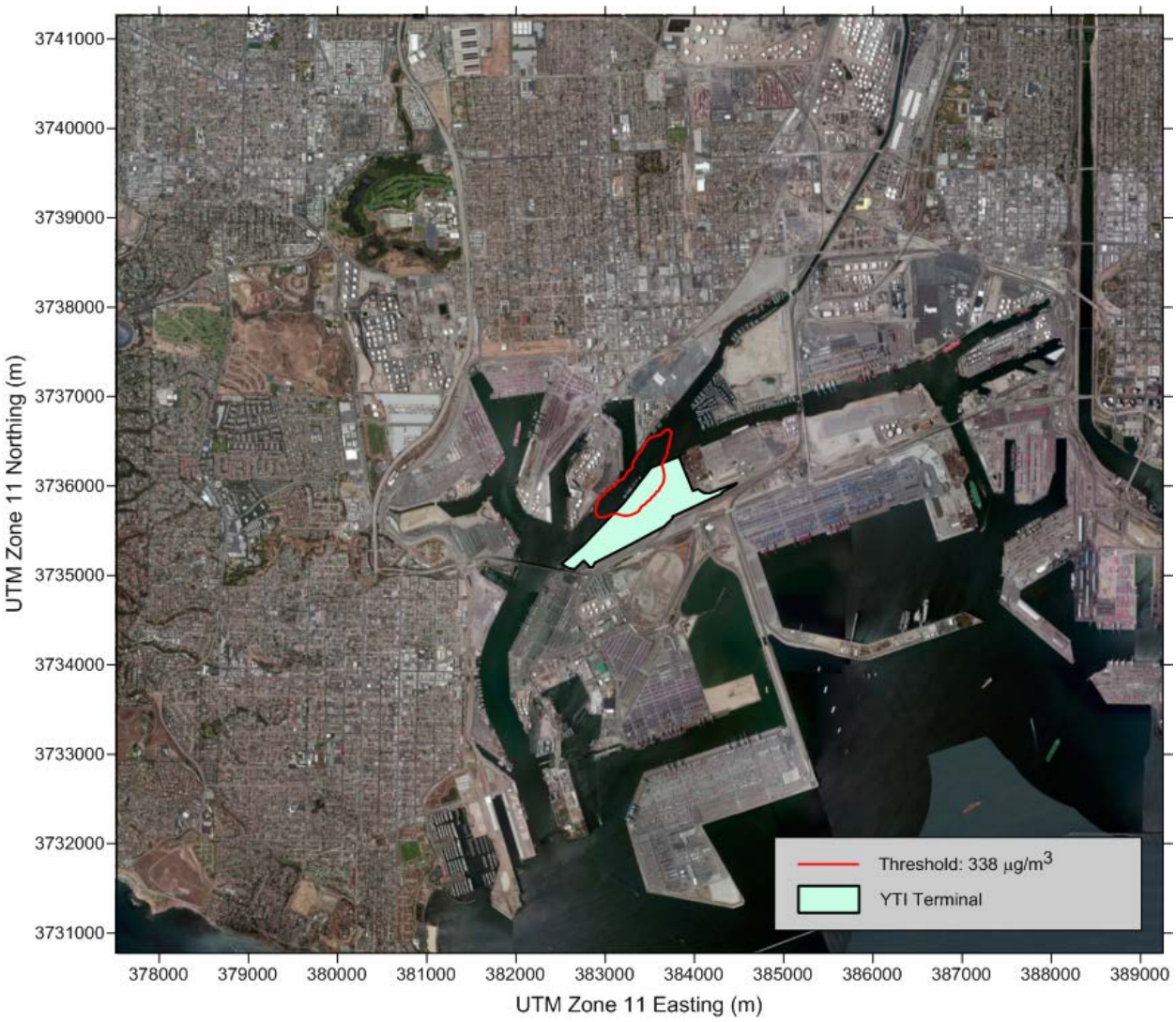


Figure R.4: Mitigated Proposed Project State 1-hr NO_2: Combined Construction and Operation

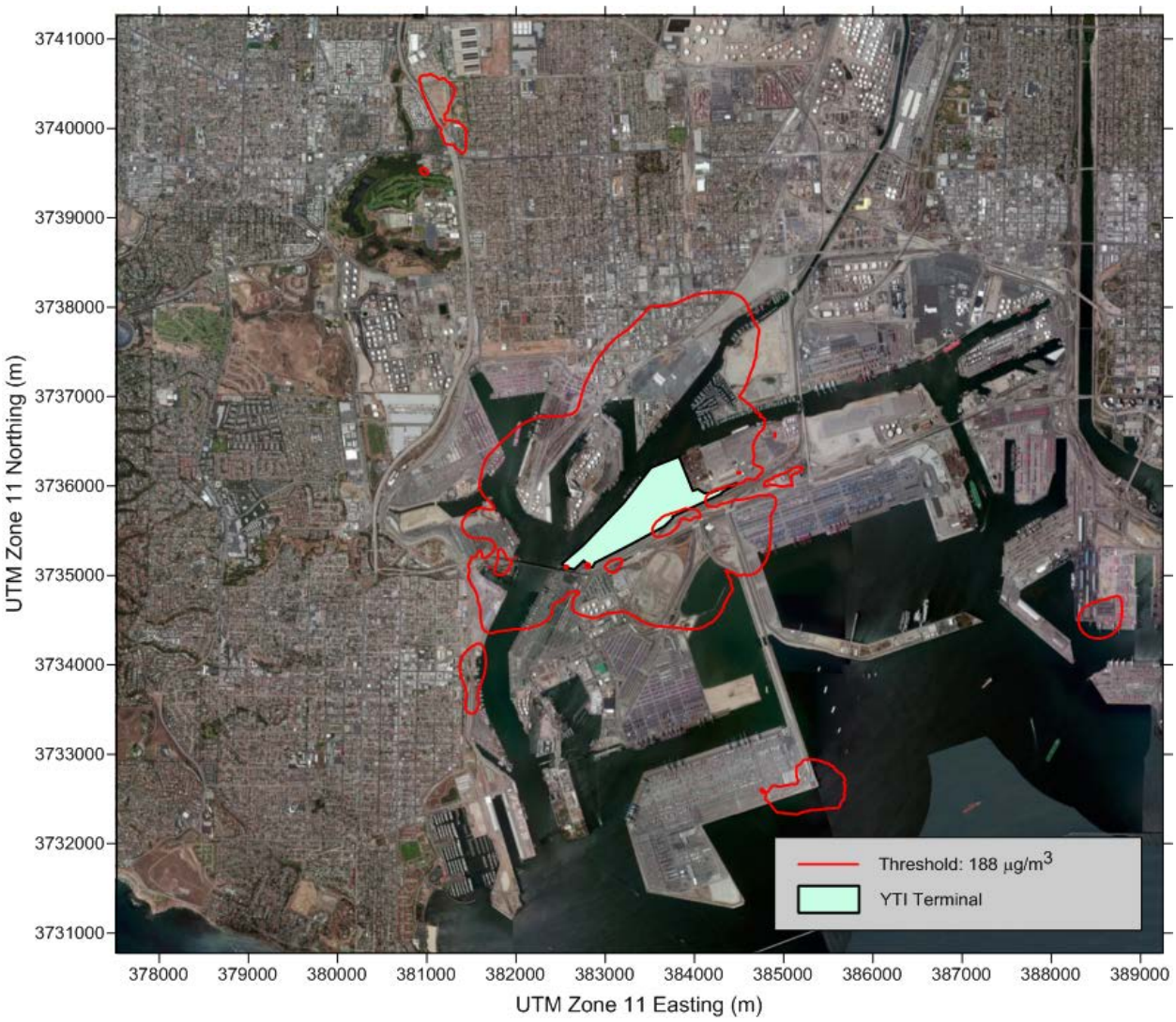


Figure R.5: Mitigated Proposed Project Federal 1-hr NO_2: Combined Construction and Operation

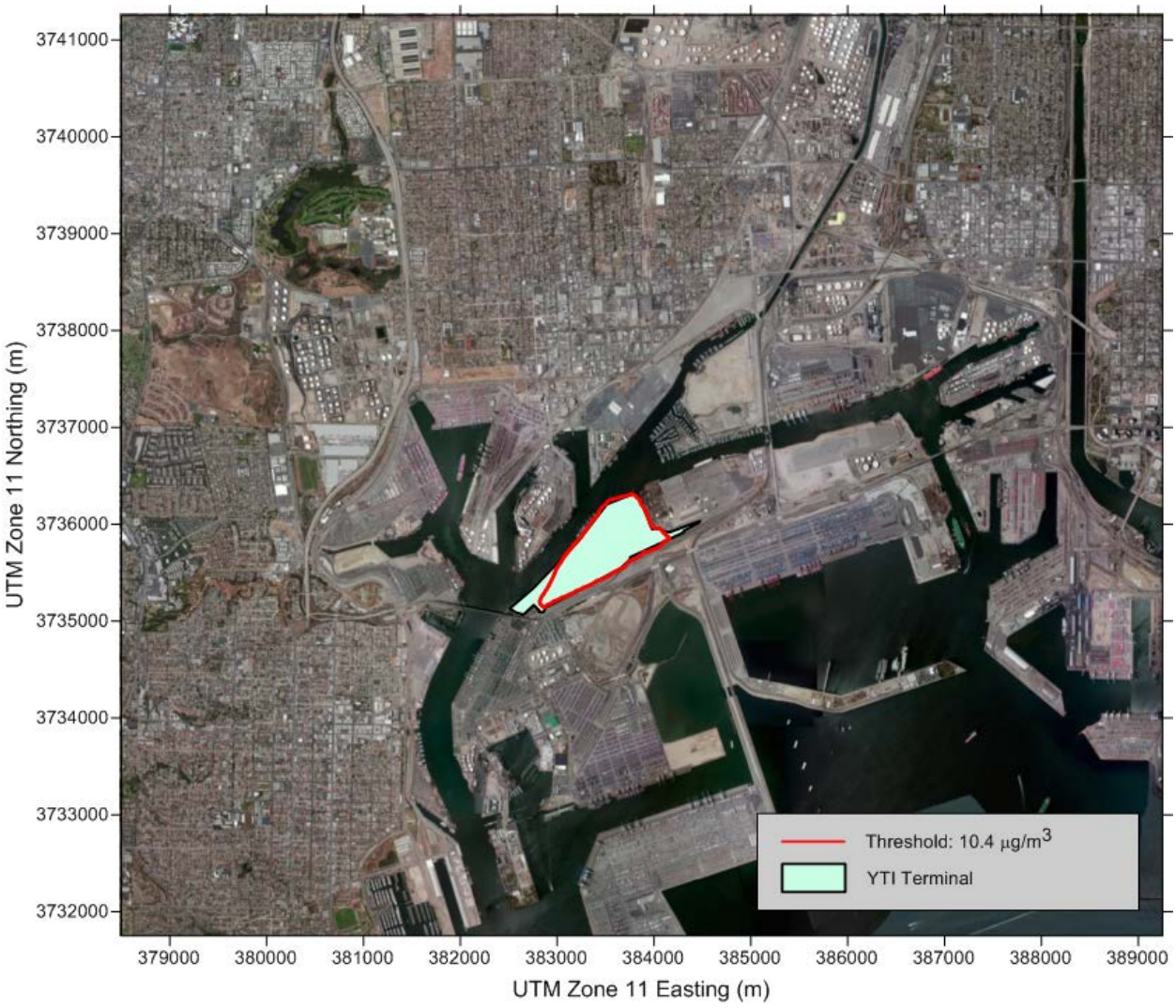


Figure R.6: Mitigated Proposed Project 24-hr PM_{10} (CEQA Increment): Combined Construction and Operation

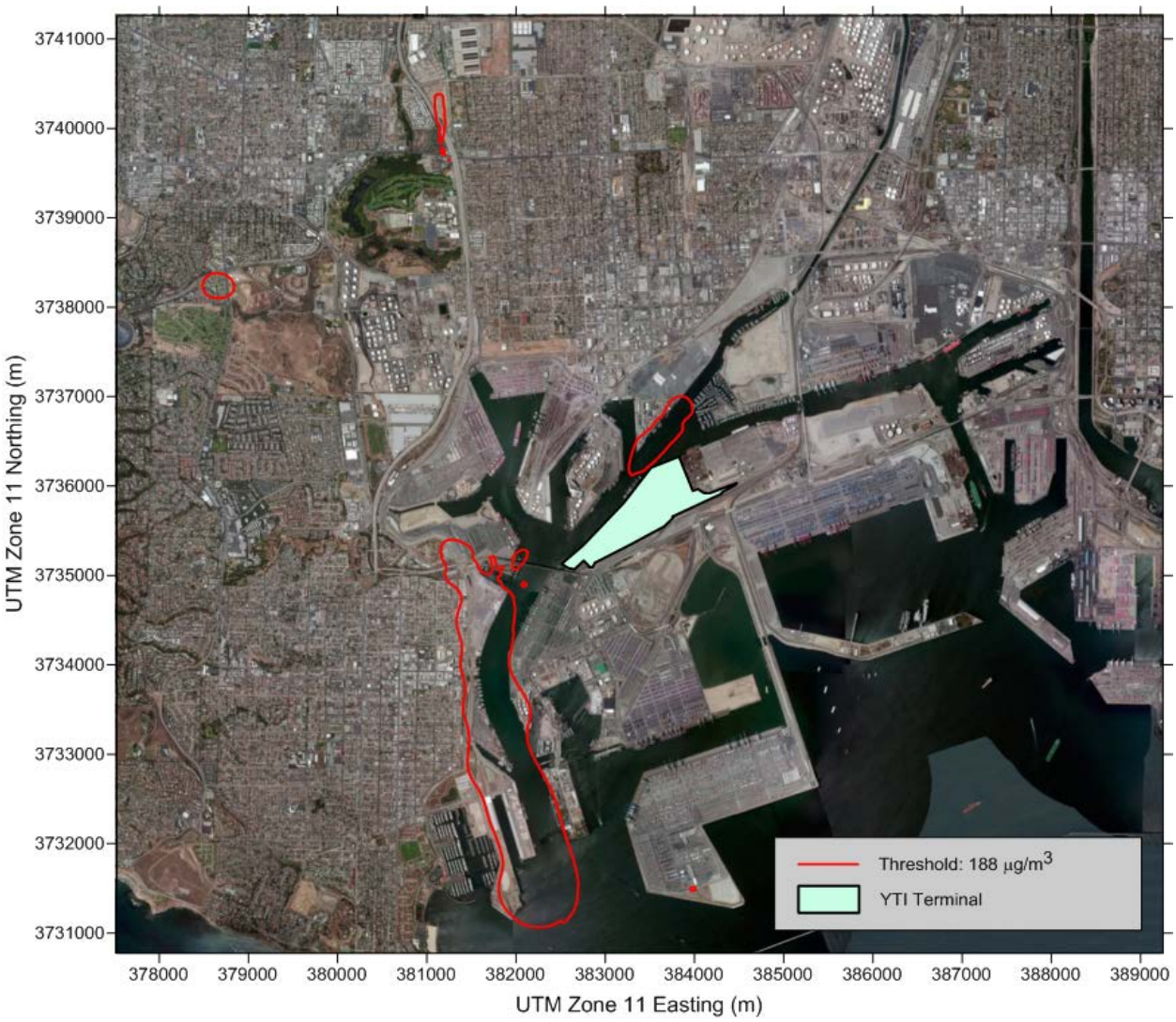


Figure R.7: Mitigated Proposed Project Federal 1-hr NO_2: Operation

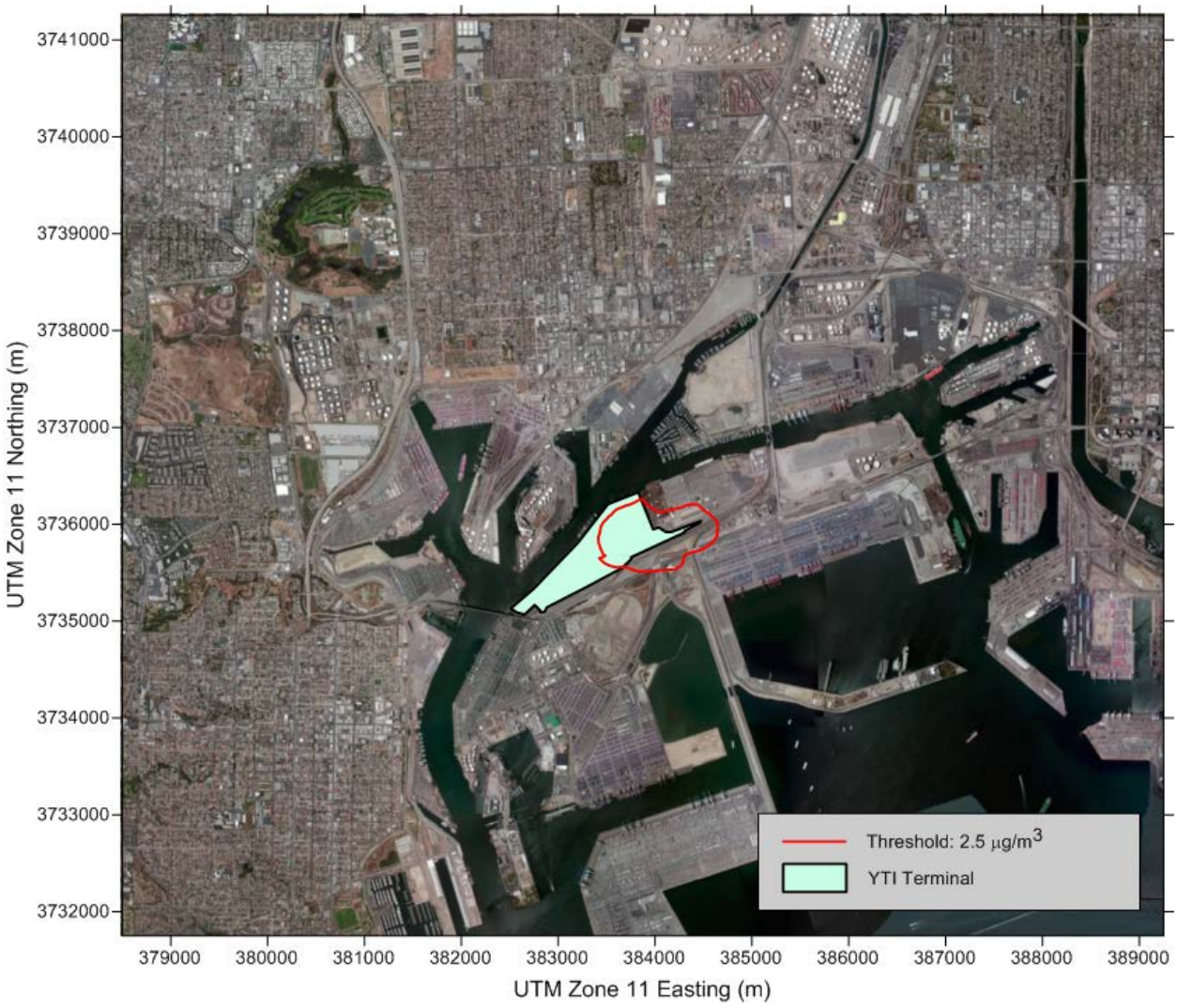


Figure R.8: Mitigated Proposed Project 24-hr PM_{10} (CEQA Increment): Operation

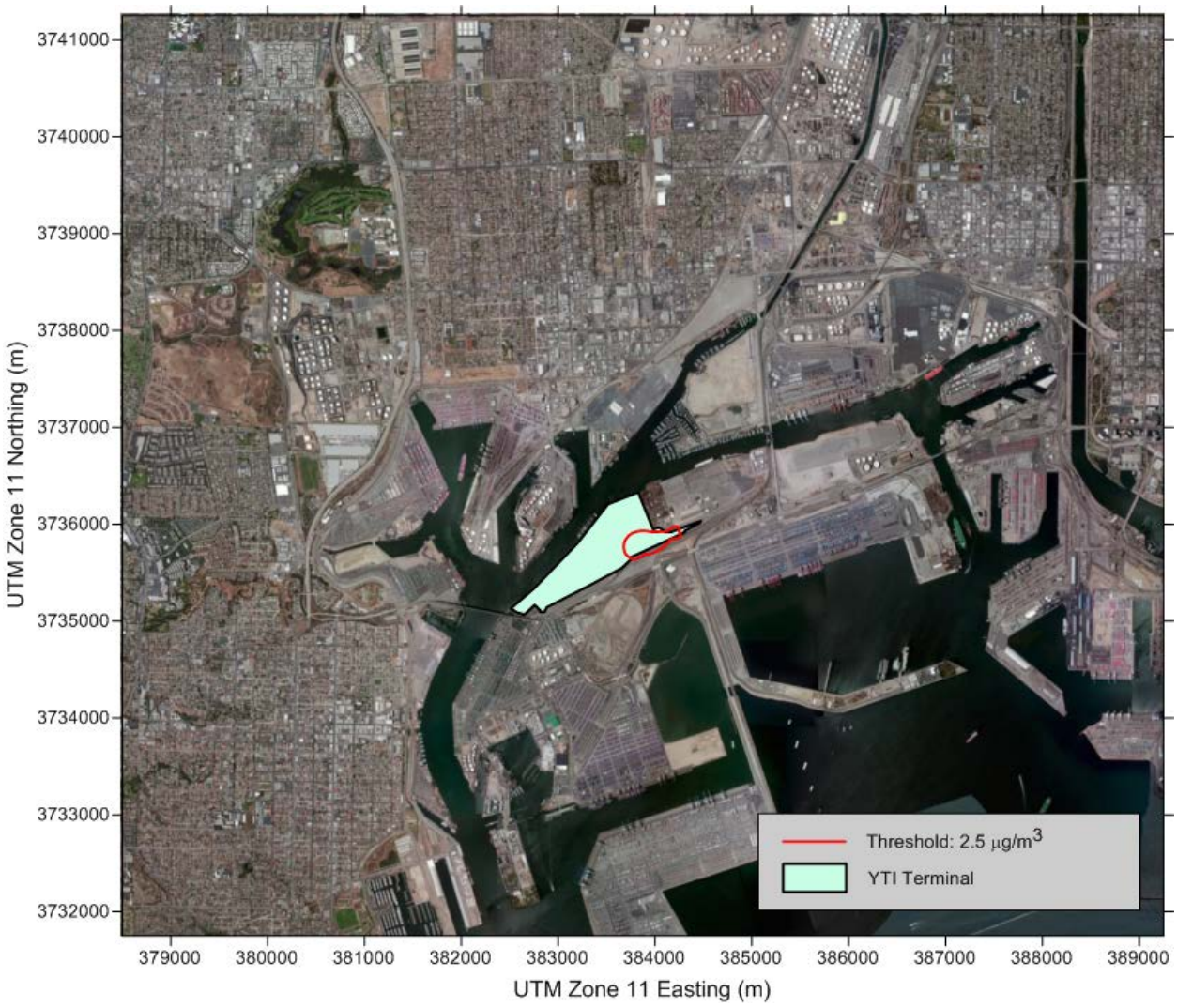


Figure R.9: Mitigated Proposed Project 24-hr PM_{10} (NEPA Increment): Operation

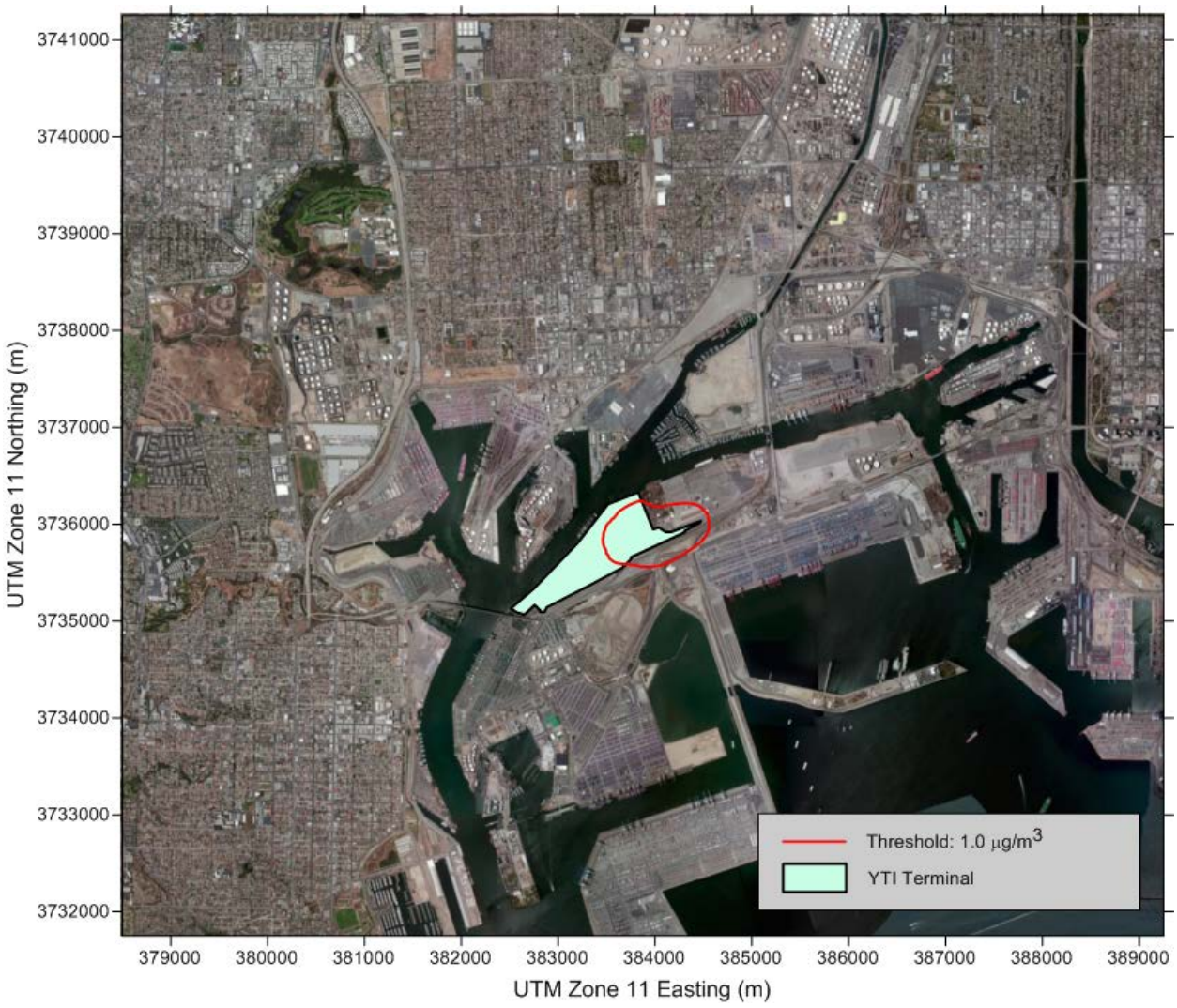


Figure R.10: Mitigated Proposed Project 24-hr PM_{10} (NEPA Increment): Operation

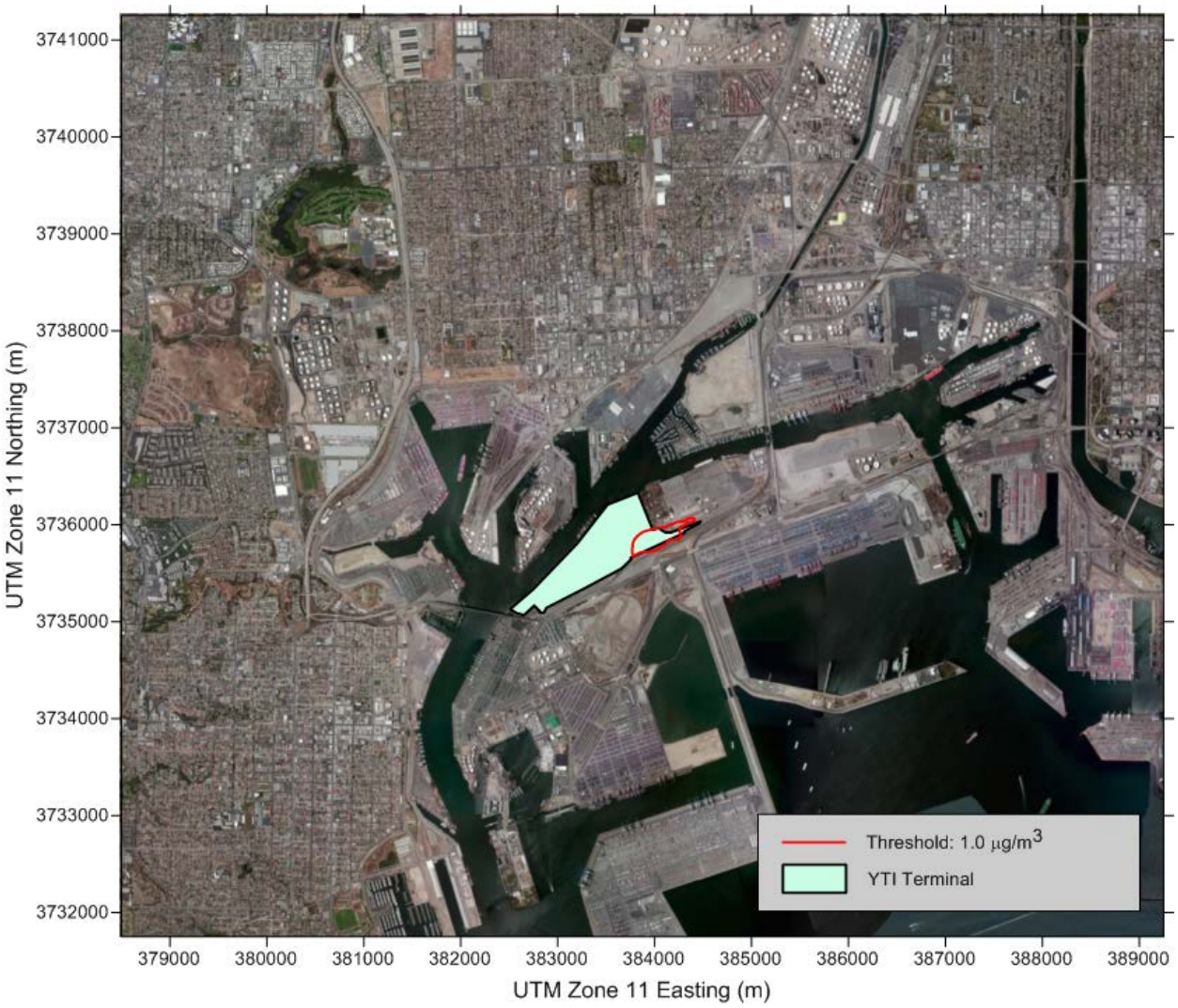


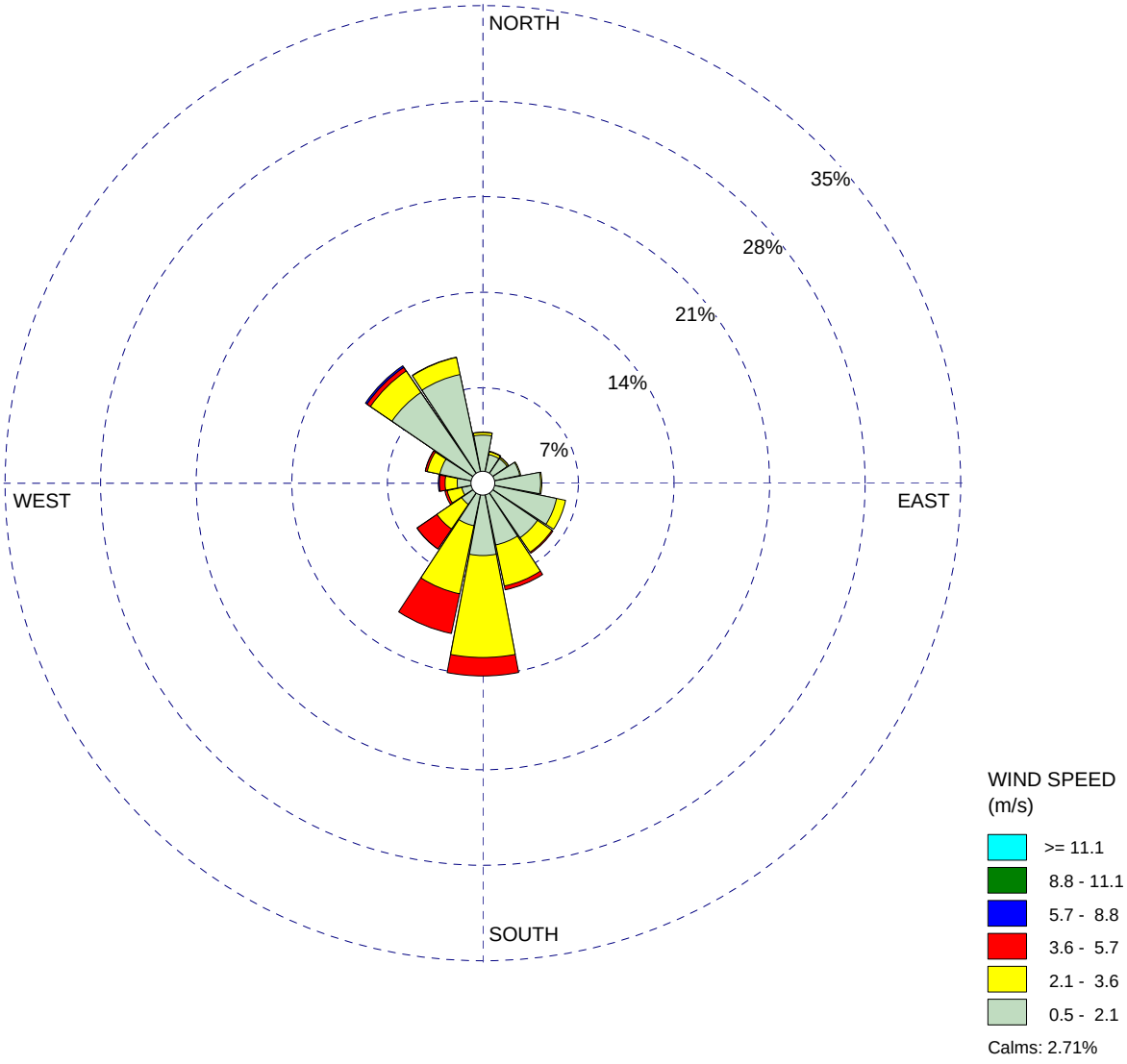
Figure R.11: Mitigated Proposed Project Annual PM_{10} (NEPA Increment): Operation

WIND ROSE PLOT:

TITP - original

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 9/1/2006 - 00:00** **End Date: 8/31/2007 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **2.71%**	TOTAL COUNT: **8760 hrs.**	
	AVG. WIND SPEED: **1.79 m/s**	DATE: **3/28/2013**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

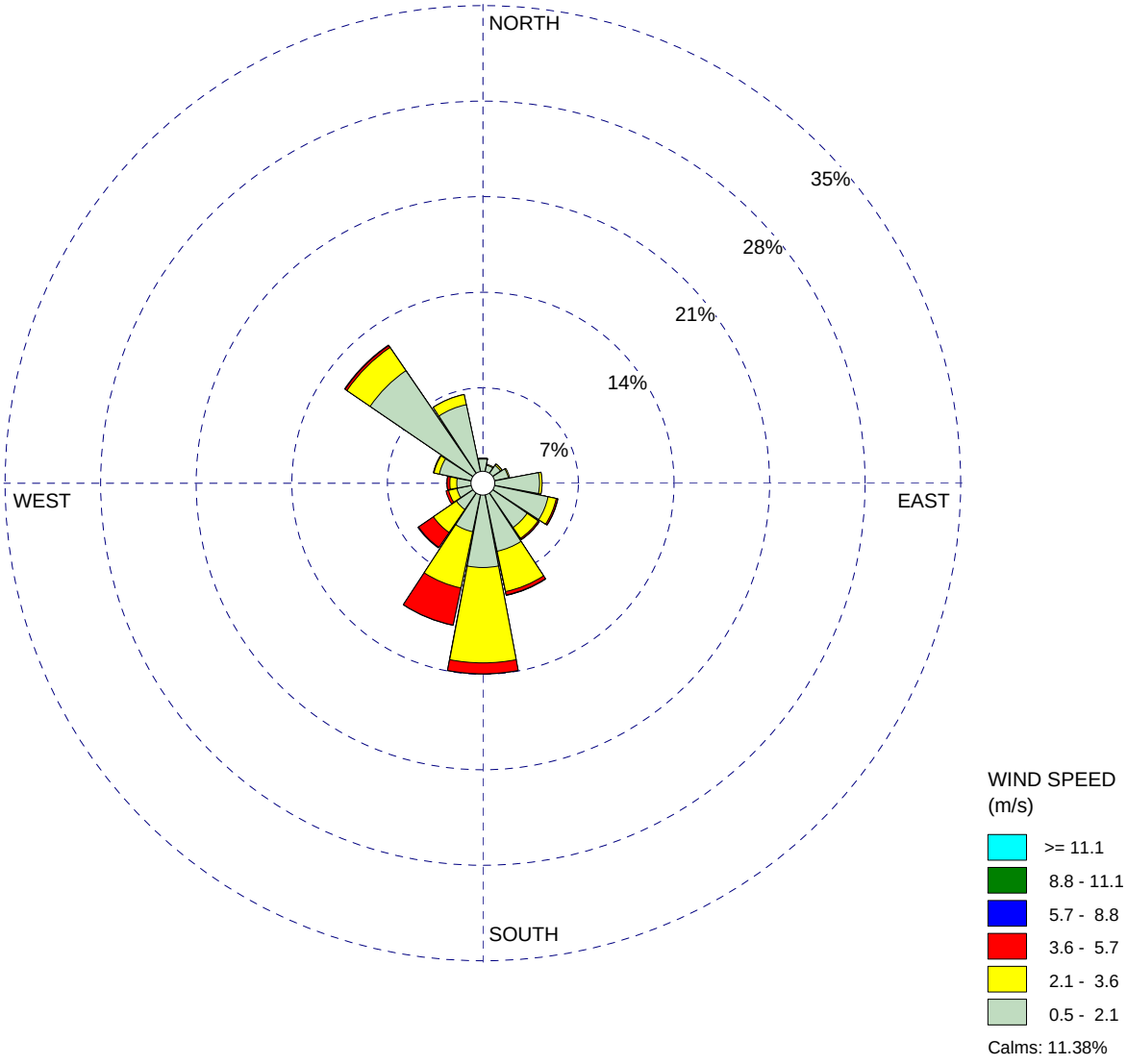
Figure R.12: TITP wind rose for Sept 2006 to Aug 2007

WIND ROSE PLOT:

TITP - 2009-2012

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2009 - 00:00** **End Date: 12/31/2012 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **11.38%**	TOTAL COUNT: **34739 hrs.**	
	AVG. WIND SPEED: **1.55 m/s**	DATE: **3/29/2013**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Figure R.13: TITP wind rose for 2009 to 2012

Comment Letter BOS

FORM GEN. 160 (Rev. 8-12)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE



DATE: August 14, 2014

TO: Christopher Cannon, Director of Environmental Management
Los Angeles Harbor Department

FROM: Ali Poosti, Division Manager
Wastewater Engineering Services Division
Bureau of Sanitation

SUBJECT: **BERTHS 212-224 CONTAINER TERMINAL IMPROVEMENT PROJECT – DRAFT EIR/EIS**

BOS-1 This is in response to your May 2, 2014 letter received on July 18, 2014 requesting wastewater service information for your proposed improvement project located at 701 New Dock Street, Terminal Island. The Bureau of Sanitation, Wastewater Engineering Services Division (WESD) has reviewed the request and found the project to be related to renovation of interior facilities only.

Based on the project description, we have determined the project is unrelated to sewer capacity availability and therefore do not have sufficient detail to offer an analysis at this time. Should the project description change, please continue to send us information so that we may determine if a sewer assessment is required in the future.

If you have any questions, please call Kwasi Berko of my staff at (323) 342-1562.

STORMWATER REQUIREMENTS

The Bureau of Sanitation, Watershed Protection Division (WPD) is charged with the task of ensuring the implementation of the Municipal Stormwater Permit requirements within the City of Los Angeles. We anticipate the following requirements would apply for this project.

POST-CONSTRUCTION MITIGATION REQUIREMENTS

BOS-2 The project requires implementation of stormwater mitigation measures. These requirements are based on the Standard Urban Stormwater Mitigation Plan (SUSMP) and the recently adopted Low Impact Development (LID) requirements. The projects that are subject to SUSMP/LID are required to incorporate measures to mitigate the impact of stormwater runoff. The requirements are outlined in the guidance manual titled"Development Best Management Practices Handbook – Part B: Planning Activities". Current regulations prioritize infiltration, capture/use, and then biofiltration as the preferred stormwater control measures. The relevant documents can be found at: www.lastormwater.org. It is advised that input regarding SUSMP requirements be received in the early phases of the project from WPD's plan-checking staff.

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GREEN STREETS

BOS-3 The City is developing a Green Street Initiative that will require projects to implement Green Street elements in the parkway areas between the roadway and sidewalk of the public right-of-away to capture and retain stormwater and urban runoff to mitigate the impact of stormwater runoff and other environmental concerns. The goals of the Green Street elements are to improve the water quality of stormwater runoff, recharge local ground water basins, improve air quality, reduce the heat island effect of street pavement, enhance pedestrian use of sidewalks, and encourage alternate means of transportation. The Green Street elements may include infiltration systems, biofiltration swales, and permeable pavements where stormwater can be easily directed from the streets into the parkways and can be implemented in conjunction with the SUSMP/LID requirements.

CONSTRUCTION REQUIREMENTS

BOS-4 The project is required to implement stormwater control measures during its construction phase. All projects are subject to a set of minimum control measures to lessen the impact of stormwater pollution. In addition for projects that involve construction during the rainy season that is between October 1 and April 15, a Wet Weather Erosion Control Plan is required to be prepared. Also projects that disturb more than one-acre of land are subject to the California General Construction Stormwater Permit. As part of this requirement a Notice of Intent (NOI) needs to be filed with the State of California and a Storm Water Pollution Prevention Plan (SWPPP) needs to be prepared. The SWPPP must be maintained on-site during the duration of construction.

If there are questions regarding the stormwater requirements, please call Kosta Kaporis at (213) 485-0586, or WPD's plan-checking counter at (213) 482-7066. WPD's plan-checking counter can also be visited at 201 N. Figueroa, 3rd Fl, Station 18.

SOLID RESOURCE REQUIREMENTS

BOS-5 The City has a standard requirement that applies to all proposed residential developments of four or more units or where the addition of floor areas is 25 percent or more, and all other development projects where the addition of floor area is 30 percent or more. Such developments must set aside a recycling area or room for onsite recycling activities. For more details of this requirement, please contact Daniel Hackney of the Special Project Division at (213)485-3684.

KB\AP:tn

c: Kosta Kaporis, SAN
Daniel Hackney, SAN
Zemamu Gebrewold, SAN

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2.3.4.2 Los Angeles Bureau of Sanitation

Response to Comment BOS-1

Thank you for your comment. The comment indicates that the proposed Project is unrelated to sewer capacity availability and that the Bureau of Engineering, Wastewater Engineering Services Division offers no specific comments or analysis at this time. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment BOS-2

Thank you for your comment. The comment provides standard requirements related to the implementation of stormwater mitigation measures. Sections 3.5.3.10 and 3.5.3.11 of the Draft EIS/EIR discuss the applicable regulations related to the Los Angeles Municipal Separate Storm Sewer System (MS4) permit and the Standard Urban Stormwater Mitigation Plans (SUSMP), respectively, as they relate to the proposed Project. Additionally, Section 3.15.4.1 of the Draft EIS/EIR identifies LAHD's commitments during construction and long-term operation for the reduction of impacts on water quality. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment BOS-3

Thank you for your comment. The comment provides background on the City's Green Street Initiative. It should be noted that the proposed Project does not include any improvements outside of the YTI Terminal, and therefore does not have the opportunity to implement street improvements.

Response to Comment BOS-4

Thank you for your comment. Section 3.15.3.9 of the Draft EIS/EIR discusses the State Water Resources Control Board Stormwater Permits that are applicable for construction activities. Additionally, Section 3.15.4.1 of the Draft EIS/EIR identifies the assumptions that will be adhered to during construction for the reduction of impacts to water quality. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment BOS-5

Thank you for your comment. The proposed Project does not involve residential development or the addition of floor area of 30% or more. All improvements would occur within the existing limits of the Terminal, and do not include any new building areas. Therefore, the recycling requirements are not applicable.

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2.3.5 Comments from Organizations

Comment Letter EJ1

COMMUNITIES FOR A BETTER ENVIRONEMNT
NATURAL RESOURCES DEFENSE COUNCIL
PHYSICIANS FOR SOCIAL RESPONSIBILITY-LOS ANGELES
SAN PEDRO AND PENINSULA HOMEOWNERS COALITION
SIERRA CLUB

June 16, 2014

Theresa Stevens, Ph.D.
Los Angeles District, Regulatory Division
Ventura Field Office
U.S. Army Corps of Engineers
2151 Alessandro Drive, Suite 110
Ventura CA 93001
Theresa.stevens@usace.army.mil.

Christopher Cannon
Director of Environmental Management
Port of Los Angeles
P.O. Box 151
San Pedro, CA 90733-0151
ceqacomments@portla.org

RE: JOINT COMMENTS ON BERTHS 212–224 YTI CONTAINER TERMINAL IMPROVEMENTS PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)/DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)

Dear Dr. Stevens and Mr. Cannon:

On behalf of Communities for a Better Environment, Natural Resources Defense Council, Physicians for Social Responsibility-Los Angeles, San Pedro and Peninsula Homeowners Coalition, and Sierra Club, we write regarding the Draft Environmental Impact Statement/Environmental Impact Report ("DEIS/R") for the YTI terminal. Overall, the information disclosed through this California Environmental Quality Act ("CEQ") and National Environmental Policy Act ("NEPA") review deeply concerns our organizations. The project imposes several significant environmental impacts, including increased cancer risk, in already overburdened communities. Moreover, for many pollutants, the project will exceed South Coast Air Quality Management District ("SCAQMD") significance thresholds. The problematic reality of the impacts from this project is exacerbated by the DEIS/R's admissions that the project will impose disproportionate impacts to low income communities and communities of color. To make matters worse, the Project does not include all feasible mitigation to protect communities from its harmful impacts.

EJ1-1
EJ1-2
EJ1-3
EJ1-4
EJ1-5

The Port of Los Angeles must be a leader in solving the environmental crisis created by concentrating toxic diesel equipment in harbor area neighborhoods. Moreover, given that the

EJ1-6

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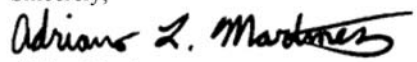
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EJ1-6 cont. San Pedro Bay Ports are the largest fixed source of emissions in the region, we need substantive actions from the Port of Los Angeles to promote zero emissions technologies. Unfortunately for harbor area residents and all residents in the region, this project fails on both these accounts. The region cannot continue to foster this dramatic expansion of the freight industrial complex without the implementation of desperately needed mitigation measures, including technologies that eliminate the emissions of harmful and deadly pollutants.

EJ1-7 Finally, we find this completely deficient DEIS/R egregious in light of the Port of Los Angeles current efforts to stop the South Coast Air Quality Management District's from adopting a port backstop rule. One of the rationales presented by the ports in fighting this needed regulation has been their leadership on greening issues. This project, along with other projects at both ports, cuts against this self-described leadership role. The unfortunate reality is that the ports have moved to focus more fully on economic expansion, and this project further indicates that the vision of pushing cleaner technologies, including zero and near-zero emission equipment, has been put on the back burner.

EJ1-8 Accordingly, we respectfully request that the Port reevaluate the opportunity presented by this project to be a true leader. Attached to this letter is a longer analysis that we incorporate by reference. Please do not hesitate to contact us if you have questions about this comment letter.

Sincerely,



Adrian Martinez
Staff Attorney
Earthjustice

Maya Golden-Krasner
Staff Attorney
Communities for a Better Environment

David Pettit
Senior Attorney
Natural Resources Defense Council

Martha Dina Arguello
Executive Director
Physicians for Social Responsibility-Los Angeles

Kathleen Woodfield
Vice President
San Pedro and Peninsula Homeowners Coalition

Dr. Jim Stewart
Co-Chair
Sierra Club California Energy-Climate Committee

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2.3.5.1 Earthjustice

Response to Comment EJ1-1

Thank you for your comment. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment EJ1-2

Thank you for your comment. The comment summarizes impacts that have been adequately analyzed and disclosed in the Draft EIS/EIR. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment EJ1-3

Thank you for your comment. The comment summarizes impacts that have been adequately analyzed and disclosed in the Draft EIS/EIR. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment EJ1-4

Thank you for your comment. The comment summarizes impacts that have been adequately analyzed and disclosed in the Draft EIS/EIR. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment EJ1-5

See Master Response 1: Feasible Mitigation.

Response to Comment EJ1-6

See Master Response 1: Feasible Mitigation and Master Response 2: Zero Emission Technologies.

Response to Comment EJ1-7

See Master Response 2: Zero Emission Technologies.

Response to Comment EJ1-8

Comment noted. The comments attached to the letter are addressed in forthcoming Responses to Comments EJ2 et seq. that follow.

Comment Letter EJ2

EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, DC INTERNATIONAL

June 16, 2014

Theresa Stevens, Ph.D.
Los Angeles District, Regulatory Division
Ventura Field Office
U.S. Army Corps of Engineers
2151 Alessandro Drive, Suite 110
Ventura CA 93001
Theresa.stevens@usace.army.mil

Christopher Cannon
Director of Environmental Management
Port of Los Angeles
P.O. Box 151
San Pedro, CA 90733-0151
ceqacomments@portla.org

RE: COMMENTS ON BERTHS 212–224 YTI CONTAINER TERMINAL IMPROVEMENTS PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)/DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)

Dear Dr. Stevens and Mr. Cannon:

EJ2-1 I write to provide comments on the YTI Container Terminal Improvements Project Draft Environmental Impact Statement ("DEIS")/Draft Environmental Impact Report ("DEIR"). I appreciate the opportunity to review and provide comments on the DEIS/DEIR ("DEIS/R"). After reviewing this DEIS/R, I have several concerns about the Project and the accompanying environmental document. In particular, YTI includes far less mitigation than what is feasible. In fact, it does not even include mitigation that other projects like the Middle Harbor Redevelopment Project at the Port of Long Beach demonstrated as feasible. This reality is made more concerning by the fact that the Project will cause significant adverse impacts.

EJ2-2 After careful review, I have concluded that the YTI DEIS/R fails to comply with the requirements of the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"). As described below, the DEIS/R is inadequate because it fails to carry out CEQA's mandates. It fails to provide sufficient mitigation for identified significant impacts and neglects to consider alternatives that effectively protect the environment while providing good, well-paying, sustainable jobs for the region's workforce.

EJ2-3 As a result of the inadequate DEIS/R, there can be no meaningful public review of and comment on the Project. CEQA accordingly requires the Port to prepare and circulate a revised DEIS/R to enable the public to be adequately informed of the environmental issues at stake.

800 Wilshire Blvd. SUITE 1010 LOS ANGELES, CA 90017
T: 415.217.2000 E: amartinez@earthjustice.org W: www.earthjustice.org

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I. Project Overview

This Project is immense. If compared to container volumes nationally in 2012, this terminal at full build out would rank as the eighth busiest container port in the nation, just behind the Port of Houston, with a processing capacity greater than the entire number of containers shipped through the Port of Seattle.[1] This major facility is just one project in the nation's busiest container port.[2] The project entails major construction and dredging that will substantially enlarge not only the terminal but also the volume of goods that move through the terminal. The Project's expansion of port operations will have numerous and lasting impacts on nearby residents in the Harbor Region.

EJ2-4

The air pollutant emissions that accompany the Project will have serious consequences, which will be disproportionately felt by minority and low-income residents.[3] It is absolutely critical that all impacts from the expansion are adequately studied and fully mitigated in order to ensure minimal impact to nearby residents. The Project's impacts arise not only from air pollution, but also from an increase in the greenhouse gases and wastes[4] that the terminal will generate once expanded.

To fully understand the magnitude of the Project, it is necessary to compare the current operations to the projected final capacity. In 2012, the terminal moved 996,109 Twenty-foot Equivalent Units ("TEUs").[5] The Project plans to increase the terminal capacity to 1.9 million TEUs, which could result in up to 4,470 daily and 1,236,402 annual truck trips.[6] This Project, as well as other port expansion projects in the Harbor Region, will yield significant impacts on port-adjacent communities and the region as a whole. Without a comprehensive array of mitigation measures, this terminal expansion will severely impact nearby residents.

II. The Air Quality Impacts of this Project.

a. This Project Exceeds the Cancer Risk Threshold Established in the Clean Air Action Plan.

EJ2-5

The Port pledged in the Clean Air Action Plan[7] not to approve projects with an additional increase in cancer risk of 10 in a million or more. The YTI project exceeds this limit. This knowing disregard for the health and lives of those who reside in the Harbor Region is

[1] American Association of Port Authorities, NAFTA Region Container Traffic 2012 Port Ranking By TEUs, *available at* http://aapa.files.cms-plus.com/Statistics/NAFTA%20REGION%20CONTAINER%20TRAFFIC%20PORT%20RANKING%202012.pdf.
[2] *Id.*
[3] *See* DEIS/R, at 5-15-17.
[4] The terminal is a generator of both Resource Conservation and Recovery Act (RCRA) hazardous wastes and non-RCRA hazardous wastes. DEIS/R, at 3.9-5.
[5] DEIS/R, at 2-10.
[6] DEIS/R, at 2-20.
[7] San Pedro Bay Ports Clean Air Action Plan ("CAAP") (2010), *available at* http://www.portoflosangeles.org/environment/caap.asp.

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EJ2-5 cont.

incompatible with the promises made by the Port and the spirit of CEQA.[8] The CAAP was explicit in its directive that "Projects *must* meet the 10 in 1,000,000 excess residential cancer risk threshold."[9] Nonetheless, this Project seeks special approval to endanger the public with a cancer risk level exceeding the pledged threshold. This is completely unacceptable and Harbor Region residents deserve better.

b. The DEIS/R Fails to Disclose Its Incompatibility with Federal and State Clean Air Standards.

EJ2-6

The DEIS/R fails as an informational document because it provides an overly rosy picture of how this Project fits into the region's ability to comply with federal and state clean air standards. The flaws in the analysis stem from the Project's primary commitment to continue along a path using primarily diesel equipment.[10] The DEIS/R goes so far as to mislead the public and decision makers about its role in compliance with the Air Quality Management Plan ("AQMP") and State Implementation Plan (Impact AQ-8).[11] In particular, the DEIS/R states that "[t]he proposed Project would not conflict with or obstruct implementation of the AQMP." However the DEIS/R itself shows that the YTI project will not help achieve federal and state clean air standards on time because it shows significant *increases* in emissions amongst a range of pollutants.[12] The DEIS/R also ignores several critical provisions of the 2007 AQMP that actually indicate this project interferes with implementation of the AQMP. These statements include the following:

> The District is faced with a number of constraints or confounding circumstances that make achieving clean air standards difficult. These include the physical and meteorological setting, the large pollutant emissions burden of the Basin (including pollution from international goods movement), and the rapid population growth of the area.[13]
>
> Electrification of goods movement related vehicles and equipment should also be considered. Electrification of the infrastructure at the ports and the Alameda Corridor can significantly reduce emissions from on-road trucks and locomotives.[14]

[8] *See* Cal. Pub. Resources Code § 21002.1 (b) ("Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.").
[9] CAAP, at 51 (italics added).
[10] While the Port is likely to respond in comments that there are some electrification requirements (e.g. cold ironing) in this Project, this would not address the concerns that advocates have been pushing for years that the Port needs to really implement zero and near-zero emissions technologies in Port projects for all categories of equipment.
[11] DEIS/R, at 3.2-127.
[12] The significant emissions come from the construction phase. In addition, the dishonest assessment of emissions from operation of the project will also potentially impede compliance with the AQMP and clean air standards.
[13] 2007 AQMP, at ES-15. *Id.* at 1-1–1-2. (Ex. 13) Entire document available at http://www.aqmd.gov/aqmp/07aqmp/aqmp/Complete_Document.pdf.
[14] Ex. 13 at 4-64.

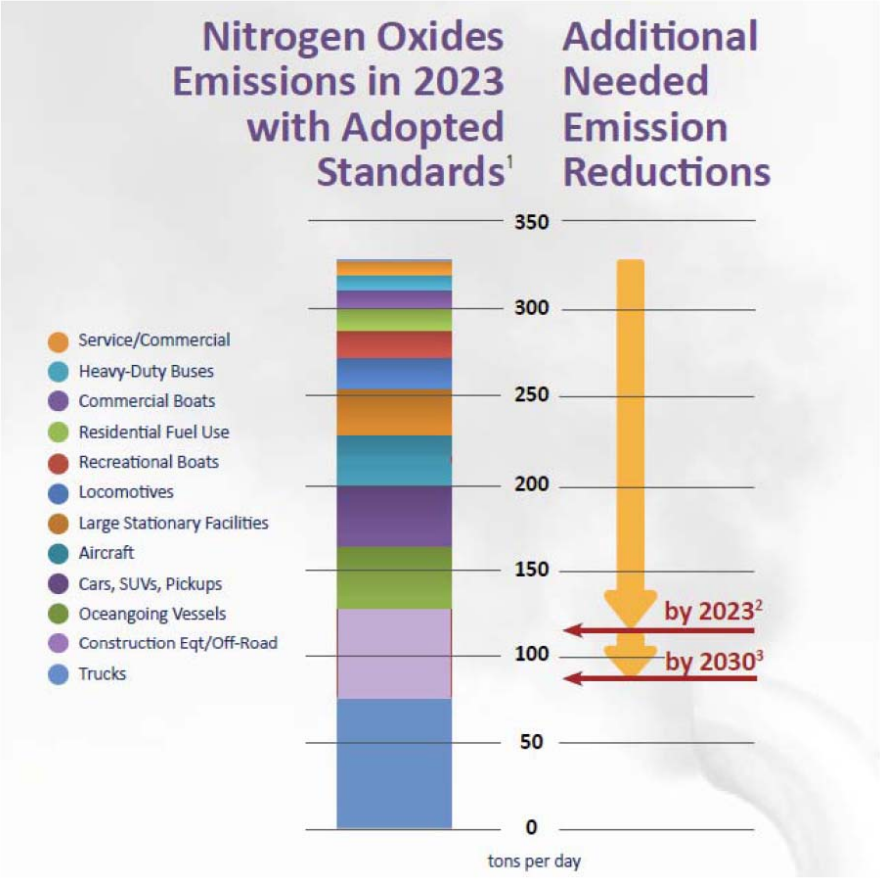
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EJ2-6 cont.

These statements were further bolstered by the 2012 AQMP, which determined that "[m]ore broadly, a transition to zero- and near-zero emission technologies is necessary to meet 2023 and 2032 air quality standards and 2050 climate goals."[15]

EJ2-7

In particular, the DEIS/R's air quality analysis does not even mention the huge "black box" that the region currently proffers to demonstrate attainment of ozone standards.[16] The following chart was presented by the Executive Officer of the South Coast Air Quality Management District at a recent workshop on SIP compliance.[17]



[15] 2012 AQMP, at ES-13. Entire document available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan.
[16] *See* 42 U.S.C. § 7511A (e)(5).
[17] *See* Dr. Barry Wallerstein, Executive Officer, South Coast Air Quality Management District, Blue Sky Panel Presentation, http://www.aqmd.gov/aqmp/2012aqmp/symposium/Panel1-Barry.pdf. (Ex. 17).

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As is evident from this chart, the path to attainment is difficult, and freight related sources must play a role in meeting clean air standards. For example, this Project includes some of the source categories included in the above chart: "Trucks," "Construction Equipment/Off-Road Equipment," "Cars, SUVs, Pickups," and "Locomotives." The DEIS/R must disclose the fact that it does not help reduce the size of the "black box" because it does not include measures that go above and beyond what is included to meet the NO_x targets in 2023 and articulated in the chart above. More specifically, the AQMP includes the projected emissions from the Ports in 2023 at 45.9 tons per day,[18] which is more than one third of the total emissions that are projected by AQMD to be needed to attain the 2023 8-hour ozone standard by 2023. Ignoring the black box is intellectually dishonest, and CEQA requires an honest assessment of how its failure to include zero and near zero emissions technologies in the Project is a missed opportunity to obtain additional emissions reductions. As the SCAQMD has extensively presented, to address the black box and actually meet ozone standards on time requires a shift to zero and near-zero emission technologies wherever possible and as soon as possible.

EJ2-7 cont.

The DEIS/R also fails to disclose how this Project interferes with the state and federal 1-hour ozone standard. Importantly, the 2007 AQMP does not purport to achieve compliance with the federal 1-hour ozone standard. In pertinent part, it states-

> However, while the number of days exceeding the federal 1-hour ozone standard has dropped since the 1990s, the rate of progress has slowed since the beginning of the decade. The Basin currently still experiences ozone levels over the federal standard on more than 20 days per year. By 2010, this plan shows that the Basin will still exceed the federal 1-hour ozone standard by more than 30 percent despite the implementation of the 2007 AQMP control measures.[19]

The document further elaborates that the "2007 AQMP is designed to address the federal 8-hour ozone and PM2.5 air quality standards, to satisfy the planning requirements of the federal Clean Air Act."[20] Thus, even if this Project could somehow be argued to not interfere with the 2007 AQMP or 2012 AQMP, it would need to disclose its impacts on compliance with the federal and state 1-hour ozone standard, including the most recently federally approved AQMPs to achieve these standards. While the Project Proponents may claim the federal 1-hour ozone standard has been revoked, the state 1-hour ozone standard has been retained and is even more stringent than the federal 1-hour ozone standard.[21] Given the complete failure of the DEIS/R to even reference the construction and operational impacts of this project on compliance with the federal and state 1-hour ozone standards and the SIPs designed to meet these standards, this constitutes a violation of CEQA by ignoring the law's mandate that an EIR make "a good faith effort at full disclosure."[22] Given the Los Angeles regions' persistent air quality problems, this oversight mounts to a significant flaw that precludes truly informed decision-making.

[18] *See* 2007 AQMP, at 6-29.
[19] Ex. 13, at ES-4.
[20] 2007 AQMP, at 1-15.
[21] *Compare* Cal. Health & Safety Code § 40921.5 (.09 ppm) *to* 42 U.S.C. § 7511 (.12 ppm).
[22] Guideline § 15151.

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III. The Mitigation Measures Included in the Air Quality Analysis Portion of the DEIS/R Are Inadequate Under CEQA and NEPA.

a. Existing Mitigation Measures Must Be Strengthened in the DEIS/R.

In the 2010 update to the Clean Air Action Plan (CAAP), the Port committed to significantly reducing the air quality impacts from port operations and taking aggressive action to seek further emissions and health risk reductions through the San Pedro Bay Standards.[23] These efforts include: EJ2-8

- Reducing the cancer risk of port-related DPM emissions by 85 percent by 2020 in highly-impacted communities and residential areas in the port region.
- Meeting their "fair share" of mass air pollutant emissions reductions by cutting emissions of nitrogen oxides (NO_x) by 59 percent, sulfur oxides (SO_x) by 93 percent, and DPM by 77 percent by this 2023, relative to the 2005 baseline.
- Preventing port-related violations of ambient air quality standards.

This Project exceeds the 10 in 1,000,000 excess residential cancer risk threshold with a risk of 23 in 1,000,000[24], meaning that it must implement the maximum available controls and feasible mitigations for its emissions increases.[25] The cumulative effects of Project will hinder the Port from timely achievement of the San Pedro Bay Standards and will halt progress towards reducing regional health risks. EJ2-9

The impact of air pollution in the port region rests disproportionately on residents of color. Non-Hispanic Black and Asian-Pacific Islander residents experience greater exposure to particulate matter in the goods movement corridor,[26] an impact that will be exacerbated by the substantial increase in annual truck trips generated from the Project.[27] Since approximately 70 percent of the cancer risk from air pollutants in Southern California is attributable to diesel particulate emissions,[28] the impact of this Project can be characterized as nothing short of significant. EJ2-10

In a project such as this where the impacts on the surrounding community and environment are so serious, the EIR must incorporate all feasible measures to minimize the severity of those impacts.[29] Mitigation measures must not only be present, but fully enforceable through legally-binding instruments.[30] The Project's DEIS/R noticeably lacks not only substantive mitigation EJ2-11

[23] CAAP, at ES-3.
[24] DEIS/R, at B3-56.
[25] CAAP, at 51.
[26] Douglas Houston, Wei Li & Jun Wu, *Disparities in Exposure to Automobile and Truck Traffic and Vehicle Emissions Near the Los Angeles–Long Beach Port Complex*, 104 AM. J. PUB. HEALTH 156 (2014).
[27] CEQA baseline of 907,176 annual truck trips in 2012 compared to NEPA projection of 1,220,000 annual trucks trips by 2026. DEIS/R, at 3.2-57, 59.
[28] Douglas Houston, Wei Li & Jun Wu, *Disparities in Exposure to Automobile and Truck Traffic and Vehicle Emissions Near the Los Angeles–Long Beach Port Complex*, 104 AM. J. PUB. HEALTH 156, at 157 (2014).
[29] Cal. Code Regs. tit. 14, § 15126.4; Cal. Pub. Res. Code § 21081.6.
[30] Cal. Code Regs. tit. 14, § 15126.4.

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EJ2-11 cont.

measures utilized in other recent port projects in the surrounding area, but also enforceable provisions to ensure mitigation is achieved. Further, the DEIS/R lacks substantial evidence to support its claim that significant impacts will in fact be mitigated in any meaningful way.

i. Fugitive Dust Controls

The Project's DEIS/R mitigation requirements for fugitive dust control briefly state: "Contractor must apply water to 14 disturbed surfaces at an interval of 2 hours."[31] This single effort to control fugitive dust only manages to reduce the levels by 61 percent[32] and falls far short of the mitigation efforts demonstrated as feasible at the Ports of Los Angeles and Long Beach.[33]

Additional mitigation requirements in this area should include:[34]

EJ2-12

- Designating of a dust control program monitor who may increase watering when necessary, to ensure a 90 percent control level, including work on holidays and weekends;
- Applying approved non-toxic chemical soil stabilizers according to manufacturer's specifications to all inactive construction areas or replacing groundcover in disturbed areas;
- Providing temporary wind fencing around sites being graded or cleared;
- Covering truck loads that haul dirt, sand, or gravel or maintain at least two feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways");
- Installing wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site;
- Suspending all soil disturbance activities when winds exceed 25 mph as instantaneous gusts or when visible dust plumes emanate from the site and stabilizing all disturbed areas;
- Appointing a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM10 generation;
- Sweeping all streets at least once a day using SCAQMD Rule 1186, 1186.1 certified street sweepers or roadway washing trucks, utilizing reclaimed water, if visible soil materials are carried to adjacent streets;
- Requiring YTI to sweep on-site, along routes used by drayage trucks, yard hostlers, service trucks and employee commuter vehicles, on a weekly basis using a commercial street sweeper or any technology with equivalent fugitive dust control;
- Paving road and road shoulders;
- Covering open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) with a plastic tarp or chemical dust suppressant;

[31] DEIS/R, at 3.2-70.
[32] DEIS/R, at 3.2-34.
[33] Reduction of fugitive dust by approximately 90 percent. *See* Middle Harbor Final EIR/S ("FEIR/S") at 3.2-101, *available at* http://www.polb.com/environment/docs.asp.
[34] *See* Middle Harbor FEIR/S, at ES-30-34.

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EJ2-12 cont.

- Stabilizing the materials while loading, unloading and transporting to reduce fugitive dust emissions;
- Checking belly-dump truck seals regularly to remove trapped rocks, preventing possible spillage;
- Complying with track-out regulations and providing water while loading and unloading to reduce visible dust plumes;
- Hauling waste materials off-site immediately.

ii. Construction Best Management Practices

EJ2-13 In addition to the best management practices for construction equipment that were included in the DEIS/R, the mitigation measure should include a provision that requires the utilization of electricity from power poles rather than temporary diesel- or gasoline-powered generators.[35]

iii. General Mitigation Measures

EJ2-14 We are glad that the DEIS/R references the possibly of adopting new CARB-certified technology that achieves as good or better emissions performance; however, the weak language that specifies only that such technology "could" replace existing measures pending approval by LAHD fails to provide any impetus for driving that adoption. Improved technologies that reduce the cumulative air impacts of the Project should be implemented in the next construction contract following the technology's CARB-certification.

iv. Harbor Craft

EJ2-15 Requiring harbor craft used in construction to use Tier 3 or cleaner engines[36] is an excellent start to reducing the emissions from construction-related activities. We would like the Project to further mitigate these emissions by requiring all construction harbor craft that home fleet at the Port to shut down their main engines and refrain from using auxiliary engines at dock, using electric shore power if necessary.[37]

v. Vessel Speed Reduction Program (VSRP)

EJ2-16 We are pleased that the Project has incorporated two measures involving vessel speed reduction. Yet Mitigation Measure AQ-9 neglects to include the totality of vessels that call at the YTI Terminal, setting for merely 95 percent[38] when other recent projects have required all OGVs to comply.[39]

[35] Demonstrated as feasible in the Middle Harbor Redevelopment Project ("Middle Harbor") project. *See* Middle Harbor, at ES-30.
[36] Mitigation Measure AQ-2, DEIS/R, at ES-30.
[37] Middle Harbor FEIR/S, at ES-31.
[38] DEIS/R, at ES-31.
[39] Middle Harbor FEIR/S, at ES-32.

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EJ2-16 cont.

Vessel speed reduction is an important element of the CAAP, which states that total compliance of all OGVs would result in 48 percent reduction in DPM, NO_x, and SO_x and a ten percent reduction of CO_2E in the 40 nm zone.[40] The CAAP has further stated that requiring compliance with the VSRP through the 40nm zone via new or negotiated leases is a "key element" in implementing this control measure.[41] The Project must do its share in keeping the Port's CAAP commitments by requiring 100 percent compliance with the VSRP out to the 40nm zone.

vi. Alternative Maritime Power

EJ2-17

The alternative maritime power (AMP) mitigation measure included in the DEIS/R falls far short of the maximum achievable feasible mitigation due to three elements. First, the timeline set for the measure far exceeds the time period set in other terminal development projects. This Project sets the goal on achievement of partial AMP to the year 2026, while the Middle Harbor project required total utilization of shore-to-ship power by December 2014.[42] No explanation was given for the exorbitantly prolonged timeline in achieving the goal in this Project. Second, the DEIS/R stipulates that only 95 percent of specified ships will be using AMP by 2026,[43] rather than 100 percent of vessels that Middle Harbor found feasible on a much quicker timeline. And finally, the DEIS/R limits AMP measures only to one of the three ship-lines that utilize YTI port terminals.[44] Again, no justification is given for the failure to include all OGVs and adequately mitigate the extensive impacts generated by the Project. Given AMP's importance in reducing emissions at the Port, this feasible mitigation must be implemented quickly in a manner that applies to all OGVs.

vii. Idling Rules

EJ2-18

An issue of further concern is the lack of attention to truck idling rules. The DEIS/R referred briefly to the issue in Mitigation Measure AQ-6, restricting the idling of construction vehicles to five minutes when not in use,[45] yet the description of rules for Mitigation Measure AQ-11 ("Truck Idling Reduction Measure") is notably absent. The DEIS/R must display "a good faith reasoned analysis," relying on information actually incorporated or described and referenced in the [document]" for the agency to proceed.[46] In this case, the absence of description of operational truck idling rules does not meet the "good faith reasoned analysis" required under *Vineyard*.

California law prohibits diesel-fueled trucks from idling more than five minutes unless it meets stringent emissions standards or certain specified exceptions, including queuing at a port more

[40] CAAP, at 82.
[41] CAAP, at 85.
[42] *Compare* DEIS/R, at 3.2-88 *with* Middle Harbor FEIR/S at 3.2-35.
[43] DEIS/R, at 3.2-88.
[44] *Id. See also* Port of Los Angeles, Facilities, http://www.portoflosangeles.org/facilities/ter_berth212-225.asp (last accessed June 3, 2014) (describing the Yusen Container Terminal and the three lines served: NYK, OOCL, Hapag Lloyd).
[45] DEIS/R, at ES-31.
[46] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal. 4th 412, 442 (2007).

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than 100 feet from restricted area.[47] As the law may not extend far enough to cover the impacts of the Project and expanded terminal operations, it is necessary and feasibly to clearly and explicitly define the idling rules put in place for this Project. Those rules should be expanded to also include locomotive idling, which is presently excluded from the Project's proposed mitigation measures.

EJ2-18 cont.

The Yusen terminal experiences an above average "turn time," the amount of time that a truck spends inside the terminal, of approximately 141.6 minutes.[48] It is essential that during this time trucks be prohibited from excess idling, even if they are queued within or around the terminal. Operational truck and equipment idling contributes to emissions from exhaust fumes, brake wear, tire wear, and entrained road dust.[49] The increase in idling emissions stemming from growth in the number of truck trips and increase in terminal capacity necessitates appropriate mitigation. The DEIS/R must be corrected to adequately cover operational truck and equipment idling in its enforceable provision.

viii. Greenhouse Gas Reduction Measures

The mitigation measures addressing greenhouse gas (GHG) emissions pale in comparison to other recent efforts deemed feasible at nearby port development projects. The Project lists a total of three GHG mitigation measures, including only recycling, periodic energy audits, and installing LED lights in interior buildings.

Additional GHG mitigation elements were found to be feasible in the Middle Harbor project:

EJ2-19

- Requiring the main administration building achieve LEED gold or higher certification from the U.S. Green Building Council.[50]
- Eliminating the language "(2) where the amount of savings would be reasonably sufficient to cover the costs of implementation" in MM GHG-1, as the vagueness of the wording may lead to decreased adoption of technology with a longer payback period; alternatively, modify the clause to specify utilizing a payback period of no less than twenty years.
- Installing solar panels on the administration, maintenance and other buildings.
- Installing solar carports over employee and visitor parking to the maximum extent feasible.
- Utilizing boom flood lights with energy efficient features on existing and new dock cranes to the extent feasible, including features such as use of photo cells/timers, low

[47] 13 CCR § 2485 ("Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling").
[48] Kristen Monaco & Lisa Grobar, A study of drayage at the Ports of Los Angeles and Long Beach, No. FHWA/CA/OR-2005/11, METRANS Transportation Center (2005).
[49] DEIS/R, at B2-10.
[50] LEED Building Operations and Maintenance has programs for existing buildings that may apply for this Project. U.S. Green Building Council, Getting to know LEED: Building Operations and Maintenance (O+M), http://www.usgbc.org/articles/getting-know-leed-building-operations-and-maintenance-om (last accessed June 4, 2014).

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energy fixtures, and light-spillover reduction features, electronic ballasts, double filaments, and auto-switch-off controls for when the crane boom is up.

- Downsizing light fittings and associated electrical power usage at reefer platforms to the extent feasible.
- Planting trees along the administration and maintenance buildings, as well as planting new shade trees on Port-controlled lands adjacent to roads on the YTI container terminal, exempting building rooftop areas which are covered with solar panels.
- Incorporating cool roofs on the administration and maintenance buildings to the extent feasible, exempting portions of the roof that are covered with solar panels.
- Encouraging construction and terminal employees to carpool or utilize public transportation by providing incentives to promote such behavior, such as preferential parking for carpoolers, vanpool subsidies, and information regarding the benefits of alternative transportation methods.
- Offsetting carbon emissions associated with the terminal's electricity consumption through green commodities, such as those available from the California Climate Action Registry's Climate Action Reserve.
- Installing electric regenerative systems on all Project dock cranes.
- Provide funding for the Greenhouse Gas Emission Reduction Program Guidelines (GHG Program) in the amount of $10 million to pay for measures including, but not limited to, generation of green power from renewable energy sources, ship electrification, goods movement efficiency measures, cool roofs to reduce building cooling loads and the urban heat island effect, building upgrades for operational efficiency, tree planting for biological sequestration of CO2, energy-saving lighting, and purchase of renewable energy certificates (RECs).
- Utilizing only alternative fuel service trucks within the YTI facility.

EJ2-19 cont.

While we are pleased that some mitigation measures were included, there are substantially more feasible measures to truly mitigate the GHG impacts of the Project.

b. Additional Feasible Mitigation Must Be Added Due to the Project's Significant Impact

EJ2-20

The mitigation measures in this Project's DEIS/R fail to adequately address the significant impacts resulting from construction and operation with measures that have proven feasible in other recent projects.

i. Zero Emissions Container Movement System

EJ2-21

The proposed Project will have significant impacts on surrounding communities from emissions of PM10, PM2.5, NO_x, CO, and VOCs, all of which surpass CEQA thresholds.[51] One such impact is known as the cancer burden: the expected number of additional cancer cases in a population exposed to a project's TAC emissions.[52] Container trucks traveling to and from the

[51] DEIS/R, at 3.2-68.
[52] *Id.*, at B3-38.

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Project cause 91.8 percent of the Source Contributions to Cancer Risk for Residential Receptors.[53] Due to these impacts, it is imperative that the Project mitigate emissions through implementation of a zero emissions container movement system. The Port has voiced an "intent with and commitment to zero–emission, heavy-duty trucks"[54] in previous projects and the passage of time only makes this mitigation measure more feasible and necessary. The lack of progress in actually implementing these zero-emissions, heavy duty trucks deeply concerns many groups given its overwhelming contribution to the increased health risk from this Project.

"Feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[55] The state of technology on zero-emissions battery-powered trucks has progressed to such a point where utilization of this promising new mitigation option is feasible.[56] A study prepared for the Gateway Cities Council of Governments found that "[z]ero-emission capable drayage trucks can be developed, demonstrated, validated and moved into production by a 2025 target timeline."[57] While the cost of owning and operating a conventional vehicle is expected to rise in the coming decade to keep pace with federal and regional emissions requirements, the costs for zero-emissions technologies are expected to decline over time.[58]

EJ2-21 cont.

Additionally, the AQMD study titled "Zero-Emission Catenary Hybrid Truck Market Study" concluded that zero-emission trucks, including hybrid electric trucks with all electric range, have the capability of providing the standard operating range for regional or local trucks at a similar or even lower cost than other zero-emissions technology.[59]

While phasing in zero-emissions technology may take some time, this Project provides an excellent opportunity to catalyze development in this area so that the Port can meet its CAAP commitments.

The DEIS/R should include an implementation schedule follows:

1. By 2018, at least 25% of trucks serving the terminal shall be by zero emission technology (with potential modification of requirement based on specific findings).
2. By 2022, 100% of trucks serving the terminal shall be by zero emission technology.

The deployment of zero-emissions technology could be amended to allow delayed implementation under specific conditions, allowing flexibility with phasing in the new requirements while still working towards the required mitigation level.

[53] *Id.*, at B3-44.
[54] Southern California International Gateway FEIR, at 2-32.
[55] Cal. Pub. Res. Code § 21061.1.
[56] Eelco den Boer, et al., *Zero emissions trucks: an overview of state-of-the-art technologies and their potential* at 7 (2013), *available at* http://www.cedelft.eu/publicatie/zero_emission_trucks/1399.
[57] I-710 Project Zero-Emission Truck Commercialization Study Final Report, prepared for Gateway Cities Council of Governments at 6-2 (Nov. 20, 2013).
[58] *Id.*
[59] South Coast Air Quality Management District, Zero-Emission Catenary Hybrid Truck Market Study (March 8, 2012).

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EJ2-21 cont.

Finally, the Project should include zero emissions technologies as a lease condition for cargo handling equipment. Region 1 has identified several feasible electric and hybrid technologies for various CHE applications.[60] There needs to be a commitment to implement these technologies at a schedule similar or more aggressive than what is outlined for trucks above.

ii. Clean Railyard Standards

EJ2-22

Also missing from the DEIS/R is discussion of how to effectively mitigate the emissions stemming from locomotive use at the Project. Locomotive travel is a driving force in the cancer risk at the maximum impacted residential receptor,[61] causing 64.8 percent of the future residential risk.[62] Locomotives entering the YTI terminal should be required to incorporate the cleanest locomotive technologies, meeting Tier 4 standards. On-dock rail provides another opportunity to minimize the emissions from on-road trucks and should be utilized to the maximum extent practicable.

A timeline to phase in the progression to cleaner locomotive standards is as follows:

1. By 2018, at least 25% of locomotives entering YTI terminal shall be Tier 4.
2. By 2020, at least 100% of locomotives entering YTI terminal shall be Tier 4.

The CAAP sets a goal of 95 percent of Class 1 line-haul locomotives entering the Ports to meet Tier 4 standards by 2020,[63] so the additional emissions generated by the Project's expansion mandate further mitigation and more stringent standards. Voluntary commitments and goals are insufficient to truly mitigate the extent of the harm caused by the Project.

iii. Construction Traffic Emissions Reductions

EJ2-23

Another area where additional mitigation is necessary is for emissions associated with construction traffic. "Residential proximity to heavy traffic has been associated with adverse health effects, including asthma, reduced lung function, cardiac and pulmonary mortality, and adverse birth outcomes."[64] The addition of construction vehicles will only intensify the air pollutant emissions generated by existing port traffic. The absence of a construction traffic mitigation plan in the DEIS/R is concerning, particularly because other port development projects have demonstrated the feasibility of this type of mitigation measure.[65]

Below are traffic mitigation measures that have been determined to be feasible:

[60] USE EPA Region 1, Sustainable Ports: Cargo Handling Equipment, *available at* http://www.epa.gov/region1/eco/diesel/sp-cargo.html.
[61] DEIS/R, at B3-41.
[62] *Id.*, at B3-44.
[63] CAAP, at 53.
[64] Douglas Houston, Wei Li & Jun Wu, *Disparities in Exposure to Automobile and Truck Traffic and Vehicle Emissions Near the Los Angeles–Long Beach Port Complex*, 104 AM. J. PUB. HEALTH 156 (2014).
[65] *See* Middle Harbor FEIR/S, at ES-37.

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EJ2-23 cont.

- Ensuring that trucks used for construction use engines certified to no less than EPA 2010 NO_x emissions standards.
- Providing temporary traffic control such as flag person, during all phases of construction to maintain smooth traffic flow.
- Scheduling construction activities that affect traffic flow on arterial systems to off-peak hours.
- Re-routing construction trucks away from congested streets or sensitive receptor areas.
- Providing dedicated turn lanes for movement of construction trucks and equipment on- and off-site.
- Configuring construction parking to minimize traffic interference.
- Improving traffic flow by signal synchronization.
- Properly tuning and maintaining all vehicle and equipment according to manufacturer specification.
- Reducing traffic speeds on all unpaved roads to 15 mph or less.

iv. Air Quality Impact Reduction Program

EJ2-24

To further reduce the impact of the increased air pollution generated by the Project, a mitigation measure requiring significantly more funding to support to the Harbor Community Benefit Foundation's (HBCF) Healthy Harbor Grants. HBCF's purpose is "to address, through mitigation projects, off-port impacts from existing and future operations at the Port of Los Angeles" through "public benefit projects that assess, protect, and improve public health, quality of life, and the natural environment of the local communities."[66] This organization provides the ideal opportunity to involve the local community in mitigation efforts, as they are the group that will bear the greatest cost from the proposed Project's emissions. Similar mitigation funding required in the Middle Harbor project illustrate that this measure is both feasible and practical.[67]

v. Slide Valves on OGV Main Engines

EJ2-25

Fuel slide valves installation on main propulsion engines serves as a proven way to reduce emissions through better combustion and lowered fuel consumption.[68] Rather than continue with the "conservative" estimate of 27 percent of ships being equipped with these valves,[69] the Project should further require that all OGV that call at the YTI terminal have slide fuel valves or equivalent technology installed on their main engines, as was required in the Middle Harbor project.[70] The retrofit reduces emissions of NO_x and PM and is already recommended by the Port for engines that can utilize the technology.[71]

[66] Harbor Community Benefit Foundation, Our Mission, http://hcbf.org/about/ (last accessed June 5, 2014).
[67] Middle Harbor FEIR/S, at ES-33.
[68] DEIS/R, at 3.2-41.
[69] *Id.*
[70] Middle Harbor FEIR/S, at ES-32.
[71] CAAP, at 123.

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IV. The Project Disproportionately Impacts Minority and Low-Income Communities

The Environmental Justice chapter of the DEIS/R acknowledges the disproportionate adverse impact the Project will have on minority and low-income communities.[72] The expansion of the terminal near a community already suffering from environmental burdens can further deteriorate the health in that community. The DEIS/R notes that the Project's construction will result in off-site concentrations of air pollutants exceeding the AQMD's thresholds of significance.[73] The health impact on sensitive populations from these pollutants is far from benign. Nitrogen dioxide (NO2), for instance, can "aggravate chronic respiratory disease and respiratory symptoms in sensitive groups" and result in respiratory changes at the cellular and structural level.[74] Approval of the terminal expansion, with its accompanying disparate impact on minorities without sufficient mitigation, is a violation of both state and federal law.[75]

EJ2-26

Additional mitigation is required to reduce these risks to neighboring communities. Planting of urban vegetation can aid in the filtration of air pollutants, but such planting should be incorporated into new park facilities and expanded open space for nearby residents. Low-income and Latino neighborhoods in Los Angeles, such as the communities near the Port, have far lower levels of park access than white dominated areas of the city.[76] Mitigation for the adverse impacts generated by the terminal expansion could provide a feasible opportunity to address this environmental justice issue for the neighboring community. For example, the Port of San Francisco made three parks available to the public as mitigation for maritime fill projects.[77] The Project should be required to provide parkland and open space, in conjunction with a zero-emissions container movement system to address impacts to the nearby communities from the terminal expansion.

Finally, since the Port receives money from the state, this project violates California Government Code section 11135, which prohibits state-sponsored discrimination.

V. The NEPA Baseline is Flawed.

EJ2-27

As explained in the DEIS/DEIR, the federal action associated with the Project is the decision by the United States Army Corps of Engineers ("USACE") whether to issue permits to authorize the construction of "structures in navigable waters," related dredge and fill activities in navigable

[72] Figure 5-1 of the DEIS/R clearly illustrates that the majority of Port-adjacent neighborhoods are composed of 70 percent or higher minority populations.
[73] DEIS/R, at 5-16.
[74] *Id.*
[75] Section 11135(a) of California Government Code prohibits any agency receiving funding from the state from discriminating on the basis of race, among other factors. This prohibition includes permitting of sites or facilities that subject individuals to discrimination. Cal. Code Regs. tit. 22, § 98101(j). Title VI of the Civil Rights Act prohibits discrimination in federally-funded programs.
[76] Jennifer Wolch, et al., *Parks and park funding in Los Angeles: An equity-mapping analysis*, 26 URBAN GEOGRAPHY 4 (2005).
[77] San Francisco General Plan, Recreation and Open Space, *available at* http://www.sf-planning.org/ftp/general_plan/I3_Rec_and_Open_Space.htm.

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waters of the United States, and the "transport and disposal of dredged material at [EPA] designated sites in ocean waters" in accordance with Section 404 of the Clean Water Act.[78]

While the baseline for the CEQA portion of the DEIS/R is the conditions that existed at the time the Notice of Preparation was issued—April 2013, the baseline for the NEPA portion of the DEIS/DEIR includes "only construction of site improvements"[79] in which "operations would continue and would increase over time up to the terminal's existing capacity based on future growth estimates."[80] This approach to the NEPA baseline is incorrect, and it violates NEPA.

Incorporating project activities that are outside the jurisdiction of USACE into the NEPA baseline depends on the degrees of USACE involvement in the Project. Where USACE participation is nominal, the scope of the NEPA analysis corresponds to the degree of "control and responsibility" the USACE exercises over the Project.[81] Therefore, if the USACE exerts minimal control or if the regulated activity is "merely a link" in a corridor type of project, the NEPA baseline should not include all the environmental conditions and changes that are beyond the USACE's jurisdiction.[82] In other words, only those environmental impacts that stem directly and indirectly from the portion of the project within USACE's jurisdiction will be analyzed under NEPA.

EJ2-27 cont.

However, where, as here, USACE activity is more substantial, the extent of USACE's participation suffices "to turn [the] essentially private action into a Federal action" and all impacts and effects from the project must be considered under NEPA.[83] Indeed, this Project is very similar to the "shoreside facility" example in the USACE's NEPA Implementing Procedures which represents a type of project that merits "extending the scope of analysis to include the upland portions of the facility."[84] The USACE NEPA Implementing Procedures explains this as follows:

> For those activities that require a DA permit for a major portion of a shoreside facility, the scope of analysis should extend to upland portions of the facility. For example, a shipping terminal normally requires dredging, wharves, bulkheads, berthing areas and disposal of dredged material in order to function. Permits for such activities are normally considered sufficient Federal control and responsibility to warrant extending the scope of analysis to include the upland portions of the facility.[85]

[78] DEIS/R, at 1-19.
[79] DEIS/R, at 1-37.
[80] DEIS/R, at 2-22.
[81] 33 C.F.R. Pt. 325, App. B § 7(b)(1).
[82] *Id.* § 7(b)(2)(i).
[83] *Id.* § 7(b)(2).
[84] *Id.* § 7(b)(3).
[85] *Id.*

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Activities normally permitted at a shoreside facility, such as: "dredging, wharves, bulkheads, berthing areas, and disposal of dredged material" typically warrant extending USACE control over an entire project for purposes of NEPA review.[86]

EJ2-27 cont.

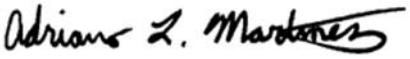
Considering the extensive nature of these activities and their dominance among the Project components as a whole, the USACE has sufficient "control and responsibility" to extend the scope of the NEPA analysis over all activities planned for the Project. Accordingly, the NEPA analysis should likewise assess the impact of the entirety of the Project.

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EJ2-28

I appreciate your consideration of these comments. Given the identified failures of the DEIS/R, I respectfully request that the project be revised and recirculated. Please do not hesitate to contact me if you have questions about this comment letter.

Sincerely,



Adriano L. Martinez
Staff Attorney
Earthjustice

[86] *Id.*

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2.3.5.2 Earthjustice

Response to Comment EJ2-1

Thank you for your comments on and review of the Draft EIS/EIR. See Master Response 1: Feasible Mitigation.

Response to Comment EJ2-2

Comment noted. See Master Response 1: Feasible Mitigation. LAHD and USACE respectfully disagree that the Draft EIS/EIR fails to comply with the requirements of CEQA and NEPA. All feasible mitigation measures have been incorporated into the analysis. USACE recognizes LAHD as the local lead agency with continuing program responsibility over the entire proposed Project throughout the lease term, and will implement, maintain, and monitor the full suite of mitigation measures contained in the Final EIS/EIR, and as described in the MMRP. Mitigation measures USACE has determined enforceable and subject to USACE's continuing program responsibility are described in the USACE Record of Decision (ROD) and would be included in a Department of Army (DA) permit upon issuance. Several alternatives are considered and analyzed, including those that attempt to reduce environmental impacts associated with the proposed Project (See Chapter 6 of the Draft EIS/EIR). The commenter is incorrect in the assertion that CEQA and/or NEPA require the consideration of alternatives that provide good, well-paying, sustainable jobs for the region's workforce (State CEQA Guidelines Section 15002(a); 40 CFR 1500.1). However, please note that the proposed Project is expected to provide both construction and long-term jobs, a portion of which would provide regional employment opportunities. As discussed in Chapter 7, Socioeconomics of the Draft EIS/EIR, construction of the proposed Project would generate approximately 750 direct and secondary jobs. Operation of the proposed Project would result in an increase of 2,241 net jobs in the year 2026.

Response to Comment EJ2-3

Comment noted. LAHD and USACE respectfully disagree that the Draft EIS/EIR is required to be revised and recirculated. None of the conditions as stipulated in the State CEQA Guidelines Section 15088.5 or in the NEPA regulations (40 CFR 1502.9(a) and (c)) trigger the requirement to recirculate (CEQA) or prepare a supplement (NEPA). Recirculation and a supplement are not required where the new information added to an EIS/EIR merely clarifies or amplifies or makes insignificant modifications to an EIS/EIR. Responses to comments and minor changes to the Draft EIS/EIR contained herein are sufficient and adequate under CEQA and NEPA. Significant new information has not been added to the Draft EIS/EIR that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the proposed Project or a feasible way to mitigate or avoid such an effect (including a feasible proposed project alternative) that the proposed Project's proponents have declined to implement, such that:

(1) A new significant environmental impact would result from the proposed Project or from a new mitigation measure proposed to be implemented.

(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

(3) A feasible proposed project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the proposed Project, but the proposed Project's proponents decline to adopt it.

(4) The Draft EIS/EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded (State CEQA Guidelines Section 15088.5(a)(b); 40 CFR 1502.9(a)).

Response to Comment EJ2-4

Comment noted. The comment summarizes the impacts of the proposed Project that have been adequately analyzed and disclosed in the Draft EIS/EIR. All feasible mitigation measures have been incorporated into the proposed Project. See Master Response 1: Feasible Mitigation. LAHD would like to point out that while it is true that in 2012, the YTI Terminal handled 996,109 TEUs and the capacity of the terminal at full buildout under the proposed Project is 1,913,000 TEUs annually under existing conditions, the terminal has the capacity to handle up to 1,692,000 TEUs annually and throughput projections estimate that this existing capacity is expected to be reached by 2026. As such, the proposed Project only represents a capacity increase of 221,000 TEUs per year.

Response to Comment EJ2-5

See Response to Comment SCAQMD-9.

Response to Comment EJ2-6

The Air Quality Management Plan (AQMP) proposes emission reduction measures that are designed to bring the South Coast Air Basin (SCAB) into attainment of the NAAQS and CAAQS. The proposed Project would comply with the AQMP based on the following:

- The attainment strategies in the AQMP include standards for new engines and cleanup of existing fleets (i.e., new measures for port trucks, statewide truck fleets, ships traveling and at berth, locomotives, and harbor craft). These measures are enforced at the state and federal levels on engine manufacturers and petroleum refiners/retailers. The proposed Project would comply with these control measures enforced at the state and federal levels.
- The SCAQMD adopts AQMP control measures into the SCAQMD rules and regulations, which are then used to regulate sources of air pollution in the SCAB. The proposed Project would comply with SCAQMD applicable rules and regulations. Compliance with SCAQMD rules and regulations ensures that the proposed Project would not conflict with or obstruct implementation of the AQMP.
- LAHD regularly provides SCAG with its Port-wide cargo forecasts for development of the AQMP. Therefore, the attainment demonstrations included in each AQMP account for the emissions generated by projected future growth at the Port. Because one objective of the proposed Project is to accommodate growth in cargo throughput at the Port, the AQMP accounts for the proposed Project and conforms to the applicable AQMP, which is the basis for a State Implementation Plan (SIP) revision.

- LAHD, in conjunction with the Port of Long Beach, implements the 2010 CAAP Update, which sets goals and implementation strategies that reduce air emissions and health risks from Port operations. In some cases, CAAP measures have produced emission reductions from emission sources identified in the CAAP that are greater than those forecasted in the 2012 AQMP. Operational activities associated with the proposed Project would comply with the source-specific performance standards identified in the CAAP and therefore would be consistent with emission reduction goals in the AQMP.

In addition, Lease Measure LM AQ-1 ensures that YTI conduct a periodic review of new technologies not less frequently than once every five years. LM AQ-1 requires YTI review any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to LAHD. If the technology is determined by LAHD to be feasible in terms of cost and technical and operational feasibility, the tenant would be required to work with LAHD to implement such technology.

For a discussion on zero emission technologies, please refer to Master Response 2.

Response to Comment EJ2-7

The proposed Project is consistent with the AQMP, which maps out a strategy for attaining ozone standards. Please refer to Response to Comment EJ2-6 for a detailed discussion and see Master Response 1: Feasible Mitigation, for a discussion on incorporation of all feasible mitigation to minimize impacts.

Ozone is not directly emitted from proposed project-related sources. Rather, ozone is a secondary pollutant formed from the precursor pollutants volatile organic compounds (VOC) and NO_X, which react to form ozone in the presence of sunlight through a complex series of photochemical reactions. As a result, unlike inert pollutants, ozone levels usually peak several hours after the precursors are emitted and many miles downwind of the source. Because of the complexity and uncertainty of calculating photochemical pollutant concentrations, ozone impacts are addressed by comparing proposed Project and alternative-generated emissions of VOC and NO_X to daily emission thresholds set by SCAQMD for ozone precursors. This methodology is widely used and accepted in the industry and by regulatory agencies such as SCAQMD and CARB.

For a detailed explanation regarding zero emission technologies, please refer to Master Response 2. See also Master Response 4: AMP Requirements.

Response to Comment EJ2-8

The comment refers to LAHD's commitments contained within the 2010 update to the CAAP. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment EJ2-9

Please refer to Response to Comment SCAQMD-9. Furthermore, the comment states that the proposed Project exceeds the 10 in 1 million excess residential cancer risk

threshold with a risk of 23 in 1 million. The comment refers to Table 7-3 in Appendix B3 of the Draft EIS/EIR, which reports the NEPA health impacts associated with the proposed Project without mitigation. A correct interpretation of the table actually shows that the NEPA Increment (proposed Project minus NEPA Baseline) for a residential-on-land receptor is 3 in 1 million, less than the risk threshold. The 23 in 1 million risk mentioned in the comment is prior to subtracting the NEPA baseline and, therefore, is not compared to the significance threshold.

Response to Comment EJ2-10

See Master Response 3: Environmental Justice.

Response to Comment EJ2-11

See Master Response 1: Feasible Mitigation. LAHD would adopt a Mitigation Monitoring and Reporting Plan in accordance with Section 15097 of the State CEQA Guidelines as a means of enforcing the implementation of the mitigation measures identified in the Draft and Final EIS/EIR. Mitigation measures applicable to the federal action (i.e., construction activities in and over waters of the United States and within 100 feet of the wharf) would be included in the USACE permit.

Response to Comment EJ2-12

The analysis used a 3.2-hour watering interval, resulting in 61% fugitive dust control efficiency (SCAQMD handbook, Table XI-A, based on the WRAP handbook), as part of the proposed Project. MM AQ-7 specifies a 2-hour watering interval, resulting in 74% fugitive dust control efficiency (WRAP handbook). A control efficiency of 90%, suggested by the comment, may be achieved with the measures identified in the LAHD Sustainable Construction Guidelines, but the analysis conservatively only accounted for 3.2-hour watering for a project component and a 2-hour watering interval as mitigation. Remaining dust reduction mitigation measures suggested in the comment are all included in the LAHD Sustainable Construction Guidelines and have been added to Mitigation Measure AQ-7 as part of the Final EIS/EIR (See Chapter 3, Modifications to the Draft EIS/EIR). See also Response to Comment SCAQMD-16.

Response to Comment EJ2-13

The commenter recommends that construction equipment should require the use of electricity from power poles rather than temporary diesel- or gasoline-powered generators as a mitigation measure. The lighting circuits are not designed to handle loads that exceed the existing light fixtures; the feeders and protection equipment, such as circuit breakers, are not large enough. Therefore, it is infeasible for construction equipment to be connected to the existing light poles, as such an activity would overload the circuits and trip the circuit breakers and result in inoperable equipment.

Response to Comment EJ2-14

Comment noted. Mitigation Measure MM AQ-8 is worded specifically to provide the Port and the terminal operators the flexibility to apply better technology to prescribed mitigation measures as it becomes available, provided it is shown to be as good or better in terms of emissions performance. This flexibility to review and implement improved technology does not eliminate the need to mitigate emissions as specified in Mitigation Measures MM AQ-2 through MM AQ-7. LAHD has included lease measures in this

document that require technology reviews and allow for the deployment of new technologies when they become commercially viable (LM AQ-1 and LM AQ-2). These lease measures will ensure that YTI reconsiders the feasibility of zero-emission technologies in the future as the technologies continue to develop.

Response to Comment EJ2-15

The shore power system operates at 6,600 volts 3-phase power. The protection equipment and relays are set to protect large loads, such as ships, which draw about 1.5 to 2.5 megawatts. Most, if not all, commercial and marine construction equipment operates at much lower voltages, closer to 480 volts. In order to transform the 6,600-volt shore power available at the dock to match and operate the construction equipment, it would be necessary to install high-voltage switchgear, a transformer, and a low-voltage feeder breaker and protection system, and then connect to the desired load. This arrangement would be extremely rare and impractical, as 6,600 volts is a very uncommon voltage, which is especially and exclusively used for shore-to-ship power applications. Appropriate transformers to connect to 6,600 volts are not readily available, and would be special order items with long manufacturing lead times. Also, the Los Angeles Department of Water and Power requires that the load connected to the shore power system necessarily be ship-to-shore application and not any other commercial load. The special AMP rate that has been applied the shore power service prohibits non ship-to-shore load connections. As such, connecting harbor craft to electric shore power is infeasible as a mitigation measure. Many of the harbor craft companies that service the Port plug in their vessels when they are at their home berth for shore power rather than running auxiliary engines.

Response to Comment EJ2-16

Comment noted. The original 2006 CAAP set a goal that 100% of vessels comply with the Vessel Speed Reduction Program out to 20 nautical miles (nm). The updated CAAP has a 90% goal for compliance to 40 nm. The proposed Project would actually exceed the CAAP goal requiring 95% compliance to 40 nm.

Response to Comment EJ2-17

See Master Response 4: AMP Requirements.

Response to Comment EJ2-18

The Draft EIS/EIR discusses applicable regulations and agreements pertaining to truck and locomotive idling in several places. Specifically, the CARB Heavy Duty Diesel Vehicle Idling Emission Reduction Regulation mentioned in the comment is described on Page 3.2-21 and listed in Tables 3.2-3 (for proposed project construction) and 3.2-4 (for proposed project operation) of the Draft EIS/EIR. The CARB 2005 Railroad Statewide Agreement, which includes a locomotive idling-reduction program, is also described on Page 3.2-21. CAAP Measure RL-1, which equipped all Pacific Harbor Line switch locomotives with 15-minute idling limit devices, is described in Table 3.2-32. CAAP Measure RL-2, which equipped Class I switcher and helper locomotives with 15-minute idling limit devices, is also described in Table 3.2-32. The idling times used in the air quality analysis for trucks and locomotives, which were provided by the applicant and Port, account for these regulations and agreements. It should be noted that while the comment states that the terminal experiences an above average “turn time” of

approximately 141.6 minutes, the study referenced is outdated (2005) and was published prior to the implementation of PierPass. Average turn times at the YTI terminal during the baseline 2012 year was 52.2 minutes.

Response to Comment EJ2-19

This comment presents a variety of suggested mitigation measures to reduce GHG impacts from the proposed Project. Each suggestion is addressed individually below. It should be noted that the suggested measures were adapted from the Middle Harbor Project, which is very different from the proposed Project; as such, a direct comparison of mitigation measure feasibility between the two is not appropriate. Whereas the Middle Harbor Project involves the development of an entirely new terminal with new long-term leases, the proposed Project involves improvements to an existing container terminal with a relatively short (nine-year) operational period. Therefore, some measures were determined not to be applicable to the proposed Project and others were determined to be infeasible for the proposed Project. Measures deemed to be feasible for the proposed Project have been added as mitigation.

LEED Gold for Administration Building

The proposed Project does not involve the construction of a new administration building. Retrofitting the existing administration building to LEED gold or higher would cost roughly $2 million, which is excessively costly, especially considering that the operational period for the proposed Project is only nine years (2017–2026). Therefore, this suggestion is economically infeasible and beyond the scope of the proposed Project. It should be noted that YTI retrofitted all buildings with energy-efficient lighting in 2006/2007—reducing internal fixtures from 3xT12 bulbs to 2xT8 bulbs with reflectors and converting signage to LED where applicable—and began converting landscaping to drought-resistant plants in 2009.

Modifications to MM GHG-1

The suggested payback period of 20 years is well beyond the proposed project horizon year of 2026. Due to the relatively short operational period under the proposed Project (2017 to 2026), the flexibility afforded by clause (2) of the measure as written is appropriate.

Solar Panels on Buildings

YTI installed a solar array pilot project on the crane shop in 2010 to test durability of a solar system within 500 feet of salt water. Manufacturers did not warranty solar panels within this distance from salt water. Despite this, the system is still functioning and supplementing electricity usage in that building. Expanding solar to other terminal buildings has been reviewed by LAHD and LADWP, who found expansion of solar to existing buildings to be infeasible because of the roof design.

Installing Solar Carports

Due to the relatively short operational period for the proposed Project (nine years), the high cost of installing a solar carport over the parking area (approximately $1.5 million), and the rate of return on installation of a solar carport over that period, this suggestion is cost-prohibitive and infeasible.

Boom Flood Lights with Energy Efficient Fixtures on Dock Cranes

Upgrading crane lighting to high-efficiency technology is a stated goal of YTI's ISO14001 Environmental Management Program. YTI is currently working with vendors to determine optimum technology for conversion of existing equipment. Conversion is anticipated to be completed by 2016.

Downsizing Lighting Fittings and Electricity Usage at Reefer Platforms

YTI does not use reefer platforms; therefore, this suggestion does not apply to the proposed Project. However, it should be noted that YTI has implemented several energy- and resource-saving upgrades, including installation of power factor correction for yard lighting, reefer power, and maintenance lighting in 2006.

Planting Trees

The YTI terminal already contains trees in the landscaped areas around the administration building and parking lot where they do not pose operational or safety concerns. These trees are properly maintained. Planting trees in other areas within the working terminal is not conducive to safe and efficient operations. Additionally, there are no other unpaved areas within the terminal where trees could be planted. There are no Port-controlled lands adjacent to roads on the YTI terminal. As such, trees are already present in all areas where tree planting is feasible within the terminal.

Cool Roofs

Elastomeric cool roof coatings were installed between July and November of 2013 over approximately 19,400 square feet of flat roofs within the YTI Terminal, including at the administration building, gate house, marine tower building, maintenance and repair building, and crane shop. Installation of cool roofs on other roof surfaces within the terminal is infeasible due to the curved design of the roofs and the safety concerns associated with installation.

Carpooling and Public Transportation

YTI does not have a formal carpooling program; however, YTI promotes and encourages carpool and electric vehicle (EV) usage at the terminal by providing incentives such as separate priority parking for carpools, motorcycles, and EV, as well as charging stations for EV drivers. In addition, a Mitsubishi iMiev is available as a company vehicle to be used by staff for local meetings and appointments. Public transportation does not serve the area near the YTI Terminal.

Offset Carbon Emissions from Electricity Consumption through Green Commodities

LAHD is in the process of developing a plan to reduce GHG emissions on a Port-wide basis to meet Assembly Bill 32 GHG targets for 2050 in response to City Council Motion No. 14-0907, dated June 27, 2014. Based on current emission inventories, LAHD is already ahead of City of Los Angeles 2020 GHG emission reduction targets (City of Los Angeles 2007). This has been accomplished through reductions in the carbon footprint of Port-related sources by implementation of the CAAP, and as a result of other programs and regulations. Increased use of electricity to replace combustion-based sources at terminals and in the Port area is beneficial for reduction of GHG emissions from these sources. LAHD will work closely with Port tenants, regulatory agencies, and other

stakeholders to identify and evaluate specific strategies and energy efficiency opportunities that can be taken to further reduce port-related GHG emissions and continue to transition away from combustion-based sources. While these programs are being developed, LAHD may require the purchase of carbon offsets as an interim measure to mitigate GHG emissions associated with certain terminal operations. Therefore, the following mitigation measure has been added to the Final EIS/EIR (see Section 3.6, Greenhouse Gas Emissions) for this project in response to this suggestion, and the addition is noted in Chapter 3 of this Final EIS/EIR, Modifications to the Draft EIS/EIR:

> **MM GHG-4**: Carbon Offsets for Certain GHG Emissions. YTI shall purchase carbon offsets from sources listed on the American Carbon Registry and/or the Climate Action Reserve (or any other such registry approved by CARB) for a total of 16,380 metric tons of GHG emissions associated with electricity usage for certain terminal operations by the year 2026.

Electric Regenerative System on Dock Cranes

Installation of electric regenerative systems on existing dock cranes requires substantial and expensive modifications to the electrical system that powers the cranes. As such, it is technically and economically infeasible to retrofit existing cranes that are not equipped with electric regenerative systems considering the short operational duration for the proposed Project (nine years). However, since approximately 2004–2005, regenerative power systems have been standard for most new cranes. All new cranes purchased as part of the proposed Project will be equipped with state-of-the-art energy efficiency technologies, including electric regenerative systems.

$10 Million for GHG Program

The proposed mitigation measure for $10 million in GHG Program funding is not sufficiently related to the impacts identified in the DEIS/EIR for the Project and are not proportional in nature and extent to those impacts. (See PRC § 21002; CEQA Guidelines 15370; see generally Nollan v. California Coastal Commission, 483 U.S. 825, 834-37 [1987] [condition requiring a dedication of property along a beach rather than to the beach did not address the harm at issue and was therefore invalid]; Dolan v. City of Tigard, 512 U.S. 374, 391 [1994] [mitigation must be related in "rough proportion" both "in nature and extent" to the impact of the proposed development]. It should be noted that Section 5.8 of the Port of Los Angeles Energy Management Action Plan (EMAP) (POLA 2014) discusses LAHD's strategies to develop and implement renewable energy solutions throughout the Port, which may include, but not be limited to, establishing power purchase agreements with LADWP, implementing a cap-and-trade scheme as part of AB32, developing additional solar generation power, installing wind towers within the Port, developing offshore wind and wave generation facilities, and installing geothermal power within the Port.

Alternative Fuel Service Trucks

There are no commercially available alternative fuel service trucks that have sufficient torque, power, and size to handle the operations at the YTI Terminal, given the extended duty cycle of the trucks at the terminal, the rigorous nature of the work they perform, and the numerous operations they perform constantly throughout the work day. YTI has

tested several alternative fuel trucks, but they proved unfit for the terminal operations. YTI has also tested smaller electric pickup style trucks for service uses, but they were lightweight, raised safety concerns, and lacked the power needed to handle the necessary duty cycles and work at the terminal. The electric pickups also had problems powering the in-vehicle computers that are used to manage inventories. If alternative fuel service trucks become available in the future at a reasonable cost and are shown to be effective and safe, YTI would purchase and use them when the existing service trucks used at the terminal reach the end of their useful life. However, at present, this is speculative and cannot be quantified. Please also see Master Response 2: Zero Emission Technologies.

Response to Comment EJ2-20

See Master Response 1: Feasible Mitigation.

Response to Comment EJ2-21

See Master Response 2: Zero Emission Technologies.

The comment incorrectly states that the cancer burden impact would be significant for the proposed Project. Table 3.2-38 in the Draft EIS/EIR shows that the cancer burden associated with the unmitigated proposed Project would be 0.002 for the CEQA increment and 0.20 for the Future CEQA increment. Both of these values are less than the significance threshold of 0.5. Table 3.2-40 in the Draft EIS/EIR shows that the cancer burden would be 0.04 for the NEPA increment, also less than significant.

The comment further states that trucks would contribute 91.8% of the cancer risk for residential receptors for the proposed Project. It should be clarified that the 91.8% contribution applies to one specific receptor location—the maximum land-based residential receptor for the CEQA increment, which would have a less-than-significant cancer risk increment of 5 in 1 million. This receptor has a relatively high contribution from trucks because it is adjacent to I-710. Receptors farther from heavily traveled roads would have a lower relative contribution from trucks and a higher relative contribution from other emission source categories.

Response to Comment EJ2-22

Line haul locomotives belong to national fleets owned and operated by the Class I railroads, UP and BNSF. Further reductions in locomotive emissions beyond the existing regulations and agreements discussed in the Draft EIS/EIR can only be effectively accomplished at the San Pedro Bay Ports level rather than at the terminal level, as neither the Ports nor the terminal have control over UP and BNSF operations. A discussion of the ongoing efforts by LAHD to reduce locomotive emissions is provided starting on Page 3.2-117 of the Draft EIS/EIR.

The commenter pointed out that the CAAP sets a goal of 95% of Class I line-haul locomotives entering the Ports to meet Tier 4 standards by 2020 and that the impacts of the project mandate further mitigation. The CAAP goal referenced by the commenter applies to CAAP measure RL-3 which only focuses on new and redeveloped near-dock rail facilities located on port properties (CAAP Update, 2010). The proposed Project, while increasing the rail storage capacity at the TICTF on-dock railyard, does not have control over rail operations or locomotive technologies at a near-dock railyard. Therefore, CAAP measure RL-3 is not applicable to the proposed Project.

The DEIS/EIR based its air quality modeling and emissions estimates on the EPA national locomotive fleet projections for line haul locomotives, since individual railroads do not project fleet mixes years into the future. The EPA assumed the penetration of Tier 4 locomotives into the national fleet, which is reflected in the locomotive emission factors used in the DEIS/EIR. For example, the EPA assumed that Tier 4 locomotives will comprise 13% of the national fleet by 2017, 26% by 2020, and 52% by 2026. The EPA's projections are based on assumptions regarding the retirement of existing locomotives in the fleet, and the commercial availability of Tier 4 locomotives as replacements or additions to the fleet.

Tier 4 locomotives will utilize a new, untested technology that simply does not currently exist at a size adequate for line-haul locomotive engines. As a result, the rate at which operationally proven Tier 4 locomotives can be manufactured and made commercially available in the future is uncertain. Therefore, it is infeasible to commit in advance to purchase and deploy Tier 4 locomotives in excess of the percentages assumed by the EPA when those locomotives have not yet been designed, tested, or deployed. Moreover, it is infeasible to require the Class I railroads to geographically redistribute their locomotives to provide a higher percentage of Tier 4 locomotives at the proposed project's on-dock rail yard. Locomotives stay connected to hundreds of trains going to and from California to many different destinations throughout of the United States. This operating procedure requires that many hundreds, if not thousands, of locomotives enter and leave California each day. For a national rail carrier to switch out locomotives going into a specific yard would require additional large switching yards, be prohibitively expensive for both the railroad and its customers, and disrupt the national transportation system. Therefore, mitigation that requires accelerated introduction of Tier 4 line haul locomotives used at the YTI on-dock rail yard is infeasible.

In addition, the comment correctly states that locomotives would contribute 64.8% of the future cancer risk at the maximum impacted residential receptor for the proposed Project. It should be clarified that the 64.8% contribution applies to one specific receptor location—the maximum marina-based residential receptor for the Future CEQA increment, which would have a cancer risk increment of 11 in 1 million. This receptor has a relatively high contribution from locomotives because it is adjacent to the Henry Ford (railroad) Bridge. Receptors farther from the bridge would have a lower relative contribution from locomotives and a higher relative contribution from other emission source categories.

Please also see Responses to Comments SCAQMD-19 and SCAQMD-20.

Response to Comment EJ2-23

Comment noted. LAHD requires traffic plans to be submitted by every construction contractor as a standard practice. As discussed under Impact TRANS-1 on page 3.7-50 of the Draft EIS/EIR, LAHD requires contractors to prepare a detailed traffic management plan for Port projects that includes the following: detour plans, coordination with emergency services and transit providers, coordination with adjacent property owners and tenants, advanced notification of temporary bus stop loss and/or bus line relocation, identification of temporary alternative bus routes, advanced notice of temporary parking loss, identification of temporary parking replacement or alternative adjacent parking within a reasonable walking distance, use of designated haul routes, use of truck staging areas, observance of hours of operation restrictions, and appropriate

signage for construction activities. The traffic management plan would be submitted to LAHD for approval before construction begins.

Additionally, it should be noted that Mitigation Measure MM AQ-3 has been modified to require fleet modernization for on-road trucks used during construction to comply with EPA 2010 on-road emission standards (see Response to Comment SCAQMD-15 and Chapter 3, Modifications to the Draft EIS/EIR). The request to reduce traffic speeds on all unpaved roads to 15 mph or less has been added to Mitigation Measure MM AQ-7 (see Response to Comment SCAQMD-16 and Chapter 3, Modifications to the Final EIS/EIR).

Response to Comment EJ2-24

See Master Response 3: Environmental Justice and Response to Comment USEPA-15.

Response to Comment EJ2-25

See Response to Comment USEPA-9.

Response to Comment EJ2-26

The USACE and LAHD disagree with the assertion that a potential DA permit action or proposed project activity may result in a Title VI violation or a violation of Government Code Section 11135. The commenter provides no evidence to support these claims or even the nature of the purported violation. The project does not unlawfully subject any person to discrimination as asserted by the commenter. Environmental justice issues were thoroughly discussed and considered appropriately in the Draft EIS/EIR. Regarding the comment that USACE's approval of the terminal expansion with its disparate impacts on minority and low-income populations (and Indian tribes) without sufficient mitigation would be in violation of state and federal law, specifically California Government Code Section 11135 and Title VI of the federal Civil Rights Act, the Draft EIS/EIR includes substantial mitigation and funding in accordance with the MOU. (See Master Response 1: Feasible Mitigation, and Master Response 3: Environmental Justice.)

The commenter suggests requiring parkland and open space as mitigation for the proposed Project. Mitigation must be proportional in nature and extent to the project's impacts. (See Pub. Resource Code § 21002; CEQA Guidelines § 15370; see generally Nollan v. California Coastal Commission, 483 U.S. 825, 834-37 [1987] [condition requiring a dedication of property along a beach rather than to the beach did not address the harm at issue and was therefore invalid]; Dolan v. City of Tigard, 512 U.S. 374, 391 [1994] [mitigation must be related in "rough proportion" both "in nature and extent" to the impact of the proposed development].

Please see Master Response 2: Zero Emission Technologies, for a discussion of zero emission container movement systems.

Response to Comment EJ2-27

NEPA does not specify the scope of analysis that federal agencies must conduct in determining whether their actions, when combined with private actions, come within the mandate of 42 USC 4332(2)(C). However, USACE adopted regulations that set forth how its regulatory program should determine the proper scope of analysis under NEPA

(33 CFR Part 325 Appendix B). Where the activity requiring a DA permit is one component of a larger project, USACE regulations provide that USACE must address in the NEPA document impacts of the specific activity requiring the DA permit, and those portions of the entire project over which USACE has sufficient control and responsibility to warrant federal review (33 CFR Part 325 Appendix B section 7(b)(1)). The USACE District Engineer has control over and responsibility for those portions of the proposed Project beyond USACE jurisdiction "where the environmental consequences of the larger project are essential products of USACE action" (33 CFR Part 325 Appendix B Section 7(b)(2)).

The USACE scope of analysis established in the Draft EIS/EIR includes (1) activities specifically requiring a permit (i.e., all in- and over-water work and structures including dredging, dredged material disposal, pile driving, wharf improvements, replacement of overwater cranes); (2) construction activities associated with extension of the crane rail that supplies power to overwater cranes; and (3) other construction activities that would occur within approximately 100 feet of the shoreline that could be affected by temporary access, storage, and staging necessary to complete the work and structures in and over water. For these activities, USACE evaluated the impacts associated with the proposed Project minus the impacts attributable to the NEPA baseline (i.e., the specific impacts expected to occur on the YTI Terminal absent federal action). Further, the Draft EIS/EIR does disclose and evaluate impacts for which there is not sufficient federal control and responsibility, as required by NEPA.

The proposed Project differs from the shipping terminal example in 33 CFR 325 Appendix B Section 7(b)(3): "a shipping terminal normally requires dredging, wharves, bulkheads, berthing areas and disposal of dredged material in order to function. Permits for such activities are normally considered sufficient Federal control and responsibility to warrant extending the scope of analysis to include the upland portions of the facility." In the case of the YTI Terminal, the project site includes an existing shipping terminal with developed backlands, rather than a new shipping terminal. With or without a DA permit, the YTI Terminal would continue to operate as a shipping terminal and operations would include shipping container storage and transfer operations (e.g., ship calls, cargo loading and unloading, containerized cargo movements on and off the site, etc.) over which the USACE has no continuing federal control or responsibility. Moreover, under the No Federal Action Alternative, container movement is projected to increase by approximately 461,874 TEU in the absence of a DA permit and in the absence of additional backland area to support this projected increase in cargo throughput. As such, many of the environmental consequences of modifying the project site for container storage and transfer are clearly not the product of DA permit. In addition, there is no other federal funding, guarantee, other financial assistance, or regulation pertaining to the proposed project area backlands that would compel USACE to expand the scope of analysis into the entire 185-acre non-federal portion of the proposed project area (i.e., there is insufficient federal control and responsibility over the backlands). Vessel traffic and container throughput have increased as a result of many factors, and substantial additional increases are expected, necessitating an increased need for cargo handling areas such as the YTI terminal, whether or not a DA permit is issued.

Section 2.8 of the Draft EIS/EIR discusses that USACE identified indirect and cumulative effects in jurisdictional waters and uplands that could occur as a result of the proposed Project, and such impacts were fully disclosed and analyzed in the Draft

EIS/EIR. LAHD and USACE recognize that this discussion could be clarified with regard to the activities warranting expansion of the scope of analysis to evaluate the upland increments attributable to the USACE's federal action. As such, this section of the Draft EIS/EIR has been revised to identify for the reader those environmental resources which result in potentially significant indirect and cumulatively considerable contributions to an existing significant cumulative impact. Nevertheless, in the Draft EIS/EIR, the USACE correctly identified its scope of analysis of the land and water area for which it has sufficient federal control and responsibility, performed the appropriate independent analyses, and justified the NEPA impact determinations for the proposed Project's jurisdictional and non-jurisdictional direct and indirect (Chapter 3), and cumulative (Chapter 4) impacts even though the USACE's permit authority is limited to jurisdictional activities described in Chapter 2.2.2.

Response to Comment EJ2-28

See Response to Comment EJ2-3. LAHD and USACE respectfully disagree that the Draft EIS/EIR is required to be revised and recirculated. None of the conditions as stipulated in State CEQA Guidelines Section 15088.5 or in the NEPA regulations (40 CFR 1502.9(a)) trigger the requirement to recirculate or prepare a supplement. Please also see Response to Comment EJ2-3.

Comment Letter HTA

Harbor Trucking Association

6/16/14

U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
Ventura Field Office
c/o Theresa Stevens, Ph.D.
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Christopher Cannon
Director of Environmental Management
Los Angeles Harbor Department
425 South Palos Verdes Street
San Pedro, California 90731

Dear Dr. Stevens and Mr. Cannon;

HTA-1 These comments are being submitted on behalf of the Harbor Trucking Association ("HTA") in conjunction with the DEIR/DEIS public comment period for the YTI Container Terminal Project ("Project"). We understand that an additional public comment period will be allowed upon issuance and circulation of the final EIR/EIS and the HTA reserves the right to submit similar and/or additional comments at that time.

By way of background, the HTA represents over 100 Licensed Motor Carriers (LMCs) and other stakeholders involved in the goods movement industry throughout the San Pedro Bay Port Complex. The HTA is an industry "best practices" group that promotes competitive policies and operations at both the Ports of Los Angeles and Long Beach.

Against this backdrop, there a number of issues raised by the YTI project and the subject DEIR/DEIS that raise concerns for our members about the impacts of the project – in its current form – on the competitive profile of the Port as well as the ability of various terminals to compete for cargo with each other.

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Although we will be submitting more detailed comments at the time of the Final EIR/EIS, we generally have the following concerns:

HTA-2 -We note that there are no references we could find in the subject documents and analysis that address the integration of drayage trucks into the operations of the new facility. There are no references to appointment systems, cargo sorting or other operational issues that LMCs would be concerned with;

HTA-3 -We also note that there seem to be no reference to any mandates imposed by the Port regarding the use of electrification at the terminal facility. We know from our experience with other recent terminal development projects that most, if not all, are being required to move toward full electrification (resulting in zero emissions) for all terminal operations;

HTA-4 -Given the absence of these mandates, our members our concerned that the project will create a competitive imbalance between terminal operators within the Port complex;

HTA-5 -If some terminals are required through their lease agreements or development projects to adhere to more stringent environmental standards than others, we are concerned that it will create a competitive advantage for others and in turn for their steamship line partners.

As an industry that has invested nearly $1 billion in new, compliant trucks over the last several years, our concerns regarding these environmental issues should be apparent. We appreciate your time and consideration of these – and our future – comments and look forward to staffs' response.

Very best,

Alex Cherin

Executive Director

HTA

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2.3.5.3 Harbor Trucking Association

Response to Comment HTA-1

Thank you for your comment. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Please note that no additional public comment period will be provided as part of the CEQA process (State CEQA Guidelines Sections 15087, 15088, and 15089).

The NEPA implementing regulations for all federal agencies are described at 40 CFR 1500–1508, and for the USACE Regulatory Program at 33 CFR Part 325 Appendix B. In addition, due to the complex nature of the EIS/EIR preparation, the USACE South Pacific Division Regulatory Program is required to complete EIS documents and the NEPA process consistent with *Quality Management System USACE 12509-SPD Regulatory Program Standard Operating Procedures for Preparing and Coordinating Environmental Impact Statements*, 2013 (cited hereafter as USACE 12509-SPD SOP, 2013). In accordance with 33 CFR Part 325 Appendix B, a Final EIS shall be available to the public for a 30-day review period, and the USACE ROD shall not be signed and no permit may be issued until after the 30-day review period has closed (33 CFR Part 325 Appendix B (18)). To ensure the public is adequately notified of the 30-day review period, a locally issued public notice will be distributed, and an NOA will be published in the Federal Register, similar to the process that announced the availability of the Draft EIS/EIR (33 CFR Part 325.3 and 33 CFR Part 325 Appendix B (15)). The USACE public notice will be posted on the Los Angeles District USACE web site and the LAHD web site, and it will be mailed to adjacent property owners and other individuals who have requested a mailed copy (33 CFR Part 325.3 and USACE 12509-SPD SOP, 2013). If comments on the Final EIS/EIR are received, USACE will consider the comments and address substantive issues in the ROD, as appropriate (33 CFR Part 325 Appendix B (13)).

Response to Comment HTA-2

Thank you for your comment. The Draft EIS/EIR contains a detailed estimate of truck movements to and from the YTI Terminal, including but not limited to hours of operation, empty container logistics, chassis logistics, and dual transactions. Additionally, the Harbor Trucking Association (HTA) should be aware that one of its members, Port Logistics Group, is currently participating in the USDOT FRATIS demonstration project, as discussed in response to USEPA-3.

The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment HTA-3

Thank you for your comment. See Master Response 2: Zero Emission Technologies. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment HTA-4

Thank you for your comment. Competition amongst terminal operators is not an environmental issue that is addressed under either CEQA or NEPA. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

Response to Comment HTA-5

Thank you for your comment. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project.

The issue raised in this comment (e.g., HTA market share and lease terms) is not addressed under either CEQA or NEPA, nor is it subject to the federal control and responsibility or jurisdiction of USACE (see also Response to Comment EJ2-28 on the scope of analysis). Under NEPA, an agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions (40 CFR 1502.2(B)). USACE's regulatory program NEPA implementing regulations (33 CFR Part 325 Appendix B (9)(5)(d)) state:

> "The Corps shall not prepare a cost-benefit analysis for projects requiring a Corps permit. 40 CFR 1502.23 states that the weighing of the various alternatives need not be displayed in a cost-benefit analysis and '***should not be when there are important qualitative consideration.' The EIS should, however, indicate any cost considerations that are likely to be relevant to a decision."

Based on the information provided to USACE by LAHD and YTI, and by HTA in its comment letter, USACE has determined the issue raised in this comment is not appropriate for consideration under NEPA, nor is it subject to the federal control and responsibility or jurisdiction of USACE; therefore, there is no compelling need to prepare a cost analysis of HTA market share and lease terms for the proposed Project or alternatives.

2.3.6 Comments from Individuals

Comment Letter DC1

May 28, 2014

Comments Regarding Yusen Terminals Inc. (YTI) Terminal at Berths 212–224 EIR/EIS

Dear Mr. Canon:

DC1-1 I would like to comment, again, on the Port's method of analysis for this proposed Project's significant air quality impacts, a method used in every Air Quality section in all of the Port's important CEQA documents – Environmental Impact Reports (EIRs), Environmental Impact Statements (EISs), and Mitigated Negative Declarations (MNDs) – a method I find illogical, misleading (**greatly diminishing impacts, if not eliminating them altogether**), and contrary to the letter and intent of the CEQA.

DC1-2 First, I would like to present two doctrines we no doubt, as CEQA consultants, agree upon:

1. The ***purpose*** of an ***environmental impact report*** is to ***identify*** the ***significant effects on*** the ***environment*** of a ***project***, to identify ***alternatives*** to the ***project***, and to indicate the manner in which those significant effects can be mitigated or avoided (§21002.1 Use of Environmental Impact Reports; Policy). And,
2. The ***purpose*** of an ***environmental impact report*** is to ***provide public agencies*** and ***the public in general*** with ***detailed information*** about the ***effect*** which ***a proposed project*** is ***likely*** to ***have on*** the ***environment*** (§21061 Environmental Impact Report);

DC1-3 I agree, also, with the Port's definition of Baseline for this EIS/EIR:

> ...the CEQA baseline is the set of conditions that prevailed at the time the Notice of Preparation (NOP) was published, which was April 2013. The CEQA baseline takes into account the throughput for the 12-month calendar year preceding April 2013 (January through December 2012) in order to provide a representative characterization of activity levels throughout the year (Chapter 2 Project Description, p. 39).

DC1-4 But, I vehemently disagree with the Port's (***fallacious***) premise on assessing potential air quality impacts presented below:

> ***For determining CEQA significance, thresholds are compared to the net change in proposed Project or alternative emissions relative to CEQA baseline emissions*** (Section 3.2 Air Quality and Meteorology, p. 3.2-64).

First, I cannot find this language anywhere in CEQA statute or case law: "***...thresholds are compared to the net change in proposed Project or alternative emissions relative to CEQA baseline emissions***" – ***WOULD YOU PLEASE PROVIDE THIS EXACT LANGUAGE AND ITS LOCATION IN CEQA STATUTE OR CASE LAW***, the latter having been reviewed and accepted by California's highest court, if you don't mind. I don't mean to say this exact definition doesn't exist, I just cannot locate it in any CEQA Authority (did you make this up?) that says" subtract Baseline from Project, then apply to the applicable South Coast Air Quality Management District (SCAQMD) thresholds," although I'm familiar with comparing direct and indirect ***Project*** emissions to accepted thresholds to determine significance (the commonly accepted method). Your help in locating this language (or, at least, a paraphrase) would be greatly appreciated.

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Furthermore, ***I understand that the Lead Agency has the discretion to select the model or methodology to assess project-related impacts, provided it supports its decision with substantial evidence…,***[1] ***and, I would add, provided the model or methodology has some basis in reality.***

However, to my mind, this language could not logically exist because it would subvert and contradict the CEQA doctrines presented again: (1)"The ***purpose*** of an ***environmental impact report*** is to ***identify*** the ***significant effects on*** the ***environment*** of a ***project***, to identify ***alternatives*** to the ***project,***" and (2) "The ***purpose*** of an ***environmental impact report*** is to ***provide public agencies*** and ***the public in general*** with ***detailed information*** about the ***effect*** which ***a proposed project*** is ***likely*** to ***have on*** the ***environment***."

Comparing estimated, quantified Project emissions to accepted SCAQMD thresholds to determine a Project's direct and indirect significant impacts makes total sense (and is, again, the accepted method in the CEQA practice). ***Comparing the "net change" of Project emissions from Baseline emissions to accepted SCAQMD thresholds in order to derive Project impacts is NUTS!***

I will present only one example from section 3.2 Air Quality and Meteorology, Table 3.2-31 (below), and I will also use – hopefully not too facetiously – allegory to make my argument.

DC1-4 cont.

Table 3.2-31: Peak Daily Operational Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM 10	PM2.5	NOX	SOX	CO	VOC
Total Year 2017 CEQA Impacts	**383**	**249**	**13,416**	**322**	**2,389**	**779**
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	(7)	(16)	2,816	(823)	564	150
Significance Threshold	150	55	55	150	550	55
Significant? Port's Method	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
Significant?Correct Method	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

One can see that the Project's Peak Daily Operational Emissions with Mitigation for the year 2017 for the listed pollutants highlight in turquoise: PM10 from the Project is estimated to be 383 lbs/day. If one used the correct method of assessing project impacts – comparing 383 lbs/day of PM10 to the SCAQMD threshold of 150 lbs/day of PM10 – the estimated emissions for this pollutant would clearly exceed the accepted threshold. The same would follow for assessing the significance all the project's Peak Daily Operational Emissions.

[1] Guidelines, 15064.4 Determining the Significance of Impacts from Greenhouse Gas Emissions (and herein lies that which confuses your AQ consultants: applying a method that works for assessing project GHG emissions, but cannot accurately report the *Whole* of a project's direct and indirect emissions).

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DC1-4 cont.

But, by using the Port's method of assessing project impacts – subtracting the Baseline emissions from the estimated Project emissions, then comparing the "***net change***" to accepted thresholds – one can conveniently under-report or even ***negate*** project emissions. Where once PM10 exceeded thresholds by 233 lbs/day, it now shows a ***negative*** impact of 7 lbs/day. ***Really***! ***Less than zero emissions***! The same for SOX (***creating a deficit of 823 lbs/day, rather than accounting for 322 lbs/day – exceeding threshold by 172 lbs/day***!)

The illogic of this strategy can be demonstrated by the following analogy:

If one equated this project's emissions to zombies, and equated accepted SCAQMD-emission thresholds to bullets (one bullet for one zombie), which method of project impact analysis would you prefer if you lived on the fence line or anywhere near this zombie infested region – the one that ***accurately*** reported hell-of-zombies,[2] thereby giving you a chance to have a serious discussion on the need for this project, or, at least a discussion of the ***most*** stringent mitigation measures (this would be the accurate, lawful CEQA/Zombie analysis)? O would you prefer the Zombie Impact Analysis (ZIA) that ridiculously reports ***less-than-zero*** Zombies – get rid of your bullets, you won't need them – when in fact the project will result in hell-of-zombies?

If you don't like zombies, envision the project as the construction of a new school, emissions are projected student enrollment, and SCAQMD thresholds are available seats – there certainly won't be an opportunity to claim a "less-than-zero" need for seats.

IF I AM INCORRECT, PLEASE EXPLAIN IN DETAIL WHY YOUR METHOD IS AN ACCURATE ASSESSMENT OF ALL DIRECT AND INDIRECT PROJECT IMPACTS (THE WHOLE OF A PROJECT), AND MY METHOD IS NOT.

Mr. Cannon, some people might think that you, your staff, and your consultants know exactly what you are doing: ***intentionally perverting CEQA in order to make your projects seem harmless (such as the SCIG project),*** no matter the cost to fence-line inhabitants, regional inhabitants, ***logic***, ***Environmental Justice***, or ***CEQA Statute***. I don't believe that; I believe that you, your staff, and your subcontractors just need to look at this problem more closely and apply your best analytical skills – ***and a healthy dose of "horse sense."***[3] Bottom line, this method of analysis for Air Quality project ***direct and indirect*** impacts is based on a fallacious premise and just "doesn't hold 'wuda."[4]

[2] Too many damn zombies.

[3] "Common" sense; or, in this case, "the sense God gave a chicken," as my grandmother would say.

[4] Vinny Gambini, *My Cousin Vinny*, 1992.

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DC1-5

Finally, I think I could help you get these projects certified and approved ***without*** employing "trickeration"[5] (***as some of my domino-playing friends say when they are sure they are being cheated but have yet to prove it***) exposing the Port to unnecessary delays from re-circulations and losing lawsuits. The following presents the "quick fix" to assess potential project Air Quality impacts (***exclude GHG analysis at this point because it may confuse you***):

1. Find Baseline, which consists of ***pre-project conditions at the time of the NOP***. All demolition, construction, and operation ***after*** the NOP, attribute to the direct and indirect impacts of the project;

2. Compare the ***direct*** and ***indirect*** project impacts to SCAQMD thresholds (subtract ***NOTHING***!);

3. If the impact is exceeds threshold, ***report a significant impact***; if the impact is under threshold, ***report no significant impact*** – Done! (Now, that was easy).

I hate to add this, but I will: If you want to manipulate the public's perception or comprehension of this or any project (***such as the SCIG***), do it in the No Project/No Federal Action alternative analysis. That is where the "trickeration" belongs (and can be better disguised).

Let me know if there is anything I can do to help.

Sincerely,

Dennis Crable, Principal
Crable & Associates, Environmental Consultants

[5] Thaumaturgy

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2.3.6.1 Dennis Crable

Response to Comment DC1-1

Thank you for your comment. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)). Specific issues are addressed in the responses below.

Response to Comment DC1-2

Comment noted. LAHD and USACE acknowledge and agree with the comment's stated purpose of an EIR pursuant to PRC 21002.1 and 21061. No further response is required.

Response to Comment DC1-3

Comment noted. LAHD and USACE acknowledge the comment's concurrence with LAHD's definition of baseline for the EIS/EIR. No further response is required.

Response to Comment DC1-4

The commenter is asserting that an incorrect method was used to determine the significance of air quality impacts by comparing the net change in the proposed Project or alternative to the threshold relative to the CEQA baseline emissions. The commenter is requesting specific language in CEQA case law and statue to support this. As discussed in the Draft EIS/EIR, the analysis of air quality impacts is based on a comparison of the proposed project emissions to the baseline existing conditions. This is consistent with CEQA Guidelines §15125a, which states, "environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." Section 15064(d) of the State CEQA Guidelines states, "the lead agency shall consider direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project." As described in Chapter 2 of the Draft EIS/EIR, the proposed Project includes improvements to an existing terminal, and any increases in throughput associated with those improvements through the end of the existing lease in 2026.

As the YTI Terminal is currently an operating terminal, any existing operations are considered part of the baseline. Since the existing operations are considered part of the baseline, the emissions associated with existing ongoing operations are not caused by the proposed Project and are not considered part of the proposed project impacts. Rather, only those emissions associated with the proposed Project are considered as part of the impact—in this case, the net change (also known as the increment) between impacts in the baseline year (2012) and the impacts resulting from the proposed Project at the end of the lease term (2026). This is also consistent with SCAQMD CEQA guidance on determining significance (SCAQMD 2011) of air pollutants and ambient standards for which concentrations are calculated as an increment between the project and a baseline and whether the increment exceeds the SCAQMD thresholds.

The assertion that a project or alternative cannot result in negative project emissions, but instead must demonstrate an improvement over existing conditions, is incorrect.

Improvements in technology, emission factors, and regulations have the intended effect of improving air quality over time, which can in fact reduce emissions while allowing for increased operations. See Master Response 1: Feasible Mitigation, Master Response 2: Zero Emissions Technologies, and Master Response 4; AMP Requirements for additional discussion.

For the reasons discussed above, the Draft EIS/EIR analysis appropriately discloses the impacts of the proposed Project and fulfills the purpose of an EIS/EIR.

Response to Comment DC1-5

Thank you for your comment and suggestions to assess air quality impacts. See Response to Comment DC1-4 above. As mentioned above, the direct and indirect proposed project impacts are not subtracted from the baseline. The impacts of the proposed Project are determined by calculating the incremental differences between the baseline and proposed project conditions. The Draft EIS/EIR appropriately compares the net change, or the proposed project impacts, to the adopted thresholds.

It should also be noted that CEQA baseline is not the same as the No Project or the No Federal Action Alternative. These scenarios are clearly delineated in Chapters 2 and 6 of the Draft EIS/EIR and represent a future scenario that includes growth without the proposed Project or federal action, whereas the CEQA baseline represents a fixed point in time.

Comment Letter DC2

June 1, 2014

Additional Comments Regarding Yusen Terminals Inc. (YTI) Terminal at Berths 212–224
EIR/EIS to be Appended to my Earlier Comments Dated May 28th, 2014

Dear Mr. Cannon:

As you know, I recently submitted comments on this subject dated May 28, 2014, which addressed the Port's method of analysis for this proposed Project's significant air quality impacts, a method used in every Air Quality section in all of the Port's important CEQA documents – Environmental Impact Reports (EIR's), Environmental Impact Statements (EIS's), and Mitigated Negative Declarations (MND's). That method is stated below:

DC2-1

> *For determining CEQA significance, thresholds are compared to the **net change** in proposed Project or alternative emissions relative to CEQA baseline emissions* (Section 3.2 Air Quality and Meteorology, p. 3.2-64).

And, as you know, I find your method illogical, unsupported by substantial evidence as to its validity, intentionally misleading – **greatly diminishing impacts, and, in many cases, reversing them** – and contrary to the letter and intent of the CEQA: so I asked the following question:

> ***"WOULD YOU PLEASE PROVIDE THIS EXACT LANGUAGE AND ITS LOCATION IN CEQA STATUTE OR CASE LAW,*** the latter having been reviewed and accepted by California's highest court, if you don't mind."

Having dealt with your agency before, and knowing your propensity for circular reasoning, I want to short circuit the answer I feel you will be tempted to provide – a "***recommendation***" from another agency that has apparently borrowed their methodology from POLA, the Bay Area Air Quality Management District (BAAQMD). They state, in their CEQA Guidelines:

DC2-2

> **Step 1: Emissions Quantification**
>
> If a proposed project involves the removal of existing emission sources, BAAQMD ***recommends subtracting*** the existing emissions levels from the emissions levels estimated for the new proposed land use. This net calculation is permissible only if the existing emission sources were operational at the time that the Notice of Preparation (NOP) for the CEQA project was circulated or in the absence of an NOP when environmental analysis begins, and would continue if the proposed redevelopment project is not approved. This net calculation is not permitted for emission sources that ceased to operate, or the land uses were vacated and/or demolished, prior to circulation of the NOP or the commencement of environmental analysis. This approach is consistent with the definition of baseline conditions pursuant to CEQA (page 4-2, Bay Area Air Quality Management District CEQA Guidelines Updated May 2011).

DC2-3

Of this "**recommendation**" I would ask the same questions I ask of you: (1) ***Why does the BAAQMD "recommend"*** subtracting baseline conditions from project in order to assess project emissions? Why do

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DC2-3 cont.

they not follow the logical, more accurate, and generally accepted method of estimating proposed project impacts, then compare those ***estimated impacts*** to accepted South Coast Air Quality Management District (SCAQMD) thresholds to determine their significance per CEQA? (2) What substantial evidence – case law, statute, or science – specifically supports the BAAQMD's (**or POLA's**) method as an effective, good faith reporting of the direct and indirect impacts of a proposed project, which, as we know, ***is*** a requirement of CEQA? Again, this is another case of ***staff*** applying their own illogical notions and deficient understanding of CEQA and presenting it as "rule." ***Why should we accept BAAQMD's (or POLA's) unsupported "guidance"?***

DC2-4

Furthermore, what does the "***definition*** of baseline conditions pursuant to CEQA" have to do with this recommendation other than give it some ***non-sequitur-like authority***! ***POLA's past responses to me have been replete with definitions of baseline!*** However, it is apparent that both POLA and BAAQMD ***do not know what baseline means in relation to assessing a project's impacts***. Let me explain: to assess project impacts, baseline is the starting point (**the date of the NOP, which can logically be designated as "0"!**) from which to describe and attribute all that follows as Project-related impacts – direct and indirect – as opposed to pre-project conditions (**existing conditions**). ***Baseline*** is ***not*** some magic number that is used to deflate or ***reverse*** the significant effects of a project.

DC2-5

POLA's and BAAQMD's method of assessing project impacts strips the public and decision makers of their rightful protections – and obligations – under CEQA: how can anyone make an informed decision about projects when the information provided to them from the Lead Agency is intentionally slanted in favor of development and not the protection of people or the environment.

Bottom line, Mr. Cannon, San Pedro Bay Ports stakeholders have a right to a clear explanation – which is your obligation as the Lead Agency[1] – why POLA feels subtracting baseline from project can reasonably assess the direct and indirect impacts of any project. **Hopefully, you will explain to me and the public at large, in great detail, how your method works to the benefit and comport of the environment, and CEQA.** ***However, we both know that you will not, because you cannot.***

Sincerely,

A. Dennis Crable, Principal
Certified SBE, MBE, DBE, UDBE
Specializing in CEQA/NEPA project management for over 20 years

Crable & Associates, Environmental Consultants
765 West Altadena Drive
Altadena, California 91001
626.676.6993

1 Guidelines §15151: Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

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2.3.6.2 Dennis Crable

Response to Comment DC2-1

Comment noted. Comments submitted on May 28, 2014 are addressed in Response to Comments DC1-1 through DC1-5 above. Regarding the comment on the methods and thresholds for determining impacts from air quality emissions, LAHD disagrees with the commenter's assertion that an incorrect method was used to determine the significance of air quality impacts by comparing the net change in the proposed Project or alternative to the threshold relative to the CEQA Baseline emissions. See Response to Comment DC1-4.

Response to Comment DC2-2

The thresholds for determining the significance of the impacts were not borrowed from the Bay Area Air Quality Management District (BAAQMD), but in fact are thresholds adopted by SCAQMD and applicable to all projects in the South Coast Air Basin. Comparing the impacts of the proposed Project to the SCAQMD thresholds is the appropriate methodology. In the case of the proposed Project, the increment represents the change from existing conditions in 2012 through the end of the lease term of 2026. LAHD disagrees with the commenter's assertion that an incorrect threshold and approach were applied for determining the significance of an impact to air quality by comparing the net change in the proposed Project or alternative to the threshold relative to the CEQA Baseline emissions. See Response to Comment DC2-1 above.

Response to Comment DC2-3

LAHD cannot comment on the thresholds established by BAAQMD because they are not applicable in the South Coast Air Basin. The Draft EIS/EIR appropriately compares the net change, or the proposed project impacts, to the adopted thresholds. See Response to Comment DC2-1 above for additional discussion of the appropriate baseline and project impact analysis according to CEQA.

Response to Comment DC2-4

Comment noted. LAHD agrees with the commenter that the CEQA baseline should represent the starting point, the date of the Notice of Preparation (NOP). For the purposes of the Draft EIS/EIR, the baseline represents the existing conditions in 2012, since that is the closest available full year of operational information available. However, the baseline condition does not represent zero emissions, since the YTI Terminal is currently operational. Baseline represents existing conditions of the terminal at the time the NOP was distributed. Therefore, the impacts represent the changes between the existing conditions and the proposed end of the lease in 2026, incorporating the changes in operations related to both physical improvements and projected growth in terminal operations. See Response to Comment DC2-1 above for additional discussion of the appropriate baseline and project impact analysis according to CEQA.

Response to Comment DC2-5

Comment noted. See Response to Comment DC2-1 above for additional discussion of the appropriate baseline and project impact analysis according to CEQA.

Comment Letter AH

Keck School of Medicine of USC

ANDREA M. HRICKO
Professor

June 16, 2016

Submitted via e-mail to:

Theresa Stevens, PhD
LA District, Regulatory Division
Ventura Field Office
U.S. ACE
2151 Alessandro Drive, Suite 110
Ventura CA 93001
Theresa.stevens@usace.army.mil

Christopher Cannon
Director of Environmental Management
Port of L.A.
P.O. Box 151
San Pedro, CA 90733-0151
ceqacomments@portla.org

RE: USC COEC COMMENTS ON BERTHS 212–224 YTI CONTAINER TERMINAL IMPROVEMENTS PROJECT DRAFT - ENVIRONMENTAL IMPACT STATEMENT & (DEIS)/DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)

Dear Dr. Stevens and Mr. Cannon:

I am a professor at the Keck School of Medicine of the University of Southern California (USC), where I direct a community outreach and education program at the Southern California Environmental Health Sciences Center. Through that Center, funded by the National Institute of Environmental Health Sciences, and with additional funding from The Kresge Foundation and The California Wellness Foundation, our Center has been studying the health and community impacts related to international trade and goods movement, through ports, rail yards, and other facilities. We have had several national conferences on this topic and have received requests for technical assistance on better understanding of these impacts from those living in communities where ports and rail yards are expanding. It is with this background that I submit these comments. Our Center scientists conduct research on the health impacts of near-roadway air pollution, and their research findings are very relevant to this proceeding.

AH-1 I write to provide comments on the YTI Container Terminal Improvements Project Draft Environmental Impact Statement ("DEIS")/Draft Environmental Impact Report ("DEIR"). I have several concerns about the Project and the accompanying environmental documents. While other nearby port projects have worked hard to mitigate detrimental impacts, the YTI includes much less mitigation than what seems to be feasible. Due to the size and volume of TEUs it will handle, the YTI proposed terminal will clearly have significant environmental health

University of Southern California • 2001 N Soto Street, M/C 9237 • Los Angeles, CA 90089-9237 • Tel: (323) 442-3077 • Fax: (323) 442-3272

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impacts on residents in the Harbor area of Los Angeles and Long Beach, impacts which are not fully characterized in the DEIR/DEIS, and for which sufficient mitigation measures are not proposed.

AH-1 cont.

I believe that the DEIR/S fails to provide sufficient mitigation for identified significant impacts and neglects to consider alternatives that effectively protect the environment and the health of community residents living in close proximity to the terminal.

I. Project Size and Mitigation Measures Proposed

AH-2

This Port of Los Angeles Project (YTI) will be one of the largest new port terminal projects in the entire country. This YTI Project involves major construction and dredging and then a huge increase in the volume of container goods that move through the terminal, creating potential impacts on environmental health resources and on residential health in the harbor area. Of special concern are the air pollutant emissions that will disproportionately impact minority and low-income residents in the area of the terminal. These impacts must be much more thoroughly studied than has been done in the DEIR/DEIS, including more significant mitigation measures for air pollution, noise, greenhouse gas emissions and other risks.

- 2x increase in truck trips

AH-3

A simple glance at the TEU figures indicate that the new terminal will have nearly twice the number of TEUs as it currently has. This is a huge increase and must be accounted for in terms of health effects for emission exposures. In 2012, the terminal moved 996,000 TEUS and the project plans to move 1.9 million TEUs. On its own, without any other planned port expansion, this increase in trucks will have a serious impact on emissions in the Harbor area, even with advances in the Clean Trucks Program. Tire wear, clutch wear, and re-entrained dust must be considered.

- Inadequate mitigation measures proposed

AH-4

The South Coast Air Quality Management District (SCAQMD) has a cancer risk threshold of 10 in one million for new projects. This Project, however, would create a risk of 23 in 1,000,000. Only through applying the maximum available controls and feasible mitigations for the significant emission increases can the cancer risk threshold be kept to 10 in a million.

- Lax rules on AMP

AH-5

The alternative maritime power (AMP) mitigation measures' timelines is completely out of line with what other projects have included in their timeline. In the Middle Harbor Project, the EIR/EIS calls for full AMP by 2014. For some reason, the YTI project would not reach that same milestone until 12 years later, with no explanation offered.

- Zero emissions technology and the "cancer burden"

AH-6

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AH-6 cont. To alleviate the cancer burden due to truck emissions, the Port should consider zero emissions technology, which it has stated in the past it will consider in new projects. The DEIR/EIS should develop a schedule for phasing in zero emission technology trucks in lieu of heavy duty diesel trucks.

- Cleaner locomotives

AH-7 As always, on-dock rail should be used to the maximum extent feasible. To reduce the cancer risk from locomotives traversing the terming, the use of Tier 4 locomotives must be implemented, as is set out in the Clean Air Action Plan.

2. Disproportionate Impacts on Lower Income Communities of Color

AH-8 The Environmental Justice chapter of the DEIR/S acknowledges the disproportionate adverse impact the Project will have on minority and low-income communities. Additional mitigation is required to reduce these risks to neighboring communities to an acceptable level.

3. Health Impacts

AH-9 The health impacts from exposure to both air pollution and noise must be considered in the DEIR/DEIS for the YTI Project.

HEALTH EFFECTS OF EXPOSURE TO NOISE

AH-10 According to the DEIR/DEIS, "the proposed Project would result in disproportionate effects on minority and low-income populations as a result of significant and unavoidable impacts for noise." In addition, the DEIR/DEIS states that there would be a "cumulatively considerable and unavoidable contribution to a significant cumulative impact under CEQA and NEPA after mitigation for noise." This is not acceptable because noise is a serious, and often dismissed, public health problem, which causes numerous health and social effects, ranging from hearing to cardiovascular problems, and from learning problems in school to sleep disturbances at home. I request that (1) a review of the noise exposure and health effects literature be included in the DEIR/DEIS; that (2) a discussion needs to occur in the DEIR/EIS about what having a cumulative impact for noise would mean to health of communities near the YTI project as well as a better description of the disproportionate impacts on lower income communities of color, and (3) additional mitigation measures knows be considered to reduce noise exposures to an acceptable level.

Community and occupational health studies show that noise levels from goods movement activities can impact health and quality of life. For example, excessive noise disturbs restorative sleep; elevated noise levels affect children's mental health and classroom behavior, especially if children have an "early biological risk" (such as having been born prematurely); and chronic noise exposure may contribute to the progression of cardiovascular disease. Portions of abstracts from several selected studies are reprinted below to illustrate the causes for concern. See list of selected references in Appendix A.

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"The cost of hypertension-related ill-health attributable to environmental noise." Harding AH, Frost GA, Tan E, Tsuchiya A, Mason HM. Noise Health. 2013 Nov-Dec;15(67):437-45. doi: 10.4103/1463-1741.121253.

ABSTRACT: Hypertension (HT) is associated with environmental noise exposure and is a risk factor for a range of health outcomes. The study aims were to identify key HT related health outcomes and to quantify and monetize the impact on health outcomes attributable to environmental noise-related HT. A literature review identified key HT related health outcomes and their quantitative links with HT. The health impact of increases in environmental noise above recommended daytime noise levels (55 dB[A]) were quantified in terms of quality adjusted life years and then monetized. A case study evaluated the cost of environmental noise, using published data on health risks and the number of people exposed to various bands of environmental noise levels in the United Kingdom (UK). Three health outcomes were selected based on the strength of evidence linking them with HT and their current impact on society: Acute myocardial infarction (AMI), stroke and dementia. In the UK population, an additional 542 cases of HT-related AMI, 788 cases of stroke and 1169 cases of dementia were expected per year due to daytime noise levels ≥55 dB(A). The cost of these additional cases was valued at around £1.09 billion, with dementia accounting for 44%. The methodology is dependent on the availability and quality of published data and the resulting valuations reflect these limitations. The estimated intangible cost provides an insight into the scale of the health impacts and conversely the benefits that the implementation of policies to manage environmental noise may confer."

"Effects of environmental noise on sleep." Hume KI, Brink M, Basner M. Noise Health. 2012 Nov-Dec;14(61):297-302. doi: 10.4103/1463-1741.104897. Review. PMID: 23257581 Abstract: This paper summarizes the findings from the past 3 year's research on the effects of environmental noise on sleep and identifies key future research goals. The past 3 years have seen continued interest in both short term effects of noise on sleep (arousals, awakenings), as well as epidemiological studies focusing on long term health impacts of nocturnal noise exposure. This research corroborated findings that noise events induce arousals at relatively low exposure levels, and independent of the noise source (air, road, and rail traffic, neighbors, church bells) and the environment (home, laboratory, hospital). New epidemiological studies support already existing evidence that night-time noise is likely associated with cardiovascular disease and stroke in the elderly. These studies collectively also suggest that nocturnal noise exposure may be more relevant for the genesis of cardiovascular disease than daytime noise exposure. Relative to noise policy, new effect-oriented noise protection concepts, and rating methods based on limiting awakening reactions were introduced. The publications of WHO's "Night Noise Guidelines for Europe" and "Burden of Disease from Environmental Noise" both stress the importance of nocturnal noise exposure for health and well-being. However, studies demonstrating a causal pathway that directly link noise (at ecological levels) and disturbed sleep with cardiovascular disease and/or other long term health outcomes are still missing. These studies, as well as the quantification of the impact of emerging noise sources have been identified as the most relevant issues that should be addressed in the field on the effects of noise on sleep in the near future."

"Noise and cardiovascular disease: a review of the literature 2008-2011." Davies H, Kamp IV. Noise Health. 2012 Nov-Dec;14(61):287-91. doi: 10.4103/1463-1741.104895. Review. Four large health

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effects examining joint effects were consistent in suggesting that both air pollution and noise are likely independent risk factors for CVD. The majority of the studies found men to be at greater risk that women for noise-related cardiovascular disease irrespective of noise source (road vs. aircraft) or outcome (HT or heart disease). Effects of road traffic are understudied in children. There is some evidence that cardiovascular response to nighttime exposure is stronger in children than adults.

"Disturbed sleep patterns and limitation of noise" by B. Griefahn et al. Noise and Health, Volume 6, Number 22, Jan - Mar 2004, pp. 27-33(7). ABSTRACT. "Due to the undisputable restorative function of sleep, noise-induced sleep disturbances are regarded as the most deleterious effects of noise. They comprise alterations during bedtimes such as awakenings, sleep stage changes, body movements and after-effects such as subjectively felt decrease of sleep quality, impairment of mood and performance.... Intermittent noise that is produced by air traffic, rail traffic and by road traffic during the night is particularly disturbing and needs to be reduced. Suitable limits are suggested."

"Ambient neighbourhood noise and children's mental health" by P. Lercher et al. Occup Environ Med. 2002 Jun;59(6):380-6. "OBJECTIVES: To investigate the relation between typical ambient noise levels (highway, rail, road) and multiple mental health indices of school children considering psychosocial and biological risk factors as potential moderators. CONCLUSIONS: Exposure to ambient noise was associated with small decrements in children's mental health and poorer classroom behaviour. The correlation between mental health and ambient noise is larger in children with early biological risk."

"Noise burden and the risk of myocardial infarction" by SN Willich et al. Eur Heart J. 2006 Feb;27(3):276-82. Epub 2005 Nov 24. "In a case-control study, patients consecutively admitted to all 32 major hospitals in Berlin with confirmed diagnosis of acute myocardial infarction were enrolled from 1998 to 2001 in the Noise and Risk of Myocardial Infarction study. Information was obtained on environmental and work noise annoyance. The sound levels of environmental and work noise were assessed using traffic noise maps as proxy and international standards for workplaces, respectively. Environmental sound levels were associated with increased risk in men and women. CONCLUSION: Chronic noise burden is associated with the risk of myocardial infarction."

"Neighbourhood inequalities in physical inactivity: the role of neighbourhood attractiveness, proximity to local facilities and safety in the Netherlands" by FJ van Lenthe et al. Soc Sci Med. 2005 Feb;60(4):763-75. In a study in the Netherlands, residents who lived in neighborhoods with the most traffic-related noise pollution seldom walked or cycled to shops or work. This study is relevant to residents in noise and traffic-related goods movement communities, especially at a time when obesity is becoming such a serious problem.

Appendix A below includes citations to research on the impacts of noise on human health which are submitted for the record.

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Appendix A

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HEALTH EFFECTS FROM EXPOSURE TO AIR POLLUTION

The DEIR/DEIS states that with the proposed project there would be: "Cumulatively considerable and unavoidable contribution to a significant cumulative impact under CEQA and NEPA after mitigation for Air Quality and Meteorology." The DEIR/DEIS also states that: "The proposed Project ... would result in disproportionate effects on minority and low-income populations as a result of significant and unavoidable impacts for Air Quality and Meteorology."

A review of the scientific literature on the health impacts of exposure to mobile source air pollution should be included in the DEIR/DEIS to show the growing body of scientific evidence in this arena. The range of research findings should be discussed, including studies showing that:

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- Children who grow up in polluted communities suffer reduced lung function and other respiratory effects. USC studies in Southern California show that a package of mobile source pollutants (NOx, PM, acid vapor, and elemental carbon) correlate with reduced lung function. In one USC study, three times as many children in North Long Beach, where levels of elemental carbon (EC) are higher than in most of the communities in the study, had reduced lung function than children in less polluted communities. The study is important because medical experts believe that reduced lung function is a significant predictor of mortality from all causes in adults. The EIR/EIS must describe the USC and other research findings showing the respiratory health effects of mobile source air pollution. (See Appendix B).

- Living or going to school in close proximity to busy roads and freeways or other magnet sources of diesel and auto exhaust is linked to asthma and respiratory effects in children, as well as other effects in adults. (See Appendix B).

- Elevated levels of particulate matter are linked to cardiovascular disease and increased mortality. In response to this growing body of evidence, the American Heart Association has issued a scientific statement concluding: "Exposure to air pollution contributes to the development of cardiovascular diseases." A recent study shows an increase in stroke among those living close to busy roads. Studies on increased cardiovascular disease and mortality from particulate exposure should be reviewed in the DEIR/DEIS. (See Appendix B).

- Pregnant women who live near busy roads and freeways (and who are exposed to current levels of air pollution in Los Angeles air) are more likely to give birth to low birth weight and premature infants; infant mortality has also been linked to air pollution levels. Thousands of women of child-bearing age live in the vicinity of the San Pedro Bay Ports or along goods movement corridors in

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Southern California. Studies on increased reproductive problems and adverse birth outcomes must be described in the EIR/EIS. (See Appendix B).

- Increased lung cancer risks among workers exposed to diesel exhaust, including recent studies on miners, truckers and railroad workers. Based on studies of workers exposed to diesel exhaust, diesel particulate matter was declared a Toxic Air Contaminant in the state of California in 1998. In addition, the International Agency for Research on Cancer named diesel exhaust a "carcinogen" in 2011 in an important scientific deliberation. The cancer-causing effects of exposure to diesel exhaust must be described in the DEIR/DEIS. (See Appendix B).

- Diesel exhaust particles can also enhance allergies and allergic asthma. The DEIR/DEIS should describe studies showing the potential for enhancement of allergies and asthma from diesel exhaust emissions from trucks and locomotives delivering containers to other locations throughout the region. (See Appendix B).

- Exposure to air pollution has also been linked to cognitive decline and other neuropsychological impacts.

APPENDIX B: Selected References on the Health Impacts of Exposure to Air Pollution

Recent Research Findings on Exposure to Air Pollution and Health Effects [1-21] [22] [23-29] [30-34] [30, 35-52]

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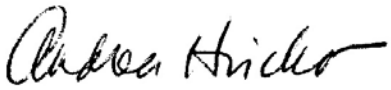
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Thank you for your consideration of these comments.

Sincerely,



Andrea Hricko, MPH

Professor of Clinical Preventive Medicine
Keck School of Medicine
University of Southern California
Director, Community Outreach and Engagement Program
Southern California Environmental Health Sciences Center
2001 N. Soto Street, MC 9237

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Los Angeles, CA 90089
Phone: 323-442-3077 E-mail: ahricko@usc.edu

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2.3.6.3 Andrea Hricko

Response to Comment AH-1

Thank you for your comment. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)). See also Master Response 1: Feasible Mitigation.

Response to Comment AH-2

Thank you for your comment. The comment mischaracterizes the proposed Project as a new port terminal project. The YTI Terminal is an existing, fully operational marine cargo container terminal and the proposed Project includes improvements to the terminal to increase its container-handling efficiency. The comment summarizes impacts that have been adequately analyzed and disclosed in the Draft EIS/EIR. The comment will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)). Additionally, see Master Response 1: Feasible Mitigation and Master Response 3: Environmental Justice.

Response to Comment AH-3

Comment noted. The comment mischaracterizes the proposed Project as a new terminal. The YTI Terminal is an existing terminal, and the proposed Project includes improvements to the terminal to increase its container-handling efficiency. The comment characterizes the "new terminal" as having nearly twice the number of TEUs it currently has. LAHD would like to point out that while it is true that in 2012, the YTI Terminal handled 996,109 TEUs and the capacity of the terminal at full buildout under the proposed Project would be 1,913,000 TEUs annually. However, in the absence of the proposed Project, the terminal has the capacity to handle up to 1,692,000 TEUs annually currently, and throughput projections estimate that this existing capacity would be reached by 2026. As such, anticipated throughput under the proposed Project represents an increase of 221,000 TEUs per year over anticipated throughput without the proposed Project. Furthermore, the air quality analysis presented in Section 3.2 of the Draft EIS/EIR does take into account truck emissions from tire wear, brake wear, and re-entrained road dust, as well as engine exhaust (see Sections 3.2.4.1, 3.2.4.2, 3.2.4.3, and 3.2.4.5 of the Draft EIS/EIR).

Response to Comment AH-4

Please refer to Response to Comment EJ2-9. See also Master Response 1: Feasible Mitigation.

Response to Comment AH-5

See Master Response 4: AMP Requirements.

Response to Comment AH-6

See Master Response 2: Zero Emissions Technologies. Further, the comment implies that the cancer burden associated with the proposed Project would be significant, which is not the case. Please refer to Response to Comment EJ2-21.

Response to Comment AH-7

See Response to Comment SCAQMD-19.

Response to Comment AH-8

See Master Response 1: Feasible Mitigation and Master Response 3: Environmental Justice.

Response to Comment AH-9

The air quality and health risk impacts as well as noise impacts resulting from the proposed Project and alternatives have been adequately disclosed in the Draft EIS/EIR. The comment does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (Public Resources Code Section 21091(d); State CEQA Guidelines Section 15130; 40 CFR 1503.4 (a)(5)).

Response to Comment AH-10

See Master Response 1: Feasible Mitigation and Master Response 3: Environmental Justice. The lead agencies thank the commenter for providing the literature citations. However, in determining the contents of an EIS/EIR, a lead agency is entitled to rely on its own experts' opinions as to which studies and analyses are appropriate to evaluate impacts (*Association of Irritated Residents v. County of Madera*, 107 Cal.App.4th 1383, 1396-1398). CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project (Ibid). An EIR is not required to perform every analysis requested by concerned persons (*Clover Valley Foundation v. City of Rocklin* [2011] 197 Cal.App.4th 200, 245). Similarly, NEPA requires federal agencies to prepare an analytic rather than encyclopedic EIS (40 CFR 1500.4(b) and 1502.2(a)). While the Draft EIS/EIR acknowledged and appropriately disclosed that a cumulative noise impact could occur to a limited number of liveaboard receptors that reside in the nearby marinas during construction, the cumulative noise impacts would occur within a short duration (only during pile driving activities), and are not likely to cause adverse health impacts. The proposed Project creates a 6-dB increase (an increase from 56 dBA up to 62 dBA) over the daytime ambient at the closest sensitive receptor, ST-4, which is a liveaboard. This increase is only associated with pile driving, and the contractors would be required to limit construction to daytime hours in accordance with the City's Noise Ordinance. No other construction activity would cause an increase over the ambient noise level. Additionally, while the cumulative noise impacts from pile driving were previously determined to result in a disproportionately high and adverse effect on minority and low-income populations (Draft EIS/EIR Chapter 5, Environmental Justice, Page 5-18), that conclusion has since been determined to have been made in error. The liveaboard receptors are located in the marinas that fall within census tract 9800.14, which, according to Table 5-2, is 23.4% minority and 16.7% low-income. Thus, the liveaboard receptors do not constitute a minority or low-income community as defined by Executive Order 12898 and the Council of Environmental Quality's Environmental Justice Guidance under the National Environmental Policy Act

(CEQ 1997). Therefore, the cumulative impact would not constitute a disproportionately high and adverse effect on minority and low-income populations. This change has been made in Chapter 3 of the Final EIS/EIR, Modifications to the Draft EIS/EIR.

Response to Comment AH-11

Thank you for your comment. The Draft EIS/EIR does not fail to review research findings on the health effects of air pollution, and in fact includes considerable discussion on the topic. For example, Table 3.2-1 in the Draft EIS/EIR provides a summary of adverse health effects associated with human exposure to criteria air pollutants, compiled by the SCAQMD. A further elaboration of the health effects of exposure to particulate matter, including such emissions from the goods movement industry, begins on Page 3.2-54 of the Draft EIS/EIR in the discussion of mortality and morbidity. LAHD believes that these two summaries together provide an adequate disclosure of health effects information as required under CEQA and NEPA. With respect to the studies cited by the commenter, the lead agency thanks the commenter for the information, but notes that in determining the contents of an EIR, a lead agency is entitled to rely on its own experts' opinions as to which studies and analyses are appropriate to evaluate impacts (*Association of Irritated Residents v. County of Madera*, 107 Cal.App.4th 1383, 1396-1398). CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project (Ibid). An EIR is not required to perform every analysis requested by concerned persons (*Clover Valley Foundation v. City of Rocklin* [2011] 197 Cal.App.4th 200, 245). Similarly, NEPA requires federal agencies to prepare an analytic rather than encyclopedic EIS (40 CFR 1500.4(b) and 1502.2(a)).

2.3.7 Draft EIS/EIR Public Hearing

Comment Letter PH

STATE OF CALIFORNIA

LOS ANGELES CITY HARBOR DEPARTMENT

ENVIRONMENTAL MANAGEMENT DIVISION

Berths 212-224

[YTI] Container Terminal

Improvements Project

DRAFT EIS/EIR

P U B L I C S C O P I N G H E A R I N G

TUESDAY, MAY 20, 2014

PORT OF LOS ANGELES, SAN PEDRO, CA

REPORTED BY: Kimberly Meza, CSR No. 12771

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APPEARANCES OF COUNSEL:

For PORT OF LOS ANGELES, PROJECT MANAGER:

LAURA MASTERSON

For SAN PEDRO CITY ATTORNEY:

JUSTIN HOUTERMAN

For U.S. ARMY CORPS OF ENGINEERS:

THERESA STEVENS

Public Speakers:

MICHELE GRUBBS

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TRANSCRIPT OF PROCEEDINGS

6:03 P.M.

* * *

LAURA MASTERSON: Okay. We're going to go ahead and get started. Thank you for being here this evening. This is the public meeting for Berths 212 through 224 YTI Container Terminal Improvements Project. First of all, I'm going to introduce Theresa Stevens who is from the regulatory vision of the United States Army Corps of Engineers. She's going to be reading a statement, and then I will go through a quick presentation letting you know what the project is and also going through some of the findings of our draft document.

THERESA STEVENS: Good evening, everyone. My name is Theresa Stevens. I'm a senior project manager of the Los Angeles District U.S. Army Corps of Engineers regulatory division on behalf of the Corps of Engineers. I'd like to welcome everyone to this public meeting. Recently, the Los Angeles Harbor Department applied to the Corps of Engineers for a permit to construct wharf and terminal improvements at Berths 212 and 224, the YTI Container Terminal, on Terminal Island.

Because Federal permit qualifies Federal actions, The Corps must also comply with the National Environmental

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Policy Act also known as NEPA. Due to the nature and scope of activities in waters of the United States, The Corps determined the proposed project could result in a significant impact; and, therefore, an Environmental Impact Statement or EIS was prepared on April 5th, 2013. We published a notice of intent to prepare an EIS in the Federal register. On May 2nd, 2014, we published a notice of availability for the Draft EIS in the Federal register. We also distributed a public notice and posted a public notice on our website.

In response to comments received at this meeting and written comments received through June 16th, The Corps and the Harbor Department will prepare a final EIS/EIR. The Corps of Engineers is responsible for regulating discharges of dredged and film material in waters of the United States, work that may be conducted, and structures that may be installed in over or under navigable waters of the United States, any activities that may affect navigation, and the transport of dredged material for the purpose of ocean disposal.

As proposed, the project does not include a discharge of dredged or film material into waters of the U.S.; therefore, a Section 404 Clean Water Act authorization is not required. However, the proposed dredging and wharf requirements and crane replacement

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activities are regulated under Section 10 of the Rivers and Harbors Act. Because the project includes dredging, The Port has also proposed to dispose of some of the dredged material at the USEPA-approved ocean disposal site known as LA2. Some dredged material would also be disposed at the Berth's 243 to 245, confined disposal facility. Disposal at LA2 requires authorization under Section 103 of the Marine Protection Research and Sanctuaries Act.

Federal actions such as Corps permit decisions are subject to compliance with the variety of Federal environmental laws in addition to NEPA. Consequently, The Corps has a responsibility to evaluate the environmental impacts that would be caused by the project prior to making a permit decision. In meeting its regulatory responsibility, The Corps is neither a project proponent or opponent.

In addition to evaluating the direct, indirect, and cumulative environmental impacts of the project, The Corps must determine whether the project is in the public interest. No permit can be granted if we find that the proposal is contrary to the public interest. The public interest determination requires a careful weighing of factors that is relevant to the particular project. The public interest review also requires The Corps reevaluate

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project benefits and balance them against reasonably foreseeable detriments.

At this hearing, The Corps is requesting input from the public concerning the project and The Corps' firm actions. The Corps would like to emphasize that we will carefully consider all comments received, and they will be given full consideration as part of our final decision. Following this meeting, all parties will be given until June 16th, 2014, to provide written comments on the project and our permit action. All oral and written testimony will become part of The Corps' administrative record for this action.

At this time I'd like to ask you if you know that you would like to speak tonight to please fill out a speaker card and hand it to me, Harbor Department, or consultant staff. This will help us transition to the public input session. Now I'll pass the meeting back to Laura.

LAURA MASTERSON: Thank you, Theresa. So I'm going to give a brief rendition about the project and about the findings of the document. One second. I'm just trying to get into the record our translator was delayed. And if everyone is okay without a translator, we're going to go ahead and proceed. Thank you. Okay. Sorry for the delay. Again, my name is Laura Masterson. I am the

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project manager for this project. So here's the agenda for today. We already did the opening remarks and Theresa Stevens presented her presentation. Now I'm going to go through my presentation, and then we will have public comments.

So the purpose of this hearing is to provide you information on its project. And it's also to provide an overview of the analysis that was done in the Draft EIR/EIS and also to obtain public comment on the analysis found in the EIR/EIS. And contrary to this sign saying there's Spanish translation available, we will not be having Spanish translation at this time. This is just to give you a quick overview of the environmental review process and where we are in this process right now.

We are in the draft EIS/EIR. We released the document for public review on May 2nd, and that review period will be through June 16th. And tonight we are at the public meeting on May 20th for the draft document. We also held a scoping meeting when we released the NOI/NOP back in April of 2013. This is just to give you an idea of the project location where you can see more of a regional scale, and then also a more detailed location of the project.

The project is located on Terminal Island within The Port of Los Angeles property along the East Basin

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Channel. This is the existing project site. It is 185-acre site on Terminal Island, like I said. There are three existing berths, two of which are currently in use. There is 157-acre container yard and a 24-acre on-dock rail yard with four dedicated tracks for YTI. There are 14 existing cranes, ten of which are currently in operation.

During the calendar year 2013, there were -- excuse me, 2012, there were 996,109 TEUs moved through the terminal with 162 vessel calls. And the existing lease for YTI goes through 2016 with an option to extend for ten years through 2026. The purpose of the proposed project is to improve marine shipping and commerce by upgrading container terminal infrastructure to accommodate the projected shipment of larger containership anticipated to call at YTI through 2026.

The needs for the proposed project are that the existing berths at the terminal are not deep enough to accommodate the projected fleet mix that's expected to call at the terminal in the future. Some of the existing cranes and the crane rail are not sufficient to load and unload the largest containerships efficiently. The on-dock rail yard servicing the terminal does not have the capacity to efficiently accommodate increases in peak container volume associated with the servicing of larger

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vessels. And the terminal container yard surface is in need of repair and strengthening to prevent damage and assure efficiency of the yard equipment.

This slide shows you a slight plan of the proposed project, and I'll leave this up here just for a second. And as I start to talk through some of the elements, I will also show those in writing in a second. So there will be new dredging and sheet piles and king piles at Berths 214 through 216 and also at 217 through 220. And you can see the area that is hashed in white is the area where there's proposed dredging and deepening of those berths. There will be removal and replacement and the raising -- there will be removing and replacement of some of the cranes and raising of the existing cranes for a total of 14 operational cranes after construction is complete.

There will be an extension of the 100-foot gauge crane rail by 1500 feet to extend it to Berths 217 through 220. So 217 through 220 is the one to the left of the screen that is not currently operational which will become operational and have the crane rail extended. And there will be back line and service improvements on 160 acres on the terminal back lines. And there will be an addition of the single loading track to the on-dock rail yard. And here is just a -- quickly so you can see what is proposed.

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The timeline for construction is a 22-month construction schedule broken up into two phases. The first phase is proposed to be 12 months beginning in mid-2015. During that phase, Berths 212 and 213 and 214 and 216 will be in operation. So the two existing operational berths will be in operation while Berths 217 through 220 is being constructed.

Phase 2 will be ten months beginning in mid-2016 during which time Berths 212 through 213 and the newly improved Berths 217 through 220 will be in operation. Subsequent to Phase 2 of construction, there will be three operational berths starting in early 2017 through 2026.

I'm going to quickly go through the findings of the Draft EIS/EIR. We found less than significant impacts in the areas of aesthetics, culture resources, geology, ground transportation, hazards and hazardous materials, land use, purchased transportation, public services, utilities and service systems and water quality, cement and oceanography. We found less than significant impacts with the incorporation of mitigation in ground water soils and also noise.

And we have mitigation measures GW1 and GW2 to address impacts to ground water soils, and mitigation measures NOI-1 and NOI-2 to address impacts to noise. Our draft analysis found significant and unavoidable impacts

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in the area of air quality and meteorology, biological resources, and greenhouse gas emissions. However, you can see the list of mitigation measures that we have incorporated to reduce such impacts. We also found cumulative impacts in the areas of air quality and meteorology, biological resources, noise, aesthetics only under CEQA but not under NEPA, and greenhouse gas emissions only under CEQA, not under NEPA.

This slide is just a brief summary of the proposed project and the project alternatives that were analyzed in the draft document. We had the No Project Alternative which is required under CEQA that generated what would happen at the terminal without the project over time. We have the No Federal Action Alternative that analyzes what project would go forward without Federal approval. And we have the Reduced Project Alternative which is to improve Berths 217 through 220 only and not to do any improvements at Berths 214 through 216.

And this table just gives you a brief summary of the major elements of the different alternatives. You can see that the Reduced Project Alternative has the same capacity as the proposed project, and you can see the number of annual ship calls is higher only under the Reduced Project Alternative. And I won't go through all of those things, but one main difference is the amount of

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dredging is reduced under the Reduced Project Alternative. There's only 6,000 cubic yards of dredging as opposed to 20,000 under the proposed project.

So we want your comments, and that's the purpose of this meeting this evening and also the public comment period. So there are several ways that you can provide comments. You can provide an oral comment at tonight's meeting. We will start that immediately following my presentation. If you would like to speak, please fill out a comment card, and we will collect those and call out the speakers.

You can also fill out a comment card which we have available which you can either turn in a written comment tonight or you can mail it to us. You can send an e-mail to both of the e-mail addresses listed below on this slide. And I can put this back up later if anyone needs it or you can mail written comments in, and I will show the mailing addresses on the next slide.

Please keep in mind that the comment period closes on June 16th just so that everyone knows if you do give an oral comment tonight, we do have a court reporter here that will be recording all comments received. Let me quickly go over the procedure. As we'll go through for the comments, you will be called in order that the comment cards were received. Speakers will be given three

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minutes. We'll have a timer up here to have an idea how much time you have left. It turns yellow when you have 30 seconds left and red when you have five seconds left.

Like I said, all comments will be transcribed by the court reporter and included in the final document and considered in the analysis in the final document. All right. Thank you very much. We'll start the public comment portion. Okay. So we have one speaker card as of now. This is Michele Grubbs. When you're ready, please begin.

MICHELE GRUBBS: Is this on? Got it. Thank you. Good evening, my name is Michele Grubbs. I'm the vice president of Pacific Merchant Shipping Association. I am here on behalf of PMSA to show support of the Draft EIR for the improvements to the YTI terminal. Competition for U.S. ports is intensifying.

PH-1

The Port of Los Angeles must upgrade their terminals to prepare for the larger vessels and to be able to handle vessels larger than 85,000 TEUs, sorry, 8500 TEUs, and to have The Port be big-ship ready. These larger vessels will increase not only cargo throughput but will also increase jobs in the Southern California region. For this reason PMSA supports the Draft EIR.

LAURA MASTERSON: Thank you very much. That is the only speaker card that I have in hand. Does anyone

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else have any other speaker cards? Okay. That was the final speaker of the evening. And with that, we will conclude the public comment portion, and we will conclude this meeting officially. Thank you all for coming.

(Proceedings concluded at 6:21 p.m.)

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REPORTER'S CERTIFICATE

I, Kimberly Meza, a Certified Shorthand Reporter, holding a valid and current license issued by the State of California, CSR No. 12771, do hereby certify:

That said proceedings were taken down by me in shorthand at the time and place therein set forth and thereafter transcribed into typewriting under my direction and supervision.

I further certify that I am neither counsel for nor related to any party to said action nor in anywise interested in the outcome thereof.

The dismantling, unsealing, or unbinding of the original transcript will render the Reporter's certificate null and void.

IN WITNESS WHEREOF, I have hereunto subscribed my name on this 4th day of June, 2014.

Kimberly Meza

Certified Shorthand Reporter

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2.3.7.1 Draft EIS/EIR Public Hearing Transcripts

Response to Comment PH-1

The public hearing on the Draft EIS/EIR was held on May 20, 2014. One speaker, Michele Grubbs from the Pacific Merchant Shipping Association, provided comments during the public hearing in support of the Draft EIS/EIR. LAHD thanks Ms. Grubbs for her comment. The comment is noted and will be before the decision-makers for their consideration prior to taking any action on the project. The comment is general and does not identify any specific deficiencies or contest the adequacy of the Draft EIS/EIR; therefore, no further response is required (PRC 21091(d); State CEQA Guidelines Section 15204(a); 40 CFR 1503.4 (a)(5)).

2.4 References

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2.4.2 Personal Communication

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Chapter 3

Modifications to the Draft EIS/EIR

3.1 Introduction

This chapter of the document addresses modifications to the Draft EIS/EIR for the Berths 212-224 (YTI) Container Terminal Improvements Project. It presents all revisions related to public comments, as determined necessary by the lead agencies.

Any revisions to supporting documentation are also presented. The numbering format from the Draft EIS/EIR is maintained in the sections presented here. Only sections that have revisions based on public comment are included, and sections that have no revisions are not included. Readers are referred to the Draft EIS/EIR to view complete sections. It should be noted that most of the changes are editorial in nature and none result in changes to significance findings.

As provided in Section 15088(c) of the State CEQA Guidelines, responses to comments may take the form of a revision to a Draft EIR or may be a separate section in the Final EIR. As provided in 40 CFR 1503.4(c), to comply with NEPA, responses to comments may take the form of revisions to a Draft EIS, or, if changes to the EIS in responses to comments are minor, then changes may be provided on errata sheets attached to the Draft EIS. This chapter complies with the latter of these two guidelines and provides changes to the Draft EIS/EIR in revision-mode text (i.e., deletions are shown with ~~strikethrough~~ and additions are shown with <u>underline</u>). These notations are meant to provide clarification, corrections, or minor revisions as needed as a result of public comments or because of changes in the proposed Project since the release of the Draft EIS/EIR.

3.2 Changes to the Draft EIS/EIR

The following changes to the text as presented below are incorporated into the Final EIS/EIR.

3.2.1 Changes Made to Executive Summary

3.2.1.1 Pages ES-18 through ES-22

Table ES-4: Summary of Potential Impacts and Proposed Mitigation Measures by Alternative

Proposed Project	Alternative 1 – No Project	Alternative 2 – No Federal Action	Alternative 3 – Reduced Project
AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-16. **CEQA:** Operations would be significant for NO_X, CO and VOC in 2017, 2020, and 2026. **NEPA:** Operations would be significant for NO_X in 2017, 2020, and 2026, and for VOC in 2020 and 2026. **Mitigation Measures:** **MM AQ-9.** Vessel Speed Reduction Program (VSRP). **MM AQ-10.** Alternative Maritime Power (AMP). ~~**MM AQ-11.** Truck Idling Reduction Measure.~~ The following lease measures would also be implemented to reduce impacts: **LM AQ-1.** Periodic Review of New Technology and Regulations. **LM AQ-2.** Substitution of New Technology by Tenant. **LM AQ-3:** Container Ship Engine Emissions Reduction Technology Improvements. **Residual Impacts:** **CEQA:** Operations would be significant and unavoidable for NO_X, CO	**AQ-3:** Alternative 1 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-16. **CEQA:** Operations would be significant for NO_X and VOC in 2017, 2020, and 2026. **NEPA:** Not applicable; mitigation not applicable. **Mitigation Measures** **CEQA**: Mitigation measures are not applicable to Alternative 1 because there would be no discretionary actions subject to CEQA. **Residual Impacts:** **CEQA only**: Operations would be significant and unavoidable for NO_X and VOC in 2017, 2020, and 2026.	**AQ-3:** Alternative 2 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-16. **CEQA:** Operations would be significant for NO_X and VOC in 2017, 2020, and 2026. **NEPA:** No impact; no mitigation required. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Residual Impacts:** **CEQA only:** Operations would be significant and unavoidable for NO_X and VOC in 2017, 2020, and 2026.	**AQ-3:** Alternative 3 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-16. **CEQA**: Operations would be significant for VOC and NO_X in 2017, 2020, and 2026 and for CO in 2020 and 2026. **NEPA**: Operations would be significant for NO_X in 2017, 2020, 2026, and for CO, VOC, and $PM_{2.5}$ in 2020 and 2026. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Residual Impacts:** **CEQA**: Operations would be significant and unavoidable for VOC and NO_X in 2017, 2020, and 2026 and for CO in 2020 and 2026. **NEPA**: Operations would be significant and unavoidable for VOC and NO_X in 2020 and 2026.

Table ES-4: Summary of Potential Impacts and Proposed Mitigation Measures by Alternative

Proposed Project	Alternative 1 – No Project	Alternative 2 – No Federal Action	Alternative 3 – Reduced Project
and VOC in 2017, 2020, and 2026. **NEPA:** Operations would be significant and unavoidable for NO_X in 2017, 2020, and 2026, and for VOC in 2020.			
AQ-4: Proposed Project operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17. **CEQA**: Operations would be significant for federal 1-hour NO_2 and 24-hour and annual PM_{10}. **NEPA**: Operations would be significant for federal 1-hour NO_2 and 24-hour and annual PM_{10}. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Lease Measures:** **LM AQ-1** through **LM AQ-3** **Residual Impacts:** **CEQA**: Operations would be significant and unavoidable for federal 1-hour NO_2 and 24-hour and annual PM_{10}. **NEPA**: Operations would be significant and unavoidable for federal 1-hour NO_2 and 24-hour and annual PM_{10}.	**AQ-4:** Alternative 1 operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17. **CEQA:** Operations would be significant for federal 1-hour NO_2 and for 24-hour and annual PM_{10}. **NEPA:** Not applicable; mitigation not applicable. **Mitigation Measures** **CEQA**: Mitigation measures are not applicable to Alternative 1 because there would be no discretionary actions subject to CEQA. **Residual Impacts:** **CEQA only:** Operations would be significant and unavoidable for federal 1-hour NO_2 and for 24-hour and annual PM_{10}.	**AQ-4:** Alternative 2 operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17. **CEQA**: Operations would be significant for federal 1-hour NO_2 and for 24-hour and annual PM_{10}. **NEPA:** No impact; no mitigation required. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~16~~10** **Lease Measures:** **LM AQ-1** through **LM AQ-3** **Residual Impacts:** **CEQA only:** Operations would be significant and unavoidable for federal 1-hour NO_2 and for 24-hour and annual PM_{10}.	**AQ-4:** Alternative 3 operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17. **CEQA**: Operations would be significant for 1-hour federal NO_2, and for 24-hour and annual PM_{10}. **NEPA**: Operations would be significant for 1-hour federal NO_2, and for 24-hour and annual PM_{10}. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Lease Measures:** **LM AQ-1** through **LM AQ-3** **Residual Impacts:** **CEQA**: Operations would be significant and unavoidable for 1-hour federal NO_2, and for 24-hour and annual PM_{10}. **NEPA**: Operations would be significant and unavoidable for 1-hour federal NO_2, and for 24-hour and annual PM_{10}.

Table ES-4: Summary of Potential Impacts and Proposed Mitigation Measures by Alternative

Proposed Project	Alternative 1 – No Project	Alternative 2 – No Federal Action	Alternative 3 – Reduced Project
AQ-7: The proposed Project would expose receptors to significant levels of TACs. **CEQA**: The NOP cancer risk would be significant for occupational receptors. The future cancer risk would be significant for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors. **NEPA**: Less than significant; no mitigation required. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Lease Measures:** **LM AQ-1** through **LM AQ-3** **Residual Impacts:** **CEQA only:** The NOP cancer risk would be significant and unavoidable for occupational receptors. The future cancer risk would be significant and unavoidable for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	**AQ-7:** Alternative 1 would expose receptors to significant levels of TACs. **CEQA:** The baseline and future baseline cancer would be significant for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors. **NEPA**: Not applicable; mitigation not applicable. **Residual Impacts:** **CEQA only:** The baseline and future baseline cancer would be significant and unavoidable for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	**AQ-7:** The proposed Project would expose receptors to significant levels of TACs. **CEQA:** The baseline and future baseline cancer would be significant for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors. **NEPA**: No impact; no mitigation required. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Lease Measures:** **LM AQ-1** through **LM AQ-3** **Residual Impacts:** **CEQA only:** The baseline and future baseline cancer would be significant and unavoidable for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	**AQ-7:** Alternative 3 would expose receptors to significant levels of TACs. **CEQA**: The baseline cancer risk would be significant for occupational receptors. The future baseline cancer risk would be significant for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors. **NEPA:** Less than significant; no mitigation required. **Mitigation Measures:** **MM AQ-9** ~~through~~ and **MM AQ-~~11~~10** **Lease Measures:** **LM AQ-1** through **LM AQ-3** **Residual Impacts:** **CEQA only**: The baseline cancer risk would be significant and unavoidable for occupational receptors. The future baseline cancer risk would be significant and unavoidable for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.

Table ES-4: Summary of Potential Impacts and Proposed Mitigation Measures by Alternative

Proposed Project	Alternative 1 – No Project	Alternative 2 – No Federal Action	Alternative 3 – Reduced Project
Impact GHG-1: The proposed Project would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold. **CEQA:** Significant. **NEPA:** Not applicable; mitigation not applicable. **Mitigation Measures:** **MM AQ-1**: Crane Delivery Ships Used during Construction. **MM AQ-5**: Dredging Equipment. **MM AQ-9**: Vessel Speed Reduction Program. **MM AQ-10**: Alternative Maritime Power ~~**MM AQ-11**: Truck Idling Reduction Measure.~~ **MM GHG-1**: Energy Audit. **MM GHG-2**: LED Lighting. **MM GHG-3**: Recycling. **MM GHG-4**: Carbon Offsets for Certain GHG Emissions. **Residual Impacts:** **CEQA only:** Significant and unavoidable.	**Impact GHG-1**: Alternative 1 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold. **CEQA:** Significant; mitigation not applicable. **NEPA:** Not applicable; mitigation not applicable.	**Impact GHG-1**: Alternative 2 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold. **CEQA:** Significant. **NEPA:** Not applicable; mitigation not applicable. **Mitigation Measures:** **MM AQ-9**: Vessel Speed Reduction Program. **MM AQ-10**: Alternative Maritime Power ~~**MM AQ-11**: Truck Idling Reduction Measure.~~ **MM GHG-1**: Energy Audit. **MM GHG-2**: LED Lighting. **MM GHG-3**: Recycling. **MM GHG-4**: Carbon Offsets for Certain GHG Emissions. **Residual Impacts:** **CEQA only:** Significant and unavoidable.	**Impact GHG-1**: Alternative 3 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold. **CEQA:** Significant. **NEPA:** Not applicable; mitigation not applicable. **Mitigation Measures:** **MM AQ-1**: Crane Delivery Ships Used during Construction. **MM AQ-5**: Dredging Equipment. **MM AQ-9**: Vessel Speed Reduction Program. **MM AQ-10**: Alternative Maritime Power ~~**MM AQ-11**: Truck Idling Reduction Measure.~~ **MM GHG-1**: Energy Audit. **MM GHG-2**: LED Lighting. **MM GHG-3**: Recycling. **MM GHG-4**: Carbon Offsets for Certain GHG Emissions. **Residual Impacts:** **CEQA only:** Significant and unavoidable.

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3.2.1.2 Page ES-30

MM AQ-3: **Fleet Modernization for On-road Trucks Used during Construction.** Trucks with a Gross Vehicle Weight Rating (GVWR) of 19,500 pounds (lbs) or greater, including import haulers and earth movers, must comply with EPA ~~2007~~2010 on-road emission standards.

3.2.1.3 Page ES-31

MM AQ-7: **Additional Fugitive Dust Controls.** Contractor must ~~apply water to disturbed surfaces at intervals of 2 hours.~~ adhere to the following control measures, at a minimum:

- Active grading sites shall be watered at intervals of 2 hours.
- Traffic speeds on all unpaved roads must be limited to 15 mph or less.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site, and disturbed areas shall be stabilized if construction is delayed.
- Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
- Materials shall be stabilized while loading, unloading, and transporting to reduce fugitive dust emissions.
- Belly-dump truck seals shall be checked regularly to remove trapped rocks to prevent possible spillage.
- Track-out regulations shall be followed and water shall be provided while loading and unloading to reduce visible dust plumes.
- Waste materials shall be hauled off site immediately.

3.2.1.4 Page ES-32

The following lease measures would be required by LAHD for the proposed Project and Alternatives 2 and 3:

LM AQ-1: Periodic Review of New Technology and Regulations. LAHD will require the tenant to review any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to LAHD. Such technology feasibility reviews will take place at the time of LAHD's consideration of any lease amendment or facility modification for the proposed project site. If the technology is determined by LAHD to be feasible in terms of cost and technical and operational feasibility, the tenant will work with LAHD to implement such technology.

Potential technologies that may further reduce emissions and/or result in cost-savings benefits for the tenant may be identified through future work on the Clean Air Action Plan (CAAP). Over the course of the lease, the tenant and LAHD will work together to identify potential new technology. Such technology will be studied for feasibility, in terms of cost, technical and operational feasibility, and emissions reduction benefits. As partial consideration for the lease amendment, the tenant will implement not less frequently than once every five years following the effective date of the permit new air quality technological advancements, subject to mutual agreement on operational feasibility and cost sharing, which will not be unreasonably withheld. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies.

LM AQ-2: Substitution of New Technology by Tenant. If any kind of technology becomes available and is shown to be as good as or better than the existing measure in terms of emissions reduction performance, the technology could replace the requirements of MM AQ-9 and MM AQ-10, pending approval by LAHD.

LM AQ-3: Container Ship Engine Emissions Reduction Technology Improvements. The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.

3.2.1.5 Page ES-33

MM GHG-4: Carbon Offsets for Certain GHG Emissions. YTI shall purchase carbon offsets from sources listed on the American Carbon Registry and/or the Climate Action Reserve (or any other such registry approved by CARB) for a total of 16,380 metric tons of GHG emissions associated with electricity usage for certain terminal operations by the year 2026.

3.2.1.6 Pages ES-33 through ES-35

MM GW-1: Soil Sampling, Testing, and Treatment. ~~Prior to ground-disturbing construction activities, t~~The following actions must be implemented by LAHD or its contractors:

a) Prior to conducting excavations or disturbing the site cap in the former National Metals and Steel site~~, and~~ the former Al Larson's Boat site, and the former Hugo Neu Proler lease site, EPA must receive a "Notification of Activity" according to Federal protocol under the Toxic Substances Control Act (TSCA) for former polychlorinated biphenyl (PCB) remediation sites. In place (in-situ) soil sampling for PCBs must be completed prior to excavation and the analytical results provided to the EPA for review, prior to excavation. The sampling, analytical method, extraction, and soil disposal methods must comply with EPA TSCA regulations for PCB remediation sites where the original source of the PCBs was greater than 50 milligrams per kilogram (mg/kg). Sampling frequency and depth must be consistent with established EPA sampling procedures or guidance such as 40 CFR 761, Subpart N (40 CFR 761.260 et al.), or CERCLA site characterization guidance. PCB-containing waste soils must be disposed of and labeled as TSCA waste. EPA written concurrence with the notification is needed before excavation may proceed in former PCB remediation areas. In addition, as lead agency for PCBs, EPA may attach conditions to their concurrence, which must be followed. If excavation occurs in these soils, a site-specific health and safety plan (SSHSP) would be required to address worker safety.

b) In the former National Metals Steel and Al Larson Boat sites, soils must also be tested in advance for total petroleum hydrocarbons (TPH)~~,~~and Title 22 metals~~, and organochlorine pesticides (OCPs)~~ as a condition of remediation site closure by the Los Angeles County Fire Department, Health and Hazardous Materials Section~~, and LAHD past practice~~ to provide adequate information for construction waste characterization and/or worker safety hazard evaluations, prior to excavation. Based on past sampling, organochlorine pesticides (OCPs) should also be tested at the National Metals Steel and Al Larson Boat site, and Title 22 metals and TPH should be tested at the Hugo Neu Proler lease site. If direct truck loading or immediate soil reuse is desired at the National Metals Steel, Al Larson Boat, and former Hugo Neu Proler lease sites, testing of any other constituents necessary for proper disposal or soil reuse should also be performed prior to excavation.

c) Soils in the former Golden West leasehold must be tested for TPH, benzene, toluene, ethyl benzene and xylenes, and polyaromatic hydrocarbons prior to ~~excavation~~disposal. This is due to elevated petroleum waste left in backfill soils at this site. In addition, any other constituent analyses needed by the disposal site or for soil reuse should be analyzed at the same time~~ and for the reason~~

~~described in (b) above~~. If excavation occurs in these soils, an SSHSP would be required to address worker safety.

d) Soils in the former Dow Chemical site must be tested for volatile organic compounds prior to ~~excavation~~disposal. This is because past sampling indicates carbon tetrachloride is present at concentrations above industrial limits and at a level not protective of construction workers. Other lower-level volatile organic compounds (VOCs) were also found and should also be tested. In addition, any other constituent analyses needed by the disposal site or for immediate reuse should be analyzed for at the same time. If excavation occurs in these soils, an SSHSP would be required to address worker safety.

e) In Waste Discharge Order 90-045, the Los Angeles Regional Water Quality Control Board requires maintenance of the structural integrity of the site cap for the former Golden West site and the National Metals Steel/Al Larson Boat Shop site. The site cap is to be a minimum of a 21-inch layer of clean material, compacted according to civil engineering standards, and the top 7 inches of this layer are to be asphalt concrete pavement. Groundwater monitoring requirements were rescinded for this site due to the presence of this cap and 6 years of monitoring indicating that the cap was protecting the groundwater from remnant contaminants in site soils. EPA may also be concerned with the integrity of this cap over former PCB remediation areas. Therefore, if the cap is disturbed over these sites, including the Hugo Neu Proler lease site, stormwater should not be allowed to infiltrate the cap, and during normal operations, the integrity of the cap should be inspected and maintained. Any other EPA requirements should also be followed.

MM GW-2: **Contamination Contingency Plan**. The following contingency plan will be implemented to address contamination discovered during demolition, grading, and construction.

a) All trench excavation and filling operations will be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination will be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor will notify LAHD's environmental representative. LAHD will confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site will require the approval of the LAHD Project Engineer.

b) Excavation of VOC-impacted soil, or soil suspected of being impacted by VOCs based on historical site use, will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit. For soil suspected to have carbon tetrachloride, a Photo Ionization Detector (PID) with an 11.7 eV lamp will be necessary to detect significant levels.

c) The remedial option(s) selected will be dependent on a suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, and cost) and will be determined on a site-specific basis. Both offsite and onsite remedial options may be evaluated.

d) The extent of removal actions will be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area will be remediated to the satisfaction of LAHD and the lead regulatory agency for the site or action. The LAHD Project Manager overseeing removal actions will inform the contractor when the removal action is complete.

e) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials will be submitted to the LAHD Project Manager within 60 days of project completion.

f) In the event that contaminated soil is encountered either prior to or during construction, all onsite personnel handling or working in the vicinity of the contaminated material must be trained in accordance with EPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the workplace.

g) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation.

h) All excavations will be backfilled with structurally suitable fill material that is free from contamination per LAHD standards.

i) Standard engineering controls and BMPs will be implemented while excavating impacted soils to minimize human exposure to potential contaminants. Engineering controls and construction BMPs will include but not be limited to the following:

- Contractor will water/mist soil as its being excavated and loaded onto transportation trucks.
- Contractor will place any stockpiled soil in areas shielded from prevailing winds.
- Contractor will cover the bottom of excavated areas with sheeting when work is not being performed.

3.2.2 Changes Made to Chapter 2, Project Description

3.2.2.1 Page 2-23

Based on the information provided by the proposed project proponent, USACE has also identified potentially significant cumulative impacts <u>related to air quality and meteorology and biological resources</u> that would occur in conjunction with the proposed

Project (i.e., federal and non-federal, past, present, and reasonably foreseeable projects in the vicinity of the Port). Therefore, USACE is preparing an EIS for the proposed Project and its alternatives. While operational impacts in the uplands would occur outside the jurisdiction and permit authority of USACE, NEPA requires USACE to disclose potentially significant direct, indirect, and cumulative impacts occurring as a result of a proposed permit action. Significance of the proposed Project or alternative under NEPA is defined by comparing the impacts of the proposed Project or alternative to the NEPA baseline (i.e., increment). This represents the incremental difference between implementation of the proposed Project or alternative and the future conditions that are likely to occur without federal action, in this case, the issuance of the USACE permit. The USACE permit decision would focus on direct impacts to the aquatic environment.

3.2.3 Changes Made to Section 3.2, Air Quality and Meteorology

3.2.3.1 Pages 3.2-1, 3.2-2, and 3.2-69

MM AQ-3: Fleet Modernization for On-road Trucks Used during Construction. Trucks with a Gross Vehicle Weight Rating (GVWR) of 19,500 pounds (lbs) or greater, including import haulers and earth movers, must comply with EPA ~~2007~~2010 on-road emission standards.

3.2.3.2 Pages 3.2-2 and 3.2-70

MM AQ-7: Additional Fugitive Dust Controls. Contractor must ~~apply water to disturbed surfaces at intervals of 2 hours.~~ adhere to the following control measures, at a minimum:

- Active grading sites shall be watered at intervals of 2 hours.
- Traffic speeds on all unpaved roads must be limited to 15 mph or less.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site, and disturbed areas shall be stabilized if construction is delayed.

- Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
- Materials shall be stabilized while loading, unloading, and transporting to reduce fugitive dust emissions.
- Belly-dump truck seals shall be checked regularly to remove trapped rocks to prevent possible spillage.
- Track-out regulations shall be followed and water shall be provided while loading and unloading to reduce visible dust plumes.
- Waste materials shall be hauled off site immediately.

3.2.3.3 Page 3.2-2

After the application of MM AQ-9, MM AQ-10, LM AQ-1, ~~and~~ LM AQ-2, and LM AQ-3 summarized below, operational impacts would be reduced but would remain significant and unavoidable.

3.2.3.4 Page 3.2-3

LAHD's standard lease measures LM AQ-1, ~~and~~ LM AQ-2, and LM AQ-3 would be included in the tenant lease. Although not quantifiable, the measures would further reduce future air quality emissions and serve to comply with Port air quality planning requirements.

3.2.3.5 Pages 3.2-3 and 3.2-89

LM AQ-3: Container Ship Engine Emissions Reduction Technology Improvements. The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.

3.2.3.6 Page 3.2-15

- NO_X engine emission rate limits for new engines. Tier I and Tier II limits effective 2000 and 2011 are global limits, whereas Tier III limits, effective in 2016, apply only in NO_X ECAs. NO_X emission reductions due to these engine limits were conservatively excluded from the analysis because they apply to newly built engines, and the number of newly built Tier III vessels associated with the proposed Project and alternatives would not be guaranteed. In addition, a draft amendment is being considered to postpone the date for the Tier III NO_X standards' implementation within ECAs from 2016 to 2021. The draft amendment will be considered for adoption during the 66th IMO session in March 2014.

3.2.3.7 Page 3.2-20

USACE began the general conformity evaluation by conducting the applicability analysis in which the calculated federal action emissions are compared to the general conformity *de minimis* thresholds. This applicability analysis is presented in Appendix B1. Following USACE guidance (USACE 1994) and EPA General Conformity Regulations

(40 CFR Parts 51 and 93.153), the federal actions for this evaluation included construction emissions for the following proposed project elements:

- Sheet piling and king pile installation, dredging and disposal of 21,000 cubic yards required to improve Berths 214–216;
- Sheet piling and king pile installation, dredging and disposal of 6,000 cubic yards required to improve Berths 217–220;
- Berths 212–216 crane rail extension by 1,500 feet to Berths 217–220 to accommodate 100-foot gauge cranes at Berths 217–220;
- Relocation offsite of two LAHD cranes from Berths 217–220;
- Relocation/realignment of two existing YTI cranes; ~~and~~
- Delivery and installation of four new cranes; and
- Modification of six existing YTI cranes.

~~Modification of six existing YTI cranes~~ Construction of the federal action elements was estimated to require approximately 18 months to complete. Emissions associated with actions taken under the USACE federal control and responsibility were determined for this period. The methodology and assumptions used to estimate emissions are discussed in Section 3.2.4.1. The federal action is not subject to a general conformity determination for CO, VOC (as an ozone and $PM_{2.5}$ precursor), NO_X (as an ozone and $PM_{2.5}$ precursor), PM_{10}, $PM_{2.5}$, or SO_X (as a $PM_{2.5}$ precursor) because the net emissions associated with the federal action would be less than the general conformity *de minimis* thresholds. Therefore, USACE concluded that the federal action as ~~designed~~ proposed would conform to the purpose of the approved SIP and would be consistent with all applicable requirements.

3.2.3.8 Page 3.2-73

Residual Impacts

Emissions from construction of the proposed Project would be reduced with mitigation but would remain significant and unavoidable under CEQA for $PM_{2.5}$, NO_X, CO, and VOC in 2015 and for NO_X in 2016. In addition, although emissions from overlapping construction and operation would be reduced with mitigation, they would remain significant and unavoidable under CEQA for ~~$PM_{2.5}$~~, NO_X, CO, and VOC during the 2015 peak construction year.

3.2.3.9 Pages 3.2-93 and 3.2-94

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
OGV-6	OGV Engine Emission Reduction Technology Improvements	This measure seeks to encourage demonstration and deployment of cleaner OGV engine technologies that are validated through the Technology Advancement Program (TAP) or by the regulatory agencies. The goal of this measure is to reduce DPM and NOX emissions of in-use vessels.	~~No mitigation assumed.~~ **LM AQ-3:** The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.	

3.2.3.10 Page 3.2-98

Table 3.2-31 presents the peak daily pollutant emissions associated with operation of the proposed Project, after the application of MM AQ-9 and MM AQ-10. LM AQ-1, ~~and~~ LM AQ-2, and LM AQ-3 are lease measures that may reduce future emissions; however, these measures were not quantified in the analysis because the future technologies that may be implemented through these measures have not yet been identified.

3.2.3.11 Page 3.2-203

Table 3.2-77 presents the peak daily pollutant emissions associated with operation of Alternative 3, after the application of MM AQ-9 and MM AQ-10. LM AQ-1, ~~and~~ LM AQ-2, and LM AQ-3 are lease measures that may reduce future emissions; however, because implementation may change over the life of the leases, these measures were not included in emissions calculations.

3.2.3.12 Page 3.2-224

Table 3.2-85: Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives

Alternative	Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
	AQ-3: The proposed Project would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.	CEQA: Operations would be significant for NO_X, CO and VOC in 2017, 2020, and 2026. NEPA: Operations would be significant for NO_X in 2017, 2020, and 2026, and for VOC in 2020 and 2026.	**MM AQ-9:** Vessel Speed Reduction Program (VSRP). **MM AQ-10:** Alternative Maritime Power (AMP). The following lease measures would also be implemented to reduce impacts: **LM AQ-1:** Periodic Review of New Technology and Regulations. **LM AQ-2:** Substitution of New Technology by Tenant. **LM AQ-3:** Container Ship Engine Emissions Reduction Technology Improvements.	CEQA: Operations would be significant and unavoidable for NO_X, CO and VOC in 2017, 2020, and 2026. NEPA: Operations would be significant and unavoidable for NO_X in 2017, 2020, and 2026, and for VOC in 2020.

3.2.3.13 Page 3.2-232, 3.2.4.7, Mitigation Monitoring

Mitigation Measure	**MM AQ-2. Harbor Craft Used during Construction.** Harbor craft must use Tier 3 or cleaner engines.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-2 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction. The construction equipment measures shall be met, unless one of the following circumstances exist and the contractor is able to provide proof that any of these circumstances exists: ▪ A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement. ▪ A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project but the application process is not yet approved, or the application has been approved but funds are not yet available. ▪ A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment but no dealer within 200 miles of the project has the controlled equipment available for lease.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-3. Fleet Modernization for On-Road Trucks Used during Construction** Trucks with a GVWR of 19,500 or greater, including import haulers and earth movers, must comply with EPA ~~2007~~2010 on-road emission standards.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-3 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction. The construction equipment measures shall be met, unless one of the following circumstances exist and the contractor is able to provide proof that any of these circumstances exists: ▪ A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement. ▪ A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project but the application process is not yet approved, or the application has been approved but funds are not yet available. ▪ A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment but no dealer within 200 miles of the project has the controlled equipment available for lease.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable

Mitigation Measure	**MM AQ-4. Fleet Modernization for Construction Equipment (except vessels, harbor craft, on-road trucks, and dredging equipment)**. All diesel-powered construction equipment greater than 50 hp must meet EPA Tier 4 off-road emission standards.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-4 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction. The construction equipment measures shall be met, unless one of the following circumstances exist and the contractor is able to provide proof that any of these circumstances exists: ▪ A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement. ▪ A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project but the application process is not yet approved, or the application has been approved but funds are not yet available. ▪ A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable

Mitigation Measure	**MM AQ-7. Additional Fugitive Dust Controls.** Contractor must ~~apply water to disturbed surfaces at intervals of 2 hours.~~ adhere to the following control measures, at a minimum: ▪ Active grading sites shall be watered at intervals of 2 hours. ▪ Traffic speeds on all unpaved roads must be limited to 15 mph or less. ▪ Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas. ▪ Contractors shall provide temporary wind fencing around sites being graded or cleared. ▪ Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways"). ▪ Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site. ▪ The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site, and disturbed areas shall be stabilized if construction is delayed. ▪ Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant. ▪ Materials shall be stabilized while loading, unloading, and transporting to reduce fugitive dust emissions. ▪ Belly-dump truck seals shall be checked regularly to remove trapped rocks to prevent possible spillage. ▪ Track-out regulations shall be followed and water shall be provided while loading and unloading to reduce visible dust plumes. ▪ Waste materials shall be hauled off site immediately.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-7 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Residual Impacts	Significant and unavoidable
Lease Measure	**LM AQ-3: Container Ship Engine Emissions Reduction Technology Improvements.** The tenant will encourage NYK Line to determine the feasibility of incorporating all emission reduction technology and/or design options for vessels calling at the YTI Terminal.
Timing	During operation
Methodology	LAHD will include this lease measure in lease agreements with tenant.
Responsible Parties	YTI, LAHD.
Residual Impacts	Significant and unavoidable.

1

3.2.4 Changes Made to Section 3.3, Biological Resources

3.2.4.1 Page 3.3-46

Under the proposed Project, approximately 2,600 linear feet of sheet and king piles would be installed for the dredging at Berths 214–220. Even though these piles would not rise very high above the seafloor, new hard substrate from these pilings could contribute to productivity in the Harbor, while pilings would also add structure in the water column that could be used by invertebrates and fishes. Prior to installation of in-water structures, eelgrass surveys would be conducted as required under the SCEMP, unless determined to be unnecessary by NMFS. Although eelgrass is not likely to grow in the waters adjacent to the YTI Terminal (because the depth at the proposed construction site [-45 feet MLLW] is generally too deep for eelgrass growth), if it is found in the vicinity of any of the structures prior to construction, a plan would be developed to ensure that there would be no net loss of eelgrass habitat, consistent with the SCEMP.

3.2.5 Changes Made to Section 3.6, Greenhouse Gas Emissions

3.2.5.1 Pages 3.6-1 and 3.6-34

- **MM GHG-4: Carbon Offsets for Certain GHG Emissions.** YTI shall purchase carbon offsets from sources listed on the American Carbon Registry and/or the Climate Action Reserve (or any other such registry approved by CARB) for a total of 16,380 metric tons of GHG emissions associated with electricity usage for certain terminal operations by the year 2026.

3.2.5.2 Page 3.6-34

In addition to the air quality mitigation measures identified above, mitigation measures MM GHG-1 through MM GHG-34, directed at GHG emissions reduction specifically, were considered. Furthermore, LAHD's standard lease measures LM AQ-1 and LM AQ-2 would be included in the tenant lease; these measures would further reduce future GHG emissions and serve to comply with Port air quality planning requirements.

3.2.5.3 Page 3.6-48

Mitigation Measures

Mitigation measures MM AQ-9, MM-AQ10, and MM GHG-1 through MM GHG-34 would be applied to Alternative 2. Construction mitigation measures MM AQ-1 and MM AQ-5 would not apply because dredging or crane delivery would not occur under Alternative 2 without USACE approval. Lease measures LM AQ-1 and LM AQ-2 would also be applied. Table 3.6-10 presents GHG emissions following the application of quantifiable mitigation measures.

3.2.5.4 Page 3.6-55

Mitigation Measures

The same mitigation measures identified for the proposed Project (i.e., MM AQ-1, MM AQ-5, MM AQ-9, MM-AQ10, and MM GHG-1 through MM GHG-~~3~~4) would also be applied to Alternative 3. Lease measures LM AQ-1 and LM AQ-2 would also be applied.

3.2.5.5 Page 3.6-58

Mitigation Measures

Mitigation measures MM AQ-1, MM AQ-5, MM AQ-9, MM AQ-10, MM GHG-1 through MM GHG-~~3~~4, as well as lease measures LM AQ-1 and LM AQ-2 were applied.

3.2.5.6 Page 3.6-60

Table 3.6-15: Summary Matrix of Impacts and Mitigation Measures for GHG Associated with the Proposed Project and Alternatives

Alternative	Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Proposed Project	**GHG-1**: The proposed Project would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	**MM AQ-1.** Crane Delivery Ships Used during Construction. **MM AQ-5**. Dredging Equipment. **MM AQ-9**. Vessel Speed Reduction Program. **MM AQ-10**. Alternative Maritime Power **MM GHG-1**. Energy Audit. **MM GHG-2.** LED Lighting. **MM GHG-3.** Recycling. **MM GHG-4**: Carbon Offsets for Certain GHG Emissions.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
	GHG-2: The proposed Project would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation measures are not applicable	NEPA: Not applicable
Alternative 1 – No Project	**GHG-1**: Alternative 1 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	No mitigation is required.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
	GHG-2: Alternative 1 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable

Table 3.6-15: Summary Matrix of Impacts and Mitigation Measures for GHG Associated with the Proposed Project and Alternatives

Alternative	Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Alternative 2 – No Federal Action	**GHG-1**: Alternative 2 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	**MM AQ-9**. Vessel Speed Reduction Program. **MM AQ-10**. Alternative Maritime Power **MM GHG-1**. Energy Audit. **MM GHG-2**. LED Lighting. **MM GHG-3**. Recycling. **MM GHG-4**: Carbon Offsets for Certain GHG Emissions.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
	GHG-2: Alternative 2 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
Alternative 3 – Reduced Project: Improve Berths 217–220 Only	**GHG-1**: Alternative 3 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant NEPA: Not applicable	**MM AQ-1**. Crane Delivery Ships Used during Construction. **MM AQ-5**. Dredging Equipment. **MM AQ-9**. Vessel Speed Reduction Program. **MM AQ-10**. Alternative Maritime Power **MM GHG-1**. Energy Audit. **MM GHG-2**. LED Lighting. **MM GHG-3**. Recycling. **MM GHG-4**: Carbon Offsets for Certain GHG Emissions.	CEQA: Significant and Unavoidable NEPA: Not applicable
	GHG-2: Alternative 3 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable

3.2.5.7 Page 3.6-63

Mitigation Measure	**MM GHG-4: Carbon Offsets for Certain GHG Emissions.** YTI shall purchase carbon offsets from sources listed on the American Carbon Registry and/or the Climate Action Reserve (or any other such registry approved by CARB) for a total of 16,380 metric tons of GHG emissions associated with electricity usage for certain terminal operations by the year 2026.
Timing	By the year 2026.
Methodology	LAHD will require MM GHG-4 in the tenant lease during operation. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	Tenant.
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.

3.2.6 Changes Made to Section 3.8, Groundwater and Soils

3.2.6.1 Pages 3.8-2 through 3.8-4

MM GW-1: Soil Sampling, Testing, and Treatment. ~~Prior to ground-disturbing construction activities, t~~The following actions must be implemented by LAHD or its contractors:

f) Prior to conducting excavations or disturbing the site cap in the former National Metals and Steel site~~, and~~ the former Al Larson's Boat site, and the former Hugo Neu Proler lease site, EPA must receive a "Notification of Activity" according to Federal protocol under the Toxic Substances Control Act (TSCA) for former polychlorinated biphenyl (PCB) remediation sites. In place (in-situ) soil sampling for PCBs must be completed prior to excavation and the analytical results provided to the EPA for review, prior to excavation. The sampling, analytical method, extraction, and soil disposal methods must comply with EPA TSCA regulations for PCB remediation sites where the original source of the PCBs was greater than 50 milligrams per kilogram (mg/kg). Sampling frequency and depth must be consistent with established EPA sampling procedures or guidance such as 40 CFR 761, Subpart N (40 CFR 761.260 et al.), or CERCLA site characterization guidance. PCB-containing waste soils must be disposed of and labeled as TSCA waste. EPA written concurrence with the notification is needed before excavation may proceed in former PCB remediation areas. In addition, as lead agency for PCBs, EPA may attach conditions to their concurrence, which must be followed. If excavation occurs in these soils, a site-specific health and safety plan (SSHSP) would be required to address worker safety.

g) In the former National Metals Steel and Al Larson Boat sites, soils must also be tested in advance for total petroleum hydrocarbons (TPH)~~,~~ and Title 22 metals~~, and organochlorine pesticides (OCPs)~~ as a condition of remediation site closure by the Los Angeles County Fire Department, Health and Hazardous Materials Section~~, and LAHD past practice~~ to provide adequate information for construction waste characterization and/or worker safety hazard evaluations, prior to excavation. Based on past sampling, organochlorine pesticides (OCPs) should also be tested at the National Metals Steel and Al Larson Boat site, and Title 22 metals and TPH should be tested at the Hugo Neu Proler lease site. If direct truck loading or immediate soil reuse is desired at the National Metals Steel, Al Larson Boat, and former Hugo Neu Proler lease sites, testing of any other constituents necessary for proper disposal or soil reuse should also be performed prior to excavation.

h) Soils in the former Golden West leasehold must be tested for TPH, benzene, toluene, ethyl benzene and xylenes, and polyaromatic hydrocarbons prior to ~~excavation~~disposal. This is due to elevated petroleum waste left in backfill soils at this site. In addition, any other constituent analyses needed by the disposal site or for soil reuse should be analyzed at the same time ~~and for the reason described in (b) above~~. If excavation occurs in these soils, an SSHSP would be required to address worker safety.

i) Soils in the former Dow Chemical site must be tested for volatile organic compounds prior to ~~excavation~~disposal. This is because past sampling indicates carbon tetrachloride is present at concentrations above industrial limits and at a level not protective of construction workers. Other lower-level volatile organic compounds (VOCs) were also found and should also be tested. In addition, any other constituent analyses needed by the disposal site or for immediate reuse should be analyzed for at the same time. If excavation occurs in these soils, an SSHSP would be required to address worker safety.

j) In Waste Discharge Order 90-045, the Los Angeles Regional Water Quality Control Board requires maintenance of the structural integrity of the site cap for the former Golden West site and the National Metals Steel/Al Larson Boat Shop site. The site cap is to be a minimum of a 21-inch layer of clean material, compacted according to civil engineering standards, and the top 7 inches of this layer are to be asphalt concrete pavement. Groundwater monitoring requirements were rescinded for this site due to the presence of this cap and 6 years of monitoring indicating that the cap was protecting the groundwater from remnant contaminants in site soils. EPA may also be concerned with the integrity of this cap over former PCB remediation areas. Therefore, if the cap is disturbed over these sites, including the Hugo Neu Proler lease site, stormwater should not be allowed to infiltrate the cap, and during normal operations, the integrity of the cap should be inspected and maintained. Any other EPA requirements should also be followed.

MM GW-2: **Contamination Contingency Plan**. The following contingency plan will be implemented to address contamination discovered during demolition, grading, and construction.

j) All trench excavation and filling operations will be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination will be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor will notify LAHD's environmental representative. LAHD will confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site will require the approval of the LAHD Project Engineer.

k) Excavation of VOC-impacted soil, or soil suspected of being impacted by VOCs based on historical site use, will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit. <u>For soil suspected to have carbon tetrachloride, a Photo Ionization Detector (PID) with an 11.7 eV lamp will be necessary to detect significant levels.</u>

l) The remedial option(s) selected will be dependent on a suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, and cost) and will be determined on a site-specific basis. Both offsite and onsite remedial options may be evaluated.

m) The extent of removal actions will be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area will be remediated to the satisfaction of LAHD and the lead regulatory agency for the site or action. The LAHD Project Manager overseeing removal actions will inform the contractor when the removal action is complete.

n) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials will be submitted to the LAHD Project Manager within 60 days of project completion.

o) In the event that contaminated soil is encountered either prior to or during construction, all onsite personnel handling or working in the vicinity of the contaminated material must be trained in accordance with EPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the workplace.

p) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation.

q) All excavations will be backfilled with structurally suitable fill material that is free from contamination per LAHD standards.

r) Standard engineering controls and BMPs will be implemented while excavating impacted soils to minimize human exposure to potential contaminants. Engineering controls and construction BMPs will include but not be limited to the following:

- Contractor will water/mist soil as its being excavated and loaded onto transportation trucks.
- Contractor will place any stockpiled soil in areas shielded from prevailing winds.
- Contractor will cover the bottom of excavated areas with sheeting when work is not being performed.

3.2.6.2 Figure 3.8-1

Figure 3.8-1, Previous Soil and Groundwater Investigation Locations, contained some errors and required some additional information to be added for clarification. Figure 3.8-1 has been modified and is included as a modification within this Final EIS/EIR following this page.

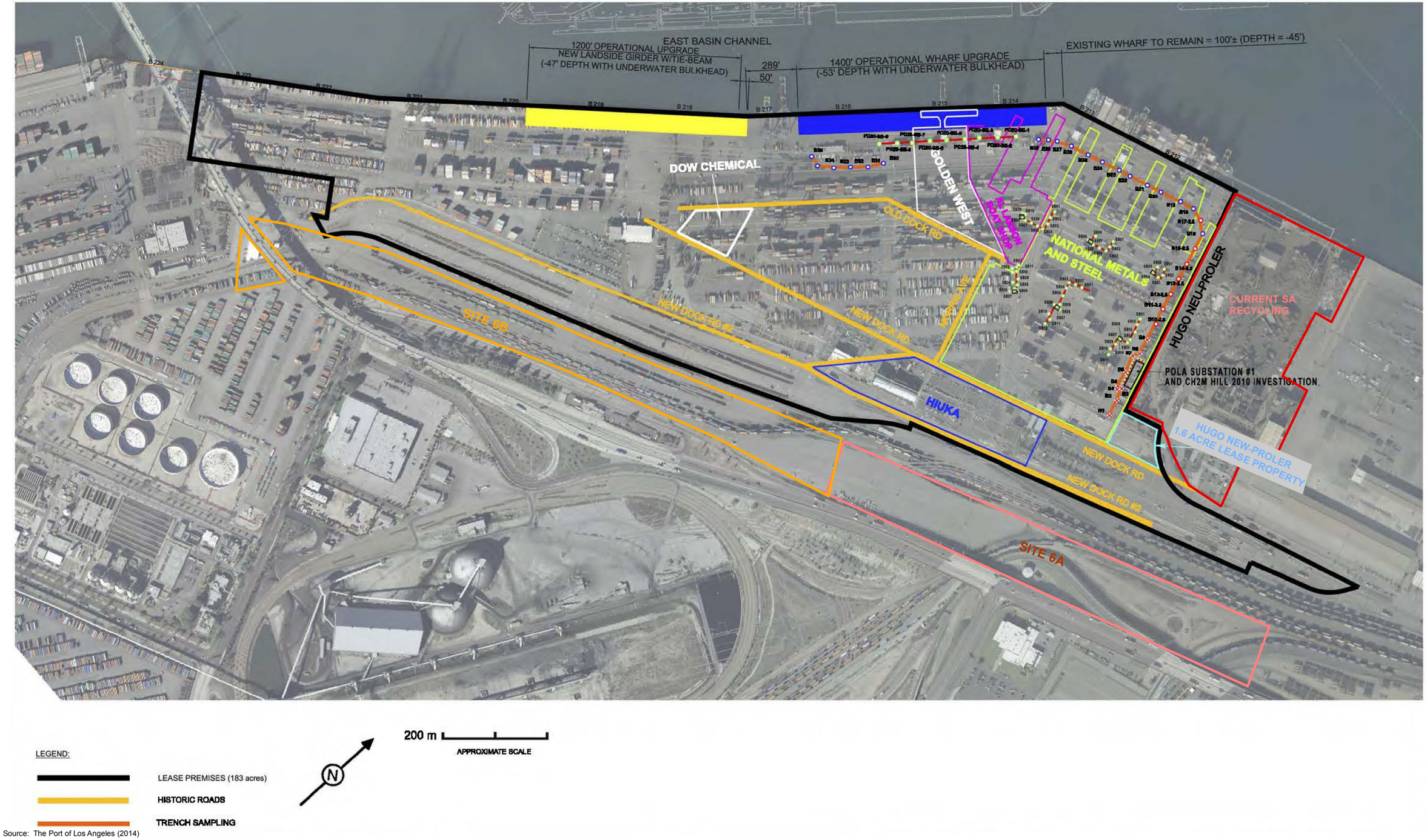
3.2.6.3 Pages 3.8-11 and 3.8-12

Former Hugo Neu Proler Corporation Lease Area Site (South Tip of Berth 211): In July and August of 1990, a site assessment was conducted in the 1.6-acre Hugo Neu Proler parcel by Environmental Audit, Inc. (EAI) as part of a 75-acre development project in the area of Berths 212–215. The 1.6-acre Hugo Neu Proler lease site (Figure 3.8-1) is located southeast of and adjacent to the former National Metals site (within the YTI Container Terminal Improvements Project footprint). The purpose of the investigation was to examine the possible presence of soil and/or groundwater contamination on site. As part of the assessment, seven exploratory borings were advanced and a monitoring well was installed. The borings and monitoring well were sampled. Sampling parameters included PCBs, TPH, semivolatile organic compounds (SVOCs), metals, and organics.

Various metals were detected in soil samples taken: two contained soluble concentrations of lead, and one contained soluble concentrations of cadmium above Title 22 standards. As a result, remediation of metal contamination in soil was recommended. Additionally, TPH concentrations in soil ranged from 10 parts per million (ppm) to 16,800 ppm; therefore, it was also determined that remediation of hydrocarbon impacted soil would be warranted. PCBs concentrations in soil were detected in concentrations ranging from 1.0 to 1.6 mg/kg, not exceeding cleanup goals. Groundwater samples did not reveal detectable concentrations of TPH or PCBs. Selenium was the only metal detected, at a concentration of 0.1 ppm. Groundwater remediation was not deemed to be necessary at that time.

Upon receiving the analytical data above, remedial cleanup levels were established: TPH at 1,000 mg/kg, lead at 500 mg/kg, cadmium at 50 mg/kg, and PCBs at 50 mg/kg (if present). The initial phase of remediation consisted of excavating a 20 x 20 foot area to a depth of 3 feet bgs on October 21, 1990.

Subsequently, twenty-two soil samples from excavation spoils and four excavation bottom samples were collected and analyzed for cadmium, lead, and zinc TTLC and



Source: The Port of Los Angeles (2014)

K:\Irvine\GIS\Projects\POLA\00070_13\mapdoc\Fig03_8_1_PrevSoilGW_Loc.mxd Date: 8/26/2014 24991

Figure 3.8-1
Previous Soil and Groundwater Investigation Locations
Port of Los Angeles Berths 212-224 [YTI] Container Terminal Improvements Project

STLC, and for PCBs. Also, two samples were analyzed for copper TTLC and STLC. Lead was detected in one sample at a TTLC of 1,040 mg/kg (exceeding the TTLC regulatory threshold of 1,000 mg/kg) and in 16 samples at STLC concentrations between 5.8 and 116 mg/L (exceeding the STLC regulatory threshold of 5.0 mg/L). Copper was detected at an STLC concentration of 37.9 mg/L (exceeding the STLC regulatory threshold of 25 mg/L). Concentrations of PCBs were detected in 11 soil stockpile samples with total concentrations ranging from 6 to 26 mg/kg (below the 1990 regulatory threshold of 50 mg/kg). Soil samples from the excavation bottom were all ND (<1.0 mg/kg). EAI collected additional samples from each sidewall at 1.5 feet bgs and two excavation bottom samples at approximately 3 feet bgs from this same excavation and tested for metals and for PCBs. No PCBs were detected above the detection limit of 0.15 mg/kg. All metals concentrations were below their TTLC threshold values and maximum metal concentrations were cadmium at 3.5 mg/kg, and lead at 122 mg/kg.

Additional excavation, removal, and disposal of contaminated soil were conducted by Hugo Neu Proler Corporation in January 1991. Excavation activities were supervised by HPNC and EAI staff. Between the initial phase of remediation described above (1990) and excavation activities conducted in 1991, approximately 4,155 cubic yards of soil were excavated, transported, and disposed of.

Upon completion of the excavation activities, a total of 33 soil verification samples were collected to determine whether the impacted soil had been removed. Samples were analyzed for TPH, cadmium, lead and zinc, and PCBs. Selected soil samples were also tested for pH, soluble lead, and benzene, toluene, ethylbenzene and xylene (BTEX). Carbon chain analysis was also conducted on selected soil samples with TPH concentrations greater than 1,000 mg/kg. TPH was detected in 27 samples with a maximum concentration of 13,500 mg/kg and an average concentration of 1,391 mg/kg. BTEX was not detected. Carbon chain analysis indicated that the petroleum hydrocarbons detected were in the C-13 to C-20 range. Cadmium was detected in 31 samples with a maximum concentration of 16.3 mg/kg and an average concentration of 4.4 mg/kg. Lead was detected in 22 samples with a maximum concentration of 530 mg/kg and an average concentration of 130 mg/kg. Three samples were also analyzed for lead STLC; the maximum concentration was 9.8 mg/L and the average concentration was 8.6 mg/L. Zinc was detected in all 33 samples with a maximum concentration of 3,800 mg/kg and an average concentration of 599 mg/kg. PCBs were detected in 21 samples with a maximum total concentration of 8.63 mg/kg and an average total concentration of 1.68 mg/kg. During this time, excavation confirmation samples were also collected by LAHD for PCB analysis. The average PCB concentration was 7.5 mg/kg with a maximum value of 140 mg/kg.

In response to a WDR permit issued by the LARWQCB for remediation of metals-impacted soil at the HPNC site, CH2M HILL conducted oversight of soil sampling activities in May and June of 2000. The sampling activities were being conducted as part of a Final Sampling and Analysis Plan (FSAP) approved by the LARWQCB, in which the Hugo Neu Proler lease site was divided into 30 parcels and sampled according to procedures specified in the FSAP. A total of 9 soil borings were advanced via direct-push geoprobe drill rig, and samples were collected in 3 distinct parcels; parcels 14, 18, and 19. Samples collected revealed lead and selenium concentrations above screening levels but below the STLC. Additionally, low concentrations (below WDR limits) of PAHs were detected in one of the samples collected. Samples collection in other parcels

had occurred dating back to October 1997. Results were not available during the completion of this document.

3.2.6.4 Page 3.8-12

SA Recycling: The site is located east and outside of the proposed project footprint ~~site~~ at 901 New Dock Street (Figure 3.8-1). The site is a Cleanup Program Site under the oversight of the RWQCB and is listed as open and undergoing remediation. Impacted media includes groundwater and soil, and contaminants of concern include benzene, toluene, xylenes, PCBs, metals, gasoline, diesel, methyl tertiary butyl ether, tertiary butyl alcohol, fuel oxygenates, and polycyclic aromatic hydrocarbons. Remediation activities conducted on site have included the excavation, removal, and disposal of approximately 80, 000 cubic yards of contaminated soil. The site has and currently operates as a scrap metal recycling facility and has been the subject of extensive studies, site assessments, and remedial activities dating back to the mid-1980s. SA Recycling currently operates on the site, which was previously occupied by the Hugo Neu Proler Corporation ~~(HNPC)~~. The site currently contains separate phase product in groundwater and is undergoing groundwater monitoring on a semiannual basis.

Other Sites:

Former Navy Sites 6A and 6B: As shown on Figure 3.8-1, these are former Navy sites that are just south of the proposed project footprint, but part of the current TICTF area. Site 6B was used for multiple underground fuel storage tanks, vehicle maintenance, weapons cleaning, and a scrap metal disposal yard, and waste oil was likely used for dust suppression. Site 6A was used for buried waste material from dismantled boats, sandblast waste, and shipyard wastes, and waste oil was likely used for dust suppression. Several cleanups and investigations have been performed at these sites. With appropriate cleanup and CEQA review, these sites are now a part of the TICTF. A portion of Site 6A is restricted to commercial/industrial use due to potential pockets of contamination left behind. Site 6B is still undergoing study to ascertain compliance under State standards for unrestricted use; the underground tanks were abandoned in place. Previous site assessment has shown that environmental conditions at Site 6B do not restrict use of the property for industrial uses; however, appropriate worker awareness and notifications will be needed in the event that construction activities that disturb site soil are to be performed.

Former and Active Pipelines: Several former and active pipelines carrying fuel or chemical products may run through, or be adjacent to, the subject site (e.g., Exxon-Mobil, Navy, or former Dow Chemical lines). Any excavation plan normally includes a thorough search for both active and inactive pipeline rights-of-way, so that appropriate precautions may be taken to prevent material release should subsurface pipelines be encountered during site construction or maintenance.

~~Previous Onsite Investigations~~

~~In July and August of 1990, a site assessment was conducted in the 1.6 acre Hugo Neu Proler parcel by Environmental Audit, Inc. (EAI) as part of a 75-acre development project in the area of Berths 212–215. The 1.6 acre HNPC site (Figure 3.8-1) is located east and adjacent to the former National Metals site (within the YTI Container Terminal Improvements Project footprint).The purpose of the investigation was to examine the~~

~~possible presence of soil and/or groundwater contamination on site. As part of the assessment, seven exploratory borings were advanced and a monitoring well was installed. The borings and monitoring well were sampled. Sampling parameters included PCBs, TPH, metals, and organics.~~

~~Various metals were detected in soil samples taken: two contained soluble concentrations of lead, and one contained soluble concentrations of cadmium above Title 22 standards. As a result, remediation of metal contamination in soil was recommended. Additionally, TPH concentrations in soil ranged from 10 parts per million (ppm) to 16,800 ppm; thus, it was also determined that remediation of hydrocarbon impacted soil would be warranted. Groundwater samples did not reveal detectable concentrations of TPH or PCBs. Selenium was the only metal detected, at a concentration of 0.1 ppm. Groundwater remediation was not deemed to be necessary at the time.~~

~~Excavation, removal, and disposal of contaminated soil was conducted by HNPC in January 1991. Excavation activities were supervised by HPNC and EAI staff. Upon completion of the excavation activities, a total of 33 soil verification samples were collected to determine whether the impacted soil had been removed. Elevated TPH and metal concentrations were detected in some of the samples taken.~~

~~In response to a WDR permit issued by the LARWQCB for remediation of metals-impacted soil at the HPNC site, CH2M HILL conducted oversight of soil sampling activities in May and June of 2000. The sampling activities were being conducted as part of a Final Sampling and Analysis Plan (FSAP) approved by the LARWQCB, in which the HNPC site was divided into 30 parcels and sampled according to procedures specified in the FSAP. A total of 9 soil borings were advanced via direct-push geoprobe drill rig, and samples were collected in 3 distinct parcels; parcels 14, 18, and 19. Samples collected revealed lead and selenium concentrations above screening levels but below the STLC. Additionally, low concentrations (below WDR limits) of PAHs were detected in one of the samples collected. Samples collection in other parcels had occurred dating back to October 1997. Results were not available during the completion of this document.~~

3.2.6.5 Page 3.8-17

3.8.3.9 Toxic Substances Control Act (40 CFR 761.61)

The former National Metals/Al Larson Boat Shop site and the former Hugo Neu lease area site are~~is~~ considered ~~a~~ TSCA-regulated site~~s~~ for PCBs. Specific requirements as a TSCA-regulated site include prior EPA notification of intended subsurface construction activities, in-situ soil sampling for PCBs with sample extraction using EPA Method 3540C or 3550B and analysis by EPA Method 8082A, and disposal of soils as a TSCA labeled waste, if PCBs are detected. EPA must concur with information in the Notification in writing before excavation occurs. Sometimes EPA will attach further conditions to their concurrence, which would have to be followed.

3.2.6.6 Page 3.8-21

Impact GW-1: Construction of the proposed Project would not encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure to construction/operations personnel and/or long-term exposure to future site occupants.

Because of the YTI Terminal's historical activities related to various hazardous materials, the site has been subject of several environmental studies and cleanup efforts. As such, soil and/or groundwater contamination has been identified during these investigations, as mentioned above in Section 3.8.2.3, Soil and Groundwater Investigations. Upon review of the available environmental studies, results indicated that there are ~~four~~five potential contamination areas within the proposed project area and one potential source outside the proposed project footprint:

- Former National Metals Site/Al Larson Boat Shop Property, which was previously located in Berths 212–214 in the northeast portion of the proposed project site;
- Golden West Refining Company, which was located in Berth 215, also in the northeast portion of the proposed project site;
- Former Dow Property, located in central portion of the proposed project site just south of Berths 217 and 218; ~~and~~
- Orange County Steel Salvage/Adams Steel, which was located south of the former location of New Dock Street; and ~~outside the YTI Terminal footprint.~~
- Former area leased from Hugo Neu Proler Corporation, which was located at the south end of Berth 211 and is now a part of the YTI Terminal.

3.2.6.7 Page 3.8-25

MM GW-1: Soil Sampling, Testing, and Treatment. ~~Prior to ground-disturbing construction activities, t~~The following actions must be implemented by LAHD or its contractors:

a) Prior to conducting excavations or disturbing the site cap in the former National Metals and Steel site, ~~and~~ the former Al Larson's Boat site, and the former Hugo Neu Proler lease site, EPA must receive a "Notification of Activity" according to Federal protocol under the Toxic Substances Control Act (TSCA) for former polychlorinated biphenyl (PCB) remediation sites. In place (in-situ) soil sampling for PCBs must be completed prior to excavation and the analytical results provided to the EPA for review, prior to excavation. The sampling, analytical method, extraction, and soil disposal methods must comply with EPA TSCA regulations for PCB remediation sites where the original source of the PCBs was greater than 50 milligrams per kilogram (mg/kg). Sampling frequency and depth must be consistent with established EPA sampling procedures or guidance such as 40 CFR 761, Subpart N (40 CFR 761.260 et al.), or CERCLA site characterization guidance. PCB-containing waste

soils must be disposed of and labeled as TSCA waste. EPA written concurrence with the notification is needed before excavation may proceed in former PCB remediation areas. In addition, as lead agency for PCBs, EPA may attach conditions to their concurrence, which must be followed. If excavation occurs in these soils, a site-specific health and safety plan (SSHSP) would be required to address worker safety.

b) In the former National Metals Steel and Al Larson Boat sites, soils must also be tested in advance for total petroleum hydrocarbons (TPH), and Title 22 metals, ~~and organochlorine pesticides (OCPs)~~ as a condition of remediation site closure by the Los Angeles County Fire Department, Health and Hazardous Materials Section, ~~and LAHD past practice~~ to provide adequate information for construction waste characterization and/or worker safety hazard evaluations, prior to excavation. Based on past sampling, organochlorine pesticides (OCPs) should also be tested at the National Metals Steel and Al Larson Boat site, and Title 22 metals and TPH should be tested at the Hugo Neu Proler lease site. If direct truck loading or immediate soil reuse is desired at the National Metals Steel, Al Larson Boat, and former Hugo Neu Proler lease sites, testing of any other constituents necessary for proper disposal or soil reuse should also be performed prior to excavation.

c) Soils in the former Golden West leasehold must be tested for TPH, benzene, toluene, ethyl benzene and xylenes, and polyaromatic hydrocarbons prior to ~~excavation~~disposal. This is due to elevated petroleum waste left in backfill soils at this site. In addition, any other constituent analyses needed by the disposal site or for soil reuse should be analyzed at the same time ~~and for the reason described in (b) above~~. If excavation occurs in these soils, an SSHSP would be required to address worker safety.

d) Soils in the former Dow Chemical site must be tested for volatile organic compounds prior to ~~excavation~~disposal. This is because past sampling indicates carbon tetrachloride is present at concentrations above industrial limits and at a level not protective of construction workers. Other lower-level volatile organic compounds (VOCs) were also found and should also be tested. In addition, any other constituent analyses needed by the disposal site or for immediate reuse should be analyzed for at the same time. If excavation occurs in these soils, an SSHSP would be required to address worker safety.

e) In Waste Discharge Order 90-045, the Los Angeles Regional Water Quality Control Board requires maintenance of the structural integrity of the site cap for the former Golden West site and the National Metals Steel/Al Larson Boat Shop site. The site cap is to be a minimum of a 21-inch layer of clean material, compacted according to civil engineering standards, and the top 7 inches of this layer are to be asphalt concrete pavement. Groundwater monitoring requirements were rescinded for this site due to the presence of this cap and 6 years of monitoring indicating that the cap was protecting

the groundwater from remnant contaminants in site soils. EPA may also be concerned with the integrity of this cap over former PCB remediation areas. Therefore, if the cap is disturbed over these sites, including the Hugo Neu Proler lease site, stormwater should not be allowed to infiltrate the cap, and during normal operations, the integrity of the cap should be inspected and maintained. Any other EPA requirements should also be followed.

MM GW-2: **Contamination Contingency Plan**. The following contingency plan will be implemented to address contamination discovered during demolition, grading, and construction.

a) All trench excavation and filling operations will be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination will be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor will notify LAHD's environmental representative. LAHD will confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site will require the approval of the LAHD Project Engineer.

b) Excavation of VOC-impacted soil, or soil suspected of being impacted by VOCs based on historical site use, will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit. For soil suspected to have carbon tetrachloride, a Photo Ionization Detector (PID) with an 11.7 eV lamp will be necessary to detect significant levels.

c) The remedial option(s) selected will be dependent on a suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, and cost) and will be determined on a site-specific basis. Both offsite and onsite remedial options may be evaluated.

d) The extent of removal actions will be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area will be remediated to the satisfaction of LAHD and the lead regulatory agency for the site or action. The LAHD Project Manager overseeing removal actions will inform the contractor when the removal action is complete.

e) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials will be submitted to the LAHD Project Manager within 60 days of project completion.

f) In the event that contaminated soil is encountered either prior to or during construction, all onsite personnel handling or working in the vicinity of the contaminated material must be trained in accordance with EPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide

protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the workplace.

g) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation.

h) All excavations will be backfilled with structurally suitable fill material that is free from contamination per LAHD standards.

i) Standard engineering controls and BMPs will be implemented while excavating impacted soils to minimize human exposure to potential contaminants. Engineering controls and construction BMPs will include but not be limited to the following:

- Contractor will water/mist soil as its being excavated and loaded onto transportation trucks.
- Contractor will place any stockpiled soil in areas shielded from prevailing winds.
- Contractor will cover the bottom of excavated areas with sheeting when work is not being performed.

3.2.6.8 Page 3.8-48

Impact GW-1: Construction of the proposed Project would not encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure to construction/operations personnel and/or long-term exposure to future site occupants.	
Mitigation Measure	**MM GW-1: Soil Sampling, Testing, and Treatment.** ~~Prior to ground disturbing construction activities, t~~The following actions must be implemented by LAHD or its contractors: a) Prior to conducting excavations or disturbing the site cap in the former National Metals and Steel site~~, and~~ the former Al Larson's Boat site, and the former Hugo Neu Proler lease site, EPA must receive a "Notification of Activity" according to Federal protocol under the Toxic Substances Control Act (TSCA) for former polychlorinated biphenyl (PCB) remediation sites. In place (in-situ) soil sampling for PCBs must be completed prior to excavation and the analytical results provided to the EPA for review, prior to excavation. The sampling, analytical method, extraction, and soil disposal methods must comply with EPA TSCA regulations for PCB remediation sites where the original source of the PCBs was greater than 50 milligrams per kilogram (mg/kg). Sampling frequency and depth must be consistent with established EPA sampling procedures or guidance such as 40 CFR 761, Subpart N (40 CFR 761.260 et al.), or CERCLA site characterization guidance. PCB-containing waste soils must be disposed of and labeled as TSCA waste. EPA written concurrence with the notification is needed before excavation may proceed in former PCB remediation areas. In addition, as lead agency for PCBs, EPA may attach conditions to their concurrence, which must be followed. If excavation occurs in these soils, a site-specific health and safety plan (SSHSP) would be required to address worker safety. b) In the former National Metals Steel and Al Larson Boat sites, soils must also be tested in advance for total petroleum hydrocarbons (TPH)~~,~~ and Title 22 metals~~, and organochlorine pesticides (OCPs)~~ as a condition of remediation site closure by the Los Angeles County Fire Department, Health and Hazardous Materials Section~~, and LAHD past practice~~ to provide adequate information for construction waste

	characterization and/or worker safety hazard evaluations, prior to excavation. Based on past sampling, organochlorine pesticides (OCPs) should also be tested at the National Metals Steel and Al Larson Boat site, and Title 22 metals and TPH should be tested at the Hugo Neu Proler lease site. If direct truck loading or immediate soil reuse is desired at the National Metals Steel, Al Larson Boat, and former Hugo Neu Proler lease sites, testing of any other constituents necessary for proper disposal or soil reuse should also be performed prior to excavation. c) Soils in the former Golden West leasehold must be tested for TPH, benzene, toluene, ethyl benzene and xylenes, and polyaromatic hydrocarbons prior to ~~excavation~~disposal. This is due to elevated petroleum waste left in backfill soils at this site. In addition, any other constituent analyses needed by the disposal site or for soil reuse should be analyzed at the same time ~~and for the reason described in (b) above~~. If excavation occurs in these soils, an SSHSP would be required to address worker safety. d) Soils in the former Dow Chemical site must be tested for volatile organic compounds prior to ~~excavation~~disposal. This is because past sampling indicates carbon tetrachloride is present at concentrations above industrial limits and at a level not protective of construction workers. Other lower-level volatile organic compounds (VOCs) were also found and should also be tested. In addition, any other constituent analyses needed by the disposal site or for immediate reuse should be analyzed for at the same time. If excavation occurs in these soils, an SSHSP would be required to address worker safety. e) In Waste Discharge Order 90-045, the Los Angeles Regional Water Quality Control Board requires maintenance of the structural integrity of the site cap for the former Golden West site and the National Metals Steel/Al Larson Boat Shop site. The site cap is to be a minimum of a 21-inch layer of clean material, compacted according to civil engineering standards, and the top 7 inches of this layer are to be asphalt concrete pavement. Groundwater monitoring requirements were rescinded for this site due to the presence of this cap and 6 years of monitoring indicating that the cap was protecting the groundwater from remnant contaminants in site soils. EPA may also be concerned with the integrity of this cap over former PCB remediation areas. Therefore, if the cap is disturbed over these sites, including the Hugo Neu Proler lease site, stormwater should not be allowed to infiltrate the cap, and during normal operations, the integrity of the cap should be inspected and maintained. Any other EPA requirements should also be followed.
Timing	Prior to and concurrent with proposed project construction.
Methodology	LAHD will include these mitigation measures in the bid specification for construction of the proposed Project or an alternative.
Responsible Parties	LAHD through construction contractor.
Residual Impacts	Less than significant
Mitigation Measure	**MM GW-2: Contamination Contingency Plan**. The following contingency plan will be implemented to address contamination discovered during demolition, grading, and construction: a) All trench excavation and filling operations will be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination will be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor will notify LAHD's environmental representative. LAHD will confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site will require the approval of the LAHD Project Engineer.

	b) Excavation of VOC-impacted soil, or soil suspected of being impacted by VOCs based on historical site use, will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit. <u>For soil suspected to have carbon tetrachloride, a Photo Ionization Detector (PID) with an 11.7 eV lamp will be necessary to detect significant levels.</u> c) The remedial option(s) selected will be dependent on a suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, and cost) and will be determined on a site-specific basis. Both offsite and onsite remedial options may be evaluated. d) The extent of removal actions will be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area will be remediated to the satisfaction of LAHD and the lead regulatory agency for the site or action. The LAHD Project Manager overseeing removal actions will inform the contractor when the removal action is complete. e) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials will be submitted to the LAHD Project Manager within 60 days of project completion. f) In the event that contaminated soil is encountered either prior to or during construction, all onsite personnel handling or working in the vicinity of the contaminated material must be trained in accordance with EPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the workplace. g) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation. h) All excavations will be backfilled with structurally suitable fill material that is free from contamination per LAHD standards. i) Standard engineering controls and BMPs will be implemented while excavating impacted soils to minimize human exposure to potential contaminants. Engineering controls and construction BMPs will include but not be limited to the following: ▪ Contractor will water/mist soil as its being excavated and loaded onto transportation trucks. ▪ Contractor will place any stockpiled soil in areas shielded from prevailing winds. ▪ Contractor will cover the bottom of excavated areas with sheeting when work is not being performed.
Timing	Concurrent with proposed project construction.
Methodology	LAHD will include these mitigation measures in the bid specification for construction of the proposed Project or an alternative.
Responsible Parties	LAHD through construction contractor.
Residual Impacts	Less than significant

1

3.2.7 Changes Made to Section 3.15, Water Quality, Sediments, and Oceanography

3.2.7.1 Page 3.15-23

Water Resources Action Plan

The WRAP was prepared by the Ports of Los Angeles and Long Beach, in coordination with their cities, EPA, and the Los Angeles RWQCB (POLA and POLB 2009). The WRAP's purpose is to provide a programmatic framework to identify mechanisms for the Ports to achieve the goals and targets that will be established in the relevant TMDLs and to comply with the GCASP, GIASP, and municipal permits issued to the ports and their respective cities and tenants through the NPDES program. The WRAP identifies multiple current and potential control measures to minimize effects to water and sediment quality. These include Land Use Control Measures, On-Water Source Control Measures, Sediment Control Measures, and Watershed Control Measures. The WRAP is considered a living document, and the ports will modify it as circumstances warrant. At present, the LAHD is preparing several documents in support of the WRAP objectives, including a Vessel Guidance Manual, a Design Guidance Manual (to address SUSMP, LID and other BMPs), and a Sediment Management Strategy document.

Additionally, the WRAP includes measures to prohibit and avoid the discharge of sewage in the harbor. The State of California applied for and received approval to establish a statewide No Discharge Zone for sewage. As such, the discharge of sewage, whether treated or untreated, is prohibited within California waters (including the Ports of Los Angeles and Long Beach). This rule prohibits sewage discharge from the following vessels: all large passenger vessels of 300 gross tons or greater and large oceangoing vessels of 300 gross tons or greater with available holding tank capacity or containing sewage generated while the vessel was outside of the marine waters of the State of California.

3.2.8 Changes Made to Chapter 4, Cumulative Impacts

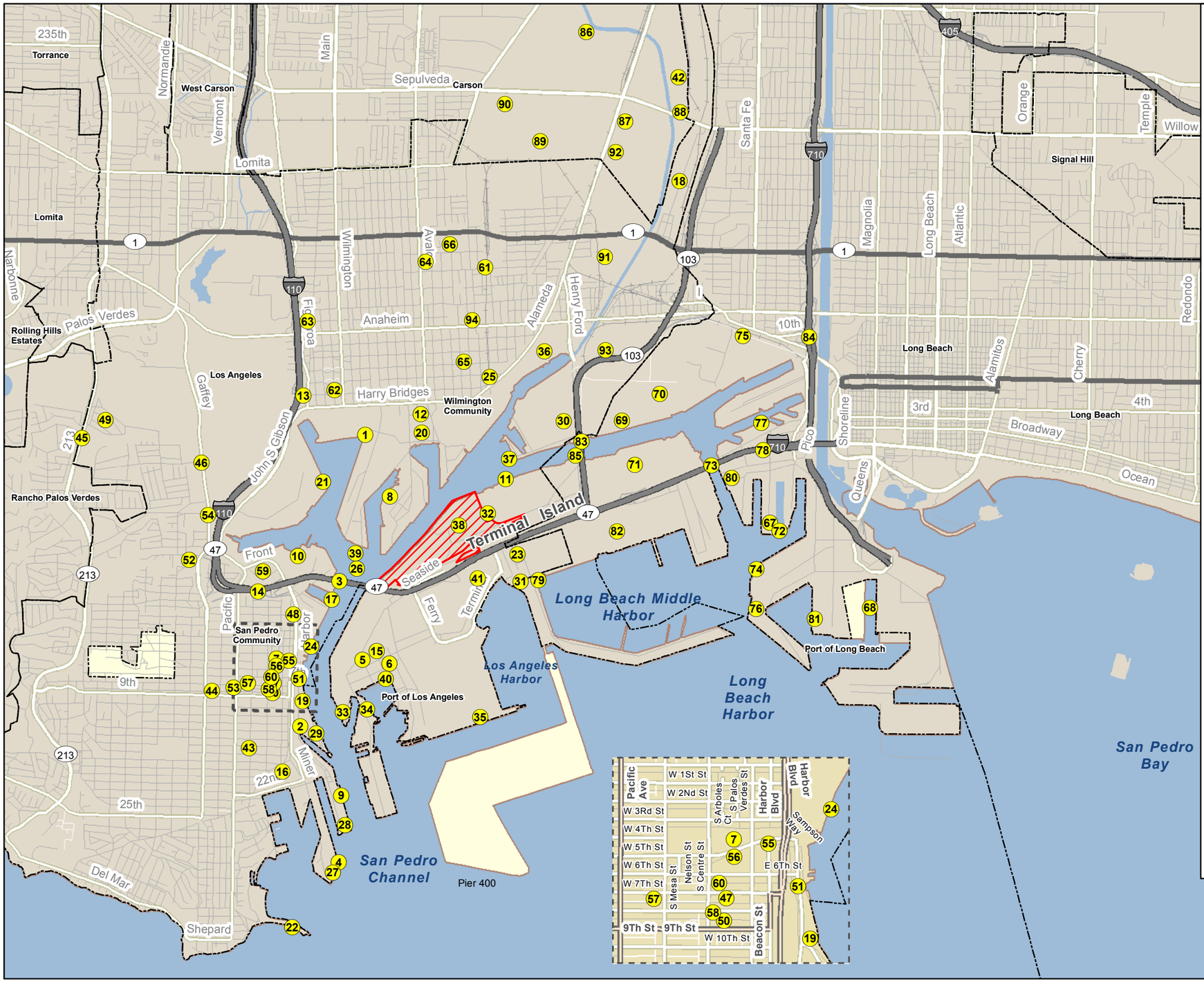
3.2.8.1 Figure 4-1

Figure 4-1, Related and Cumulative Projects, contained some errors on the location of the respective projects. Figure 4-1 has been modified to show the appropriate locations of the projects, and is included as a modification within this Final EIS/EIR following this page.

3.2.9 Changes Made to Chapter 5, Environmental Justice

3.2.9.1 Pages 5-1 and 5-2

The Environmental Justice analysis and impact determinations are applicable only to NEPA; they are not required under CEQA. Further, because Alternative 1 is not subject to NEPA as it is a CEQA-only alternative, and Alternative 2 would result in no



Port of Los Angeles Projects

1. Berths 136-147 Marine Terminal, West Basin
2. San Pedro Waterfront Project
3. Channel Deepening Project
4. Cabrillo Way Marina, Phase II
5. Berth 226-236 (Evergreen) Container Terminal Improvements Project and Canners Steam Demolition
6. Canners Steam Demolition
7. Port of Los Angeles Charter School and Port Police Headquarters, San Pedro
8. Ultramar Lease Renewal Project
9. Westway Decommissioning
10. Berths 97-109, China Shipping Development Project
11. Berths 206-209 Interim Container Terminal Reuse Project
12. Wilmington Waterfront Master Plan (Avalon Blvd. Corridor Project)
13. "C" Street/Figueroa Street Interchange
14. I-110 / SR 47 Connector Improvement Program
15. Terminal Island Rail Redevelopment
16. Adaptive Reuse of Warehouses 9 and 10
17. Alternative Maritime Power (AMP™)
18. Southern California International Gateway Project (SCIG)
19. San Pedro Waterfront Enhancements Project
20. South Wilmington Grade Separation
21. Berths 121-131 (Yang Ming) Container Terminal Improvements Project
22. Inner Cabrillo Beach Water Quality Improvement Program
23. Port of Los Angeles Master Plan Update.
24. USS Iowa Battleship
25. WWL Vehicle Services Cargo Terminal
26. Maintenance Dredging
27. Outer Harbor Cruise Terminal and Outer Harbor Park
28. City Dock No. 1 Marine Research Project
29. Ports O'Call Redevelopment
30. Anchorage Road Soil Storage Site (ARSSS) Open Space
31. Trucking Support Center
32. Relocation of SA Recycling
33. Relocation of Jankovich Marine Fueling Station
34. Al Larson Boat Shop Improvement Project
35. Berth 302-305 (APL) Container Terminal Improvements Project
36. International Longshore and Warehouse Union Local 13 Dispatch Hall Project
37. Wilmington Youth Sailing and Aquatic Center
38. Solar Panel Installation Program
39. MOTEMS Upgrade Program
40. Fish Processing in Fish Harbor

Port of Los Angeles and/or Port of Long Beach Potential Port-Wide Operational Projects

41. Navy Way/Seaside Avenue Interchange

ICTF Joint Powers Authority

42. Union Pacific Railroad ICTF Modernization Project

Community of San Pedro Projects

43. 15th Street Elementary School
44. Pacific Corridors Redevelopment Project
45. Condominiums, 28000 Western Ave
46. Target (Gaffey Street)
47. La Salle Lofts
48. Condominiums, 319 N. Harbor Blvd
49. Ponte Vista/Naval Site
50. 8th Street Lofts
51. San Pedro Plaza Park
52. Cabrillo Avenue Extension
53. A-Delta Realty
54. Single Family Homes (Gaffey Street)
55. Palos Verdes Urban Village
56. Vue (Pacific Trade Center), 255 5th St
57. Bank Lofts
58. Mixed-use development, 281 W 8th St
59. Temporary Little League Park
60. Centre Street Lofts

Community of Wilmington Projects

61. Distribution center and warehouse
62. Dana Strand Public Housing Redevelopment Project
63. Vermont Christian School Expansion
64. LASUD SR Span K-8 School
65. Wilmington Redevelopment Plan Amendment/Expansion Project
66. Banning Museum and Banning Park

Port of Long Beach Projects

67. Middle Harbor Terminal Redevelopment
68. Piers G & J Terminal Redevelopment Project
69. Pier A West Remediation Project
70. Pier A East, Port of Long Beach
71. Pier S Marine Terminal
72. Administration Building Replacement Project
73. Gerald Desmond Bridge Replacement Project
74. Chemoil Marine Terminal, Tank Installation
75. Pier B Rail Yard Expansion (On- Dock Rail Support Facility
76. Mitsubishi Cement Corporation Facility Modifications
77. Eagle Rock Construction Aggregate Terminal Development
78. Camera Long Beach Aggregate Terminal
79. Terminal Island Rail Projects
80. Polaris Aggregate Terminal
81. Sulex Demolition Project
82. Pier T, TTI (formerly Hanjin) Terminal, Phase III

Alameda Corridor Transportation Authority and Caltrans Projects

83. Schuyler Heim Bridge Replacement and State Route (SR) 47 Terminal Island Expressway
84. I-710 (Long Beach Freeway) Major Corridor Study
85. Cerritos Channel Bridge

Wilmington/Carson

86. BP Carson Refinery Safety, Compliance and Optimization Project
87. Kinder Morgan Terminal Expansion
88. Chemoil Terminals Corporation
89. ConocoPhillips Refinery Tank Replacement Project
90. BP Logistics Project
91. Ultramar Inc., Olympic Tank Farm
92. WesPac Smart Energy Transport System Project
93. Tesoro Reliability Improvement and Regulatory Compliance Project
94. Warren Oil WTU Central Facility and New Equipment Project

Berths 212-224 [YTI] Container Terminal Improvements Project

N

0 0.5 1

Miles

Source: ESRI (2010)

Figure 4-1
Related and Cumulative Projects
Berths 212-224 [YTI] Container Terminal Improvements Project

incremental difference than the NEPA Baseline, these alternatives are not analyzed for Environmental Justice impacts. After the incorporation of mitigation measures, the proposed Project and Alternative 3 would result in potentially significant impacts on minority populations and low-income individuals related to air quality~~, and would result in a cumulatively considerable contribution to a significant cumulative impact related to construction noise at the liveaboard receptors~~, which would constitute a disproportionately high and adverse effect on minority and low-income populations.

3.2.9.2 Pages 5-18 and 5-19

~~Noise (Section 3.12 and Section 4.2.12)~~

~~As described in Section 3.12.4.2, the significance criteria for noise are the same for both the CEQA and NEPA analyses.~~

~~**Impact NOI-1:** The proposed Project would not increase the existing ambient noise levels at any identified noise receptor in the proposed project area by 5 dBA or more; however, noise produced by pile driving during sheet and king pile installation would be 6 dB above the ambient noise level at the nearby liveaboard boat area in the East Basin. Mitigation measure MM NOI-1, which would require the contractor to use a pile driving system, such as an IHC Hydrohammer SC Series or equivalent; a Bruce hammer (with silencing kit); an IHC Hydrohammer, SC series (with a sound insulation system); or an equivalent silenced hammer that is capable of limiting maximum noise levels at 50 feet from the pile driver to 104 dBA or less during installation of king piles and sheet piles, would reduce the maximum noise levels during installation of king piles and sheet piles. Mitigation measure MM NOI-2, which would require installation of temporary noise attenuation barriers suitable for pile-driving equipment as needed, would further reduce construction noise. With implementation of mitigation measures MM NOI-1 and MM NOI-2, the proposed Project would not have a significant impact related to noise. However, the proposed Project could make a cumulatively considerable contribution to a significant cumulative impact at the liveaboard receptors. This cumulative impact would constitute a disproportionately high and adverse effect on minority and low-income populations.~~

3.2.9.3 Page 5-38

3.2.9.4 ~~Noise (Section 3.12 and Section 4.2.12)~~

~~As described in Section 3.12.4.2, the significance criteria for noise are the same for both the CEQA and NEPA analyses.~~

~~**Impact NOI-1:** Alternative 3-related construction noise from pile driving would not increase existing ambient noise levels at any identified noise-sensitive receptor in the proposed project vicinity by 5 dBA or more. Thus, Alternative 3 individually would not have a significant impact related to noise. However, the construction noise from pile driving could temporarily increase the ambient noise levels at nearby liveaboard boats and, should construction of other projects in the vicinity occur concurrently, these construction activities could make a cumulatively considerable contribution to a significant cumulative impact at the liveaboard boats. Mitigation measures MM NOI-1 and MM NOI-2 would further reduce construction noise; however, even with their implementation, Alternative 3 would make a cumulatively considerable contribution to a~~

~~significant cumulative impact related to noise at the liveaboard receptors. This cumulative impact related to construction noise would constitute a disproportionately high and adverse effect on minority and low-income populations.~~

3.2.9.5 Page 5-39

Significant unavoidable air quality ~~and noise~~ impacts would constitute disproportionately high and adverse effects on minority and/or low-income population under the proposed Project. All other resource impacts would either be less than significant or, if significant, would be limited to the proposed project site, would not affect the public, would be mitigated to less-than-significant levels, or would otherwise not have disproportionately high and adverse effects on minority and/or low-income populations.

Table 5-3: Summary of Disproportionate Effects on Minority and Low-Income Populations from the Proposed Project and Alternatives

Alternative [a]	Air Quality	~~Noise~~
Proposed Project	• Criteria pollutant emissions in excess of thresholds from construction and operations. • High ambient concentrations of NO_2 and PM_{10} associated with operations (with mitigation).	• ~~Noise impacts at the liveaboard receptors during pile driving could be cumulatively considerable.~~
Alternative 3 (Reduced Project: Improve Berths 217–220 Only)	• Criteria pollutant emissions in excess of thresholds from construction and operations. • High ambient concentrations of NO_2 and PM_{10} associated with construction and operations (with mitigation).	• ~~Noise impacts at the liveaboard receptors during pile driving could be cumulatively considerable.~~

[a] Table 5-3 does not include Alternative 1 because the impacts of the No Project Alternative are not required to be analyzed under NEPA. NEPA requires the analysis of a No Federal Action Alternative (Alternative 2). Additionally, Table 5-3 does not include Alternative 2 because Alternative 2 is the same as the NEPA baseline and would not result in any impacts under NEPA.

3.2.10 Changes Made to Chapter 6, Comparison of Alternatives

3.2.10.1 Page 6-11

Total construction and annual operation CO_2e emissions would exceed the GHG threshold of 10,000 mty in all analysis years under the proposed Project and Alternatives 1 through 3. Mitigation measures MM AQ-1, MM AQ-5, MM AQ-9, and MM AQ-10 and MM GHG-1 through MM GHG-~~3~~4 would reduce GHG emissions for the proposed Project and Alternatives 2 and 3 (mitigation is not applicable to Alternative 1); however, impacts would remain significant and unavoidable under the proposed Project and Alternatives 1 through 3 under CEQA. No impact determination regarding GHG

3.2.11 Changes Made to Chapter 7, Socioeconomics

3.2.11.1 Page 7-28

In addition to ongoing public involvement initiatives, the Port Community Mitigation Trust Fund (Fund) was established in 2008 as a result of the settlement between the Port of Los Angeles and the City of Los Angeles known as the TraPac Memorandum of Understanding (MOU). The Harbor Community Benefit Foundation (HCBF), the nonprofit established to operate the Port Community Mitigation Trust Fund, addresses the negative cumulative environmental and public health impacts created by the business operations at the Port. The mission of the ~~Harbor Community Benefit Foundation~~HCBF is "to carry out public benefit projects that assess, protect, and improve public health, quality of life, and the natural environment of the local communities." The ~~Harbor Community Benefit Foundation~~HCBF carries out its mission by overseeing grants and addressing, through mitigation projects, off-port impacts from existing and future operations at the Port of Los Angeles in the communities of Wilmington and San Pedro. (Harbor Community Benefit Foundation 2014.)

Per Exhibit B of the MOU, a specific list of Port expansion projects was established for which LAHD would contribute funds to the Fund upon project implementation. The YTI Container Terminal Improvements Project is one of the projects listed in Exhibit B. As such, LAHD has estimated it will contribute approximately $773,500 to the HCBF per the established calculation method if the proposed Project is implemented in accordance with the provisions of the MOU. The final amount will be determined at the time the Board considers whether to certify the Final EIR and approve the proposed Project.

The MOU specifies that contributions will be made to the HCBF per the established calculation for throughput in exceedance of existing capacity. As such, if a project alternative that results in an increased terminal capacity is approved, a contribution would be made to the Fund. Alternative 3 results in the same throughput in the horizon year as the proposed Project. Therefore, should Alternative 3 be approved, LAHD would contribute the same funds to the HCBF as if the proposed Project was approved. Because Alternatives 1 and 2 do not result in an increase in terminal capacity, no contributions would be made to the HCBF should one of these two alternatives be approved.

The MOU does not allow the funding to be used as mitigation for direct project effects. The HCBF awards funding to a variety of projects and programs aimed at reducing health, environmental, and community impacts from Port operations in the communities of San Pedro and Wilmington. Projects and programs that have been granted funds from the HCBF include:

- construction of a dedicated respiratory clinic at the Wilmington Family Health Center;
- operation of the Long Beach Alliance for Children with Asthma and the Children's Clinic, which provide home visits and low and no cost respiratory care for families;
- purchase of CNG buses by the Boys & Girls Club of Los Angeles to provide transportation between the Boys & Girls Club and the Harbor Community Clinic;

- guided community exercise programs and health education provided by the Tzu Chi Community Clinic;
- additional respiratory and asthma services for the Harbor Community Clinic in San Pedro and Rainbow Services;
- establishment of a support network for Harbor area residents with Chronic Obstructive Pulmonary Disease (COPD) by Breathe California of Los Angeles County;
- registration of the Harbor Community Clinic as a Certified Enrollment Entity to assist residents with respiratory illnesses enroll in health plans under the California Health Benefit Exchange;
- expansion of a summer fellowship program on Port operations and respiratory health with Los Angeles Biomed;
- hiring of a Community Health Worker for the Harbor community through the Robert F. Kennedy Institute;
- bringing St. Mary's mobile care clinic to Wilmington for no cost medical care for low-income individuals; and
- continued support of the Bridge for Health program, which supports individuals with respiratory illnesses in Harbor communities through The Children's Clinic.

Please see the HCBF website at http://hcbf.org/ for further information on past and current grants. See Appendix C: Grant Project Reporting and Evaluation Guidelines of the HCBF Strategic Plan 2013-2016, also available on the HCBF website, for information on how the HCBF quantifies the success of the projects and programs it funds. Monitoring performance and success of the projects and programs receiving grants through the HCBF is the foundation's responsibility.

LAHD is also in the process of implementing several development projects, including the San Pedro Waterfront Master Plan and Wilmington Waterfront Master Plan. These development programs are aimed at strengthening economic development and enhancing community amenities. Specifically, objectives of the San Pedro Waterfront Master Plan include increasing public waterfront access, enhancing commercial opportunities, improving transportation and non-vehicular mobility around the waterfront, and growing the Port in a sustainable manner. Project elements include the creation of new harbors and a public pier, new commercial development, enhancement of visitor attractions, development of a waterfront promenade and open space, and a variety of transportation improvements. The EIS/EIR for the San Pedro Waterfront Master Plan was certified in September 2009, and by July 2012, several projects had been implemented, including Crafted at the Port of Los Angeles, which is an arts and crafts market.

3.2.11.2 Page 7-38, Table 7-16

Table 7-16: Proposed Project: Direct and Secondary Construction Employment Over the Construction Period

Period	Employment (Number of Jobs)
2012–2013	
Direct	0.~~3~~5
Secondary	0.~~3~~5
Subtotal	**~~0.6~~1.0**
2013–2014	
Direct	~~6~~11
Secondary	~~6~~11
Subtotal	**~~12~~22**
2014–2015	
Direct	~~14~~18
Secondary	~~14~~15
Subtotal	**~~25~~33**
2015–2016	
Direct	~~180~~197
Secondary	~~147~~162
Subtotal	**~~327~~359**
2016–2017	
Direct	~~2~~184
Secondary	~~2~~151
Subtotal	**~~4~~335**
Totals	
Direct	410
Secondary	340
GRAND TOTAL	**750**

3.2.12 Changes Made to Appendices

3.2.12.1 Appendix F

Appendix F, Draft Sediment Characterization Report, dated November 2013, has been replaced with the Final Sediment Characterization Report, dated May 2014. The final report is appended to this Final EIS/EIR.

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Attachment 1
Letter from Douglas Hansen, Director of Strategic Planning, YTI

YUSEN TERMINALS INC.

701 New Dock Street
Terminal Island, California 90731-7535
Tel: (310) 548-8000 Fax: (310) 548-8290

18 September 2014

Yusen Terminals, Inc.
701 New Dock Street
Los Angeles, CA 90731

Mr. Chris Cannon
Director
Environmental Management Division
Port of Los Angeles
425 South Palos Verdes Street
San Pedro, CA 90731

Re: Responses to Comments on Port of Los Angeles Draft EIR/EIS Report - Berths 212-224 Container Terminal Improvement Project

Dear Chris:

We are providing the information in response to specified comments on the Draft Environmental Impact Statement/Environmental Impact Report for the Berths 212-224 [YTI] Container Terminal Improvement Project. In particular, the information below is intended to address Alternative Marine Power (see Comments SCAQMD-18, EJ2-18, & Keck-5). As the environmental process moves forward, we will work with POLA to provide any additional information that may be relevant to the AMP comments as well as additional information that may be relevant to other issues where warranted.

At the outset, it is important to reiterate that YTI is undertaking an upgrade project that is designed to allow its terminal at the Port of Los Angeles to service the projected future vessel fleet mix by accommodating vessels of up to 13,000 TEU in size. The YTI terminal presently is berth-constrained to handle larger vessels, and it will be yard-constrained at existing capacity after implementation of the project. As a result of the yard constraints, the implementation of the project will only slightly increase the terminal's present capacity, by 200,000 TEU, as compared to what the existing terminal could handle under future conditions without the project[1]. The increase is relatively small, but the project is needed to allow the terminal to accommodate the next generation of larger container vessels.

This ability to handle larger vessels would allow for the introduction of newer lower-emitting container vessels over time, as well as the potential to use fewer vessels to handle the same amount of cargo. On the other hand, if the project did not go forward, the YTI terminal could still accommodate most of the projected future growth

[1] As previously outlined in the draft EIR, the yard capacity at YTI actually reduces by 70,000 TEU from current yard capacity with the Proposed Project. This reduction is a function of the lost yard/decking space needed to accommodate the proposed fifth rail loading track.

in throughput with its existing facilities, but there actually could be more vessel calls than under the proposed project due to the inability to handle larger, more efficient vessels.

Alternative Marine Power (See Comments SCAQMD-18, EJ2-18 & Keck-5)

Mitigation Measure AQ-10 in the Draft EIR states: "By 2026, NYK Line-operated ships calling at the YTI Terminal will use AMP for 95% of the total hoteling hours while hoteling at the Port." This mitigation exceeds the regulatory requirements adopted by CARB, which requires 80% AMP usage and emissions reductions by 2020.

The commenters suggest that: (a) the 95% requirement in MM AQ-10 should be increased to 100%, based on the claim that a 100% requirement is included in the EIS/EIR for the Middle Harbor project at the Port of Long Beach; (b) the 95% requirement in MM AQ-10 should be accelerated from 2026 to 2017, based on the claim that AMP will be available for use in 2017 at Berths 217-220; and (c) the mitigation in MM AQ-10 should be applied to "non-NYK Line ships" calling at the YTI terminal. For the reasons described below, it is not feasible to achieve AMP requirements that exceed the current AMP mitigation in the Draft EIS/EIR for the YTI project.

The AMP mitigation for the YTI project requires that NYK Line-operated ships use AMP for 95% of the total hoteling hours. By contrast, rather than focusing on the number of hours that vessels hotel with and without using AMP, the mitigation for the Middle Harbor project (Mitigation Measure AQ-5 in POLB's EIS/EIR for that project) focuses on the percent of ocean going vessels that use shore-to-ship power while at berth. The two measures do not impose comparable requirements. It is not clear that more emissions reductions would be achieved under the Middle Harbor measure. For example, if all ships calling at that terminal use AMP, but only for 90% of the total hoteling hours, then compliance with the Middle Harbor mitigation would be achieved. But the same condition would not achieve compliance with the hours based mitigation for the YTI project.

Further, regardless of whether it is feasible for all of the ships calling at Middle Harbor to use AMP, this is not feasible at the YTI terminal. This is because an entirely different type of vessel fleet calls on the YTI terminal. Only one vessel service currently calls at the terminal that will become the Middle Harbor terminal, and all of the vessels in that service are over 8,000 TEUs in size. In light of the market conditions and purposes of the Middle Harbor project, it is reasonable to anticipate that ships calling at Middle Harbor will continue to exceed 8,000 TEUs in size. AMP-equipped ships are available in the marketplace for these larger ships.

In contrast, the vessel fleet mix projected to call on the YTI terminal with the implementation of the project at issue here would consist of three different class sizes of ships. As shown below, given this key difference as between the vessel fleet mixes calling on the two terminals, it would not be feasible to impose on the YTI project a requirement that 100% of the NYK Line-operated ships calling on the YTI terminal use AMP.

Under future project conditions, the three class sizes of ships calling on the YTI terminal would consist of the following: (1) Post-Panamax ships over 6,000 TEU; (2) MAREX ships (2,000-2,999 TEU); and (3) JPX ships (3,000-3,999 TEU). Under future project conditions, it is anticipated that NYK Line-operated ships would consist of approximately 56% of the total number of vessel calls at the YTI terminal, as compared to approximately 45%

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under 2012 baseline conditions (As determined by a review of 2012 terminal vessel schedule). It is projected that the NYK Line-operated ships calling at the YTI terminal under future project conditions would consist of 10 Post-Panamax ships, 2 MAREX ships and 3 JPX ships.

With respect to the Post-Panamax ships, NYK Line would own all 10 of the ships in this size category (which are distributed among two different vessel services). AMP-equipped ships are available in the marketplace for this class size of ships, and by the time the project commences in 2017, it is projected that all NYK Line-owned Post-Panamax ships will be AMP-capable. In addition, by the time the project commences in 2017, all of the berths at the YTI terminal will be equipped with AMP, which will serve to maximize AMP usage to the highest possible level for AMP-capable ships.

With respect to the MAREX ships, under the 2012 baseline conditions and in the past, NYK Line has chartered some of these ships from other companies. NYK Line's chartering department in Singapore conducted a study of available ships on the charter market, which found that no AMP-capable ships are available in the MAREX class.[2] However, NYK Line recognizes the need to comply with the future requirements under the CARB regulations. One possible way of meeting the 80% requirement in 2020 under the CARB regulations would be to replace the chartered MAREX ships calling at the YTI terminal with MAREX ships that NYK Line owns, and to retrofit the NYK Lined-owned MAREX ships calling at the YTI terminal to be AMP-capable. The total cost of such an upgrade is projected to be $4.8 million ($1 million for each of the 3 MAREX vessels, plus $600,000 per ship to install an AMP box). As explained below, in addition to these significant ship upgrades, substantial reductions in current idling times also would be needed to achieve the 80% requirement in 2020 under the CARB regulations.

With respect to the JPX ships, NYK Line does not own any ships in this class size and therefore would need to charter the ships from other companies. The study conducted by NYK Line's chartering department in Singapore indicates that there are no AMP-capable ships in the JPX class. Further, given the market conditions in the shipping industry, it is not anticipated that AMP-capable ships in the JPX class would be available even by 2020. In addition, it would not be feasible to make charter ships in the JPX class size AMP-capable and a charterer cannot compel the ship owner to convert its ships to be AMP-capable. Due to current market trends, time charter contracts generally are short-term in nature, and the particular ships that make up a charter service can change frequently based on the daily cost of the charter and where the ships are deployed. Given that it costs approximately $1.6 million to retrofit a ship with AMP and install an AMP box, and that retrofitting a ship takes that ship out of service for six months, it does not make sense to make such a large investment of time and capital to retrofit chartered JPX ships to be AMP capable.

[2] The global container ship charter market is composed of ships owned by private owners/operators. These owners provide a "Ship List" and a "Position List" of their available assets to brokers, who compile an overview of the available ships. Ship charterers then work through brokers to find ships that suit the needs of the business and are available for chartering at any given point in time. NYK Line's chartering department in Singapore conducted a study of AMP-capable ships available on the charter market by compiling the relevant information obtained from brokers.

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For this reason, while it may be possible that all NYK Line-***owned*** ships are AMP-capable within the project timeframe, it is not possible that 100% of NYK Line-***operated*** ships – including chartered JPX vessels owned by another company – will be able to use AMP at the YTI terminal.

Moreover, it is impossible for ***any*** class of ships to achieve use of AMP for 100 percent of the total hoteling hours. Even for larger (Post-Panamax) ships, where AMP-ready vessels are available on the market, there is invariably a certain amount of idling time that precludes achieving a 100 percent requirement. For instance, when a ship pulls into dock, there are mandatory federal customs and immigration procedures that must be followed before the mechanical staff is allowed to enter onto the ship to convert to AMP. Procedures for inspections of agricultural products can produce longer waiting times. Also, for ships that arrive in the middle of the night, mechanical staff may not be available even if the customs and immigration procedures are completed quickly. Baseline idling times at the YTI terminal range from three to seven hours per vessel. YTI will work with NYK Line to reduce idling times as much as possible, but it is not possible to reduce the idling time to zero. The absolute best case idling time is two hours per ship visit, since customs and immigration procedures routinely take at least an hour, and it takes at another hour to connect and disconnect from AMP. This is an aggressive timeframe that assumes no technical glitches or delays.

The chart below illustrates that NYK Line will need to make an extraordinary effort to achieve AMP use for 80% of the total hoteling hours in 2020. For instance, the chart is premised on the assumptions that (1) all NYK Line-owned vessels will be AMP-capable by 2020; and (2) idling times will be reduced to the absolute best case scenario of two hours. In other words, NYK Line will need to make substantial changes and do all that it feasibly can merely to achieve compliance with the CARB regulation in 2020. Exceeding the regulatory requirements in 2020 is not practicable or realistic.

Vessel Service	Total NYK-operated Vessels	Hoteling Hrs Per Vessel	AMP Hrs Per Vessel	Annual NYK Vessel Calls	Annual Hoteling Hrs	Annual AMP Hrs	Percentage of AMP Hrs
CCX (Post-Panamax)	3	80	78	25	2,000	1,950	98%
SGX (Post-Panamax)	7	71	69	Approx. 33	2,349	2,283	97%
MAREX	2	21	19	26	546	494	91%
JPX	3	33	0	Approx. 31	1,030	0	0%
TOTAL IN 2020					**5,925**	**4,727**	**80%**

The AMP mitigation measure in the Draft EIS/EIR goes as far as is feasible. It requires use of AMP for 95% of total hoteling hours by 2026. The premise for this measure is that, by 2026, JPX ships that are AMP-capable will be available on the charter market. In other words, the mitigation is based on a longer term market projection that all of the NYK-operated ships calling in the YTI terminal will be AMP capable. But there is no evidence to suggest, and it is not reasonable to project, that AMP-capable JPX ships will be available on the market over the

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short- to mid-term. Also, as explained above, it is not reasonable to expect that idling times will be reduced below two hours per ship, which is the best case scenario given the required inspections and logistics.

The chart below shows how the 95% mitigation measure in the Draft EIS/EIR could be achieved with all NYK Line-operated ships fully AMP-capable by 2026 and with idling times reduced as much as possible. But it is not feasible to accelerate this requirement, or to impose a more stringent percentage requirement.

Vessel Service	Total NYK-operated Vessels	Hoteling Hrs Per Vessel	AMP Hrs Per Vessel	Annual NYK Vessel Calls	Annual Hoteling Hrs	Annual AMP Hrs	Percentage of AMP Hrs
CCX (Post-Panamax)	3	80	78	25	2,000	1,950	98%
SGX (Post-Panamax)	7	71	69	Approx. 33	2,349	2,283	97%
MAREX	2	21	19	26	546	494	91%
JPX	3	33	31	Approx. 31	1,030	967	94%
TOTAL FOR 2026					**5,925**	**5,694**	**96%**

As for the suggested requirement to impose mitigation on "non-NYK Line ships," it is important to reiterate that the operational AMP requirements in the CARB regulations apply to vessel fleets, not marine terminals such as YTI. YTI has negotiated with its sister company (NYK Line) to achieve a higher level of AMP usage than what is required under the CARB regulations. In addition, NYK Line has made many of its ships AMP-ready ahead of schedule, and already has been plugging into shore power at the YTI terminal since 2007.

But YTI has no corporate relationship to the ***other*** carriers with ships that call at the terminal. It has no control over those carriers and cannot compel them to comply with AMP requirements that are above and beyond what is mandated by the CARB regulations.

Equally important, many shipping lines are having significant problems in achieving compliance with the CARB regulations, let alone achieving heightened standards. Many companies have been unable to meet the 2014 requirements and this problem likely will continue as more stringent requirements take effect in the coming years. Severe economic conditions have profoundly affected the shipping industry, imposing significant cost pressures on shipping companies. In turn, this has led to a limited supply of AMP-ready vessels, as well as the inability of shipping lines to commit to provide AMP-ready vessels in excess of the regulatory requirements, either generally or at any specific terminal.[3]

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[3] As we previously have explained, the data shows that of the top 20 ocean carriers, all of whom call at Los Angeles or Long Beach, only a few are making an operating profit and the margins are small, while ocean freight rates today are the same or lower as they were 20 years ago. These negative economic conditions have persisted. As a result, shipping lines continue to struggle financially and are constantly looking at cost savings measures, including increased use of chartered ships. This adversely affects the ability to convert

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Given the prevailing economic conditions, the ability of shipping companies to meet heightened AMP requirements in the future is speculative at best. Generally speaking, the newest and most efficient vessels are built and then deployed into the Asia-Europe trade. The vessels then "cascade" from that trade lane to other trades, including the Trans-Pacific trade, which therefore does not utilize the newest vessels. It is not known beforehand which vessels will "cascade" to the Trans-Pacific trade, and generally these vessels are not AMP-ready, since this is not a global requirement. In light of these market-based factors, it is not a foreseeable or likely scenario that shipping companies will commit significant costs to upgrade their fleets to exceed California's regulatory standards.

For this reason, if the approvals for this project were to attempt to mandate that shipping lines serving the YTI terminal must exceed the CARB regulations, that could very well lead the shipping lines to move their business to other terminals that do not have such heightened requirements. This could eliminate smaller ship size classes from the YTI terminal (as AMP-capable ships are not as readily available in the market for these small ships), and, conversely, limit the YTI terminal to larger Post-Panamax ships. But this merely would move the emissions from the smaller, non-AMP ships to other locations at the Port of Los Angeles or Port of Long Beach, instead of actually achieving a net reduction in port-wide emissions. This shift in emissions actually could cause an environmental detriment, given that the YTI terminal is not relatively proximate to sensitive receptors.

While accelerated AMP requirements have been included as mitigation for a few other projects, it is our understanding that these projects are having significant problems in actually meeting the heightened requirements. And even if such requirements are complied with, due to the market constraints discussed above, that would make it all the more difficult to ensure that a sufficient number of AMP-ready vessels would be available to meet heightened requirements at the YTI terminal. Put simply, with only a limited number of AMP-ready ships to go around, accelerated requirements that are fulfilled at one terminal make it more difficult to attain such requirements at another location.

For all of these reasons, we do not believe accelerated or heightened AMP requirements, beyond those included in the Draft EIR, are feasible mitigation for this project. However, YTI can demonstrate that the primary vessel fleet that calls on the YTI terminal, NYK Line, has made a substantial commitment to provide the most environmentally friendly vessels available to the trade lane.

And in addition to the 95% mitigation requirement exceeding the CARB regulations, it is also important to point out some salient examples of early compliance and recognition of both YTI and NYK:

- YTI has been awarded the Port of Los Angeles Clean Air Action Plan (CAAP) award 3 times in 2008, 2009 and 2011 where NYK was also given the award. No other terminal operator has won this award 3 times.

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vessels to AMP, since a vessel conversion costs roughly $1,000,000 per vessel and the AMP container that is used to convert shore power to vessel power costs an additional $600,000 per box.

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- In 2004 NYK Line built the NYK Atlas, their first vessel to comply with current CARB regulations prior to the inception of actual regulations. From inception to 2013, prior to the CARB requirement, NYK utilized AMP on 68 vessel calls eliminating considerable amounts of emissions from the harbor. With this early adoption NYK Line also elected CARB's early compliance 'Option 2', the "Equivalent Emissions Reduction Option," meeting CARB's AMP targets beginning in 2010, four years ahead of "Option 1," which all but NYK Line and one other shipping line chose as the compliance option.

- In Los Angeles NYK Line met or exceeded annual early compliance measures for 2010, 2011, 2012 and 2013. Starcrest, an independent environmental company reports emissions data for the Ports of Los Angeles and Long Beach. As part of YTI's ISO-14001 program under the International Environmental Management Standard, YTI also employs Starcrest to monitor emissions including OGV emissions reductions at the YTI terminal. The latest data fully available is from the 2012 year-end report and highlights reductions between the baseline year (2005) and 2012. This data shows significant emissions reductions of vessels calling at YTI.

Comparison of OGV Emissions, 2012 vs. 2005							
Emission Type	PM10	PM2.5	DPM	NOx	SOx	CO	HC
2012 vs. 2005	**-84%**	**-82%**	**-85%**	**-40%**	**-93%**	**-22%**	**-15%**

- NYK has been recognized repeatedly in FTSE4Good (11 Consecutive years), Dow Jones Sustainability Index (11 consecutive years), Global 100 Most Sustainable (8 consecutive years) companies and has numerous recognitions for ship design from Lloyds List for advancements including solar power adoption, environmentally friendly hull coatings and the development of the 'air bubble hull system' to reduce drag on hulls and conserve fuel.

- NYK received the special achievement award at the 2013 Nikkei Annual Report Awards for publishing of their combined Annual and CSR (Corporate Social Responsibility) report. The report contains information about the group's finances in addition to its long-term ESG (Environment, Society and Governance) solutions in order to provide stakeholders with a reliable understanding of the NYK Group's corporate values.

- NYK has been certified by the Lloyds Register as ISO-14001 compliant since 2002. YTI has been ISO-14001 certified since 2003. Audits are conducted annually using global standards to ensure effective environmental management and performance.

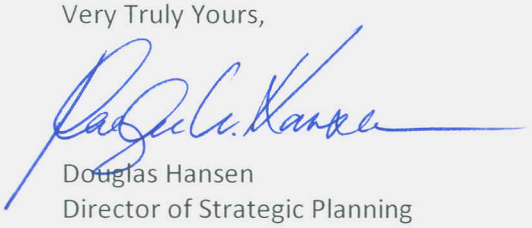
Finally, it is important to note that the Draft EIS/EIR has identified a process to implement future technology. The Clean Air Action Plan is not a static plan and the Port is working on advancing emission reduction strategies through the TAP and regular updates to the CAAP. The Port of Los Angeles is also working with the International Association of Ports and Harbors (IAPH) to develop incentive program strategies to participate in the Environmental Ship Index Program; NYK Line was one of the initial lines to join the ESI at its inception. ESI is an international web-based ship-rating system ports can use to promote clean ships by rewarding operators whose

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vessels exceed current environmental performance standards and regulations. The ESI identifies voluntary engine, fuel and technology enhancements ships can use to exceed current standards. The ESI targets primary pollutants and also contains a component to help reduce greenhouse gases. As Lease Measure AQ-1 requires, tenants must periodically review and assess new emissions reductions technologies, and work with the Port to implement such technologies that are determined to be feasible.

Please confirm receipt of this correspondence and contact me directly to arrange and discuss any formalities associated with the contents of this letter. We thank you for your continuing partnership and look forward to the successful completion of the EIR process related to the terminal redevelopment.

Very Truly Yours,



Douglas Hansen
Director of Strategic Planning
Yusen Terminals, Incorporated

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Appendix F
Sediment Characterization Report

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

Submitted to:



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

Submitted by:



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

May 2014

Agreement Number: 10-2893
Project Directive Number: 29
ADP No. 130204-020 C

AMEC Project No. 1315102710

EXECUTIVE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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ACRONYMS AND ABBREVIATIONS

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

ACRONYMS AND ABBREVIATIONS (Cont.)

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

1.0 INTRODUCTION

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

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

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

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

1.1 Project Description

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

Major Project construction activities will include:

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

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

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

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

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

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

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



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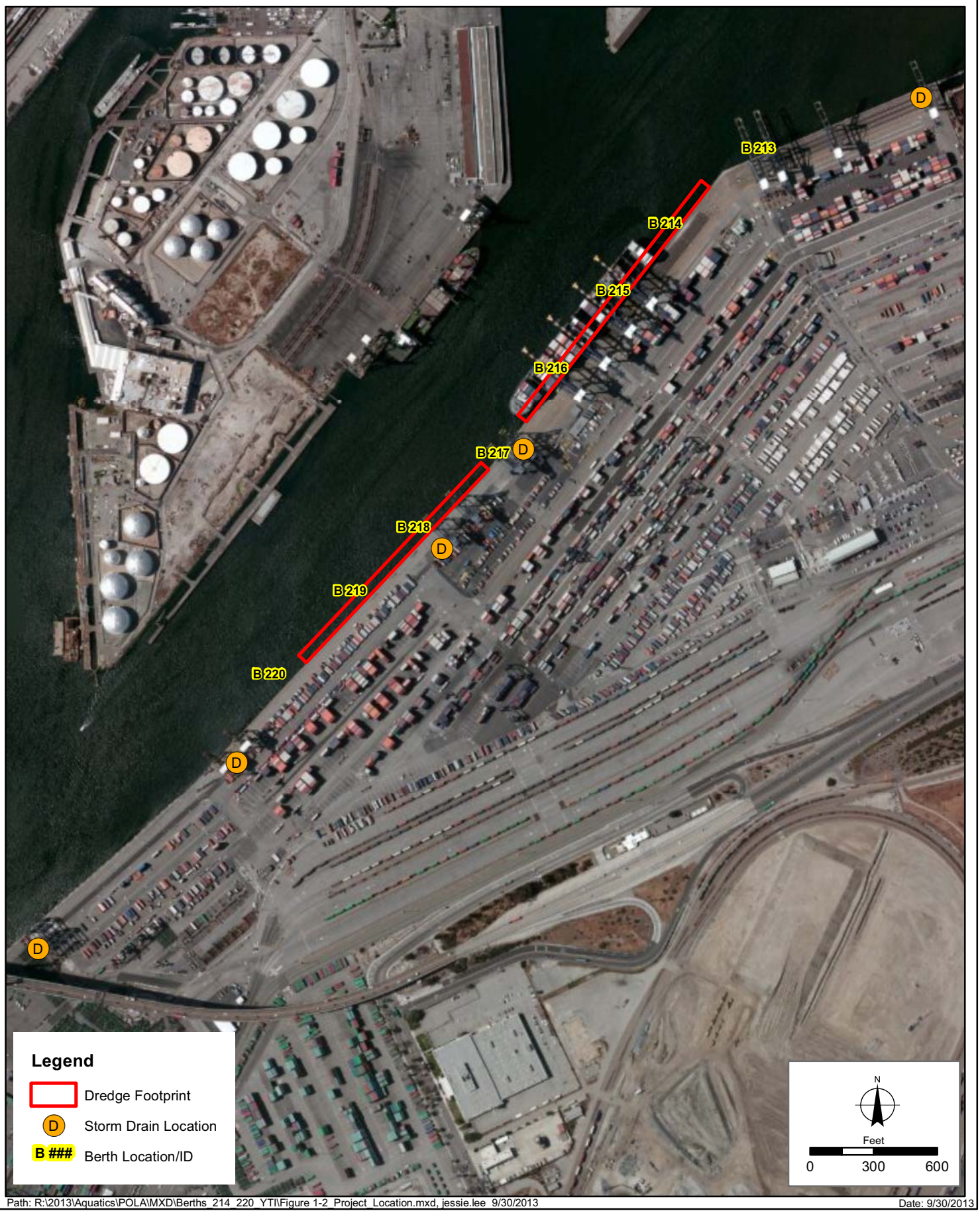
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Project Vicinity
Berths 212-224 [YTI] Container Terminal Improvements Project
Port of Los Angeles

FIGURE
1-1

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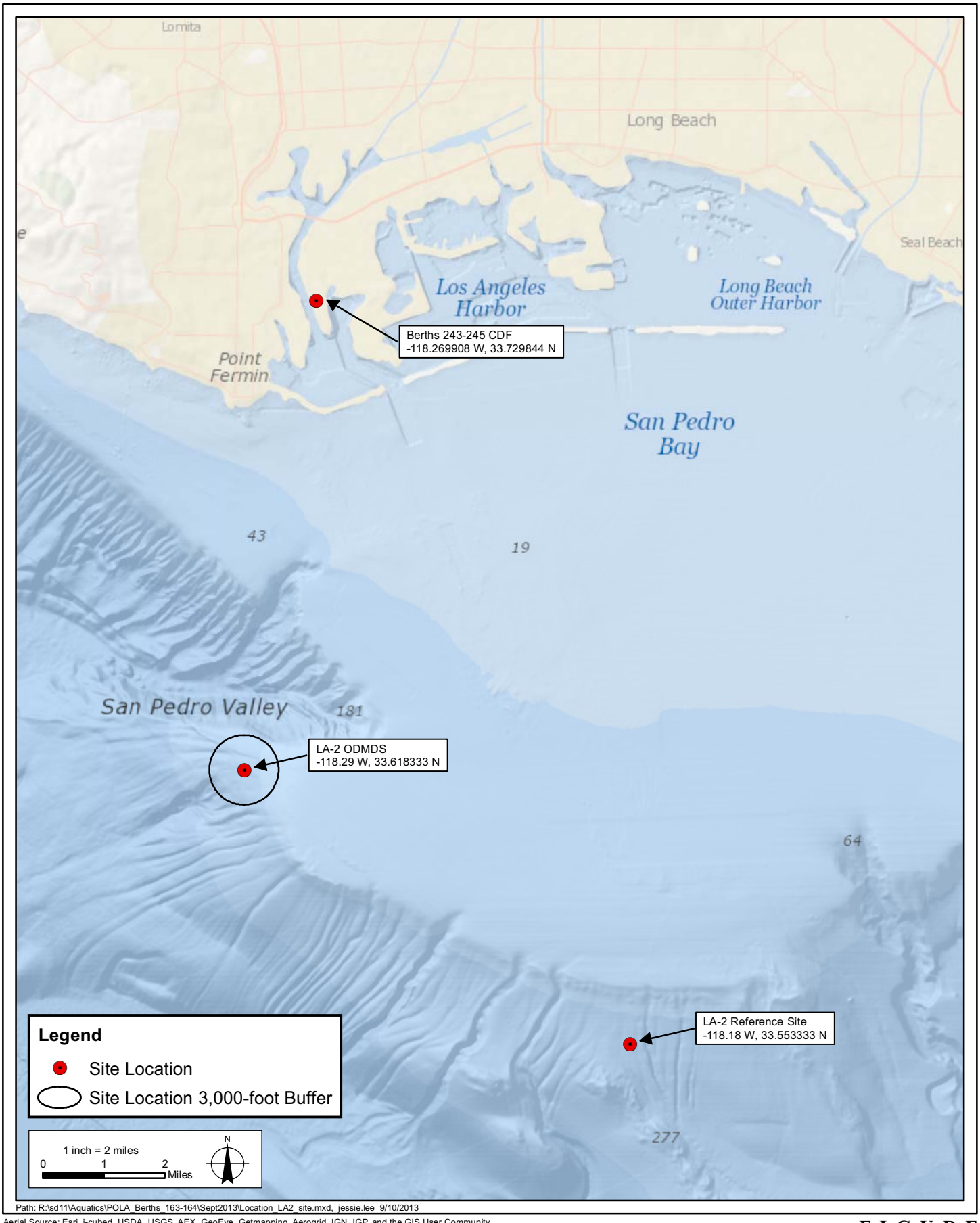
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Project Location
Berths 212-224 [YTI] Container Terminal Improvements Project
Port of Los Angeles

FIGURE
1-2

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

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

FIGURE 1-3

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1.2 Land Uses and Influences

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

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

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

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

1.2.1 Previous Sediment Characterization Studies

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

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

1.2.2 Current Sediment Characterization Study

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

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

The following report sections provide information on:

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

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

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

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2.0 MATERIALS AND METHODS

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

2.1 Sediment Collection

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

2.1.1 Core Collection Locations

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

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

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

2.1.2 Test Sediment Collection

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

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

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

2.1.3 Reference Sediment Collection

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

2.1.4 Control Sediment Collection

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



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amec

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

FIGURE
2-1

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Table 2-1.
Sample Collection Locations

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

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

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

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

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

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

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

Notes:
1. Determined at the time of sampling
2. Core length recovered after extraction; represents length of core after compaction and possible loss of fines at seafloor surface.
(A) = archive; DD/–DDD° mm.mmm' = degrees decimal minutes; ft = foot/feet; MLLW = mean lower low water; WGS 84 = World Geodetic System 1984

2.1.5 Z-layer Sediment Collection

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

2.2 Sample Collection Documentation, Handling, and Delivery

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

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

2.3 Chemical and Physical Analyses

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

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

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

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

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

Notes:
a Sediment minimum detection limits are on a wet-weight basis; tissue minimum levels are on a wet-weight basis.
b Reporting limits provided by Calscience Environmental Laboratories, Inc.
c Standard Methods for the Examination of Water and Wastewater, 19th Ed. American Public Health Assoc. et al., 1995.
d USEPA 1986–1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.
e Includes naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene
f Includes aldrin, α-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene
g PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)
h Rice, C.D., et al., 1987, or similar (e.g. Krone et al., 1989)
i National Oceanographic and Atmospheric Administration (NOAA), 1993
j allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cyhalothrin-lamba, cypermethrin, deltamethrin (decamethrin), esfenvalerate, fenpropathrin (danitol), fenvalerate (sanmarton), fluvalinate, permethrin (cis and trans), resmethrin (bioresmethrin), resmethrin, sumithrin (phenothrin}, tetramethrin, and tralomethrin
µg/kg = micrograms per kilogram (parts per billion); µg/L = micrograms per liter; mg/kg = milligrams per kilogram (parts per million); mg/L = milligrams per liter; NA = not applicable; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl; SM = Standard Method; SOP = standard operating procedure; TPH = total petroleum hydrocarbon; TRPH = total recoverable petroleum hydrocarbon

2.3.1 Grain-Size Analyses

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

2.3.2 Chemical Analyses

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

2.4 Toxicity Analysis

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

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

Solid-Phase Tests

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

Suspended Particulate-Phase Tests

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

Bioaccumulation-Phase Test

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

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

2.4.1 Solid-Phase Toxicity Tests

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

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

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

2.4.2 Suspended Particulate-Phase Toxicity Tests

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

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

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

2.4.3 Bioaccumulation-Phase Tests

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

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

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

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3.0 RESULTS

3.1 Physical Characteristics

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

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

Table 3-1.
Grain-Size Results

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

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

3.2 Bulk Sediment Chemistry Results

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

3.2.1 Sediment Quality Guidelines

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

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

3.2.2 General Chemistry

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

3.2.3 Metals

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

3.2.4 Chlorinated Pesticides

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

Table 3-2.
Additional Sediment Chemistry Testing Summary

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

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

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

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

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

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

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

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

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

Notes:
Results are presented in dry weight
Red Font indicates value higher than ERL
Red Underlined Font indicates value higher than ERM
ERL = Effects Range Low; ERM = Effects Range Median; J = concentrations greater than or equal to MDL but less than RL; kg = kilogram; mg = milligram; ND = Non Detect; NT = Not Tested; PAH = Polycyclic aromatic hydrocarbon; PCB = Polychlorinated biphenyl; TPH = Total petroleum hydrocarbons; TRPH = Total recoverable petroleum hydrocarbons

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3.2.5 Pyrethroids

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

3.2.6 Phenols

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

3.2.7 Phthalates

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

3.2.8 Polycyclic Aromatic Hydrocarbons

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

3.2.9 Total Petroleum Hydrocarbons

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

3.2.10 Organotins

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

3.2.11 PCB Congeners

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

3.3 Toxicity Test Results

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

3.3.1 Solid-Phase Toxicity Tests

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

3.3.1.1 Amphipod (*Eohaustorius estuaries*)

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

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

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

3.3.1.2 Polychaete (*Neanthes arenaceodentata*)

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

Table 3-3.
Solid-Phase Toxicity Results

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

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

3.3.2 Suspended Particulate-Phase Toxicity Tests

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

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

Table 3-4.
Suspended Particulate-Phase Toxicity Results

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

Notes:
Data are mean percent survival at 96 hours (mysid and fish [inland silverside] tests) and mean percent normal development at 48 hours (bivalve [mussel] test).
Boldface* = Values indicate a statistically significant decrease from the laboratory control.

3.3.3 Bioaccumulation-Phase Tests

3.3.3.1 Survival

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

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

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

Notes:
Initial number of *Macoma* organisms per replicate = 35
Initial number of *Nereis* organisms per replicate = 10

3.3.3.2 Bioaccumulation Tissue Analysis

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

3.3.3.2.1 Metal Bioaccumulation in Clam and Worm Tissues

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

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

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

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

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

Notes:
Boldface* - significant t-test results when compared to the Reference ($p \leq 0.05$)
1 SD = standard deviation; mg/kg = milligrams per kilogram; ND = non-detect

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

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

Notes:
Boldface* = significant t-test results when compared to Reference ($p \leq 0.05$)
1 SD = standard deviation; ND = non-detect; mg/kg = milligrams per kilogram

3.3.3.2.2 Organics Bioaccumulation in Clam and Worm Tissues

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

(10.0 ± 1.76 µg/kg and 14.5 ± 3.40 µg/kg, respectively) were found to be statistically significant when compared to those exposed to Reference sediments.

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

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

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

Notes:
Boldface* = significant t-test results when compared to Reference (p≤0.05)
1 SD = standard deviation; µg/kg = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; ND = non-detect; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

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

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

Notes:
Boldface* - significant t-test results when compared to Reference (p≤0.05)
1 SD = standard deviation; µg/kg = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

3.4 Data Validation

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

3.4.1 Sediment Data Validation

3.4.1.1 Laboratory Duplicates

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

3.4.1.2 Calibration

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

3.4.1.3 Blanks

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

3.4.1.4 Laboratory Control Samples

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

3.4.1.5 Surrogates

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

3.4.1.6 Matrix Spikes

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

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

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

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

3.4.2 Toxicity Testing Data Validation

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

3.4.2.1 Reference Toxicant Tests

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

3.4.2.2 Solid-Phase Toxicity Tests

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

3.4.2.3 Suspended Particulate-Phase Toxicity Tests

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

3.4.2.4 Bioaccumulation Tests

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

3.4.3 Tissue Testing Data Validation

3.4.3.1 Calibration

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

3.4.3.2 Blanks

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

3.4.3.3 Laboratory Control Samples

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

3.4.3.4 Surrogates

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

3.4.3.5 Matrix Spikes

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

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

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

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

4.0 DISCUSSION

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

4.1 Sediment Collection

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

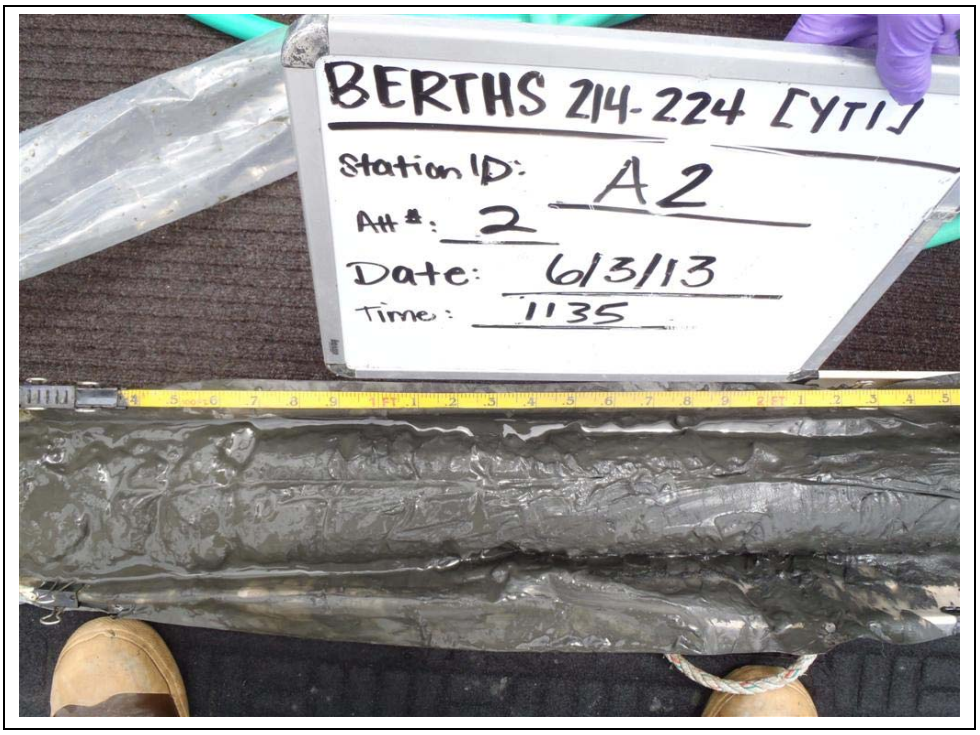


Figure 4-1. Top Silty Material Beginning To Transition to Clay (0–2 ft below harbor bottom)



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



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

4.2 Sediment Chemistry

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

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

4.3 Toxicity Analysis

4.3.1 Solid-Phase Toxicity Tests

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

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

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

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

4.3.2 Suspended Particulate-Phase Tests

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

4.3.2.1 Potential Confounding Factors: Ammonia

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

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

4.3.3 Bioaccumulation-Phase Tests

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

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

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

4.3.3.1 Bioaccumulation Statistical Comparisons

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

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

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

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

Notes:
mg/kg = milligrams per kilogram

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

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

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

4.3.3.2 Bioaccumulation Comparison with FDA Action Levels

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

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

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

Notes:
Listed “average concentration” results are the average of 5 replicates.
Results are listed in wet weight.
FDA action level for lead, chromium, and 4,4'-DDE is from "U.S. FDA Action Levels for crustaceans and/or shellfish.”
FDA action level for total PCBs is from "U.S. FDA Action Levels for All Fish."
µg/kg = micrograms per kilogram; DDE = dichlorodiphenyldichloroethane; FDA = Food and Drug Administration;
mg/kg = milligrams per kilogram; NA = no FDA action limit; PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl

4.3.3.3 Bioconcentration Factors

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

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

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

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

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

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

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

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

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

4.3.3.4 Environmental Residue Effects Database Comparison

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

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

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

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

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

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

Chromium

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

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

Copper

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

Lead

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

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

Pesticide 4,4'-DDE

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

PAHs

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

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

PCB Congeners

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

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

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

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

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

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

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

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

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

Notes:
1. All concentrations are wet weight values
2. The reporting limit (RL) is used as the concentrations for the ND values
3. No applicable ERED studies were available for the following statistically significant analytes: 4,4'-DDE, benzo (e) pyrene, benzo (k) fluoranthene, PCBs 28, 49, 60, 66, 70, 95, 99, 101, 110, 118, 149, 151, 153, 158, 180, and 187.

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

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5.0 CONCLUSIONS

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

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

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

This conclusion is supported by the following findings:

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

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

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

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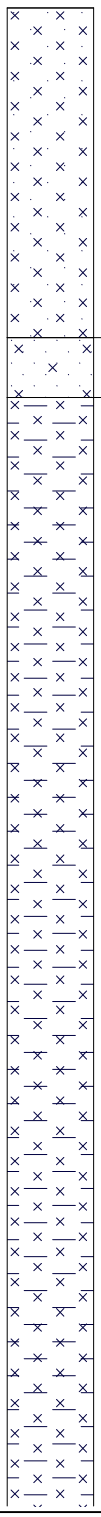
APPENDIX A

CORE LOGS

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

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

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

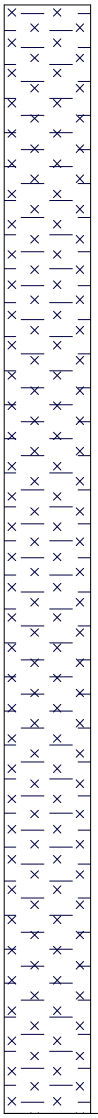
Water Depth (ft): 49.2
Tide (ft): +3.0
Target Penetration (ft): 9.3
Actual Penetration (ft): 9.1
Recovered Core Length (ft): 8.7

Log of Station ID: A1-Attempt 1

Additional Notes: Bottom is hard clay plug.

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0 – 8.7		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	Z-layer from 8.4' to 8.7'
8.7						Refusal at 55.3' MLLW

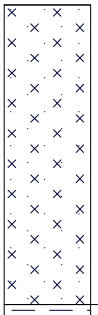
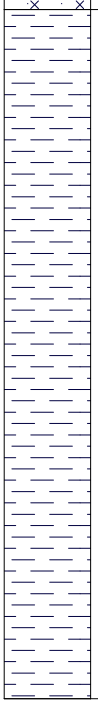
Water Depth (ft): 49.2
Tide (ft): +3.0
Target Penetration (ft): 9.3
Actual Penetration (ft): 9.1
Recovered Core Length (ft): 8.7

Log of Station ID: A1-Attempt 1

Additional Notes: Bottom is hard clay plug.

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 1.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Minor black streaking, less dense
1.0 – 3.3		Clay with minor Silt	Dark Greenish-gray	5GY 4/1		Consolidated & density increase below 1.0'

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

Log of Station ID: A1-Attempt 2

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

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

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

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

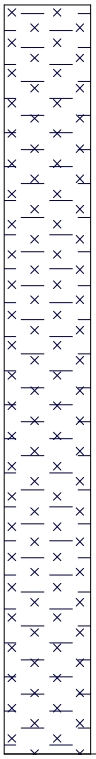
Water Depth (ft): 49.0
Tide (ft): +1.9
Target Penetration (ft): 8.4
Actual Penetration (ft): 8.0
Recovered Core Length (ft): 7.5

Log of Station ID: A2-Attempt 1

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

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0 – 7.5		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	
7.5						Refusal at 55.1' MLLW

5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

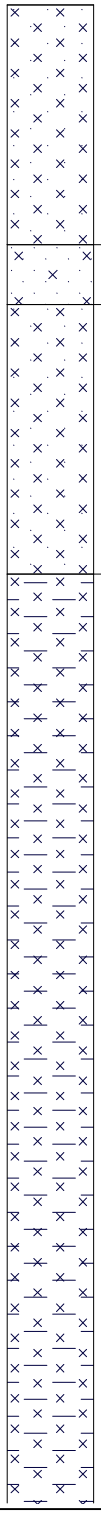
Water Depth (ft): 49.0
Tide (ft): +1.9
Target Penetration (ft): 8.4
Actual Penetration (ft): 8.0
Recovered Core Length (ft): 7.5

Log of Station ID: A2-Attempt 1

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

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

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

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

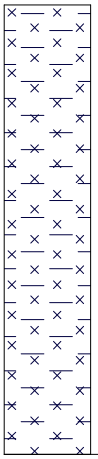
Water Depth (ft): 48.0
Tide (ft): +1.5
Target Penetration (ft): 9.0
Actual Penetration (ft): 7.5
Recovered Core Length (ft): 6.5

Log of Station ID: A2-Attempt 2

Additional Notes: No z-layer collected.

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0 – 6.5		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	
6.5						Refusal at 53.0' MLLW

5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

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

Log of Station ID: A2-Attempt 2

Additional Notes: No z-layer collected.

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

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

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

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

Log of Station ID: A3-Attempt 1

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

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

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

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

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

Log of Station ID: A3-Attempt 2

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

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

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

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

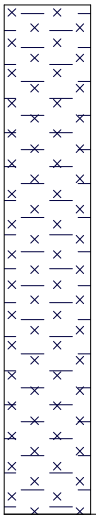
Water Depth (ft): 49.9
Tide (ft): +2.1
Target Penetration (ft): 7.7
Actual Penetration (ft): 7.3
Recovered Core Length (ft): 6.7

Log of Station ID: A4-Attempt 1

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

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0 – 6.5		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	
						Refusal at 55.1' MLLW

5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

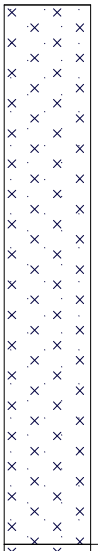
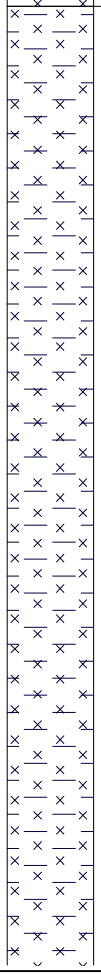
Water Depth (ft): 49.9
Tide (ft): +2.1
Target Penetration (ft): 7.7
Actual Penetration (ft): 7.3
Recovered Core Length (ft): 6.7

Log of Station ID: A4-Attempt 1

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

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

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

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

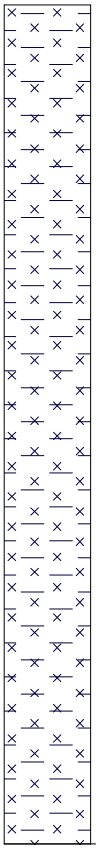
Water Depth (ft): 50.6
Tide (ft): +3.5
Target Penetration (ft): 8.4
Actual Penetration (ft): 7.8
Recovered Core Length (ft): 7.8

Log of Station ID: A5-Attempt 1

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

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
5.0 – 7.8		Clay with Silt	Dark Greenish-gray	5GY 4/1	None	
7.8						Refusal at 54.9' MLLW

5.0 — 5.5 — 6.0 — 6.5 — 7.0 — 7.5 — 8.0 — 8.5 — 9.0 — 9.5 — 10.0

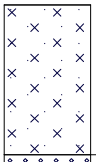
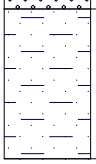
Water Depth (ft): 50.6
Tide (ft): +3.5
Target Penetration (ft): 8.4
Actual Penetration (ft): 7.8
Recovered Core Length (ft): 7.8

Log of Station ID: A5-Attempt 1

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

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

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

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

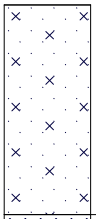
Water Depth (ft): 48.4
Tide (ft): +2.2
Target Penetration (ft): 3.3
Actual Penetration (ft): 3.3
Recovered Core Length (ft): 3.0

Log of Station ID: B1-Attempt 1

Additional Notes: Z-layer & sample jars collected.

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

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

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

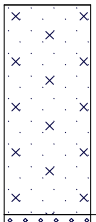
Water Depth (ft): 48.7
Tide (ft): +2.5
Target Penetration (ft): 3.3
Actual Penetration (ft): 3.3
Recovered Core Length (ft): 2.2

Log of Station ID: B1-Attempt 2

Additional Notes: Z-layer bag added to composite.

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

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

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

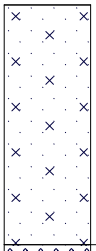
Water Depth (ft): 49.2
Tide (ft): +2.8
Target Penetration (ft): 3.1
Actual Penetration (ft): 3.1
Recovered Core Length (ft): 2.6

Log of Station ID: B1-Attempt 3

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

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 0.8		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	Slightly unconsolidated with shell hash at surface
0.8 – 1.6		Fine grained Sand	Dark Greenish-gray	10Y 4/1		More consolidated, dry at 0.8'
1.6 – 3.3		Fine grained Sand with Clay				Stickier, rolls easier, Z-layer from 2.8' to 3.3'

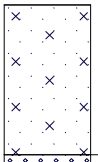
Water Depth (ft): 49.4
Tide (ft): +3.0
Target Penetration (ft): 3.1
Actual Penetration (ft): 3.3
Recovered Core Length (ft): 3.3

Log of Station ID: B1-Attempt 4

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

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

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

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

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

Log of Station ID: B1-Attempt 5

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

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

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

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

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

Log of Station ID: B2-Attempt 1

Additional Notes:

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.3		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	Very clean & homogeneous Z-layer from 2.0' to 2.3'

0.0 — 0.5 — 1.0 — 1.5 — 2.0 — 2.5 — 3.0 — 3.5 — 4.0 — 4.5 — 5.0

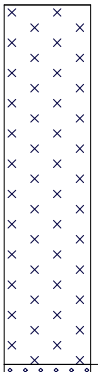
Water Depth (ft): 49.0
Tide (ft): +2.0
Target Penetration (ft): 2.5
Actual Penetration (ft): 3.0
Recovered Core Length (ft): 2.3

Log of Station ID: B2-Attempt 2

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

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

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

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

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

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

Log of Station ID: B2-Attempt 3

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

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 1.5		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	Homogeneous & clean Dark streak at 0.2'

0.0 — 0.5 — 1.0 — 1.5 — 2.0 — 2.5 — 3.0 — 3.5 — 4.0 — 4.5 — 5.0

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

Log of Station ID: B2-Attempt 4

Additional Notes: Z-layer added for composite bag.

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.0		Fine grained Sand	Very Dark Greenish-gray	5GY 3/1	None	One shell at top Core very homogenous & cleaner

0.0 — 0.5 — 1.0 — 1.5 — 2.0 — 2.5 — 3.0 — 3.5 — 4.0 — 4.5 — 5.0

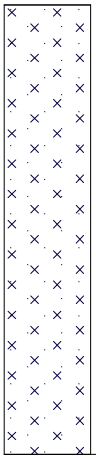
Water Depth (ft): 49.0
Tide (ft): +2.0
Target Penetration (ft): 2.5
Actual Penetration (ft): 3.0
Recovered Core Length (ft): 2.0

Log of Station ID: B2-Attempt 5

Additional Notes: Plug lost, no Z-layer.

Project Number: 1015101929
Project Manager: Barry Snyder
Logged and Sampled By: KG/TH
Sample Type: Vibracore
Date: 6/7/2013 **Time:** 10:08

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		Sandy Silt	Very Dark Greenish-gray	5GY 3/1	None	Minor shell hash, large chunk at surface
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						

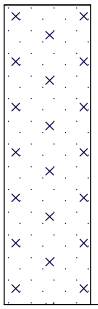
Water Depth (ft): 48.0
Tide (ft): +3.5
Target Penetration (ft): 5.0
Actual Penetration (ft): 5.0
Recovered Core Length (ft): 1.5

Log of Station ID: B3-Attempt 1

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

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

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

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

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

Log of Station ID: B3-Attempt 2

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

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

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

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

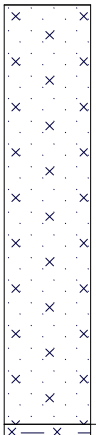
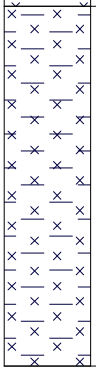
Water Depth (ft): 48.0
Tide (ft): +3.5
Target Penetration (ft): 5.0
Actual Penetration (ft): 5.0
Recovered Core Length (ft): 5.0

Log of Station ID: B3-Attempt 3

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

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

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

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

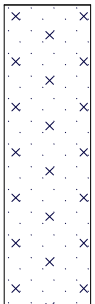
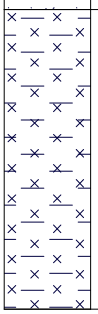
Water Depth (ft): 48.0
Tide (ft): +3.2
Target Penetration (ft): 4.7
Actual Penetration (ft): 4.7
Recovered Core Length (ft): 2.6

Log of Station ID: B3-Attempt 4

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

Project Number: 1015101929
Project Manager: Barry Snyder
Logged and Sampled By: KG/TH
Sample Type: Vibracore
Date: 6/7/2013 **Time:** 11:52

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

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

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

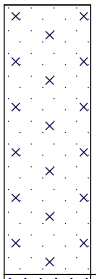
Water Depth (ft): 48.0
Tide (ft): +3.2
Target Penetration (ft): 4.7
Actual Penetration (ft): 4.7
Recovered Core Length (ft): 2.0

Log of Station ID: B3-Attempt 5

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

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 0.9		Silty Sand	Very Dark Greenish-gray	5GY 3/1	None	With shell hash
0.9 – 2.0		Fine grained Sand				Sand looks clean & dry
2.0						Refusal at 49.0' MLLW

0.0 — 0.5 — 1.0 — 1.5 — 2.0 — 2.5 — 3.0 — 3.5 — 4.0 — 4.5 — 5.0

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

Log of Station ID: B4-Attempt 1

Additional Notes: No Z-layer.

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

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

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

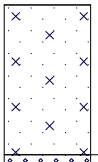
Water Depth (ft): 47.5
Tide (ft): +2.5
Target Penetration (ft): 4.5
Actual Penetration (ft): 3.0
Recovered Core Length (ft): 1.3

Log of Station ID: B4-Attempt 2

Additional Notes:

Project Number: 1015101929
Project Manager: Barry Snyder
Logged and Sampled By: KG/TH
Sample Type: Vibracore
Date: 6/7/2013 **Time:** 13:33

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

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

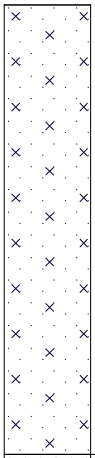
Water Depth (ft): 47.3
Tide (ft): +2.3
Target Penetration (ft): 4.5
Actual Penetration (ft): 3.5
Recovered Core Length (ft): 1.8

Log of Station ID: B4-Attempt 3

Additional Notes:

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

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

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 1.5		Silty Sand	Very Dark Greenish-gray	10Y 3/1	None	Shell hash at top
1.5 – 2.7		Fine grained Sand	Dark Greenish-gray	5GY 3/1		lots of shell hash from 1.6' to 1.7' Sand appears dry at 2.0' Z-layer from 2.2' to 2.7'

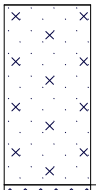
Water Depth (ft): 49.0
Tide (ft): +2.2
Target Penetration (ft): 2.7
Actual Penetration (ft): 2.7
Recovered Core Length (ft): 2.7

Log of Station ID: B4-Attempt 4

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

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

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

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

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

Log of Station ID: B4-Attempt 5

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

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

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

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

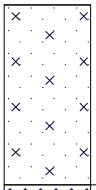
Water Depth (ft): 48.0
Tide (ft): +2.1
Target Penetration (ft): 3.6
Actual Penetration (ft): 3.6
Recovered Core Length (ft): 1.3

Log of Station ID: B5-Attempt 1

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

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

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

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

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

Log of Station ID: B5-Attempt 2

Additional Notes: No Z-layer, hit refusal.

APPENDIX B

CORE PHOTOGRAPHS

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



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

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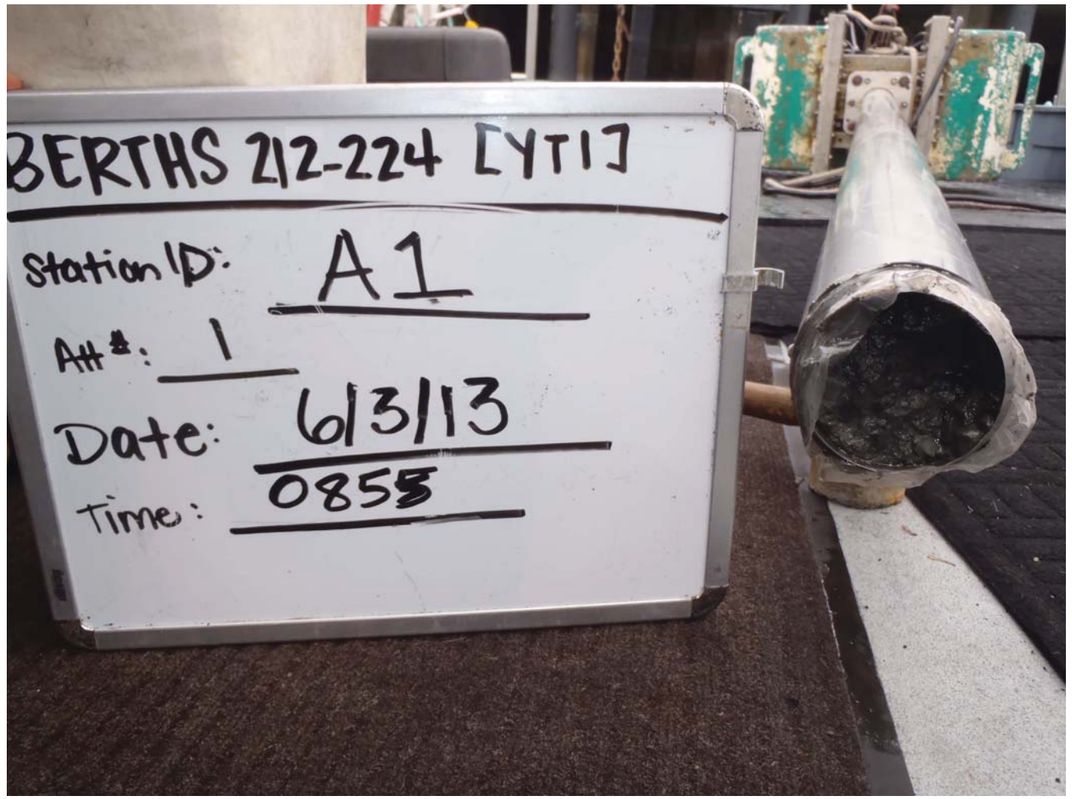
Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A1
Attempt #: 1
Core Length: 4.0 - 6.0 ft.
Sample Date & Time: 06/03/2013 0855



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



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



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

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



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



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

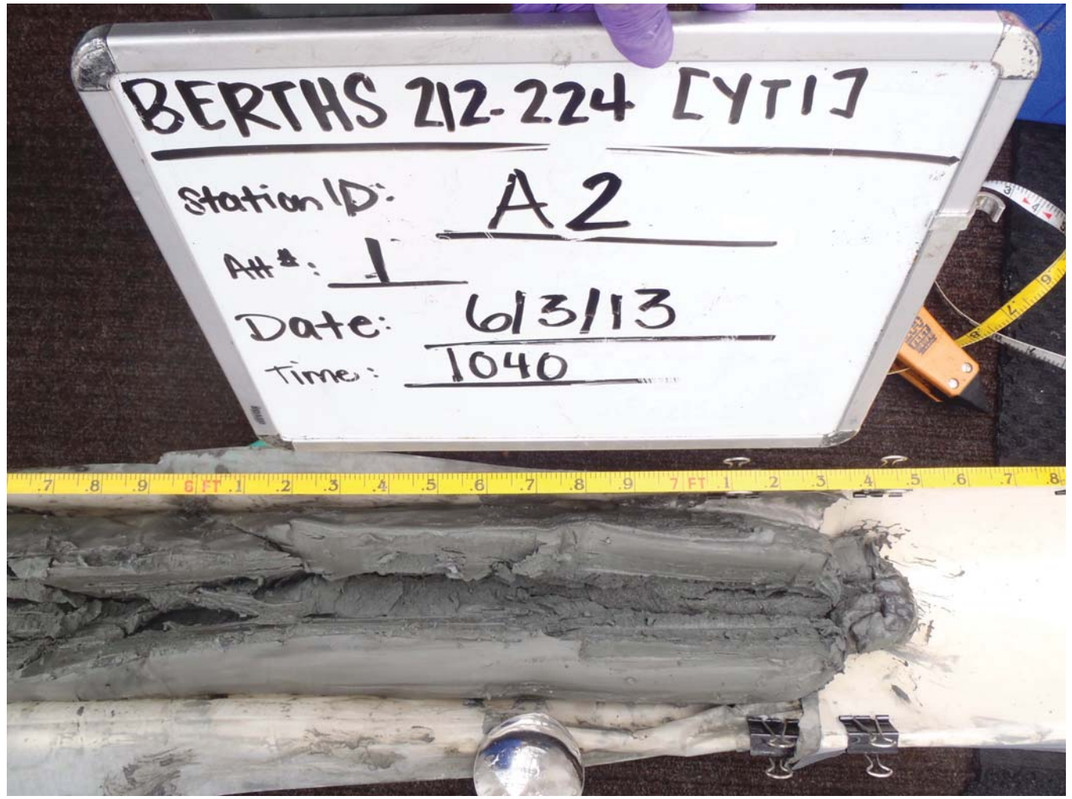


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A2
Attempt #: 1
Core Length: 2.0 - 4.0 ft.
Sample Date & Time: 06/03/2013 1040

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

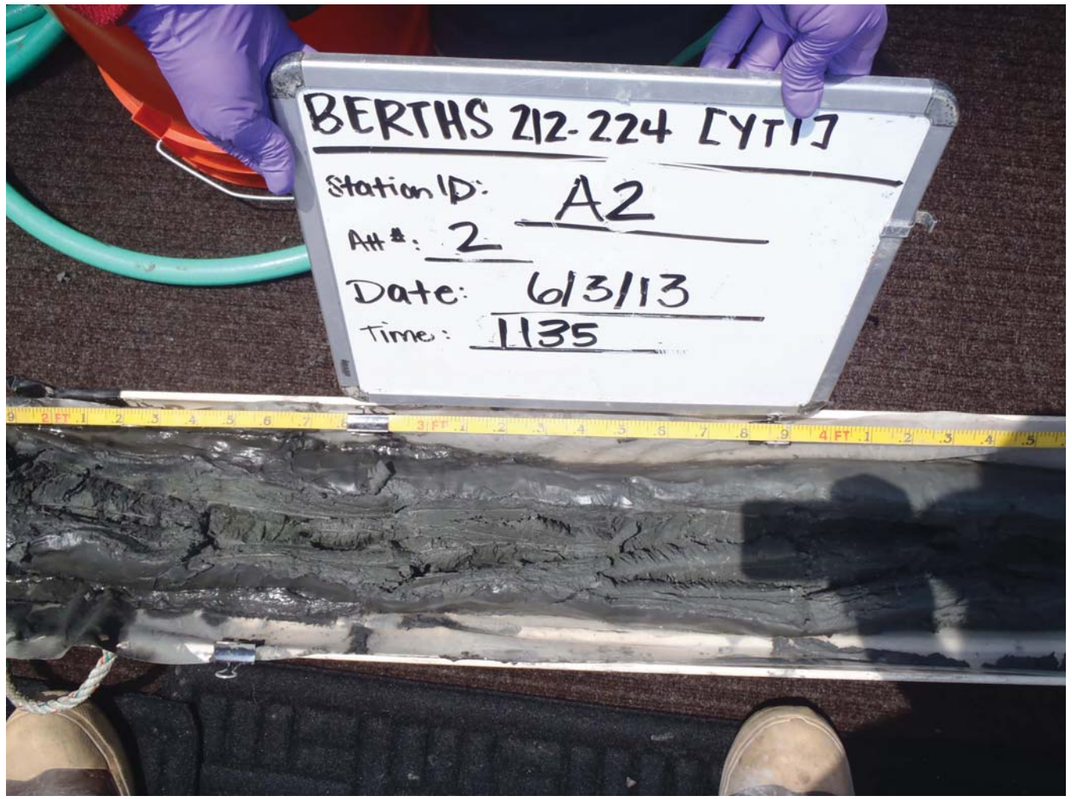


ocation: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A2
Attempt #: 1
Core Length: 6.0 - 7.5 ft.
Sample Date & Time: 06/03/2013 1040

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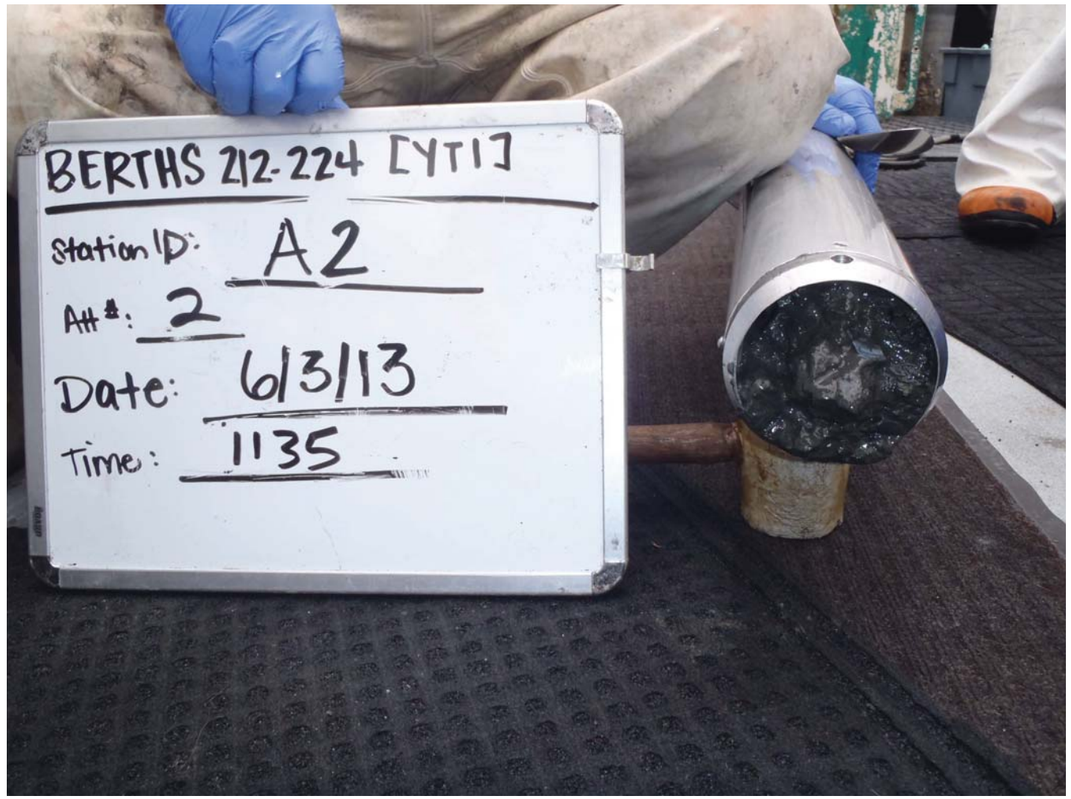
Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A2
Attempt #: 2
Core Length: 0 - 2.0 ft.
Sample Date & Time: 06/03/2013 1135



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



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



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

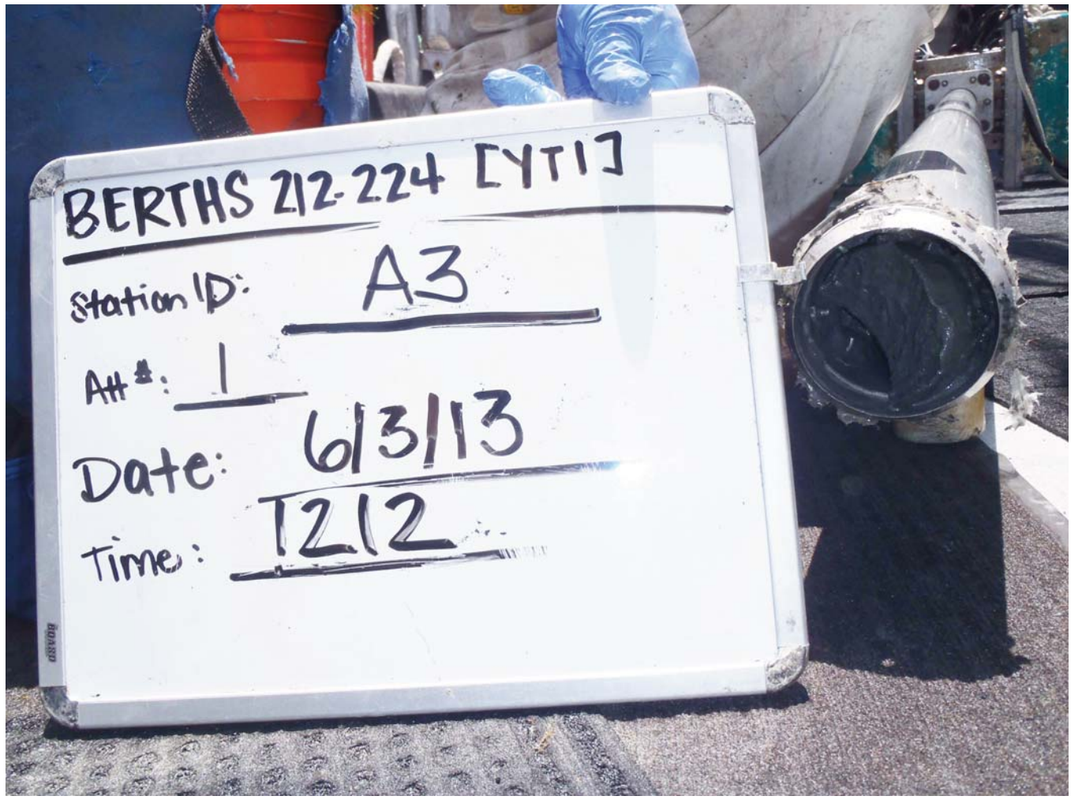


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A3
Attempt #: 1
Core Length: 0 - 2.0 ft.
Sample Date & Time: 06/03/2013 1212



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

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



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

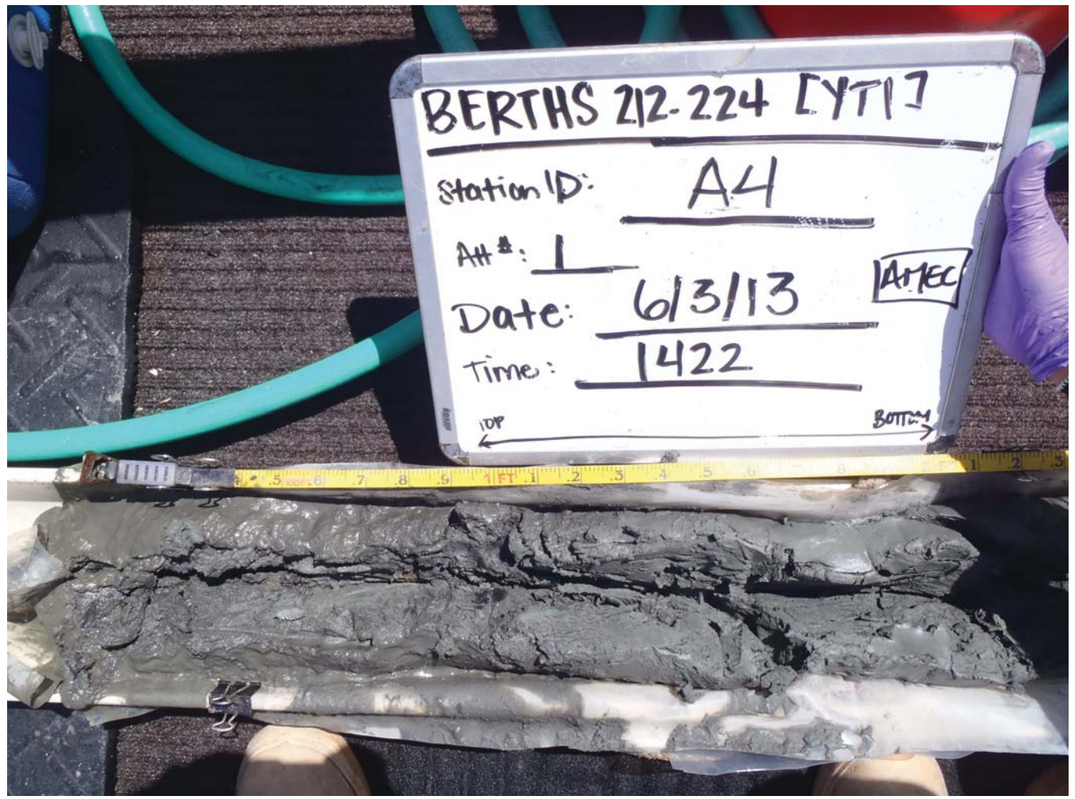


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A3
Attempt #: 2
Core Length: 1.0 - 3.2 ft.
Sample Date & Time: 06/03/2013 1340

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



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

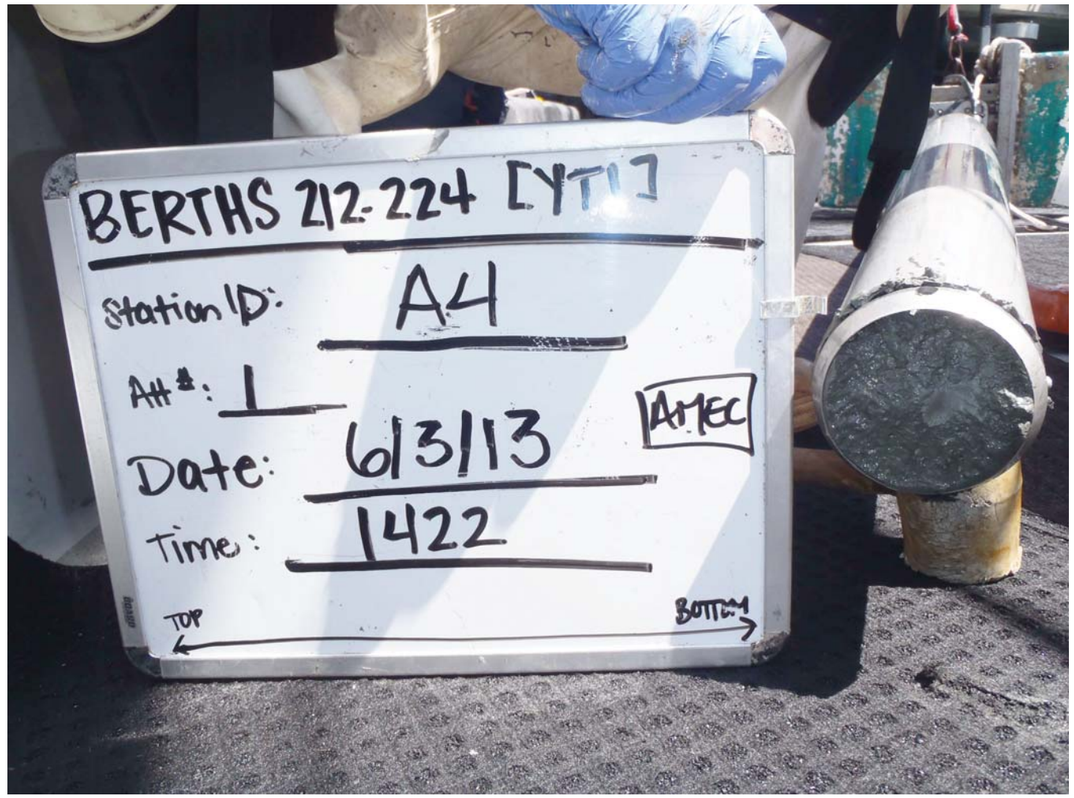


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: A4
Attempt #: 1
Core Length: 2.0 - 4.0 ft.
Sample Date & Time: 06/03/2013 1422

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



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



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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
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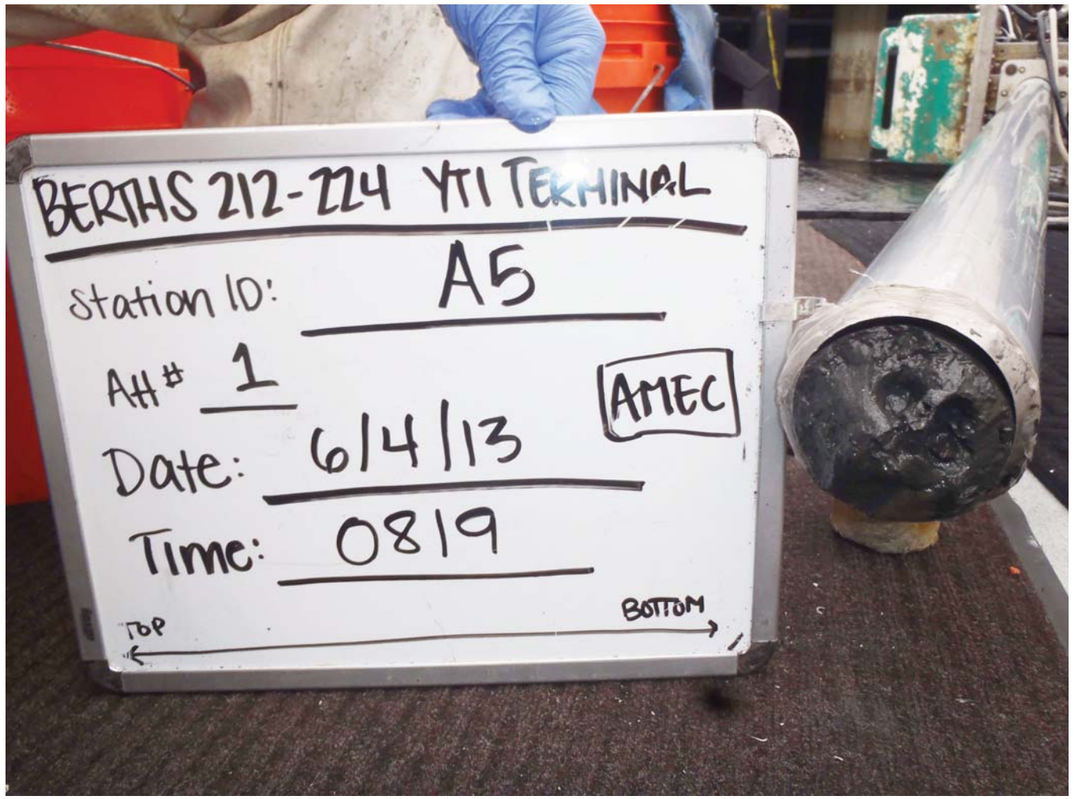
Graphics/AquaticSciences/POLA Berths 214-224/B212-224_Sampling_15.ai



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



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



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



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



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

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



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

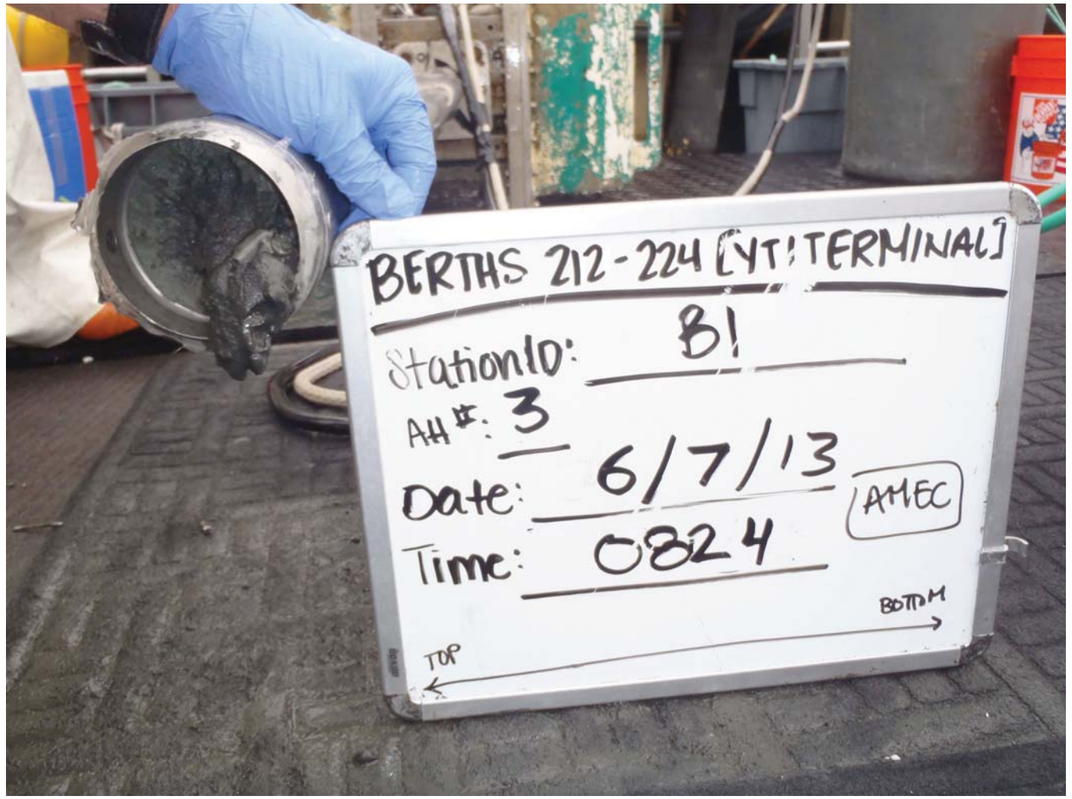


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B1
Attempt #: 2
Core Length: Plug
Sample Date & Time: 06/07/2013 0800

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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
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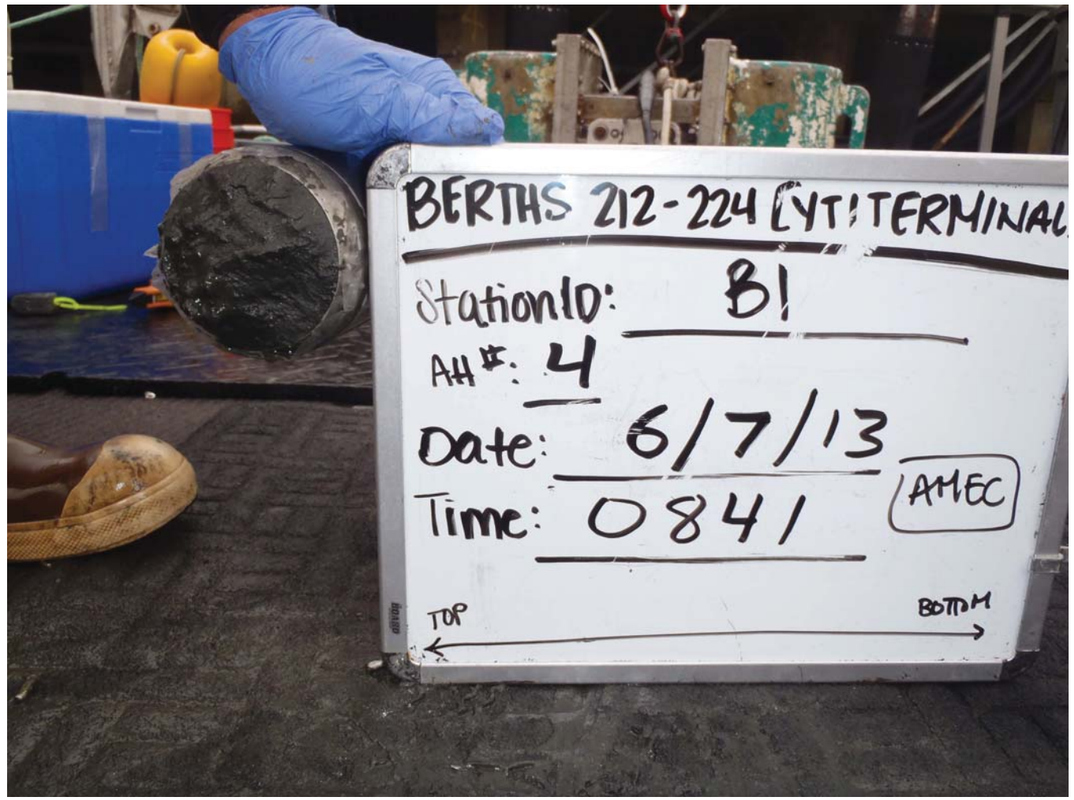


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B1
Attempt #: 4
Core Length: 0 - 2.0 ft.
Sample Date & Time: 06/07/2013 0841



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

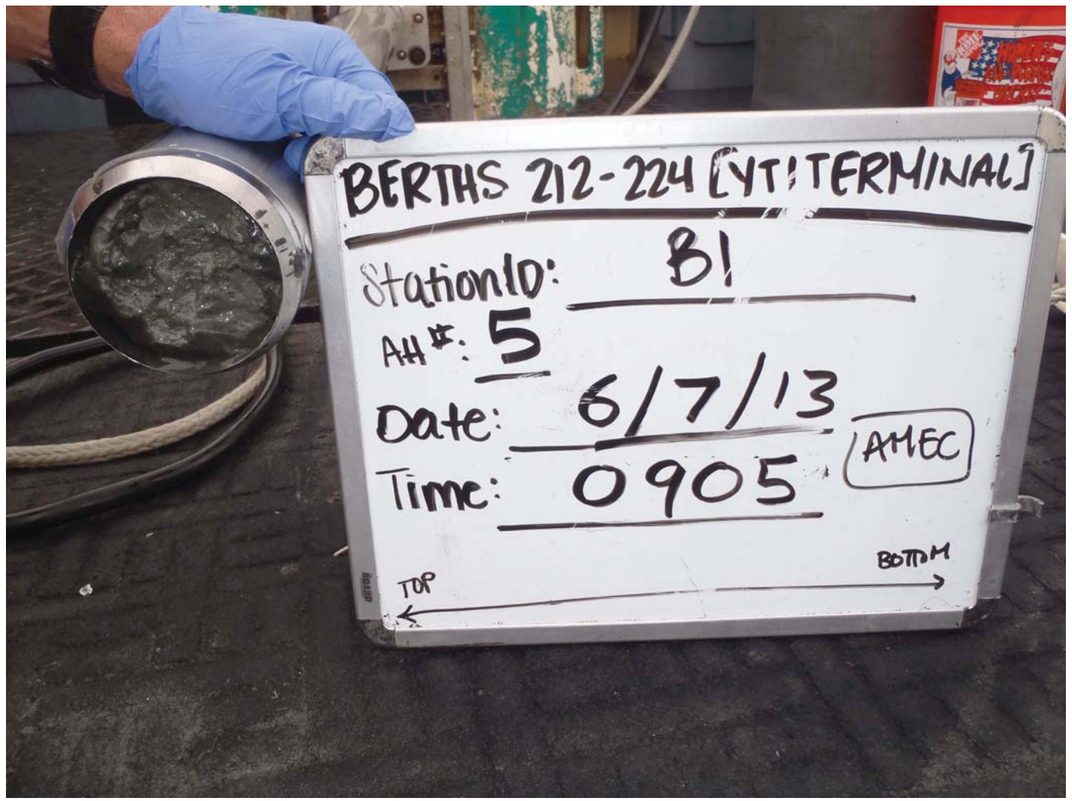
Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
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Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B1
Attempt #: 4
Core Length: Plug
Sample Date & Time: 06/07/2013 0841



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

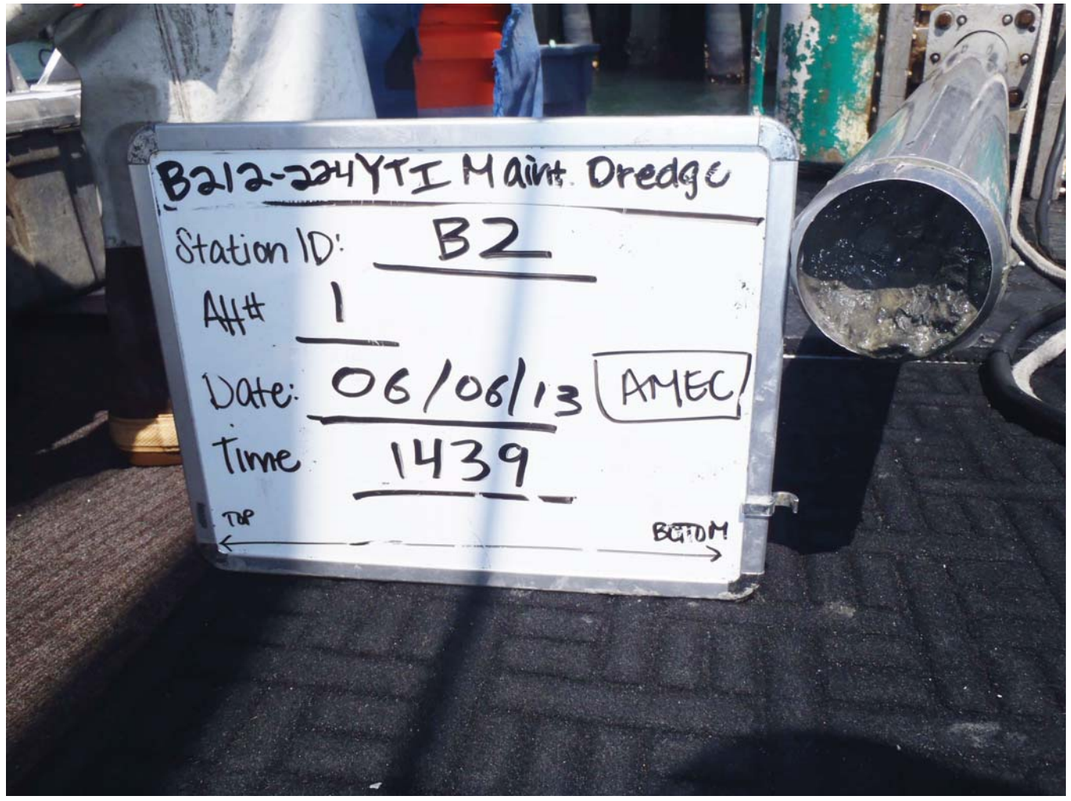


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B1
Attempt #: 5
Core Length: Plug
Sample Date & Time: 06/07/2013 0905

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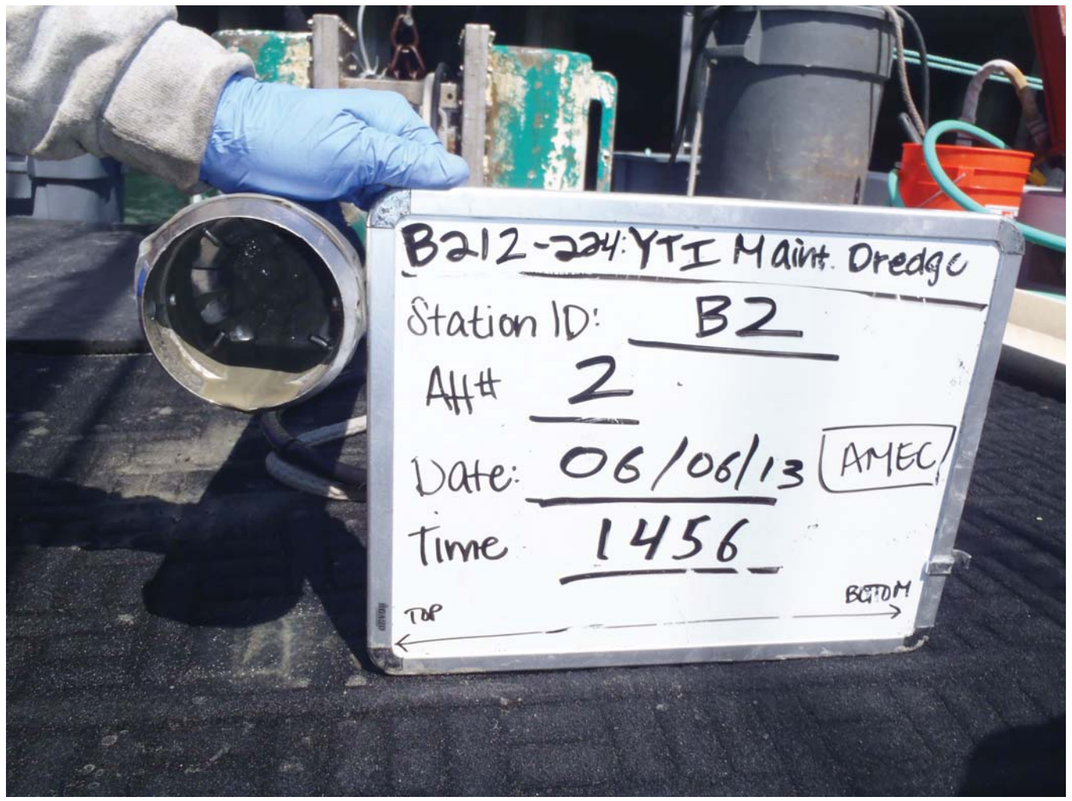
Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B2
Attempt #: 1
Core Length: 0 - 1.5 ft.
Sample Date & Time: 06/06/2013 1439



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



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

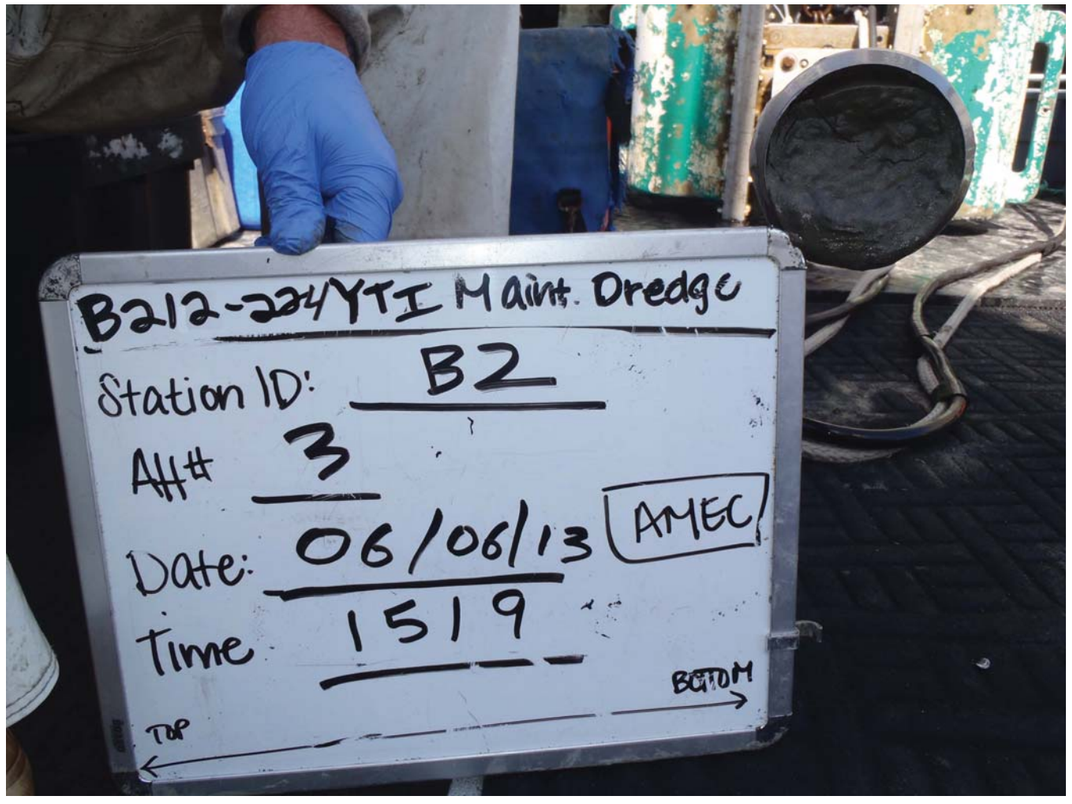


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B2
Attempt #: 2
Core Length: Plug
Sample Date & Time: 06/06/2013 1456

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

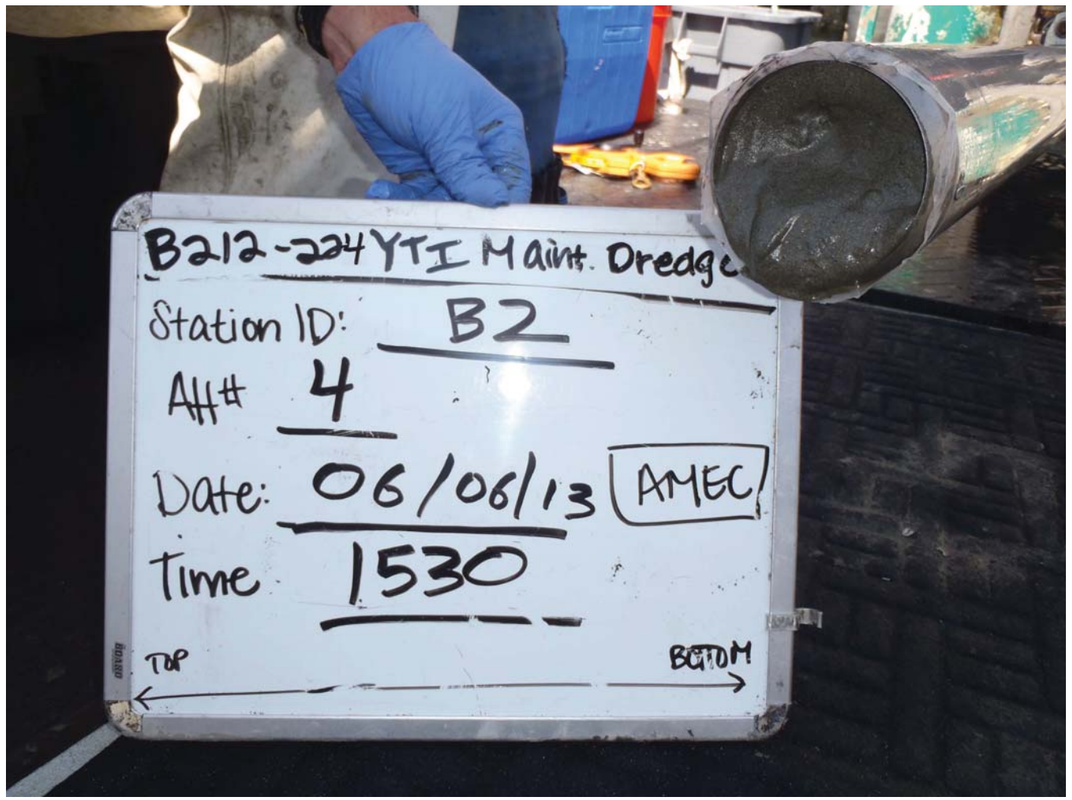


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B2
Attempt #: 3
Core Length: Plug
Sample Date & Time: 06/06/2013 1519

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

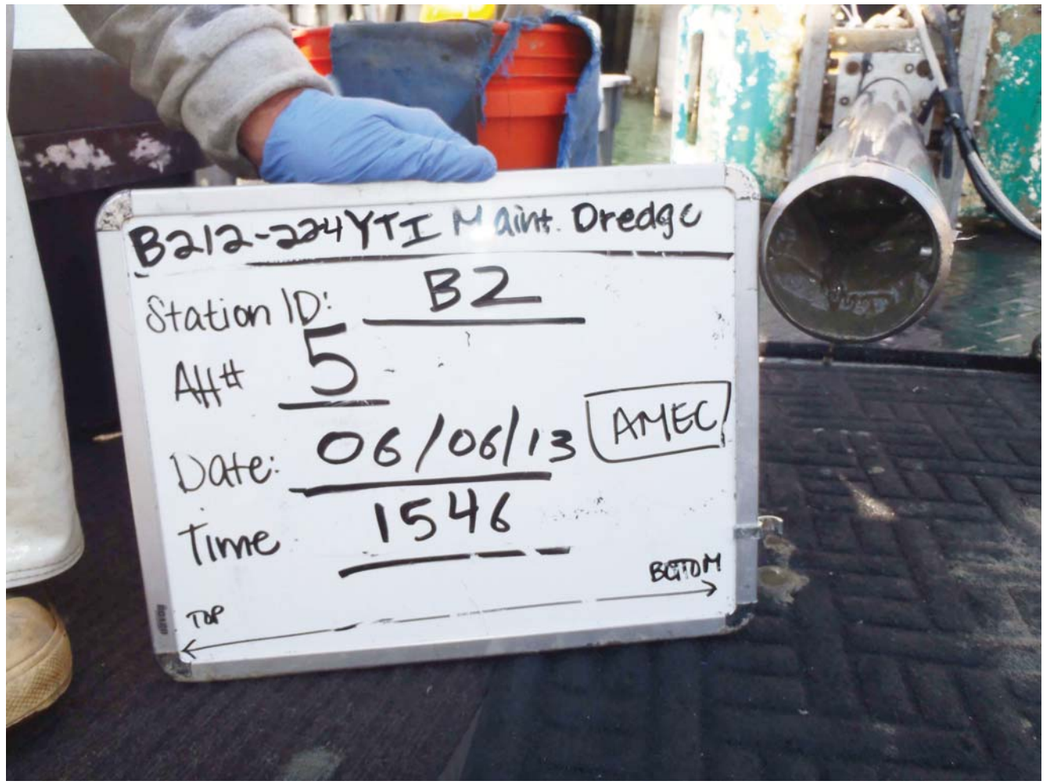


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B2
Attempt #: 4
Core Length: Plug
Sample Date & Time: 06/06/2013 1530

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



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

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



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



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



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

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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
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Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B3
Attempt #: 3
Core Length: 3.0 - 5.0 ft.
Sample Date & Time: 06/07/2013 1055



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

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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
AMEC Project No. 1015101929
June 2013



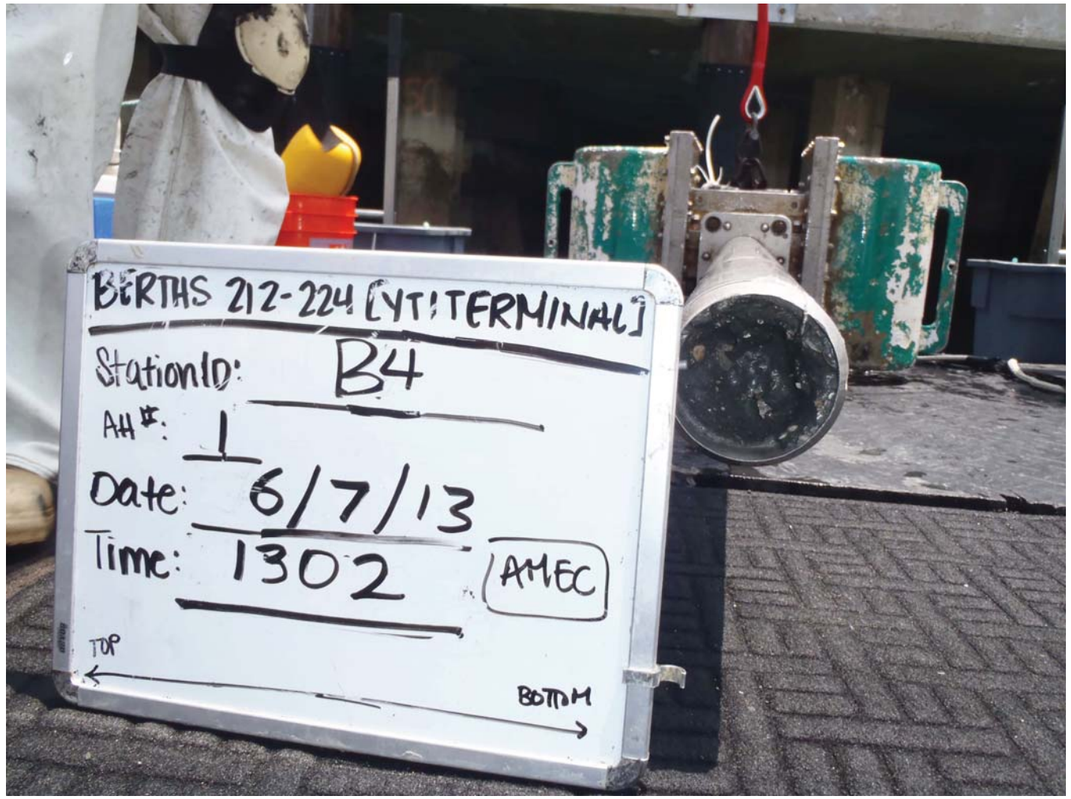
Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B3
Attempt #: 5
Core Length: 0 - 2.0 ft.
Sample Date & Time: 06/07/2013 1152



Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B3
Attempt #: 5
Core Length: Plug
Sample Date & Time: 06/07/2013 1152

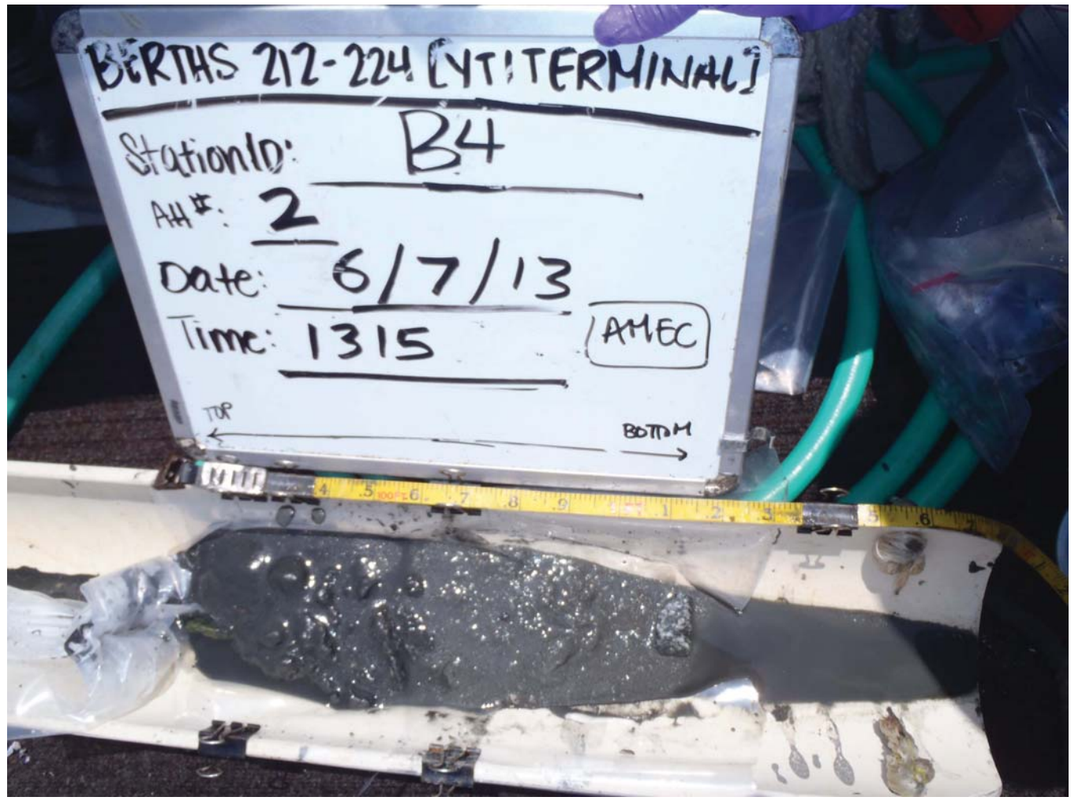


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B4
Attempt #: 1
Core Length: 0 - 2.0 ft.
Sample Date & Time: 06/07/2013 1302



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
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June 2013



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



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



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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
AMEC Project No. 1015101929
June 2013



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



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

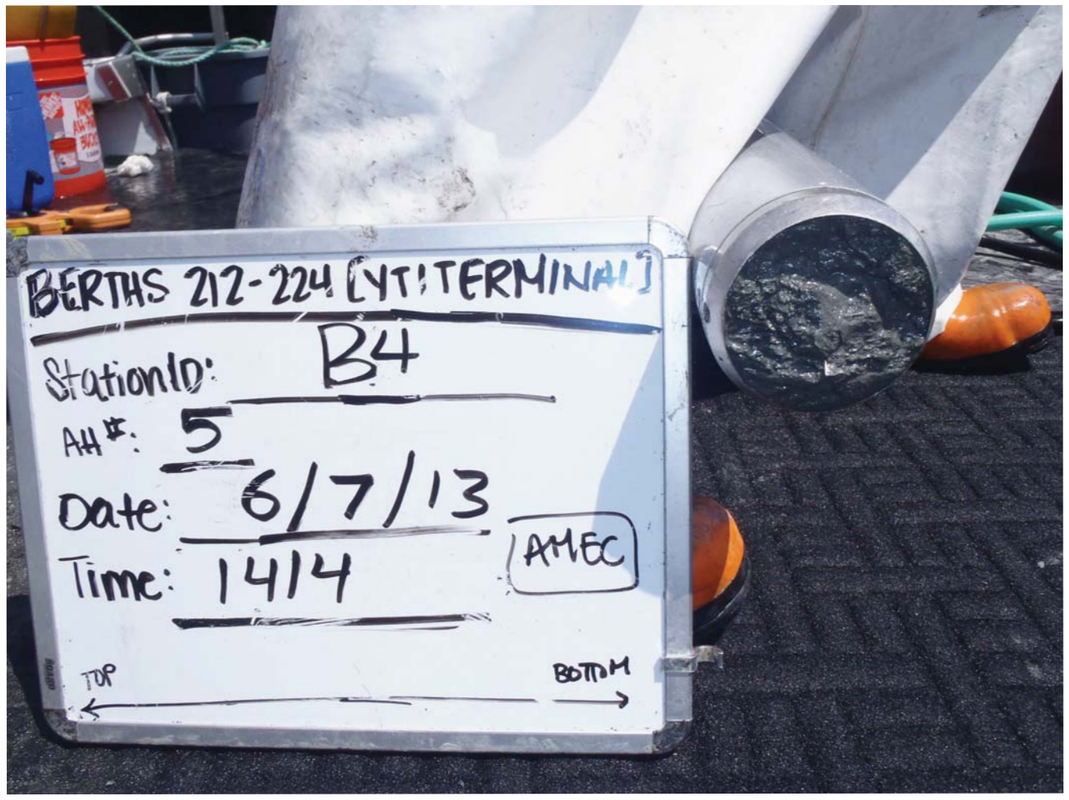
Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
AMEC Project No. 1015101929
June 2013



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



Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B4
Attempt #: 5
Core Length: 0 - 2.0 ft.
Sample Date & Time: 06/07/2013 1414

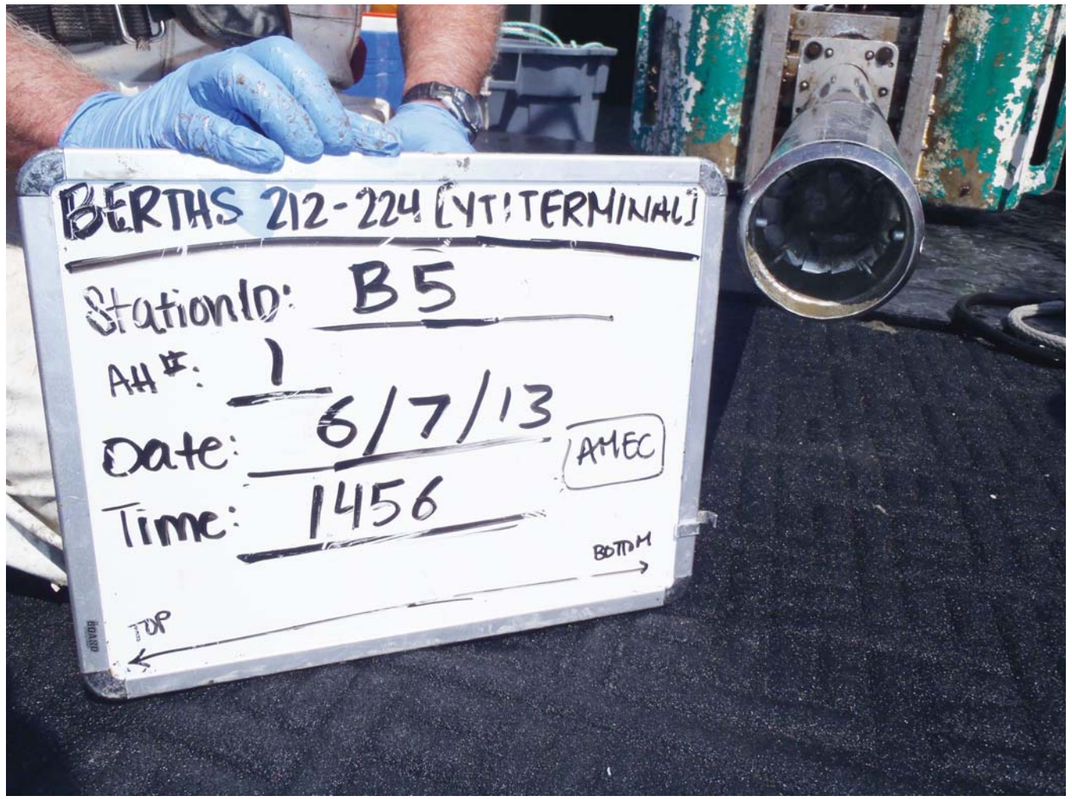


Location: POLA Berths 212 - 224 (YTI Terminal)
Sample ID: B4
Attempt #: 5
Core Length: Plug
Sample Date & Time: 06/07/2013 1414

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
AMEC Project No. 1015101929
June 2013



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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
AMEC Project No. 1015101929
June 2013



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



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

Port of Los Angeles
Berths 212 - 224 (YTI) Container Terminal
Sediment Study
AMEC Project No. 1015101929
June 2013

APPENDIX C

SEDIMENT CHEMISTRY

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Table C-1: YTI Sediment Chemistry Summary

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

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

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

Draft

mg - milligram
kg - kilogram
J - concentrations greater than or equal to MDL but less than RL
ND - Non Detect
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total petroleum hydrocarbons
TRPH - Total recoverable petroleum hydrocarbons
ERL - Effects Range Low
ERM - Effects Range Median
Results are presented in dry weight
Red Font indicates value higher than ERL
Red Underlined Font indicates value higher than ERM

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-06-0316

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: POLA_YTI_B214-220

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

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

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-06-0316

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

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

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

Sample Condition on Receipt

One sediment sample was received for this project on June 5, 2013. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.5°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

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

Tests Performed

Sediment:

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

Data Summary

The sediment sample was homogenized prior to analysis.

Holding times

All holding times were met.

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Calscience Environmental Laboratories, Inc.

Blanks

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

Reporting Limits

The Method Detection Limits were met.

Laboratory Control Samples

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

Matrix Spikes

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

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

Surrogates

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

Acronyms

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

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-06-0316 Page 1 of 1

Condition Upon Receipt:

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

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

Holding Times:

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

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

Quality Control:

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

Additional Comments:

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

Subcontractor Information:

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

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Calscience Environmental Laboratories, Inc.

Sample Summary

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

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

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Project: POLA_YTI_B214-220

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

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

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

Parameter	Result	RL	DF	Qualifiers
TRPH	18	14	1	

Method Blank	099-07-015-1928	N/A	Soil	IR 2	06/12/13	06/12/13 12:00	130612L01

Parameter	Result	RL	DF	Qualifiers
TRPH	ND	10	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

Parameter	Result	RL	DF	Qualifiers
C6	ND	7.0	1	
C7	ND	7.0	1	
C8	ND	7.0	1	
C9-C10	ND	7.0	1	
C11-C12	ND	7.0	1	
C13-C14	ND	7.0	1	
C15-C16	ND	7.0	1	
C17-C18	ND	7.0	1	
C19-C20	ND	7.0	1	
C21-C22	ND	7.0	1	
C23-C24	ND	7.0	1	
C25-C28	ND	7.0	1	
C29-C32	ND	7.0	1	
C33-C36	ND	7.0	1	
C37-C40	ND	7.0	1	
C41-C44	ND	7.0	1	
C6-C44 Total	ND	7.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	78	61-145	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	66	25-200	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

Method Blank	099-15-254-112	N/A	Soil	ICP/MS 03	06/06/13	06/06/13 16:57	130606L03E

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Project: POLA_YTI_B214-220

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

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

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

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0282	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-381**	**N/A**	**Soil**	**Mercury**	**06/07/13**	**06/07/13 12:52**	**130607L01E**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0200	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.4	1	
Alpha-BHC	ND	1.4	1	
Beta-BHC	ND	1.4	1	
Delta-BHC	ND	1.4	1	
Gamma-BHC	ND	1.4	1	
Chlordane	ND	14	1	
Dieldrin	ND	1.4	1	
Trans-nonachlor	ND	1.4	1	
2,4'-DDD	ND	1.4	1	
2,4'-DDE	ND	1.4	1	
2,4'-DDT	ND	1.4	1	
4,4'-DDD	ND	1.4	1	
4,4'-DDE	2.6	1.4	1	
4,4'-DDT	ND	1.4	1	
Endosulfan I	ND	1.4	1	
Endosulfan II	ND	1.4	1	
Endosulfan Sulfate	ND	1.4	1	
Endrin	ND	1.4	1	
Endrin Aldehyde	ND	1.4	1	
Endrin Ketone	ND	1.4	1	
Heptachlor	ND	1.4	1	
Heptachlor Epoxide	ND	1.4	1	
Methoxychlor	ND	1.4	1	
Toxaphene	ND	28	1	
Alpha Chlordane	ND	1.4	1	
Gamma Chlordane	ND	1.4	1	
Cis-nonachlor	ND	1.4	1	
Oxychlordane	ND	1.4	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	86	50-130	
Decachlorobiphenyl	82	50-130	

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

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

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

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Project: POLA_YTI_B214-220

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

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

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

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

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

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Project: POLA_YTI_B214-220

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

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	14	1	
Pentachlorophenol	ND	700	1	
Phenanthrene	ND	14	1	
Phenol	33	14	1	
Pyrene	ND	14	1	
1,6,7-Trimethylnaphthalene	ND	14	1	
2,3,4,6-Tetrachlorophenol	ND	14	1	
2,6-Dichlorophenol	ND	14	1	
Benzoic Acid	ND	140	1	
DCPA	ND	14	1	
Dibenzothiophene	ND	14	1	
Perthane	ND	14	1	
1-Methylphenanthrene	ND	14	1	
Benzo (e) Pyrene	ND	14	1	
Perylene	ND	14	1	
Biphenyl	ND	14	1	
2,6-Dimethylnaphthalene	ND	14	1	
Isophorone	ND	140	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,6-Tribromophenol	95	32-143	
2-Fluorobiphenyl	63	14-146	
2-Fluorophenol	75	15-138	
Nitrobenzene-d5	60	18-162	
p-Terphenyl-d14	90	34-148	
Phenol-d6	87	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Project: POLA_YTI_B214-220

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

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

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

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

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Analytical Report

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

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

Project: POLA_YTI_B214-220

Parameter	Result	RL	DF	Qualifiers
PCB183	ND	0.70	1	
PCB187	ND	0.70	1	
PCB189	ND	0.70	1	
PCB194	ND	0.70	1	
PCB201	ND	0.70	1	
PCB206	ND	0.70	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	121	50-125	
p-Terphenyl-d14	111	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

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

Project: POLA_YTI_B214-220

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

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

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

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
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Date Received: 06/05/13
Work Order: 13-06-0316
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA_YTI_B214-220

Parameter	Result	RL	DF	Qualifiers
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB201	ND	0.50	1	
PCB206	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	82	50-125	
p-Terphenyl-d14	91	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Project: POLA_YTI_B214-220

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

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

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

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	ND	4.2	1	
Monobutyltin	ND	4.2	1	
Tetrabutyltin	ND	4.2	1	
Tributyltin	ND	4.2	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	80	48-126	

Method Blank	099-07-016-1030	N/A	Soil	GC/MS JJJ	06/06/13	06/07/13 17:55	130606L23

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1	
Tetrabutyltin	ND	3.0	1	
Tributyltin	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	84	48-126	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302
Project: POLA_YTI_B214-220

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

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

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

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

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

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**TOC 5**	**06/11/13**	**06/12/13 12:36**	**D0611TOCS2**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.5500	3.000	3.350	93	3.420	96	75-125	2	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0714-1	**Sediment**	**IR 2**	**06/12/13**	**06/12/13 12:00**	**130612S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TRPH	47.61	100.0	140.8	93	142.6	95	55-135	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**GC 45**	**06/06/13**	**06/07/13 07:48**	**130606S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	401.0	100	398.0	100	64-130	1	0-15	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**GCTQ 1**	**06/11/13**	**06/12/13 18:59**	**130611S01**

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**ICP/MS 03**	**06/06/13**	**06/06/13 17:06**	**130606S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	2.035	25.00	27.40	101	27.44	102	80-120	0	0-20	
Cadmium	0.1388	25.00	26.06	104	26.12	104	80-120	0	0-20	
Chromium	15.12	25.00	39.49	97	40.38	101	80-120	2	0-20	
Copper	7.364	25.00	34.29	108	33.78	106	80-120	2	0-20	
Lead	3.817	25.00	29.80	104	30.03	105	80-120	1	0-20	
Nickel	7.717	25.00	33.64	104	33.57	103	80-120	0	0-20	
Selenium	0.2289	25.00	26.38	105	27.07	107	80-120	3	0-20	
Silver	0.1249	12.50	13.45	107	13.35	106	80-120	1	0-20	
Zinc	33.07	25.00	61.56	114	63.00	120	80-120	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

Date Received: 06/05/13
Work Order: 13-06-0316
Preparation: EPA 7471A Total
Method: EPA 7471A
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**Mercury**	**06/07/13**	**06/07/13 13:03**	**130607S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.8865	106	0.8988	108	76-136	1	0-16	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**GC 51**	**06/06/13**	**06/07/13 14:55**	**130606S07A**

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

Date Received: 06/05/13
Work Order: 13-06-0316
Preparation: EPA 3545
Method: EPA 8270C SIM
Page 8 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**GC/MS MM**	**06/06/13**	**06/07/13 13:46**	**130606S10A**

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**GC/MS HHH**	**06/06/13**	**06/11/13 21:29**	**130606S09A**

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA_YTI_B214-220

Date Received: 06/05/13
Work Order: 13-06-0316
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Page 10 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Reference	**Soil**	**GC/MS JJJ**	**06/06/13**	**06/12/13 14:09**	**130606S23A**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	ND	100.0	46.28	46	52.45	52	79-175	12	0-31	3
Tributyltin	ND	100.0	116.1	116	112.3	112	69-135	3	0-29	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

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

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

Project: POLA_YTI_B214-220

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
Reference	**Soil**	**ICP/MS 03**	**06/06/13 00:00**	**06/06/13 17:12**	**130606S03**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	2.035	25.00	28.11	104	75-125	
Cadmium	0.1388	25.00	25.07	100	75-125	
Chromium	15.12	25.00	39.54	98	75-125	
Copper	7.364	25.00	34.56	109	75-125	
Lead	3.817	25.00	29.60	103	75-125	
Nickel	7.717	25.00	33.66	104	75-125	
Selenium	0.2289	25.00	25.94	103	75-125	
Silver	0.1249	12.50	10.74	85	75-125	
Zinc	33.07	25.00	63.41	121	75-125	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/05/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0316
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M
Project: POLA_YTI_B214-220			Page 1 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Reference	**Soil**	**N/A**	**06/06/13 00:00**	**06/06/13 12:30**	**D0606SD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Total	0.5000	0.5000	0	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

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

Project: POLA_YTI_B214-220

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

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

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/05/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0316
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: POLA_YTI_B214-220			Page 3 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Reference	**Soil**	**N/A**	**06/06/13 00:00**	**06/06/13 18:30**	**D0606TSD3**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	71.10	71.30	0	0-10	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-013-872	**Soil**	**TOC 5**	**06/11/13**	**06/12/13 12:05**	**D0611TOCL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.6000	0.5254	88	0.5668	94	80-120	8	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-816-60	**Soil**	**BUR05**	**06/12/13**	**06/12/13 13:45**	**D0612NH3L1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	10.00	8.960	90	8.680	87	80-120	3	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/05/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0316
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M
Project: POLA_YTI_B214-220			Page 3 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-07-015-1928	**Soil**	**IR 2**	**06/12/13 12:00**	**130612L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TRPH	100.0	94.86	95	70-130	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/05/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0316
San Diego, CA 92123-4302		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: POLA_YTI_B214-220			Page 4 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-490-352	**Soil**	**GC 45**	**06/07/13 07:30**	**130606B02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	415.1	104	75-123	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-403-33	**Sediment**	**GCTQ 1**	**06/12/13 17:09**	**130611L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Allethrin	5.000	4.177	84	25-200	0-229	
Bifenthrin	5.000	3.866	77	25-200	0-229	
Cyfluthrin	5.000	3.305	66	25-200	0-229	
Cypermethrin	5.000	3.352	67	25-200	0-229	
Deltamethrin/Tralomethrin	5.000	3.670	73	25-200	0-229	
Fenpropathrin	5.000	3.686	74	25-200	0-229	
Fenvalerate/Esfenvalerate	10.00	6.106	61	25-200	0-229	
Fluvalinate	5.000	3.784	76	25-200	0-229	
Permethrin (cis/trans)	5.000	3.826	77	25-200	0-229	
Phenothrin	5.000	4.621	92	25-200	0-229	
Resmethrin/Bioresmethrin	5.000	4.709	94	25-200	0-229	
Tetramethrin	5.000	3.533	71	25-200	0-229	
lambda-Cyhalothrin	5.000	3.243	65	25-200	0-229	

Total number of LCS compounds: 13
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-254-112	**Soil**	**ICP/MS 03**	**06/06/13 17:03**	**130606L03E**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Arsenic	25.00	24.75	99	80-120	
Cadmium	25.00	24.56	98	80-120	
Chromium	25.00	24.95	100	80-120	
Copper	25.00	26.62	106	80-120	
Lead	25.00	25.25	101	80-120	
Nickel	25.00	25.85	103	80-120	
Selenium	25.00	24.25	97	80-120	
Silver	12.50	10.51	84	80-120	
Zinc	25.00	27.25	109	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/05/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0316
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: POLA_YTI_B214-220			Page 7 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-452-381	**Soil**	**Mercury**	**06/07/13 12:54**	**130607L01E**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.8366	100	82-124	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-858-203	**Soil**	**GC 51**	**06/07/13 13:14**	**130606L07**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	5.000	3.408	68	50-135	36-149	
Alpha-BHC	5.000	3.192	64	50-135	36-149	
Beta-BHC	5.000	2.987	60	50-135	36-149	
Delta-BHC	5.000	2.644	53	50-135	36-149	
Gamma-BHC	5.000	3.179	64	50-135	36-149	
Dieldrin	5.000	3.204	64	50-135	36-149	
4,4'-DDD	5.000	3.357	67	50-135	36-149	
4,4'-DDE	5.000	3.355	67	50-135	36-149	
4,4'-DDT	5.000	3.390	68	50-135	36-149	
Endosulfan I	5.000	3.336	67	50-135	36-149	
Endosulfan II	5.000	3.336	67	50-135	36-149	
Endosulfan Sulfate	5.000	3.223	64	50-135	36-149	
Endrin	5.000	3.664	73	50-135	36-149	
Endrin Aldehyde	5.000	2.749	55	50-135	36-149	
Endrin Ketone	5.000	3.412	68	50-135	36-149	
Heptachlor	5.000	3.330	67	50-135	36-149	
Heptachlor Epoxide	5.000	3.166	63	50-135	36-149	
Methoxychlor	5.000	3.516	70	50-135	36-149	
Alpha Chlordane	5.000	3.214	64	50-135	36-149	
Gamma Chlordane	5.000	3.231	65	50-135	36-149	

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-256-35	**Soil**	**GC/MS MM**	**06/07/13 12:54**	**130606L10**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
2,4,6-Trichlorophenol	1000	614.2	61	40-160	20-180	
2,4-Dichlorophenol	1000	599.4	60	40-160	20-180	
2-Methylphenol	1000	614.7	61	40-160	20-180	
2-Nitrophenol	1000	605.2	61	40-160	20-180	
4-Chloro-3-Methylphenol	1000	571.3	57	40-160	20-180	
Acenaphthene	1000	725.7	73	48-108	38-118	
Benzo (a) Pyrene	1000	955.4	96	17-163	0-187	
Chrysene	1000	813.7	81	17-168	0-193	
Di-n-Butyl Phthalate	1000	852.0	85	40-160	20-180	
Dimethyl Phthalate	1000	580.4	58	40-160	20-180	
Fluoranthene	1000	793.7	79	26-137	8-156	
Fluorene	1000	756.7	76	59-121	49-131	
N-Nitrosodimethylamine	1000	616.2	62	40-160	20-180	
Naphthalene	1000	698.5	70	21-133	2-152	
Phenanthrene	1000	764.6	76	54-120	43-131	
Phenol	1000	482.1	48	40-160	20-180	
Pyrene	1000	806.8	81	28-106	15-119	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-341-103	**Soil**	**GC/MS HHH**	**06/07/13 16:11**	**130606L09**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
PCB018	25.00	18.33	73	50-125	38-138	
PCB028	25.00	18.81	75	50-125	38-138	
PCB044	25.00	18.82	75	50-125	38-138	
PCB052	25.00	17.72	71	50-125	38-138	
PCB066	25.00	18.01	72	50-125	38-138	
PCB077	25.00	18.83	75	50-125	38-138	
PCB101	25.00	18.37	73	50-125	38-138	
PCB105	25.00	17.03	68	50-125	38-138	
PCB118	25.00	19.39	78	50-125	38-138	
PCB126	25.00	15.63	63	50-125	38-138	
PCB128	25.00	16.38	66	50-125	38-138	
PCB153	25.00	16.51	66	50-125	38-138	
PCB170	25.00	16.56	66	50-125	38-138	
PCB180	25.00	16.53	66	50-125	38-138	
PCB187	25.00	15.19	61	50-125	38-138	
PCB206	25.00	16.98	68	50-125	38-138	

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA_YTI_B214-220

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

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-07-016-1030	**Soil**	**GC/MS JJJ**	**06/10/13 12:32**	**130606L23**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Tetrabutyltin	100.0	100.0	100	79-151	
Tributyltin	100.0	101.5	102	51-129	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-06-0316 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	For any analysis identified as a "field" test with a holding time (HT) </= 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 · FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/5/2013

PAGE: 1 OF 2

LABORATORY CLIENT: AMEC Earth & Environmental

ADDRESS: 9210 Sky Park Court, Suite 200

CITY: San Diego, CA 92123

TEL: 858-449-2334 E-MAIL: tyler.huff@amec.com

CLIENT PROJECT NAME / NUMBER: POLA_YTI_B214-220

PROJECT CONTACT: Tyler Huff

SAMPLER(S): (SIGNATURE)

P.O. NO.:

Temp Blank.:

LAB USE ONLY 13-06-0316

TURNAROUND TIME

[ ] SAME DAY [ ] 24 HR [ ] 48HR [ ] 72 HR [X] 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

[ ] RWQCB REPORTING [ ] ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS:

Test sediment according to attached table.

Danielle Gonsman is PM

- Report all applicable totals.
- Report results in dry weight

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Attached Table	ASTM D4464 Grain Size	COMMENTS
1	Reference	LA-2 Reference	6/2/2013	1030	SED	4	X	X	

Relinquished by: (Signature) 6/5/13 10:30

Received by: (Signature) Adrienne Ciber

Relinquished by: (Signature) Adrienne Ciber 6/5/13

Received by: (Signature) CCL 06/05/13

Relinquished by: (Signature)

Received by: (Signature) CCL

Date: 6/5/13 Time: 10:30

Date: 06/05/13 Time: 16:37

Date: 06/05/13 Time: 1930

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Table 4-2.
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits[a, b]	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M[c]	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M[c]	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D[c]	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a[i]	N/A	N/A	0.1 %
TRPH	418.1M[d]	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B[d]	N/A	5.0 mg/kg	N/A
PAHs[e]	8270C SIM/ GC/TQ[d]	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM[d]	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS[j]	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM[d]	N/A	10 µg/kg	N/A
Organotins	Rice/Krone[h]	3.0 ng/L	3.0 µg/kg	N/A

Notes: Grain size ASTM D4464

[a] Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.
[b] Reporting limits provided by Calscience Environmental Laboratories, Inc.
[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.
[d] USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.
[e] Includes 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-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.
[g] PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)
[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)
[i] NOAA 1993
[j] Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lamba, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg	-	micrograms per kilogram (parts per billion)	PAH	-	polycyclic aromatic hydrocarbon
µg/L	-	micrograms per liter	PCB	-	polychlorinated biphenyl
mg/kg	-	milligrams per kilogram (parts per million)	SM	-	Standard Methods
mg/L	-	milligrams per liter	SOP	-	standard operating procedure
ng/L	-	nanograms per liter	TPH	-	total petroleum hydrocarbons
N/A	-	not applicable	TRPH	-	total recoverable petroleum hydrocarbons

*pyrethroids are highlighted because there was a change from the SAP. All analytes on this table should be measured.

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0316

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/05/13

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

Temperature 1.7 °C - 0.2 °C (CF) = 1.5 °C ☑ Blank ☐ Sample

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

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

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

Ambient Temperature: ☐ Air ☐ Filter Initial: VB

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑2

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 ☐1PB**na** ☐500PB

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

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

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

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** MK

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Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-06-0713

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: POLA Berths 217-224 (YTI) Container Terminal

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

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

ResultLink

Email your PM

ACCREDITED IN ACCORDANCE WITH nelac

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: POLA Berths 217-224 (YTI) Container Terminal
Work Order Number: 13-06-0713

1 Work Order Narrative. 3

2 Sample Summary. 4

3 Client Sample Data. 5
3.1 ASTM D4464 (M) Particle Size Laser (Soil). 5

4 Particle Size Graphs. 6

5 Glossary of Terms and Qualifiers. 8

6 Chain of Custody/Sample Receipt Form. 9

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-06-0713 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 06/11/13. They were assigned to Work Order 13-06-0713.

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

Holding Times:

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

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

Quality Control:

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

Additional Comments:

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

Subcontractor Information:

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

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	AMEC Environment & Infrastructure 9210 Sky Park Court, Suite 200 San Diego, CA 92123-4302	Work Order:	13-06-0713
		Project Name:	POLA Berths 217-224 (YTI) Container Terminal
		PO Number:	
		Date Received:	06/11/13
Attn:	Barry Snyder		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
Sail Bay Fine Grain Size Control	13-06-0713-1	06/11/13 14:15	1	Sediment
EOH Home Sediment	13-06-0713-2	06/11/13 14:15	1	Sediment

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0713
Preparation: N/A
Method: ASTM D4464 (M)
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Sail Bay Fine Grain Size Control	**13-06-0713-1-A**	**06/11/13 14:15**	**Sediment**	**LPSA 1**	**N/A**	**06/12/13 12:02**	

Parameter	Result	Qualifiers
Clay (less than 0.00391mm)	15.45	
Silt (0.00391 to 0.0625mm)	76.18	
Total Silt and Clay (0 to 0.0625mm)	91.63	
Very Fine Sand (0.0625 to 0.125mm)	8.24	
Fine Sand (0.125 to 0.25mm)	0.13	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EOH Home Sediment	**13-06-0713-2-A**	**06/11/13 14:15**	**Sediment**	**LPSA 1**	**N/A**	**06/12/13 12:10**	

Parameter	Result	Qualifiers
Clay (less than 0.00391mm)	1.08	
Silt (0.00391 to 0.0625mm)	3.08	
Total Silt and Clay (0 to 0.0625mm)	4.17	
Very Fine Sand (0.0625 to 0.125mm)	3.21	
Fine Sand (0.125 to 0.25mm)	35.81	
Medium Sand (0.25 to 0.5mm)	54.42	
Coarse Sand (0.5 to 1mm)	2.34	
Very Coarse Sand (1 to 2mm)	0.050	
Gravel (greater than 2mm)	ND	

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

Calscience Environmental Laboratories, Inc.

PARTICLE SIZE SUMMARY

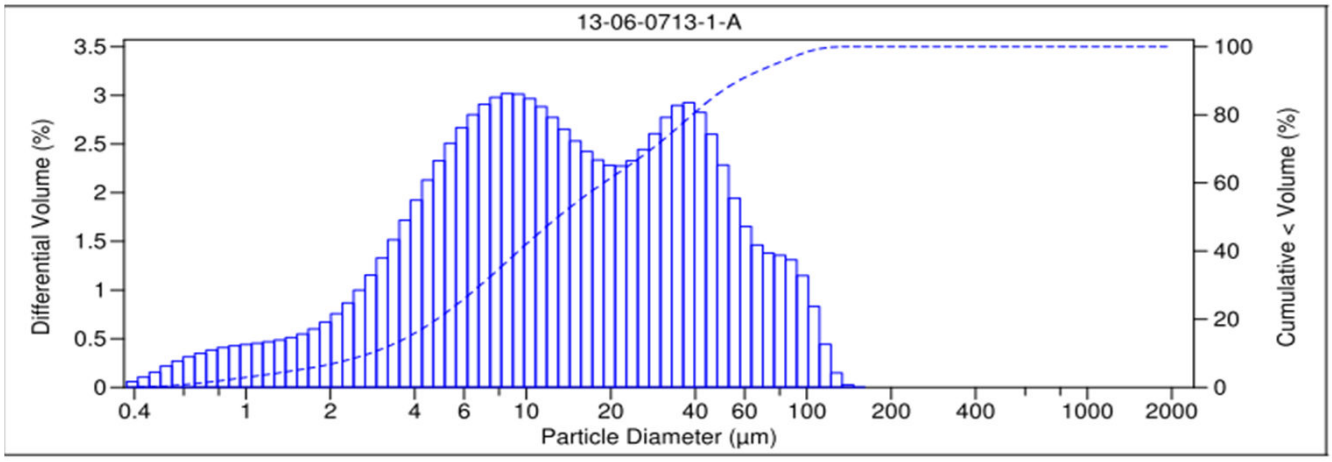
(ASTM D422 / D4464M)

AMEC Environment & Infrastructure		Date Sampled:	6/11/2013
9210 Sky Park Court, Suite 200		Date Received:	6/11/2013
San Diego, CA 92123-4302		Work Order No:	13-06-0713
		Date Analyzed:	6/12/2013
		Method:	ASTM D4464M

Project: POLA Berths 217-224 (YTI) Container Terminal

Sample ID	Depth ft	Description	Mean Grain Size mm
Sail Bay Fine Grain Size Control		Silt	0.023

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
0.00	0.00	0.00	0.00	0.13	8.24	76.18	15.45	91.63



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Calscience Environmental Laboratories, Inc.

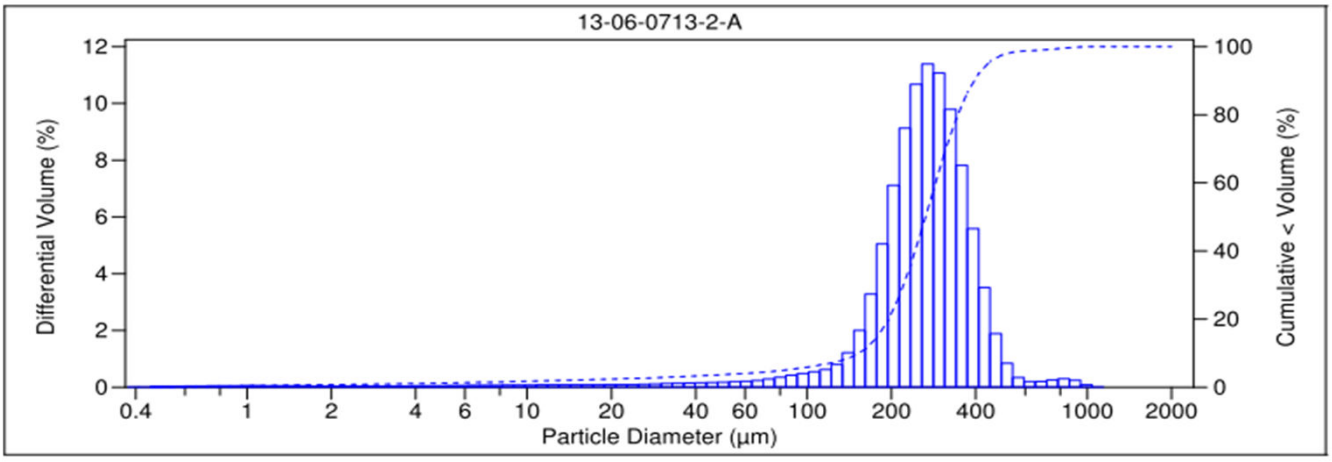
PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure		Date Sampled:	6/11/2013
9210 Sky Park Court, Suite 200		Date Received:	6/11/2013
San Diego, CA 92123-4302		Work Order No:	13-06-0713
		Date Analyzed:	6/12/2013
		Method:	ASTM D4464M
Project:	POLA Berths 217-224 (YTI) Container Terminal		Page 2 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
EOH Home Sediment		Medium Sand	0.271

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.05	2.34	54.42	35.81	3.21	3.08	1.08	4.17



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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-06-0713 Page 1 of 1

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

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

For any analysis identified as a "field" test with a holding time (HT) </= 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/11/2013

PAGE: 1 OF 1

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Ct # 200

CITY: San Diego, CA 92123

TEL: 858-449-2334 | E-Mail: tyler.huff@amec.com | E-MAIL:

CLIENT PROJECT NAME / NUMBER: Berths 217-224 (YTI) Container Terminal

PROJECT CONTACT: Barry Snyder/Tyler Huff

SAMPLER(S): (SIGNATURE)

P.O. NO.: 1015101929

QUOTE NO.:

LAB USE ONLY: 13-06-0713

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☒ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM
Green Book Testing
Please see attached Sheet for Analysis.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins	grain size				
	Composite Area A	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Composite Area A-Z	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Composite Area B	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Composite Area B-Z	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Reference	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	~~BANK~~			1415	Sed																	X				
1	Sail Bay Fine Grain Size Control		6/11/13	~~1415~~	~~Sed~~	1																X				
2	EOH Home Sediment		6/11/13	1415	Sed	1																				

Relinquished by: (Signature) Tyler Huff (AMEC)	Received by: (Signature)	Date: 06/11/13	Time: 1420
Relinquished by: (Signature)	Received by: (Signature)	Date: 06/11/13	Time: 1945
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0717

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: ANEC

DATE: 06 / 11 / 13

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

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °C ☑ 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: KB

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ 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 ☐1PB**na** ☐500PB ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

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

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

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** KC

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0713

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ **Sample(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☐ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☒ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☒ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☐ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

Comments:

(-1) collection date per label is 6/10/13

(-2) collection date per label is 6/5/13

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: JD 06/11/13

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Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-06-0714

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: POLA Berths 217-224 (YTI) Container Terminal

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

Approved for release on 06/25/2013 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-06-0714

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 13-06-0714
Project ID: Berths 217-224 (YTI) Container Terminal

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

Sample Condition on Receipt

One sediment sample was received for this project on June 11, 2013. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.4°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

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

Tests Performed

Sediment:

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

Data Summary

The sediment sample was homogenized prior to analysis.

Holding times

All holding times were met.

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Calscience Environmental Laboratories, Inc.

Blanks

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

Reporting Limits

The Method Detection Limits were met.

Laboratory Control Samples

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

Matrix Spikes

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

For Chlorinated Pesticides by EPA 8081A DDD, DDT, and methoxychlor were outs the control limits. Since the LCS recoveries were in control the results are released with no further action.

The Zinc matrix spike concentration was above the established control limit. The results have been flagged with the appropriate qualifiers and are released with no further action.

Surrogates

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

For PCB Congeners by EPA 8270C SIM, the 2-fluorobiphenyl recovery was low in sample YTI COMP A. The results have been appropriately flagged.

Acronyms

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

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-06-0714 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 06/11/13. They were assigned to Work Order 13-06-0714.

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

Holding Times:

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

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

Quality Control:

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

Additional Comments:

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

Subcontractor Information:

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

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	AMEC Environment & Infrastructure	Work Order:	13-06-0714
	9210 Sky Park Court, Suite 200	Project Name:	POLA Berths 217-224 (YTI) Container Terminal
	San Diego, CA 92123-4302	PO Number:	1015101929
		Date Received:	06/11/13
Attn:	Barry Snyder		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
YTI COMPA	13-06-0714-1	06/11/13 09:00	4	Sediment

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: EPA 376.2M
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-A**	**06/11/13 09:00**	**Sediment**	**N/A**	**06/17/13**	**06/17/13 14:45**	**D0617SL1**

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

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	41	1.4	2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-001-4676**	**N/A**	**Soil**	**N/A**	**06/17/13**	**06/17/13 14:45**	**D0617SL1**

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	ND	0.10	0.2	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: EPA 376.2M
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-B**	**06/11/13 09:00**	**Sediment**	**N/A**	**06/11/13**	**06/11/13 20:15**	**D0611DSL2**

Parameter	Result	RL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-001-4677**	**N/A**	**Soil**	**N/A**	**06/11/13**	**06/11/13 20:15**	**D0611DSL2**

Parameter	Result	RL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.2	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: EPA 9060A
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-A**	**06/11/13 09:00**	**Sediment**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

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

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	0.71	0.069	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-013-876**	**N/A**	**Soil**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	ND	0.050	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-D**	**06/11/13 09:00**	**Sediment**	**N/A**	**06/13/13**	**06/13/13 19:00**	**D0613TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	72.9	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-2238**	**N/A**	**Soil**	**N/A**	**06/13/13**	**06/13/13 19:00**	**D0613TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	ND	0.100	1	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: SM 4500-NH3 B/C (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-B**	**06/11/13 09:00**	**Sediment**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

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

Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	7.7	0.27	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-816-61**	**N/A**	**Soil**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	ND	0.20	1	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: Extraction
Method: EPA 418.1M
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-A**	**06/11/13 09:00**	**Sediment**	**IR 2**	**06/12/13**	**06/12/13 12:00**	**130612L01**

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

Parameter	Result	RL	DF	Qualifiers
TRPH	65	14	1	

Method Blank	**099-07-015-1928**	**N/A**	**Soil**	**IR 2**	**06/12/13**	**06/12/13 12:00**	**130612L01**

Parameter	Result	RL	DF	Qualifiers
TRPH	ND	10	1	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-D**	**06/11/13 09:00**	**Sediment**	**GC 45**	**06/12/13**	**06/12/13 15:20**	**130612B03**

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

Parameter	Result	RL	DF	Qualifiers
C6	ND	6.9	1	
C7	ND	6.9	1	
C8	ND	6.9	1	
C9-C10	ND	6.9	1	
C11-C12	ND	6.9	1	
C13-C14	ND	6.9	1	
C15-C16	ND	6.9	1	
C17-C18	ND	6.9	1	
C19-C20	ND	6.9	1	
C21-C22	ND	6.9	1	
C23-C24	ND	6.9	1	
C25-C28	ND	6.9	1	
C29-C32	ND	6.9	1	
C33-C36	ND	6.9	1	
C37-C40	ND	6.9	1	
C41-C44	ND	6.9	1	
C6-C44 Total	ND	6.9	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	80	61-145	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-359**	**N/A**	**Soil**	**GC 45**	**06/12/13**	**06/12/13 14:09**	**130612B03**

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	80	61-145	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-E**	**06/11/13 09:00**	**Sediment**	**GCTQ 1**	**06/13/13**	**06/17/13 23:02**	**130613L01**

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

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.69	0.35	1	
Bifenthrin	0.41	0.69	0.13	1	J
Cyfluthrin	ND	0.69	0.12	1	
Cypermethrin	ND	0.69	0.094	1	
Deltamethrin/Tralomethrin	ND	0.69	0.29	1	
Fenpropathrin	ND	0.69	0.050	1	
Fenvalerate/Esfenvalerate	ND	0.69	0.049	1	
Fluvalinate	ND	0.69	0.079	1	
Permethrin (cis/trans)	4.5	1.4	0.15	1	
Phenothrin	ND	0.69	0.094	1	
Resmethrin/Bioresmethrin	ND	0.69	0.13	1	
Tetramethrin	ND	0.69	0.052	1	
lambda-Cyhalothrin	ND	0.69	0.060	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	98	25-200	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-403-34**	**N/A**	**Sediment**	**GCTQ 1**	**06/13/13**	**06/17/13 22:25**	**130613L01**

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

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	82	25-200	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-E**	**06/11/13 09:00**	**Sediment**	**ICP/MS 03**	**06/12/13**	**06/12/13 13:37**	**130612L01E**

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

Parameter	Result	RL	DF	Qualifiers
Arsenic	8.77	0.137	1	
Cadmium	0.471	0.137	1	
Chromium	35.2	0.137	1	
Copper	60.1	0.137	1	
Lead	27.7	0.137	1	
Nickel	27.3	0.137	1	
Selenium	0.237	0.137	1	
Silver	0.183	0.137	1	
Zinc	112	1.37	1	

Method Blank	099-15-254-116	N/A	Soil	ICP/MS 03	06/12/13	06/12/13 13:03	130612L01E

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-E**	**06/11/13 09:00**	**Sediment**	**Mercury**	**06/12/13**	**06/12/13 13:22**	**130612L05E**

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

Parameter	Result	RL	DF	Qualifiers
Mercury	0.217	0.0275	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-383**	**N/A**	**Soil**	**Mercury**	**06/12/13**	**06/12/13 13:13**	**130612L05E**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0200	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: ASTM D4464 (M)
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-C**	**06/11/13 09:00**	**Sediment**	**LPSA 1**	**N/A**	**06/12/13 12:21**	

Parameter	Result	Qualifiers
Clay (less than 0.00391mm)	22.89	
Silt (0.00391 to 0.0625mm)	74.20	
Total Silt and Clay (0 to 0.0625mm)	97.09	
Very Fine Sand (0.0625 to 0.125mm)	2.91	
Fine Sand (0.125 to 0.25mm)	ND	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-E**	**06/11/13 09:00**	**Sediment**	**GC 51**	**06/12/13**	**06/14/13 14:09**	**130612L06**

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

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.4	1	
Alpha-BHC	ND	1.4	1	
Beta-BHC	ND	1.4	1	
Delta-BHC	ND	1.4	1	
Gamma-BHC	ND	1.4	1	
Chlordane	ND	14	1	
Dieldrin	ND	1.4	1	
Trans-nonachlor	ND	1.4	1	
2,4'-DDD	ND	1.4	1	
2,4'-DDE	ND	1.4	1	
2,4'-DDT	ND	1.4	1	
4,4'-DDD	ND	1.4	1	
4,4'-DDE	3.1	1.4	1	
4,4'-DDT	ND	1.4	1	
Endosulfan I	ND	1.4	1	
Endosulfan II	ND	1.4	1	
Endosulfan Sulfate	ND	1.4	1	
Endrin	ND	1.4	1	
Endrin Aldehyde	ND	1.4	1	
Endrin Ketone	ND	1.4	1	
Heptachlor	ND	1.4	1	
Heptachlor Epoxide	ND	1.4	1	
Methoxychlor	ND	1.4	1	
Toxaphene	ND	27	1	
Alpha Chlordane	ND	1.4	1	
Gamma Chlordane	ND	1.4	1	
Cis-nonachlor	ND	1.4	1	
Oxychlordane	ND	1.4	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-130	
Decachlorobiphenyl	98	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-206**	**N/A**	**Soil**	**GC 51**	**06/12/13**	**06/17/13 14:41**	**130612L06**

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

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	95	50-130	
Decachlorobiphenyl	92	50-130	

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

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Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-E**	**06/11/13 09:00**	**Sediment**	**GC/MS MM**	**06/17/13**	**06/18/13 19:36**	**130617L12**

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

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	14	1	
2,4,5-Trichlorophenol	ND	14	1	
2,4,6-Trichlorophenol	ND	14	1	
2,4-Dichlorophenol	ND	14	1	
2,4-Dimethylphenol	ND	14	1	
2,4-Dinitrophenol	ND	690	1	
2-Chlorophenol	ND	14	1	
2-Methylnaphthalene	ND	14	1	
2-Methylphenol	ND	14	1	
2-Nitrophenol	ND	14	1	
3/4-Methylphenol	ND	14	1	
4,6-Dinitro-2-Methylphenol	ND	690	1	
4-Chloro-3-Methylphenol	ND	14	1	
4-Nitrophenol	ND	690	1	
Acenaphthene	ND	14	1	
Acenaphthylene	15	14	1	
Anthracene	29	14	1	
Benzo (a) Anthracene	27	14	1	
Benzo (a) Pyrene	80	14	1	
Benzo (b) Fluoranthene	100	14	1	
Benzo (g,h,i) Perylene	48	14	1	
Benzo (k) Fluoranthene	82	14	1	
Bis(2-Ethylhexyl) Phthalate	170	14	1	
Butyl Benzyl Phthalate	47	14	1	
Chrysene	48	14	1	
Di-n-Butyl Phthalate	15	14	1	
Di-n-Octyl Phthalate	ND	14	1	
Dibenz (a,h) Anthracene	ND	14	1	
Diethyl Phthalate	ND	14	1	
Dimethyl Phthalate	ND	14	1	
Fluoranthene	70	14	1	
Fluorene	ND	14	1	
Indeno (1,2,3-c,d) Pyrene	42	14	1	
Naphthalene	ND	14	1	

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

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Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
Pentachlorophenol	ND	690	1	
Phenanthrene	17	14	1	
Phenol	ND	14	1	
Pyrene	220	14	1	
1,6,7-Trimethylnaphthalene	ND	14	1	
2,3,4,6-Tetrachlorophenol	ND	14	1	
2,6-Dichlorophenol	ND	14	1	
Dibenzothiophene	ND	14	1	
1-Methylphenanthrene	ND	14	1	
Benzo (e) Pyrene	83	14	1	
Perylene	37	14	1	
Biphenyl	ND	14	1	
2,6-Dimethylnaphthalene	ND	14	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,6-Tribromophenol	72	32-143	
2-Fluorobiphenyl	63	14-146	
2-Fluorophenol	50	15-138	
Nitrobenzene-d5	56	18-162	
p-Terphenyl-d14	71	34-148	
Phenol-d6	63	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-256-36**	**N/A**	**Soil**	**GC/MS MM**	**06/17/13**	**06/18/13 19:10**	**130617L12**

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

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

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Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
Phenanthrene	ND	10	1	
Phenol	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
2,3,4,6-Tetrachlorophenol	ND	10	1	
2,6-Dichlorophenol	ND	10	1	
Dibenzothiophene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Perylene	ND	10	1	
Biphenyl	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,6-Tribromophenol	72	32-143	
2-Fluorobiphenyl	79	14-146	
2-Fluorophenol	83	15-138	
Nitrobenzene-d5	76	18-162	
p-Terphenyl-d14	84	34-148	
Phenol-d6	83	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-A**	**06/11/13 09:00**	**Sediment**	**GC/MS HHH**	**06/17/13**	**06/19/13 20:24**	**130617L13**

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

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.69	1	
PCB028	ND	0.69	1	
PCB037	ND	0.69	1	
PCB044	1.2	0.69	1	
PCB049	2.9	0.69	1	
PCB052	2.4	0.69	1	
PCB066	0.85	0.69	1	
PCB070	0.82	0.69	1	
PCB074	ND	0.69	1	
PCB077	ND	0.69	1	
PCB081	ND	0.69	1	
PCB087	1.1	0.69	1	
PCB099	1.2	0.69	1	
PCB101	2.1	0.69	1	
PCB105	0.78	0.69	1	
PCB110	1.9	0.69	1	
PCB114	ND	0.69	1	
PCB118	1.8	0.69	1	
PCB119	ND	0.69	1	
PCB123	ND	0.69	1	
PCB126	ND	0.69	1	
PCB128	ND	0.69	1	
PCB138/158	3.2	1.4	1	
PCB149	4.1	0.69	1	
PCB151	1.1	0.69	1	
PCB153	4.3	0.69	1	
PCB156	ND	0.69	1	
PCB157	0.91	0.69	1	
PCB167	ND	0.69	1	
PCB168	ND	0.69	1	
PCB169	ND	0.69	1	
PCB170	1.8	0.69	1	
PCB177	ND	0.69	1	
PCB180	3.2	0.69	1	

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

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Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
PCB183	ND	0.69	1	
PCB187	2.0	0.69	1	
PCB189	ND	0.69	1	
PCB194	0.78	0.69	1	
PCB201	ND	0.69	1	
PCB206	ND	0.69	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	42	50-125	1,2,6
p-Terphenyl-d14	96	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-341-105**	**N/A**	**Soil**	**GC/MS HHH**	**06/17/13**	**06/19/13 16:41**	**130617L13**

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

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

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Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB201	ND	0.50	1	
PCB206	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	50	50-125	
p-Terphenyl-d14	74	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI COMPA	**13-06-0714-1-E**	**06/11/13 09:00**	**Sediment**	**GC/MS JJJ**	**06/12/13**	**06/14/13 12:40**	**130612L04**

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

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	7.2	4.1	1	
Monobutyltin	ND	4.1	1	
Tetrabutyltin	ND	4.1	1	
Tributyltin	19	4.1	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	81	48-126	

Method Blank	099-07-016-1032	N/A	Soil	GC/MS JJJ	06/12/13	06/14/13 10:40	130612L04

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1	
Tetrabutyltin	ND	3.0	1	
Tributyltin	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	66	48-126	

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

Calscience Environmental Laboratories, Inc.

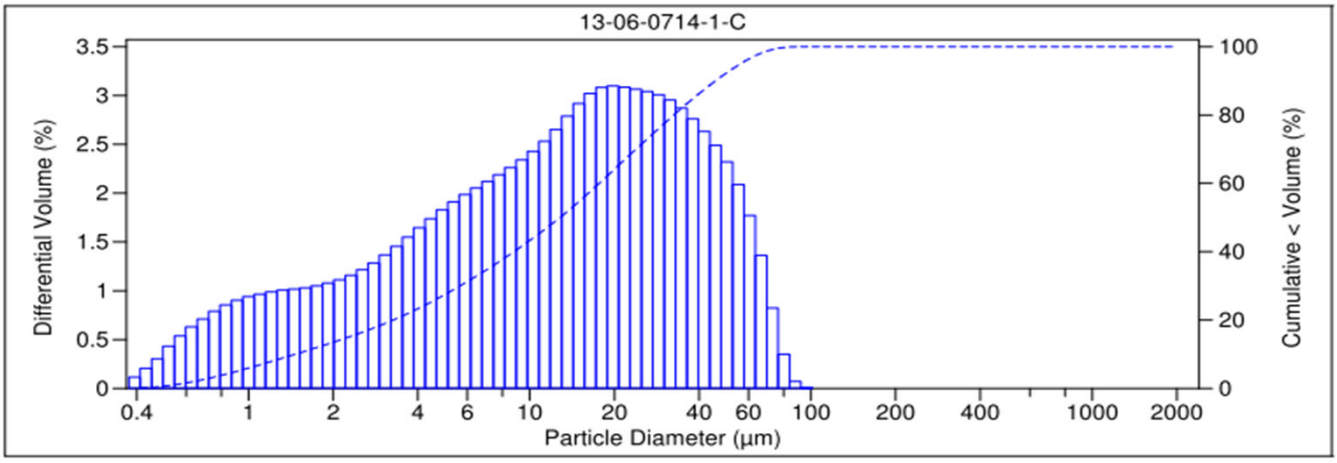
PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure		Date Sampled:	6/11/2013
9210 Sky Park Court, Suite 200		Date Received:	6/11/2013
San Diego, CA 92123-4302		Work Order No:	13-06-0714
		Date Analyzed:	6/12/2013
		Method:	ASTM D4464M
Project:	POLA Berths 217-224 (YTI) Container Terminal		Page 1 of 1

Sample ID	Depth ft	Description	Mean Grain Size mm
YTI COMP A		Silt	0.019

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	0.00	2.91	74.20	22.89	97.09



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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0526-1	**Sediment**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCS1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.1700	3.000	3.360	106	3.400	108	75-125	1	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 2 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**IR 2**	**06/12/13**	**06/12/13 12:00**	**130612S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TRPH	47.61	100.0	140.8	93	142.6	95	55-135	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3550B
Method: EPA 8015B (M)
Page 3 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**GC 45**	**06/12/13**	**06/12/13 14:44**	**130612S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	11.22	400.0	364.9	88	376.4	91	64-130	3	0-15	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**GCTQ 1**	**06/13/13**	**06/18/13 02:05**	**130613S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.801	36	2.050	41	25-200	13	0-30	
Bifenthrin	ND	5.000	3.142	63	3.422	68	25-200	9	0-30	
Cyfluthrin	ND	5.000	1.828	37	2.197	44	25-200	18	0-30	
Cypermethrin	ND	5.000	1.659	33	1.967	39	25-200	17	0-30	
Deltamethrin/Tralomethrin	ND	5.000	2.381	48	2.763	55	25-200	15	0-30	
Fenpropathrin	ND	5.000	2.961	59	3.006	60	25-200	2	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	3.912	39	4.777	48	25-200	20	0-30	
Fluvalinate	ND	5.000	1.709	34	2.218	44	25-200	26	0-30	
Permethrin (cis/trans)	3.251	5.000	8.042	96	8.269	100	25-200	3	0-30	
Phenothrin	ND	5.000	6.554	131	6.613	132	25-200	1	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.612	92	5.264	105	25-200	13	0-30	
Tetramethrin	ND	5.000	4.514	90	4.959	99	25-200	9	0-30	
lambda-Cyhalothrin	ND	5.000	2.236	45	2.579	52	25-200	14	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**ICP/MS 03**	**06/12/13**	**06/12/13 13:12**	**130612S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	6.397	25.00	32.31	104	30.28	96	80-120	6	0-20	
Cadmium	0.3433	25.00	26.25	104	26.23	104	80-120	0	0-20	
Chromium	25.70	25.00	48.73	92	48.97	93	80-120	0	0-20	
Copper	43.80	25.00	69.07	101	65.70	88	80-120	5	0-20	
Lead	20.19	25.00	47.41	109	45.84	103	80-120	3	0-20	
Nickel	19.90	25.00	44.82	100	43.32	94	80-120	3	0-20	
Selenium	0.1725	25.00	25.00	99	24.20	96	80-120	3	0-20	
Silver	0.1332	12.50	12.99	103	12.63	100	80-120	3	0-20	
Zinc	81.97	25.00	113.7	127	109.7	111	80-120	4	0-20	3

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 6 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**Mercury**	**06/12/13**	**06/12/13 13:24**	**130612S05**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.1584	0.8350	0.9514	95	0.9984	101	76-136	5	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8081A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**GC 51**	**06/12/13**	**06/14/13 17:24**	**130612S06A**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	3.776	76	4.361	87	50-135	14	0-25	
Alpha-BHC	ND	5.000	3.862	77	4.520	90	50-135	16	0-25	
Beta-BHC	ND	5.000	3.703	74	3.641	73	50-135	2	0-25	
Delta-BHC	ND	5.000	2.929	59	3.389	68	50-135	15	0-25	
Gamma-BHC	ND	5.000	3.794	76	4.402	88	50-135	15	0-25	
Dieldrin	ND	5.000	3.955	79	4.566	91	50-135	14	0-25	
4,4'-DDD	ND	5.000	6.318	126	7.256	145	50-135	14	0-25	3
4,4'-DDE	2.294	5.000	6.765	89	7.736	109	50-135	13	0-25	
4,4'-DDT	ND	5.000	2.259	45	2.271	45	50-135	1	0-25	3
Endosulfan I	ND	5.000	3.583	72	4.155	83	50-135	15	0-25	
Endosulfan II	ND	5.000	3.681	74	4.212	84	50-135	13	0-25	
Endosulfan Sulfate	ND	5.000	3.775	76	4.241	85	50-135	12	0-25	
Endrin	ND	5.000	4.472	89	5.038	101	50-135	12	0-25	
Endrin Aldehyde	ND	5.000	4.016	80	4.446	89	50-135	10	0-25	
Endrin Ketone	ND	5.000	3.219	64	3.377	68	50-135	5	0-25	
Heptachlor	ND	5.000	3.475	70	3.777	76	50-135	8	0-25	
Heptachlor Epoxide	ND	5.000	4.046	81	4.784	96	50-135	17	0-25	
Methoxychlor	ND	5.000	2.213	44	2.133	43	50-135	4	0-25	3
Alpha Chlordane	ND	5.000	4.000	80	4.567	91	50-135	13	0-25	
Gamma Chlordane	ND	5.000	3.958	79	4.502	90	50-135	13	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**GC/MS MM**	**06/17/13**	**06/18/13 20:02**	**130617S12**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	ND	1000	693.0	69	747.3	75	40-160	8	0-20	
2,4-Dichlorophenol	ND	1000	625.0	63	688.1	69	40-160	10	0-20	
2-Methylphenol	ND	1000	725.6	73	799.3	80	40-160	10	0-20	
2-Nitrophenol	ND	1000	670.3	67	739.9	74	40-160	10	0-20	
4-Chloro-3-Methylphenol	ND	1000	664.0	66	737.5	74	40-160	10	0-20	
Acenaphthene	ND	1000	699.5	70	766.7	77	40-106	9	0-20	
Benzo (a) Pyrene	58.46	1000	909.8	85	970.9	91	17-163	7	0-20	
Chrysene	35.05	1000	807.8	77	893.2	86	17-168	10	0-20	
Di-n-Butyl Phthalate	10.59	1000	593.3	58	638.8	63	40-160	7	0-20	
Dimethyl Phthalate	ND	1000	684.1	68	750.5	75	40-160	9	0-20	
Fluoranthene	51.31	1000	710.0	66	779.1	73	26-137	9	0-20	
Fluorene	ND	1000	715.0	72	798.6	80	59-121	11	0-20	
N-Nitrosodimethylamine	ND	1000	501.9	50	571.3	57	40-160	13	0-20	
Naphthalene	ND	1000	688.7	69	727.7	73	21-133	6	0-20	
Phenanthrene	12.20	1000	734.7	72	797.8	79	54-120	8	0-20	
Phenol	ND	1000	530.2	53	575.6	58	40-160	8	0-20	
Pyrene	157.2	1000	958.8	80	1016	86	6-156	6	0-46	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI COMPA	**Sediment**	**GC/MS HHH**	**06/17/13**	**06/20/13 15:41**	**130617S13**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	25.00	18.17	73	18.25	73	50-125	0	0-30	
PCB018	ND	25.00	22.46	90	22.98	92	50-125	2	0-30	
PCB028	ND	25.00	23.30	93	23.24	93	50-125	0	0-30	
PCB044	0.8708	25.00	22.22	85	22.86	88	50-125	3	0-30	
PCB052	1.769	25.00	22.19	82	22.43	83	50-125	1	0-30	
PCB066	0.6181	25.00	24.93	97	25.41	99	50-125	2	0-30	
PCB077	ND	25.00	23.27	93	23.47	94	50-125	1	0-30	
PCB101	1.525	25.00	23.28	87	23.94	90	50-125	3	0-30	
PCB105	0.5683	25.00	24.16	94	24.63	96	50-125	2	0-30	
PCB118	1.340	25.00	28.58	109	28.81	110	50-125	1	0-30	
PCB126	ND	25.00	22.83	91	22.56	90	50-125	1	0-30	
PCB128	ND	25.00	22.97	92	23.09	92	50-125	1	0-30	
PCB153	3.100	25.00	23.60	82	24.06	84	50-125	2	0-30	
PCB170	1.326	25.00	19.96	75	19.84	74	50-125	1	0-30	
PCB180	2.333	25.00	24.69	89	24.59	89	50-125	0	0-30	
PCB187	1.491	25.00	23.18	87	23.35	87	50-125	1	0-30	
PCB195	ND	25.00	18.48	74	18.65	75	50-125	1	0-30	
PCB206	ND	25.00	19.95	80	20.12	80	50-125	1	0-30	
PCB209	0.6832	25.00	20.48	79	20.65	80	50-125	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Page 10 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0715-2	**Sediment**	**GC/MS JJJ**	**06/12/13**	**06/14/13 14:10**	**130612S04**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	ND	100.0	83.38	83	90.79	91	79-175	9	0-31	
Tributyltin	20.64	100.0	83.02	62	94.35	74	69-135	13	0-29	3

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
YTI COMPA	**Sediment**	**ICP/MS 03**	**06/12/13 00:00**	**06/12/13 13:19**	**130612S01**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	6.397	25.00	31.95	102	75-125	
Cadmium	0.3433	25.00	26.37	104	75-125	
Chromium	25.70	25.00	49.28	94	75-125	
Copper	43.80	25.00	69.37	102	75-125	
Lead	20.19	25.00	46.51	105	75-125	
Nickel	19.90	25.00	44.52	98	75-125	
Selenium	0.1725	25.00	26.56	106	75-125	
Silver	0.1332	12.50	10.84	86	75-125	
Zinc	81.97	25.00	109.5	110	75-125	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 1 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13-06-0715-2	**Sediment**	**N/A**	**06/17/13 00:00**	**06/17/13 14:45**	**D0617SD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Total	7.500	7.200	4	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 2 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13-06-0715-2	**Sediment**	**N/A**	**06/11/13 00:00**	**06/11/13 20:15**	**D0611DSD2**

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 3 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
YTI COMPA	**Sediment**	**N/A**	**06/13/13 00:00**	**06/13/13 19:00**	**D0613TSD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	72.90	71.70	2	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 9060A
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 1 of 11

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-013-876	**Soil**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.6000	0.6454	108	0.6268	104	80-120	3	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: N/A
Method: SM 4500-NH3 B/C (M)

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-816-61	**Soil**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	5.000	4.340	87	4.270	85	80-120	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 3 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-07-015-1928	**Soil**	**IR 2**	**06/12/13 12:00**	**130612L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TRPH	100.0	94.86	95	70-130	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 4 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-490-359	**Soil**	**GC 45**	**06/12/13 14:28**	**130612B03**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	359.7	90	75-123	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-403-34	**Sediment**	**GCTQ 1**	**06/17/13 21:49**	**130613L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Allethrin	5.000	2.443	49	25-200	0-229	
Bifenthrin	5.000	3.868	77	25-200	0-229	
Cyfluthrin	5.000	2.431	49	25-200	0-229	
Cypermethrin	5.000	2.309	46	25-200	0-229	
Deltamethrin/Tralomethrin	5.000	2.593	52	25-200	0-229	
Fenpropathrin	5.000	2.823	56	25-200	0-229	
Fenvalerate/Esfenvalerate	10.00	4.307	43	25-200	0-229	
Fluvalinate	5.000	2.334	47	25-200	0-229	
Permethrin (cis/trans)	5.000	3.977	80	25-200	0-229	
Phenothrin	5.000	4.836	97	25-200	0-229	
Resmethrin/Bioresmethrin	5.000	4.560	91	25-200	0-229	
Tetramethrin	5.000	3.101	62	25-200	0-229	
lambda-Cyhalothrin	5.000	1.978	40	25-200	0-229	

Total number of LCS compounds: 13
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 6 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-254-116	**Soil**	**ICP/MS 03**	**06/14/13 11:41**	**130612L01E**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Arsenic	25.00	25.82	103	80-120	
Cadmium	25.00	26.39	106	80-120	
Chromium	25.00	24.89	100	80-120	
Copper	25.00	27.39	110	80-120	
Lead	25.00	26.30	105	80-120	
Nickel	25.00	26.30	105	80-120	
Selenium	25.00	25.74	103	80-120	
Silver	12.50	10.82	87	80-120	
Zinc	25.00	28.07	112	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/11/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0714
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 7 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-452-383	**Soil**	**Mercury**	**06/12/13 13:15**	**130612L05E**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.8128	97	82-124	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8081A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-858-206	**Soil**	**GC 51**	**06/14/13 10:48**	**130612L06**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	5.000	4.696	94	50-135	36-149	
Alpha-BHC	5.000	4.757	95	50-135	36-149	
Beta-BHC	5.000	4.549	91	50-135	36-149	
Delta-BHC	5.000	3.682	74	50-135	36-149	
Gamma-BHC	5.000	4.656	93	50-135	36-149	
Dieldrin	5.000	4.896	98	50-135	36-149	
4,4'-DDD	5.000	4.507	90	50-135	36-149	
4,4'-DDE	5.000	4.338	87	50-135	36-149	
4,4'-DDT	5.000	4.818	96	50-135	36-149	
Endosulfan I	5.000	5.422	108	50-135	36-149	
Endosulfan II	5.000	4.827	97	50-135	36-149	
Endosulfan Sulfate	5.000	4.706	94	50-135	36-149	
Endrin	5.000	4.626	93	50-135	36-149	
Endrin Aldehyde	5.000	5.179	104	50-135	36-149	
Endrin Ketone	5.000	5.280	106	50-135	36-149	
Heptachlor	5.000	4.954	99	50-135	36-149	
Heptachlor Epoxide	5.000	4.554	91	50-135	36-149	
Methoxychlor	5.000	4.869	97	50-135	36-149	
Alpha Chlordane	5.000	4.849	97	50-135	36-149	
Gamma Chlordane	5.000	4.794	96	50-135	36-149	

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

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-256-36	**Soil**	**GC/MS MM**	**06/18/13 17:28**	**130617L12**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
2,4,6-Trichlorophenol	1000	522.4	52	40-160	20-180	
2,4-Dichlorophenol	1000	488.3	49	40-160	20-180	
2-Methylphenol	1000	495.2	50	40-160	20-180	
2-Nitrophenol	1000	493.3	49	40-160	20-180	
4-Chloro-3-Methylphenol	1000	481.2	48	40-160	20-180	
Acenaphthene	1000	576.5	58	48-108	38-118	
Benzo (a) Pyrene	1000	732.7	73	17-163	0-187	
Chrysene	1000	657.9	66	17-168	0-193	
Di-n-Butyl Phthalate	1000	676.0	68	40-160	20-180	
Dimethyl Phthalate	1000	498.6	50	40-160	20-180	
Fluoranthene	1000	639.4	64	26-137	8-156	
Fluorene	1000	621.6	62	59-121	49-131	
N-Nitrosodimethylamine	1000	425.3	43	40-160	20-180	
Naphthalene	1000	515.8	52	21-133	2-152	
Phenanthrene	1000	606.8	61	54-120	43-131	
Phenol	1000	399.6	40	40-160	20-180	
Pyrene	1000	674.8	67	28-106	15-119	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-341-105	**Soil**	**GC/MS HHH**	**06/19/13 17:37**	**130617L13**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
PCB008	25.00	21.62	86	50-125	38-138	
PCB018	25.00	24.45	98	50-125	38-138	
PCB028	25.00	26.24	105	50-125	38-138	
PCB044	25.00	25.48	102	50-125	38-138	
PCB052	25.00	24.02	96	50-125	38-138	
PCB066	25.00	27.89	112	50-125	38-138	
PCB077	25.00	27.16	109	50-125	38-138	
PCB101	25.00	26.27	105	50-125	38-138	
PCB105	25.00	26.00	104	50-125	38-138	
PCB118	25.00	28.80	115	50-125	38-138	
PCB126	25.00	24.46	98	50-125	38-138	
PCB128	25.00	24.30	97	50-125	38-138	
PCB153	25.00	24.92	100	50-125	38-138	
PCB170	25.00	23.41	94	50-125	38-138	
PCB180	25.00	25.18	101	50-125	38-138	
PCB187	25.00	24.28	97	50-125	38-138	
PCB195	25.00	21.40	86	50-125	38-138	
PCB206	25.00	24.91	100	50-125	38-138	
PCB209	25.00	20.53	82	50-125	38-138	

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

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

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

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/11/13
Work Order: 13-06-0714
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-07-016-1032	**Soil**	**GC/MS JJJ**	**06/14/13 11:10**	**130612L04**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Tetrabutyltin	100.0	88.80	89	79-151	
Tributyltin	100.0	90.42	90	51-129	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-06-0714 Page 1 of 1

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

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

For any analysis identified as a "field" test with a holding time (HT) </= 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/11/2013

PAGE: 1 OF 2

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Ct # 200

CITY: San Diego, CA 92123

TEL: 858-449-2334 | E-Mail: tyler.huff@amec.com | E-MAIL:

CLIENT PROJECT NAME / NUMBER: Berths 217-224 (YTI) Container Terminal

PROJECT CONTACT: Barry Snyder/Tyler Huff

SAMPLER(S): (SIGNATURE)

P.O. NO.: 1015101929

QUOTE NO.:

LAB USE ONLY: 13-06-0714

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☒ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM
Green Book Testing
Please see attached Sheet for Analysis.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins	Grainsize				
	Composite Area A	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Composite Area A-Z	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Composite Area B	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Composite Area B-Z	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	Reference	Port of Los Angeles	6/ /13		sediment	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
1	YTI CompA	PortofLA	6/11/13	0900	sed	#4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				

Relinquished by: (Signature) Tyler Huff (AMEC)	Received by: (Signature)	Date: 06/11/13	Time: 1420
Relinquished by: (Signature)	Received by: (Signature)	Date: 06/11/13	Time: 1945
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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2062 07/14

Table 4-2.
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits[a, b]	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M[c]	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M[c]	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D[c]	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a[i]	N/A	N/A	0.1 %
TRPH	418.1M[d]	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B[d]	N/A	5.0 mg/kg	N/A
PAHs[e]	8270C SIM/ GC/TQ[d]	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM[d]	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS[j]	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM[d]	N/A	10 µg/kg	N/A
Organotins	Rice/Krone[h]	3.0 ng/L	3.0 µg/kg	N/A

Notes:

[a] Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc.

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

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

[e] Includes 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-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

[g] PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

[i] NOAA 1993

[j] Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lamba, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)
µg/L - micrograms per liter
mg/kg - milligrams per kilogram (parts per million)
mg/L - milligrams per liter
ng/L - nanograms per liter
N/A - not applicable
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SM - Standard Methods
SOP - standard operating procedure
TPH - total petroleum hydrocarbons
TRPH - total recoverable petroleum hydrocarbons

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0 8 1 4

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC DATE: 06 / 11 / 13

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

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °C ☑ Blank ☐ Sample

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

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

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

Ambient Temperature: ☐ Air ☐ Filter Initial: VB

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑2

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐1PBna ☐500PB ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

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

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

Preservative: h: HCl n: HNO_3 na_2:$Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 u: Ultra-pure znna: $ZnAc_2$+NaOH f: Filtered **Scanned by:** h·C

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Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-06-0832

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: POLA Berths 217-224 (YTI) Container Terminal

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

Approved for release on 06/26/2013 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-06-0832

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 13-06-0832
Project ID: POLA Berths 217-224 (YTI) Container Terminal

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

Sample Condition on Receipt

One sediment sample was received for this project on June 12, 2013. The sample was transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.5°C. The sample was logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

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

Tests Performed

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

Data Summary

The sediment sample was homogenized prior to analysis.

Holding times

All holding times were met.

Blanks

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

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Calscience Environmental Laboratories, Inc.

Reporting Limits

The Method Detection Limits were met.

Laboratory Control Samples

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

Matrix Spikes

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

For Metals by EPA 6020, the lead MS and MSD recoveries were outside the control limits. Since the LCS recoveries were in control the results are released with no further action.

For Chlorinated Pesticides by EPA 8081A four MS/MSD recoveries and/or RPDs were outside the control limits. Since the LCS recoveries were in control the results are released with no further action.

The Tributyltin MS recovery was outside the control limits. Since the LCS recoveries were in control the results are released with no further action.

For PCB Congeners by EPA 8270C SIM PCBs several congeners had low recovery in the MSD. Since the LCS recoveries were in control the results are released with no further action.

Surrogates

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

Laboratory Duplicate

A lab duplicate was performed for YTI Comp B for all analyses except Dissolved Sulfide. The precision between the two samples was acceptable.

Acronyms

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

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-06-0832 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 06/12/13. They were assigned to Work Order 13-06-0832.

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

Holding Times:

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

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

Quality Control:

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

Additional Comments:

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

Subcontractor Information:

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

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	AMEC Environment & Infrastructure	Work Order:	13-06-0832
	9210 Sky Park Court, Suite 200	Project Name:	POLA Berths 217-224 (YTI) Container Terminal
	San Diego, CA 92123-4302	PO Number:	1015101930
		Date Received:	06/12/13
Attn:	Barry Snyder		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
YTI Comp B	13-06-0832-1	06/11/13 15:00	4	Sediment
YTI Comp B Lab Dup	13-06-0832-2	06/11/13 00:00	4	Sediment

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Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: EPA 376.2M
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-A**	**06/11/13 15:00**	**Sediment**	**N/A**	**06/17/13**	**06/17/13 14:45**	**D0617SL1**

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

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	3.3	0.15	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-A**	**06/11/13 00:00**	**Sediment**	**N/A**	**06/17/13**	**06/17/13 14:45**	**D0617SL1**

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

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	3.0	0.15	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-001-4676**	**N/A**	**Soil**	**N/A**	**06/17/13**	**06/17/13 14:45**	**D0617SL1**

Parameter	Result	RL	DF	Qualifiers
Sulfide, Total	ND	0.10	0.2	

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: EPA 376.2M
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**N/A**	**06/12/13**	**06/12/13 20:40**	**D0612DSL3**

Parameter	Result	RL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.2	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-001-4681**	**N/A**	**Soil**	**N/A**	**06/12/13**	**06/12/13 20:40**	**D0612DSL3**

Parameter	Result	RL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.2	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: EPA 9060A
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-A**	**06/11/13 15:00**	**Sediment**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

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

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	0.87	0.075	1	

YTI Comp B Lab Dup	**13-06-0832-2-A**	**06/11/13 00:00**	**Sediment**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

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

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	0.91	0.075	1	

Method Blank	**099-06-013-876**	**N/A**	**Soil**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

Parameter	Result	RL	DF	Qualifiers
Carbon, Total Organic	ND	0.050	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**N/A**	**06/13/13**	**06/13/13 19:00**	**D0613TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	66.4	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**N/A**	**06/13/13**	**06/13/13 19:00**	**D0613TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	66.8	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-2238**	**N/A**	**Soil**	**N/A**	**06/13/13**	**06/13/13 19:00**	**D0613TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	ND	0.100	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: SM 4500-NH3 B/C (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-A**	**06/11/13 15:00**	**Sediment**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

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

Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	2.1	0.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-A**	**06/11/13 00:00**	**Sediment**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

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

Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	2.3	0.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-816-62**	**N/A**	**Soil**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

Parameter	Result	RL	DF	Qualifiers
Ammonia (as N)	ND	0.20	1	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: Extraction
Method: EPA 418.1M
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**IR 2**	**06/14/13**	**06/14/13 18:00**	**130614L01**

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

Parameter	Result	RL	DF	Qualifiers
TRPH	38	15	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**IR 2**	**06/14/13**	**06/14/13 18:00**	**130614L01**

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

Parameter	Result	RL	DF	Qualifiers
TRPH	34	15	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-015-1927**	**N/A**	**Soil**	**IR 2**	**06/14/13**	**06/14/13 18:00**	**130614L01**

Parameter	Result	RL	DF	Qualifiers
TRPH	ND	2.0	0.2	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-B**	**06/11/13 15:00**	**Sediment**	**GC 47**	**06/14/13**	**06/14/13 19:48**	**120614B02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
C6	ND	7.5	1	
C7	ND	7.5	1	
C8	ND	7.5	1	
C9-C10	ND	7.5	1	
C11-C12	ND	7.5	1	
C13-C14	ND	7.5	1	
C15-C16	ND	7.5	1	
C17-C18	ND	7.5	1	
C19-C20	ND	7.5	1	
C21-C22	ND	7.5	1	
C23-C24	ND	7.5	1	
C25-C28	ND	7.5	1	
C29-C32	ND	7.5	1	
C33-C36	ND	7.5	1	
C37-C40	11	7.5	1	
C41-C44	ND	7.5	1	
C6-C44 Total	24	7.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	99	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-B**	**06/11/13 00:00**	**Sediment**	**GC 47**	**06/14/13**	**06/14/13 20:04**	**120614B02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
C6	ND	7.5	1	
C7	ND	7.5	1	
C8	ND	7.5	1	
C9-C10	ND	7.5	1	
C11-C12	ND	7.5	1	
C13-C14	ND	7.5	1	
C15-C16	ND	7.5	1	
C17-C18	ND	7.5	1	
C19-C20	ND	7.5	1	
C21-C22	ND	7.5	1	
C23-C24	ND	7.5	1	
C25-C28	ND	7.5	1	
C29-C32	ND	7.5	1	
C33-C36	ND	7.5	1	
C37-C40	9.6	7.5	1	
C41-C44	ND	7.5	1	
C6-C44 Total	25	7.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	99	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-364**	**N/A**	**Soil**	**GC 47**	**06/14/13**	**06/14/13 17:27**	**120614B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**GCTQ 1**	**06/13/13**	**06/18/13 00:52**	**130613L01**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.75	0.39	1	
Bifenthrin	0.22	0.75	0.14	1	J
Cyfluthrin	ND	0.75	0.13	1	
Cypermethrin	ND	0.75	0.10	1	
Deltamethrin/Tralomethrin	ND	0.75	0.31	1	
Fenpropathrin	ND	0.75	0.055	1	
Fenvalerate/Esfenvalerate	ND	0.75	0.054	1	
Fluvalinate	ND	0.75	0.086	1	
Permethrin (cis/trans)	2.2	1.5	0.17	1	
Phenothrin	ND	0.75	0.10	1	
Resmethrin/Bioresmethrin	ND	0.75	0.14	1	
Tetramethrin	ND	0.75	0.057	1	
lambda-Cyhalothrin	ND	0.75	0.066	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	81	25-200	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**GCTQ 1**	**06/13/13**	**06/18/13 01:29**	**130613L01**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.75	0.38	1	
Bifenthrin	0.29	0.75	0.14	1	J
Cyfluthrin	ND	0.75	0.13	1	
Cypermethrin	ND	0.75	0.10	1	
Deltamethrin/Tralomethrin	ND	0.75	0.31	1	
Fenpropathrin	ND	0.75	0.054	1	
Fenvalerate/Esfenvalerate	ND	0.75	0.053	1	
Fluvalinate	ND	0.75	0.086	1	
Permethrin (cis/trans)	2.2	1.5	0.17	1	
Phenothrin	ND	0.75	0.10	1	
Resmethrin/Bioresmethrin	ND	0.75	0.14	1	
Tetramethrin	ND	0.75	0.057	1	
lambda-Cyhalothrin	ND	0.75	0.065	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	108	25-200	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-403-34**	**N/A**	**Sediment**	**GCTQ 1**	**06/13/13**	**06/17/13 22:25**	**130613L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.50	0.26	1	
Bifenthrin	ND	0.50	0.094	1	
Cyfluthrin	ND	0.50	0.085	1	
Cypermethrin	ND	0.50	0.069	1	
Deltamethrin/Tralomethrin	ND	0.50	0.21	1	
Fenpropathrin	ND	0.50	0.036	1	
Fenvalerate/Esfenvalerate	ND	0.50	0.036	1	
Fluvalinate	ND	0.50	0.057	1	
Permethrin (cis/trans)	ND	1.0	0.11	1	
Phenothrin	ND	0.50	0.069	1	
Resmethrin/Bioresmethrin	ND	0.50	0.092	1	
Tetramethrin	ND	0.50	0.038	1	
lambda-Cyhalothrin	ND	0.50	0.044	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	82	25-200	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**ICP/MS 03**	**06/13/13**	**06/13/13 21:03**	**130613L01E**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	8.44	0.151	0.131	1	
Cadmium	0.423	0.151	0.0862	1	
Chromium	32.9	0.151	0.0935	1	
Copper	54.5	0.151	0.0631	1	
Lead	25.7	0.151	0.0992	1	
Nickel	22.4	0.151	0.0762	1	
Selenium	0.415	0.151	0.110	1	
Silver	0.219	0.151	0.0471	1	
Zinc	112	1.51	1.20	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**ICP/MS 03**	**06/13/13**	**06/13/13 21:06**	**130613L01E**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	8.44	0.150	0.131	1	
Cadmium	0.376	0.150	0.0857	1	
Chromium	32.6	0.150	0.0929	1	
Copper	54.6	0.150	0.0627	1	
Lead	25.6	0.150	0.0987	1	
Nickel	23.2	0.150	0.0758	1	
Selenium	0.293	0.150	0.109	1	
Silver	0.178	0.150	0.0469	1	
Zinc	114	1.50	1.19	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-254-117**	**N/A**	**Soil**	**ICP/MS 03**	**06/13/13**	**06/14/13 17:31**	**130613L01E**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	ND	0.100	0.0873	1	
Cadmium	ND	0.100	0.0572	1	
Chromium	ND	0.100	0.0621	1	
Copper	ND	0.100	0.0419	1	
Lead	ND	0.100	0.0659	1	
Nickel	ND	0.100	0.0506	1	
Selenium	ND	0.100	0.0731	1	
Silver	ND	0.100	0.0313	1	
Zinc	ND	1.00	0.795	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**Mercury**	**06/13/13**	**06/13/13 14:30**	**130313L01E**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	0.171	0.0302	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**Mercury**	**06/13/13**	**06/13/13 14:32**	**130313L01E**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	0.180	0.0300	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-384**	**N/A**	**Soil**	**Mercury**	**06/13/13**	**06/13/13 10:44**	**130313L01E**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0200	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: ASTM D4464 (M)
Units: %

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**LPSA 1**	**N/A**	**06/20/13 10:53**	

Parameter	Result	Qualifiers
Clay (less than 0.00391mm)	19.66	
Silt (0.00391 to 0.0625mm)	60.82	
Total Silt and Clay (0 to 0.0625mm)	80.48	
Very Fine Sand (0.0625 to 0.125mm)	18.21	
Fine Sand (0.125 to 0.25mm)	1.31	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**LPSA 1**	**N/A**	**06/20/13 11:20**	

Parameter	Result	Qualifiers
Clay (less than 0.00391mm)	18.28	
Silt (0.00391 to 0.0625mm)	57.16	
Total Silt and Clay (0 to 0.0625mm)	75.45	
Very Fine Sand (0.0625 to 0.125mm)	22.59	
Fine Sand (0.125 to 0.25mm)	1.97	
Medium Sand (0.25 to 0.5mm)	ND	
Coarse Sand (0.5 to 1mm)	ND	
Very Coarse Sand (1 to 2mm)	ND	
Gravel (greater than 2mm)	ND	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**GC 44**	**06/17/13**	**06/19/13 13:23**	**130617L14**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.5	1	
Alpha-BHC	ND	1.5	1	
Beta-BHC	ND	1.5	1	
Delta-BHC	ND	1.5	1	
Gamma-BHC	ND	1.5	1	
Chlordane	ND	15	1	
Dieldrin	ND	1.5	1	
Trans-nonachlor	ND	1.5	1	
2,4'-DDD	ND	1.5	1	
2,4'-DDE	3.1	1.5	1	
2,4'-DDT	ND	1.5	1	
4,4'-DDD	ND	1.5	1	
4,4'-DDT	ND	1.5	1	
Endosulfan I	ND	1.5	1	
Endosulfan II	ND	1.5	1	
Endosulfan Sulfate	ND	1.5	1	
Endrin	ND	1.5	1	
Endrin Aldehyde	ND	1.5	1	
Endrin Ketone	ND	1.5	1	
Heptachlor	ND	1.5	1	
Heptachlor Epoxide	ND	1.5	1	
Methoxychlor	ND	1.5	1	
Toxaphene	ND	30	1	
Alpha Chlordane	ND	1.5	1	
Gamma Chlordane	ND	1.5	1	
Cis-nonachlor	ND	1.5	1	
Oxychlordane	ND	1.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	79	50-130	
Decachlorobiphenyl	83	50-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**GC 44**	**06/17/13**	**06/19/13 14:20**	**130617L14**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	12	3.0	2	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	71	50-130	
Decachlorobiphenyl	78	50-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**GC 44**	**06/17/13**	**06/19/13 13:37**	**130617L14**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.5	1	
Alpha-BHC	ND	1.5	1	
Beta-BHC	ND	1.5	1	
Delta-BHC	ND	1.5	1	
Gamma-BHC	ND	1.5	1	
Chlordane	ND	15	1	
Dieldrin	ND	1.5	1	
Trans-nonachlor	ND	1.5	1	
2,4'-DDD	ND	1.5	1	
2,4'-DDE	3.0	1.5	1	
2,4'-DDT	ND	1.5	1	
4,4'-DDD	ND	1.5	1	
4,4'-DDT	ND	1.5	1	
Endosulfan I	ND	1.5	1	
Endosulfan II	ND	1.5	1	
Endosulfan Sulfate	ND	1.5	1	
Endrin	ND	1.5	1	
Endrin Aldehyde	ND	1.5	1	
Endrin Ketone	ND	1.5	1	
Heptachlor	ND	1.5	1	
Heptachlor Epoxide	ND	1.5	1	
Methoxychlor	ND	1.5	1	
Toxaphene	ND	30	1	
Alpha Chlordane	ND	1.5	1	
Gamma Chlordane	ND	1.5	1	
Cis-nonachlor	ND	1.5	1	
Oxychlordane	ND	1.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	82	50-130	
Decachlorobiphenyl	87	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**GC 44**	**06/17/13**	**06/19/13 14:34**	**130617L14**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	13	3.0	2	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	67	50-130	
Decachlorobiphenyl	84	50-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-208**	**N/A**	**Soil**	**GC 44**	**06/17/13**	**06/19/13 13:08**	**130617L14**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	1.0	1	
Alpha-BHC	ND	1.0	1	
Beta-BHC	ND	1.0	1	
Delta-BHC	ND	1.0	1	
Gamma-BHC	ND	1.0	1	
Chlordane	ND	10	1	
Dieldrin	ND	1.0	1	
Trans-nonachlor	ND	1.0	1	
2,4'-DDD	ND	1.0	1	
2,4'-DDE	ND	1.0	1	
2,4'-DDT	ND	1.0	1	
4,4'-DDD	ND	1.0	1	
4,4'-DDE	ND	1.0	1	
4,4'-DDT	ND	1.0	1	
Endosulfan I	ND	1.0	1	
Endosulfan II	ND	1.0	1	
Endosulfan Sulfate	ND	1.0	1	
Endrin	ND	1.0	1	
Endrin Aldehyde	ND	1.0	1	
Endrin Ketone	ND	1.0	1	
Heptachlor	ND	1.0	1	
Heptachlor Epoxide	ND	1.0	1	
Methoxychlor	ND	1.0	1	
Toxaphene	ND	20	1	
Alpha Chlordane	ND	1.0	1	
Gamma Chlordane	ND	1.0	1	
Cis-nonachlor	ND	1.0	1	
Oxychlordane	ND	1.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	99	50-130	
Decachlorobiphenyl	97	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**GC/MS MM**	**06/17/13**	**06/18/13 20:53**	**130617L12**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	15	1	
2,4,5-Trichlorophenol	ND	15	1	
2,4,6-Trichlorophenol	ND	15	1	
2,4-Dichlorophenol	ND	15	1	
2,4-Dimethylphenol	ND	15	1	
2,4-Dinitrophenol	ND	750	1	
2-Chlorophenol	ND	15	1	
2-Methylnaphthalene	ND	15	1	
2-Methylphenol	ND	15	1	
2-Nitrophenol	ND	15	1	
3/4-Methylphenol	ND	15	1	
4,6-Dinitro-2-Methylphenol	ND	750	1	
4-Chloro-3-Methylphenol	ND	15	1	
4-Nitrophenol	ND	750	1	
Acenaphthene	ND	15	1	
Acenaphthylene	15	15	1	
Anthracene	31	15	1	
Benzo (a) Anthracene	26	15	1	
Benzo (a) Pyrene	100	15	1	
Benzo (b) Fluoranthene	130	15	1	
Benzo (g,h,i) Perylene	68	15	1	
Benzo (k) Fluoranthene	100	15	1	
Bis(2-Ethylhexyl) Phthalate	270	15	1	
Butyl Benzyl Phthalate	52	15	1	
Chrysene	46	15	1	
Di-n-Butyl Phthalate	ND	15	1	
Di-n-Octyl Phthalate	ND	15	1	
Dibenz (a,h) Anthracene	16	15	1	
Diethyl Phthalate	ND	15	1	
Dimethyl Phthalate	ND	15	1	
Fluoranthene	27	15	1	
Fluorene	ND	15	1	
Indeno (1,2,3-c,d) Pyrene	61	15	1	
Naphthalene	ND	15	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
Pentachlorophenol	ND	750	1	
Phenanthrene	16	15	1	
Phenol	ND	15	1	
Pyrene	52	15	1	
1,6,7-Trimethylnaphthalene	ND	15	1	
2,3,4,6-Tetrachlorophenol	ND	15	1	
2,6-Dichlorophenol	ND	15	1	
Dibenzothiophene	ND	15	1	
1-Methylphenanthrene	ND	15	1	
Benzo (e) Pyrene	92	15	1	
Perylene	46	15	1	
Biphenyl	ND	15	1	
2,6-Dimethylnaphthalene	20	15	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,6-Tribromophenol	66	32-143	
2-Fluorobiphenyl	51	14-146	
2-Fluorophenol	38	15-138	
Nitrobenzene-d5	43	18-162	
p-Terphenyl-d14	63	34-148	
Phenol-d6	47	17-141	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-D**	**06/11/13 00:00**	**Sediment**	**GC/MS MM**	**06/17/13**	**06/18/13 21:19**	**130617L12**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	15	1	
2,4,5-Trichlorophenol	ND	15	1	
2,4,6-Trichlorophenol	ND	15	1	
2,4-Dichlorophenol	ND	15	1	
2,4-Dimethylphenol	ND	15	1	
2,4-Dinitrophenol	ND	750	1	
2-Chlorophenol	ND	15	1	
2-Methylnaphthalene	ND	15	1	
2-Methylphenol	ND	15	1	
2-Nitrophenol	ND	15	1	
3/4-Methylphenol	ND	15	1	
4,6-Dinitro-2-Methylphenol	ND	750	1	
4-Chloro-3-Methylphenol	ND	15	1	
4-Nitrophenol	ND	750	1	
Acenaphthene	ND	15	1	
Acenaphthylene	17	15	1	
Anthracene	36	15	1	
Benzo (a) Anthracene	31	15	1	
Benzo (a) Pyrene	120	15	1	
Benzo (b) Fluoranthene	150	15	1	
Benzo (g,h,i) Perylene	77	15	1	
Benzo (k) Fluoranthene	130	15	1	
Bis(2-Ethylhexyl) Phthalate	300	15	1	
Butyl Benzyl Phthalate	42	15	1	
Chrysene	55	15	1	
Di-n-Butyl Phthalate	ND	15	1	
Di-n-Octyl Phthalate	ND	15	1	
Dibenz (a,h) Anthracene	17	15	1	
Diethyl Phthalate	ND	15	1	
Dimethyl Phthalate	ND	15	1	
Fluoranthene	32	15	1	
Fluorene	ND	15	1	
Indeno (1,2,3-c,d) Pyrene	66	15	1	
Naphthalene	ND	15	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
Pentachlorophenol	ND	750	1	
Phenanthrene	19	15	1	
Phenol	ND	15	1	
Pyrene	58	15	1	
1,6,7-Trimethylnaphthalene	ND	15	1	
2,3,4,6-Tetrachlorophenol	ND	15	1	
2,6-Dichlorophenol	ND	15	1	
Dibenzothiophene	ND	15	1	
1-Methylphenanthrene	ND	15	1	
Benzo (e) Pyrene	110	15	1	
Perylene	49	15	1	
Biphenyl	ND	15	1	
2,6-Dimethylnaphthalene	26	15	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,6-Tribromophenol	85	32-143	
2-Fluorobiphenyl	68	14-146	
2-Fluorophenol	57	15-138	
Nitrobenzene-d5	59	18-162	
p-Terphenyl-d14	79	34-148	
Phenol-d6	66	17-141	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-256-36**	**N/A**	**Soil**	**GC/MS MM**	**06/17/13**	**06/18/13 19:10**	**130617L12**

Parameter	Result	RL	DF	Qualifiers
1-Methylnaphthalene	ND	10	1	
2,4,5-Trichlorophenol	ND	10	1	
2,4,6-Trichlorophenol	ND	10	1	
2,4-Dichlorophenol	ND	10	1	
2,4-Dimethylphenol	ND	10	1	
2,4-Dinitrophenol	ND	500	1	
2-Chlorophenol	ND	10	1	
2-Methylnaphthalene	ND	10	1	
2-Methylphenol	ND	10	1	
2-Nitrophenol	ND	10	1	
3/4-Methylphenol	ND	10	1	
4,6-Dinitro-2-Methylphenol	ND	500	1	
4-Chloro-3-Methylphenol	ND	10	1	
4-Nitrophenol	ND	500	1	
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Bis(2-Ethylhexyl) Phthalate	ND	10	1	
Butyl Benzyl Phthalate	ND	10	1	
Chrysene	ND	10	1	
Di-n-Butyl Phthalate	ND	10	1	
Di-n-Octyl Phthalate	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
Diethyl Phthalate	ND	10	1	
Dimethyl Phthalate	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
Naphthalene	ND	10	1	
Pentachlorophenol	ND	500	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
Phenanthrene	ND	10	1	
Phenol	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
2,3,4,6-Tetrachlorophenol	ND	10	1	
2,6-Dichlorophenol	ND	10	1	
Dibenzothiophene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Perylene	ND	10	1	
Biphenyl	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,6-Tribromophenol	72	32-143	
2-Fluorobiphenyl	79	14-146	
2-Fluorophenol	83	15-138	
Nitrobenzene-d5	76	18-162	
p-Terphenyl-d14	84	34-148	
Phenol-d6	83	17-141	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-A**	**06/11/13 15:00**	**Sediment**	**GC/MS HHH**	**06/13/13**	**06/18/13 02:47**	**130613L04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB018	0.86	0.75	1	
PCB028	ND	0.75	1	
PCB037	ND	0.75	1	
PCB044	ND	0.75	1	
PCB049	ND	0.75	1	
PCB052	ND	0.75	1	
PCB066	ND	0.75	1	
PCB070	ND	0.75	1	
PCB074	ND	0.75	1	
PCB077	ND	0.75	1	
PCB081	ND	0.75	1	
PCB087	ND	0.75	1	
PCB099	ND	0.75	1	
PCB101	ND	0.75	1	
PCB105	ND	0.75	1	
PCB110	ND	0.75	1	
PCB114	ND	0.75	1	
PCB118	ND	0.75	1	
PCB119	ND	0.75	1	
PCB123	ND	0.75	1	
PCB126	ND	0.75	1	
PCB128	ND	0.75	1	
PCB138/158	ND	1.5	1	
PCB149	ND	0.75	1	
PCB151	ND	0.75	1	
PCB153	ND	0.75	1	
PCB156	ND	0.75	1	
PCB157	ND	0.75	1	
PCB167	ND	0.75	1	
PCB168	ND	0.75	1	
PCB169	ND	0.75	1	
PCB170	ND	0.75	1	
PCB177	ND	0.75	1	
PCB180	ND	0.75	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
PCB183	ND	0.75	1	
PCB187	ND	0.75	1	
PCB189	ND	0.75	1	
PCB194	ND	0.75	1	
PCB201	ND	0.75	1	
PCB206	ND	0.75	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	59	50-125	
p-Terphenyl-d14	50	50-125	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B Lab Dup	**13-06-0832-2-A**	**06/11/13 00:00**	**Sediment**	**GC/MS HHH**	**06/13/13**	**06/18/13 18:24**	**130613L04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.75	1	
PCB028	ND	0.75	1	
PCB037	ND	0.75	1	
PCB044	ND	0.75	1	
PCB049	ND	0.75	1	
PCB052	ND	0.75	1	
PCB066	ND	0.75	1	
PCB070	ND	0.75	1	
PCB074	ND	0.75	1	
PCB077	ND	0.75	1	
PCB081	ND	0.75	1	
PCB087	ND	0.75	1	
PCB099	ND	0.75	1	
PCB101	ND	0.75	1	
PCB105	ND	0.75	1	
PCB110	ND	0.75	1	
PCB114	ND	0.75	1	
PCB118	ND	0.75	1	
PCB119	ND	0.75	1	
PCB123	ND	0.75	1	
PCB126	ND	0.75	1	
PCB128	ND	0.75	1	
PCB138/158	ND	1.5	1	
PCB149	ND	0.75	1	
PCB151	ND	0.75	1	
PCB153	ND	0.75	1	
PCB156	ND	0.75	1	
PCB157	ND	0.75	1	
PCB167	ND	0.75	1	
PCB168	ND	0.75	1	
PCB169	ND	0.75	1	
PCB170	ND	0.75	1	
PCB177	ND	0.75	1	
PCB180	ND	0.75	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
PCB183	ND	0.75	1	
PCB187	ND	0.75	1	
PCB189	ND	0.75	1	
PCB194	ND	0.75	1	
PCB201	ND	0.75	1	
PCB206	ND	0.75	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	99	50-125	
p-Terphenyl-d14	102	50-125	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-341-104**	**N/A**	**Soil**	**GC/MS HHH**	**06/13/13**	**06/17/13 19:51**	**130613L04**

Parameter	Result	RL	DF	Qualifiers
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Parameter	Result	RL	DF	Qualifiers
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB201	ND	0.50	1	
PCB206	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	69	50-125	
p-Terphenyl-d14	94	50-125	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Units: ug/kg

Project: POLA Berths 217-224 (YTI) Container Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
YTI Comp B	**13-06-0832-1-D**	**06/11/13 15:00**	**Sediment**	**GC/MS JJJ**	**06/12/13**	**06/14/13 11:40**	**130612L04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	14	4.5	1	
Monobutyltin	ND	4.5	1	
Tetrabutyltin	ND	4.5	1	
Tributyltin	11	4.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	75	48-126	

YTI Comp B Lab Dup	13-06-0832-2-D	06/11/13 00:00	Sediment	GC/MS JJJ	06/12/13	06/14/13 12:10	130612L04

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	13	4.5	1	
Monobutyltin	ND	4.5	1	
Tetrabutyltin	ND	4.5	1	
Tributyltin	11	4.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	67	48-126	

Method Blank	099-07-016-1032	N/A	Soil	GC/MS JJJ	06/12/13	06/14/13 10:40	130612L04

Parameter	Result	RL	DF	Qualifiers
Dibutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1	
Tetrabutyltin	ND	3.0	1	
Tributyltin	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	66	48-126	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

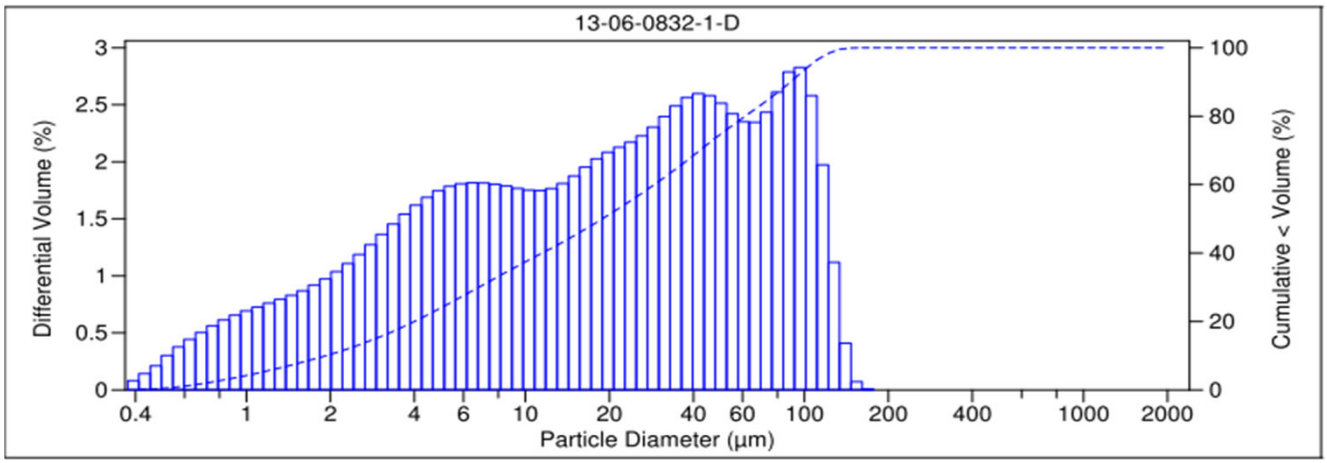
PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure		Date Sampled:	6/11/2013
9210 Sky Park Court, Suite 200		Date Received:	6/12/2013
San Diego, CA 92123-4302		Work Order No:	13-06-0832
		Date Analyzed:	6/20/2013
		Method:	ASTM D4464M
Project:	Berths 163-164		Page 1 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
YTI Comp B		Silt	0.033

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	1.31	18.21	60.82	19.66	80.48



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Calscience Environmental Laboratories, Inc.

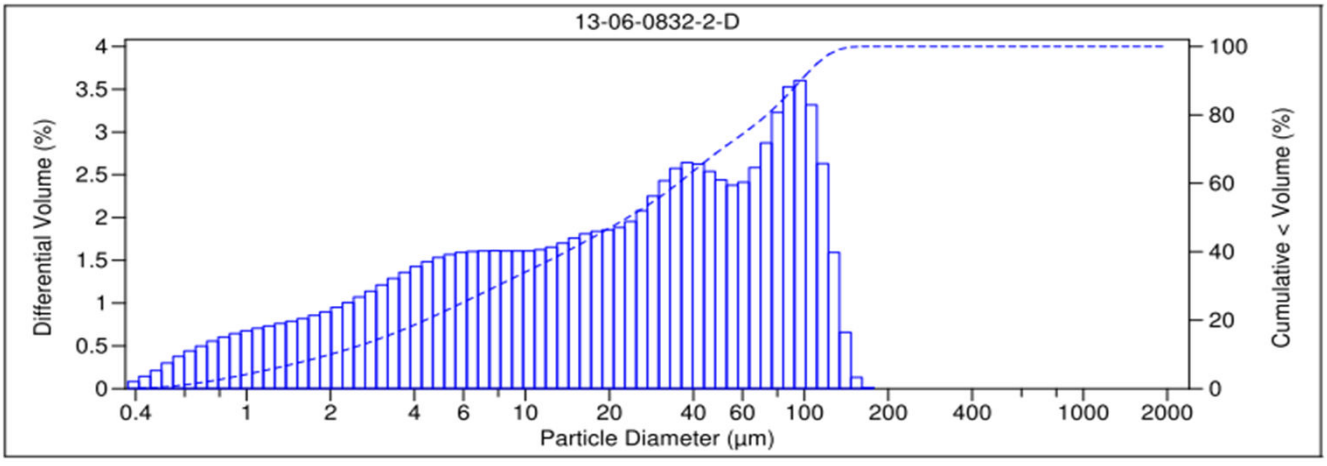
PARTICLE SIZE SUMMARY

(ASTM D422 / D4464M)

AMEC Environment & Infrastructure		Date Sampled:	6/11/2013
9210 Sky Park Court, Suite 200		Date Received:	6/12/2013
San Diego, CA 92123-4302		Work Order No:	13-06-0832
		Date Analyzed:	6/20/2013
		Method:	ASTM D4464M
Project:	Berths 163-164		Page 2 of 2

Sample ID	Depth ft	Description	Mean Grain Size mm
YTI Comp B Lab Dup		Silt	0.037

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
0.00	0.00	0.00	0.00	1.97	22.59	57.16	18.28	75.45



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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0526-1	**Sediment**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCS1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.1700	3.000	3.360	106	3.400	108	75-125	1	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 2 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0978-2	**Soil**	**IR 2**	**06/14/13**	**06/14/13 18:00**	**130614S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TRPH	13.36	100.0	101.5	88	102.3	89	55-135	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B
Method: EPA 8015B (M)
Page 3 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0878-14	**Soil**	**GC 47**	**06/14/13**	**06/14/13 17:59**	**130614S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	378.7	95	378.2	95	64-130	0	0-15	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0714-1	**Sediment**	**GCTQ 1**	**06/13/13**	**06/18/13 02:05**	**130613S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.801	36	2.050	41	25-200	13	0-30	
Bifenthrin	ND	5.000	3.142	63	3.422	68	25-200	9	0-30	
Cyfluthrin	ND	5.000	1.828	37	2.197	44	25-200	18	0-30	
Cypermethrin	ND	5.000	1.659	33	1.967	39	25-200	17	0-30	
Deltamethrin/Tralomethrin	ND	5.000	2.381	48	2.763	55	25-200	15	0-30	
Fenpropathrin	ND	5.000	2.961	59	3.006	60	25-200	2	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	3.912	39	4.777	48	25-200	20	0-30	
Fluvalinate	ND	5.000	1.709	34	2.218	44	25-200	26	0-30	
Permethrin (cis/trans)	3.251	5.000	8.042	96	8.269	100	25-200	3	0-30	
Phenothrin	ND	5.000	6.554	131	6.613	132	25-200	1	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.612	92	5.264	105	25-200	13	0-30	
Tetramethrin	ND	5.000	4.514	90	4.959	99	25-200	9	0-30	
lambda-Cyhalothrin	ND	5.000	2.236	45	2.579	52	25-200	14	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0812-1	**Soil**	**ICP/MS 03**	**06/13/13**	**06/13/13 12:36**	**130613S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.906	25.00	28.88	100	28.66	99	72-132	1	0-13	
Cadmium	ND	25.00	24.93	100	25.71	103	85-121	3	0-12	
Chromium	15.21	25.00	37.79	90	38.11	92	20-182	1	0-15	
Copper	21.24	25.00	43.93	91	47.87	106	25-157	9	0-22	
Lead	18.26	25.00	52.74	138	50.77	130	62-134	4	0-23	3
Nickel	13.44	25.00	35.88	90	37.34	96	46-154	4	0-15	
Selenium	ND	25.00	24.50	98	24.89	100	54-132	2	0-14	
Silver	ND	12.50	12.33	99	12.43	99	78-126	1	0-15	
Zinc	62.69	25.00	86.12	94	93.12	122	23-173	8	0-18	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 7471A Total
Method: EPA 7471A
Page 6 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-04-1004-11	**Sediment**	**Mercury**	**06/13/13**	**06/13/13 12:04**	**130613S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	1.188	0.8350	2.244	126	2.199	121	71-137	2	0-14	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
YTI Comp B	**Sediment**	**GC 44**	**06/17/13**	**06/19/13 13:51**	**130617S14**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	3.511	70	3.366	67	50-135	4	0-25	
Alpha-BHC	ND	5.000	4.491	90	3.778	76	50-135	17	0-25	
Beta-BHC	ND	5.000	5.223	104	4.305	86	50-135	19	0-25	
Delta-BHC	ND	5.000	5.045	101	3.844	77	50-135	27	0-25	4
Gamma-BHC	ND	5.000	4.034	81	3.412	68	50-135	17	0-25	
Dieldrin	ND	5.000	5.215	104	4.641	93	50-135	12	0-25	
4,4'-DDD	ND	5.000	6.598	132	6.077	122	50-135	8	0-25	
4,4'-DDE	8.215	5.000	13.60	108	12.44	85	50-135	9	0-25	
4,4'-DDT	ND	5.000	8.403	168	4.426	89	50-135	62	0-25	3,4
Endosulfan I	ND	5.000	3.855	77	3.845	77	50-135	0	0-25	
Endosulfan II	ND	5.000	3.446	69	3.279	66	50-135	5	0-25	
Endosulfan Sulfate	ND	5.000	4.126	83	3.691	74	50-135	11	0-25	
Endrin	ND	5.000	4.807	96	4.540	91	50-135	6	0-25	
Endrin Aldehyde	ND	5.000	3.080	62	2.448	49	50-135	23	0-25	3
Endrin Ketone	ND	5.000	4.504	90	3.903	78	50-135	14	0-25	
Heptachlor	ND	5.000	3.718	74	2.997	60	50-135	21	0-25	
Heptachlor Epoxide	ND	5.000	5.770	115	5.250	105	50-135	9	0-25	
Methoxychlor	ND	5.000	3.864	77	2.398	48	50-135	47	0-25	3,4
Alpha Chlordane	ND	5.000	4.856	97	4.464	89	50-135	8	0-25	
Gamma Chlordane	ND	5.000	3.829	77	3.653	73	50-135	5	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0714-1	**Sediment**	**GC/MS MM**	**06/17/13**	**06/18/13 20:02**	**130617S12**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	ND	1000	693.0	69	747.3	75	40-160	8	0-20	
2,4-Dichlorophenol	ND	1000	625.0	63	688.1	69	40-160	10	0-20	
2-Methylphenol	ND	1000	725.6	73	799.3	80	40-160	10	0-20	
2-Nitrophenol	ND	1000	670.3	67	739.9	74	40-160	10	0-20	
4-Chloro-3-Methylphenol	ND	1000	664.0	66	737.5	74	40-160	10	0-20	
Acenaphthene	ND	1000	699.5	70	766.7	77	40-106	9	0-20	
Benzo (a) Pyrene	58.46	1000	909.8	85	970.9	91	17-163	7	0-20	
Chrysene	35.05	1000	807.8	77	893.2	86	17-168	10	0-20	
Di-n-Butyl Phthalate	10.59	1000	593.3	58	638.8	63	40-160	7	0-20	
Dimethyl Phthalate	ND	1000	684.1	68	750.5	75	40-160	9	0-20	
Fluoranthene	51.31	1000	710.0	66	779.1	73	26-137	9	0-20	
Fluorene	ND	1000	715.0	72	798.6	80	59-121	11	0-20	
N-Nitrosodimethylamine	ND	1000	501.9	50	571.3	57	40-160	13	0-20	
Naphthalene	ND	1000	688.7	69	727.7	73	21-133	6	0-20	
Phenanthrene	12.20	1000	734.7	72	797.8	79	54-120	8	0-20	
Phenol	ND	1000	530.2	53	575.6	58	40-160	8	0-20	
Pyrene	157.2	1000	958.8	80	1016	86	6-156	6	0-46	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0440-11	**Sediment**	**GC/MS HHH**	**06/13/13**	**06/18/13 00:28**	**130613S04**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	25.00	21.38	86	19.18	77	50-125	11	0-30	
PCB018	ND	25.00	21.55	86	19.06	76	50-125	12	0-30	
PCB028	ND	25.00	21.28	85	18.78	75	50-125	12	0-30	
PCB044	ND	25.00	17.89	72	15.69	63	50-125	13	0-30	
PCB052	ND	25.00	25.12	100	22.01	88	50-125	13	0-30	
PCB066	ND	25.00	20.51	82	17.67	71	50-125	15	0-30	
PCB077	ND	25.00	15.63	63	13.38	54	50-125	15	0-30	
PCB101	ND	25.00	17.26	69	14.91	60	50-125	15	0-30	
PCB105	ND	25.00	15.20	61	13.27	53	50-125	14	0-30	
PCB118	ND	25.00	19.33	77	16.95	68	50-125	13	0-30	
PCB126	ND	25.00	13.15	53	11.53	46	50-125	13	0-30	3
PCB128	ND	25.00	13.60	54	11.26	45	50-125	19	0-30	3
PCB153	ND	25.00	14.98	60	13.07	52	50-125	14	0-30	
PCB170	ND	25.00	16.60	66	14.68	59	50-125	12	0-30	
PCB180	ND	25.00	14.26	57	11.96	48	50-125	17	0-30	3
PCB187	ND	25.00	13.72	55	12.10	48	50-125	13	0-30	3
PCB195	ND	25.00	14.88	60	13.31	53	50-125	11	0-30	
PCB206	ND	25.00	15.57	62	14.17	57	50-125	9	0-30	
PCB209	ND	25.00	16.47	66	14.90	60	50-125	10	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Page 10 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-06-0715-2	**Sediment**	**GC/MS JJJ**	**06/12/13**	**06/14/13 14:10**	**130612S04**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	ND	100.0	83.38	83	90.79	91	79-175	9	0-31	
Tributyltin	20.64	100.0	83.02	62	94.35	74	69-135	13	0-29	3

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-06-0812-1	**Soil**	**ICP/MS 03**	**06/13/13 00:00**	**06/13/13 12:42**	**130613S01**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.906	25.00	29.09	101	28.55	99	75-125	2	0-20	
Cadmium	ND	25.00	25.03	100	25.17	101	75-125	1	0-20	
Chromium	15.21	25.00	36.84	87	36.46	85	75-125	1	0-20	
Copper	21.24	25.00	45.72	98	45.38	97	75-125	1	0-20	
Lead	18.26	25.00	45.06	107	44.70	106	75-125	1	0-20	
Nickel	13.44	25.00	36.70	93	36.47	92	75-125	1	0-20	
Selenium	ND	25.00	25.32	101	25.41	102	75-125	0	0-20	
Silver	ND	12.50	10.08	81	10.15	81	75-125	1	0-20	
Zinc	62.69	25.00	90.03	109	90.22	110	75-125	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 1 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13-06-0715-2	**Sediment**	**N/A**	**06/17/13 00:00**	**06/17/13 14:45**	**D0617SD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Total	7.500	7.200	4	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 2 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
YTI Comp B	**Sediment**	**N/A**	**06/12/13 00:00**	**06/12/13 20:40**	**D0612DSD3**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Dissolved	ND	ND	N/A	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 3 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13-06-0714-1	**Sediment**	**N/A**	**06/13/13 00:00**	**06/13/13 19:00**	**D0613TSD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	72.90	71.70	2	0-10	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: EPA 9060A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-013-876	**Soil**	**TOC 5**	**06/17/13**	**06/17/13 18:28**	**D0617TOCL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.6000	0.6454	108	0.6268	104	80-120	3	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: N/A
Method: SM 4500-NH3 B/C (M)

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-816-62	**Soil**	**BUR05**	**06/19/13**	**06/19/13 14:00**	**D0619NH3L1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	5.000	4.340	87	4.270	85	80-120	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 3 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-07-015-1927	**Soil**	**IR 2**	**06/14/13 18:00**	**130614L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TRPH	100.0	92.28	92	70-130	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 4 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-490-364	**Soil**	**GC 47**	**06/14/13 17:43**	**120614B02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	444.6	111	75-123	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-403-34	**Sediment**	**GCTQ 1**	**06/17/13 21:49**	**130613L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Allethrin	5.000	2.443	49	25-200	0-229	
Bifenthrin	5.000	3.868	77	25-200	0-229	
Cyfluthrin	5.000	2.431	49	25-200	0-229	
Cypermethrin	5.000	2.309	46	25-200	0-229	
Deltamethrin/Tralomethrin	5.000	2.593	52	25-200	0-229	
Fenpropathrin	5.000	2.823	56	25-200	0-229	
Fenvalerate/Esfenvalerate	10.00	4.307	43	25-200	0-229	
Fluvalinate	5.000	2.334	47	25-200	0-229	
Permethrin (cis/trans)	5.000	3.977	80	25-200	0-229	
Phenothrin	5.000	4.836	97	25-200	0-229	
Resmethrin/Bioresmethrin	5.000	4.560	91	25-200	0-229	
Tetramethrin	5.000	3.101	62	25-200	0-229	
lambda-Cyhalothrin	5.000	1.978	40	25-200	0-229	

Total number of LCS compounds: 13
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-254-117	**Soil**	**ICP/MS 03**	**06/13/13 12:00**	**130613L01E**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Arsenic	25.00	24.77	99	80-120	
Cadmium	25.00	25.49	102	80-120	
Chromium	25.00	24.40	98	80-120	
Copper	25.00	26.32	105	80-120	
Lead	25.00	25.98	104	80-120	
Nickel	25.00	25.21	101	80-120	
Selenium	25.00	25.55	102	80-120	
Silver	12.50	10.68	85	80-120	
Zinc	25.00	27.47	110	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure		Date Received:	06/12/13
9210 Sky Park Court, Suite 200		Work Order:	13-06-0832
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: POLA Berths 217-224 (YTI) Container Terminal			Page 7 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-452-384	**Soil**	**Mercury**	**06/13/13 10:49**	**130313L01E**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.7904	95	82-124	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8081A

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-858-208	**Soil**	**GC 44**	**06/19/13 15:36**	**130617L14**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	5.000	4.252	85	50-135	36-149	
Alpha-BHC	5.000	4.916	98	50-135	36-149	
Beta-BHC	5.000	4.273	85	50-135	36-149	
Delta-BHC	5.000	3.744	75	50-135	36-149	
Gamma-BHC	5.000	4.885	98	50-135	36-149	
Dieldrin	5.000	4.431	89	50-135	36-149	
4,4'-DDD	5.000	4.339	87	50-135	36-149	
4,4'-DDE	5.000	4.593	92	50-135	36-149	
4,4'-DDT	5.000	4.366	87	50-135	36-149	
Endosulfan I	5.000	4.436	89	50-135	36-149	
Endosulfan II	5.000	4.348	87	50-135	36-149	
Endosulfan Sulfate	5.000	4.147	83	50-135	36-149	
Endrin	5.000	4.919	98	50-135	36-149	
Endrin Aldehyde	5.000	4.636	93	50-135	36-149	
Endrin Ketone	5.000	4.323	86	50-135	36-149	
Heptachlor	5.000	4.415	88	50-135	36-149	
Heptachlor Epoxide	5.000	4.421	88	50-135	36-149	
Methoxychlor	5.000	4.444	89	50-135	36-149	
Alpha Chlordane	5.000	4.338	87	50-135	36-149	
Gamma Chlordane	5.000	4.433	89	50-135	36-149	

Total number of LCS compounds: 20
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

Return to Contents

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-256-36	**Soil**	**GC/MS MM**	**06/18/13 17:28**	**130617L12**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
2,4,6-Trichlorophenol	1000	522.4	52	40-160	20-180	
2,4-Dichlorophenol	1000	488.3	49	40-160	20-180	
2-Methylphenol	1000	495.2	50	40-160	20-180	
2-Nitrophenol	1000	493.3	49	40-160	20-180	
4-Chloro-3-Methylphenol	1000	481.2	48	40-160	20-180	
Acenaphthene	1000	576.5	58	48-108	38-118	
Benzo (a) Pyrene	1000	732.7	73	17-163	0-187	
Chrysene	1000	657.9	66	17-168	0-193	
Di-n-Butyl Phthalate	1000	676.0	68	40-160	20-180	
Dimethyl Phthalate	1000	498.6	50	40-160	20-180	
Fluoranthene	1000	639.4	64	26-137	8-156	
Fluorene	1000	621.6	62	59-121	49-131	
N-Nitrosodimethylamine	1000	425.3	43	40-160	20-180	
Naphthalene	1000	515.8	52	21-133	2-152	
Phenanthrene	1000	606.8	61	54-120	43-131	
Phenol	1000	399.6	40	40-160	20-180	
Pyrene	1000	674.8	67	28-106	15-119	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 217-224 (YTI) Container Terminal

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-341-104	**Soil**	**GC/MS HHH**	**06/18/13 13:40**	**130613L04**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
PCB008	25.00	20.31	81	50-125	38-138	
PCB018	25.00	22.98	92	50-125	38-138	
PCB028	25.00	23.43	94	50-125	38-138	
PCB044	25.00	23.29	93	50-125	38-138	
PCB052	25.00	21.78	87	50-125	38-138	
PCB066	25.00	25.28	101	50-125	38-138	
PCB077	25.00	22.91	92	50-125	38-138	
PCB101	25.00	22.96	92	50-125	38-138	
PCB105	25.00	22.43	90	50-125	38-138	
PCB118	25.00	24.72	99	50-125	38-138	
PCB126	25.00	20.64	83	50-125	38-138	
PCB128	25.00	20.96	84	50-125	38-138	
PCB153	25.00	21.62	86	50-125	38-138	
PCB170	25.00	20.77	83	50-125	38-138	
PCB180	25.00	19.81	79	50-125	38-138	
PCB187	25.00	20.37	81	50-125	38-138	
PCB195	25.00	18.19	73	50-125	38-138	
PCB206	25.00	20.55	82	50-125	38-138	
PCB209	25.00	17.81	71	50-125	38-138	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA Berths 217-224 (YTI) Container Terminal

Date Received: 06/12/13
Work Order: 13-06-0832
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Page 11 of 11

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-07-016-1032	**Soil**	**GC/MS JJJ**	**06/14/13 11:10**	**130612L04**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Tetrabutyltin	100.0	88.80	89	79-151	
Tributyltin	100.0	90.42	90	51-129	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-06-0832 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	For any analysis identified as a "field" test with a holding time (HT) </= 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/12/2013

PAGE: 1 OF 2

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Ct # 200

CITY: San Diego, CA 92123

TEL: 858-449-2334 | E-Mail: tyler.huff@amec.com | E-MAIL:

CLIENT PROJECT NAME / NUMBER: Berths 163-164

PROJECT CONTACT: Barry Snyder/Tyler Huff

SAMPLER(S): (SIGNATURE)

P.O. NO.: 1015101930

QUOTE NO.:

LAB USE ONLY: 13-06-0832

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☒ 72HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM
Green Book Testing
Please see attached Sheet for Analysis.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins	grain size				
	YTI Comp B	Port of Los Angeles	06/11/13	1500	sediment	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				

Relinquished by: (Signature)	Received by: (Signature)	Date: 06/12/13	Time: 1525
Relinquished by: (Signature)	Received by: (Signature)	Date: 6/12/13	Time: 1940
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Table 4-2.
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits[a, b]	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M[c]	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M[c]	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D[c]	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a[i]	N/A	N/A	0.1 %
TRPH	418.1M[d]	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B[d]	N/A	5.0 mg/kg	N/A
PAHs[e]	8270C SIM/ GC/TQ[d]	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM[d]	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS[j]	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM[d]	N/A	10 µg/kg	N/A
Organotins	Rice/Krone[h]	3.0 ng/L	3.0 µg/kg	N/A

Notes:

[a] Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc.

[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.

[d] USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.

[e] Includes 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-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

[g] PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

[i] NOAA 1993

[j] Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lamba, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)
µg/L - micrograms per liter
mg/kg - milligrams per kilogram (parts per million)
mg/L - milligrams per liter
ng/L - nanograms per liter
N/A - not applicable
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SM - Standard Methods
SOP - standard operating procedure
TPH - total petroleum hydrocarbons
TRPH - total recoverable petroleum hydrocarbons

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0832

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC DATE: 06/12/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.7 °C - 0.2 °C (CF) = 1.5 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Initial: _____

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: _____

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: _____

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ 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 ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** _____

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** _____

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** _____

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APPENDIX D

TOXICITY LABORATORY REPORT

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Nautilus Environmental



Port of Los Angeles YTI Terminal Dredged Material Characterization

Toxicity and Bioaccumulation Testing Report

June 2013

Prepared by:
Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Prepared for:
AMEC Environment & Infrastructure, Inc.
9210 Sky Park Court, Suite 200
San Diego, CA 92123

Submitted: September 26, 2013

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1.0 INTRODUCTION

The Port of Los Angeles (POLA) is proposing to dredge sediments at Berths 214-220 for the Yusen Terminals Inc. (YTI) Container Terminal Improvements Project, and dispose of the material at the LA-2 ocean disposal site. In order to assess the suitability for ocean disposal, AMEC Environment & Infrastructure, Inc. (AMEC) has contracted with Nautilus Environmental (Nautilus) to conduct biological testing as part of the sediment characterization. The testing was conducted using methods outlined in the United States Environmental Protection Agency and Army Corps of Engineers (USEPA/USACE) "Green Book" testing protocol; "*Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual"* (USACE/EPA 1991).

The following report presents the results of toxicity and bioaccumulation bioassays conducted on composite sediment samples collected from two sites within the dredging footprint. In addition, reference sediment was collected and tested from the USEPA approved LA-2 Ocean Dredged Material Disposal Site. LA-2 sediment serves as a disposal-site reference location for comparison purposes. Solid- and suspended particulate-phase (SP and SPP) toxicity tests were conducted on whole sediments and sediment elutriates, respectively. Testing of the potential for bioaccumulation of contaminants in the whole sediment was also evaluated.

2.0 METHODS

2.1 Study Design

The material under consideration for ocean disposal was tested according to the project-specific Sampling and Analysis Plan (SAP) (AMEC, 2013) using criteria outlined in the Ocean Testing Manual (USEPA/USACE 1991), and the Inland Testing Manual (USEPA/USACE 1998).

The solid-phase amphipod tests included two concurrent controls. The laboratory control sediment consisted of coarse sand collected in the same location as the organisms (the amphipod collection site is composed of nearly 100 percent sand, lacking silt and clay fractions). Thus, the additional "fine grain size" control sediment was tested to better represent the common fine sediments found within bays and harbors. The control sediment for the solid-phase polychaete test consisted of clean beach sand collected from Scripps Institution of Oceanography in La Jolla, California; a fine grain control was not tested for polychaetes.

2.2 Sample Collection, Receipt, and Preparation

All site sediment cores from the YTI Terminal were collected between June 3 and June 8, 2013. Reference sediment was collected from the LA-2 ocean disposal site on June 2, 2013. Approximately 25 gallons of sediment were collected for toxicity testing from each site. The sediment was collected in food-grade polyethylene plastic liners and was then transported by courier in coolers containing wet ice to the Nautilus laboratory in San Diego, CA. Core samples were received at Nautilus between June 4 and June 8, 2013 and were stored at 4°C until being composited and homogenized by AMEC staff on June 10, 2013. Samples were identified as YTI Comp A, YTI Comp B, and LA-2 Reference (Table 1). Sub-samples were removed from each composite sample for chemical analysis, and then composited sediments were stored at 4°C until used for toxicity testing. Just prior to each phase of testing (SP, SPP, and Bioaccumulation) the samples were thoroughly homogenized. For the solid-phase toxicity tests, a sub-sample of each sample was sieved through a 500-µm Nitex® mesh screen to remove native organisms and large debris that may interfere with the survival and recovery of test organisms.

Table 1. Sediment Sample IDs

Site ID	Composite Date	Receipt Date
YTI Comp A	June 10, 2013	June 11, 2013[a]
YTI Comp B	June 10, 2013	June 11, 2013[a]
LA-2 Reference	June 2, 2013	June 4, 2013

[a] Samples were stored at Nautilus in 4°C overnight after compositing on June 10 and were released to Nautilus staff the following morning of June 11.

Sediment elutriates for suspended particulate phase toxicity tests were prepared by mixing one part sediment with four parts seawater (adjusted to 30 parts per thousand [ppt] with de-ionized water). The sediments were then mixed for 30 minutes (min) in polyethylene plastic-lined 5-gallon plastic buckets using a stainless steel mixing blade. The elutriate preparation was allowed to settle for approximately one hour before testing with bivalve larvae (note: the elutriate was allowed to settle for several hours at 4°C to obtain enough volume for the fish and mysid tests). The resulting supernatant was then siphoned into a clean container for testing. The suspended particulate-phase tests were not performed on sediment from LA-2 Reference.

Sediments were not manipulated in any way prior to use for bioaccumulation exposures.

2.3 Toxicity Test Methodology

Test methods and acceptability criteria are described in Tables 2 through 7. For all tests, water quality parameters (pH, temperature, salinity and dissolved oxygen [D.O.]) were monitored on a daily basis. Water samples from test chambers were also collected at specified intervals to monitor ammonia concentrations. For the 28-day (d) bioaccumulation tests, composite water samples for ammonia were collected on days 0, 7, 14, 21 and 28. For the 10-d solid-phase sediment tests, pore water samples were collected and tested for ammonia before initiation, and from the overlying water at test initiation and termination. For the 48- and 96-h suspended particulate-phase tests, water samples for ammonia analysis were collected at test initiation and termination.

Table 2. Toxicity Test Methodology and QA/QC Requirements for Solid Phase Toxicity Tests Using the Marine Amphipods *Eohaustorius estuarius*

Test organism	Marine Amphipods – *Eohaustorius estuarius*
Test organism source	Northwestern Aquatic Sciences, Newport, OR
Test organism size class	3-5 mm
Test duration; endpoint	10 days; survival
Overlying water renewal	None
Feeding	None
Test chamber	1-L glass jar
Sediment depth	2 cm
Overlying water volume	800 mL
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C daily instantaneous
Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 ppt with deionized water prior to testing
Test concentrations	Undiluted sediment composites
Number of organisms/chamber	20
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Negative controls	Sediment from amphipod collection site and fine-grain control from Sail Bay
Photoperiod	Continuous light (24 hr)
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	USEPA/USACE 1991,1998; US EPA 1994
Test acceptability criteria	≥ 90 percent mean survival in the lab control
Reference toxicant	Cadmium chloride

Table 3. Toxicity Test Methodology and QA/QC Requirements for Solid Phase Toxicity Tests Using the Marine Polychaete *Neanthes arenaceodentata*

Test organism	Marine Polychaete – *Neanthes arenaceodentata*
Test organism source	Aquatic Toxicology Support, Bremerton, WA
Test organism age at initiation	3 weeks
Test duration; endpoint	10 days; survival
Overlying water renewal	None
Feeding	None
Test chamber	1-L glass jar
Sediment depth/ volume	2 cm
Overlying water volume	800 mL
Test temperature	20 ± 1°C test-wide mean, 20 ± 3°C daily instantaneous
Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 ppt with deionized water prior to testing
Test concentrations	Undiluted sediment composites
Number of organisms/chamber	5
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Negative control	Clean, rinsed beach sand collected near Scripps Pier
Photoperiod	12 hours light:12 hours dark
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	USEPA/USACE 1991,1998; ASTM 2000 E1611-00
Test acceptability criteria	≥ 90 percent mean survival in controls
Reference toxicant	Cadmium chloride

Table 4. Toxicity Test Methodology and QA/QC Requirements for Suspended Particulate-Phase Bivalve Embryo Development Toxicity Tests Using the Mediterranean Mussel *Mytilus galloprovincialis*

Test organism	Mediterranean mussel - *Mytilus galloprovincialis*
Test organism source	Taylor Shellfish, Shelton, WA
Test duration, endpoints	48 hours, survival and normal development
Test solution renewal	None
Feeding	None
Test initiation	Within 24 hours of elutriate preparation
Test chamber	30-mL glass shell vial
Test solution volume	10-mL
Test temperature	16 ± 1°C test-wide mean, 16 ± 3°C daily instantaneous
Lab Control/Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 ppt with deionized water prior to testing
Test concentrations	10, 50, and 100 percent elutriate
Number of organisms/chamber	~200 embryos
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None
Test Protocol	USEPA/USACE 1991,1998; USEPA 1995
Test acceptability criteria	≥ 70% or greater survival and ≥ 70% shell development in controls
Reference toxicant	Copper chloride

Table 5. Toxicity Test Methodology and QA/QC Requirements for Suspended Particulate-Phase Toxicity Tests Using the Mysid Shrimp *Americamysis bahia*

Test organism	Mysid shrimp - *Americamysis bahia*
Test organism source	Aquatic BioSystems, Fort Collins, CO
Test organism age at initiation	5 days post-hatch
Test duration; endpoint	96 hours; survival
Test solution renewal	None
Feeding	*Artemia* nauplii twice daily
Test initiation	Within 24 hours of elutriate preparation
Test chamber	1-L plastic cup
Test solution volume	500 mL
Test temperature	25 ± 1°C test-wide mean, 25 ± 3°C daily instantaneous
Lab Control/Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; filtered and diluted to 30 parts ppt with deionized water prior to testing
Test concentrations	10, 50, and 100 percent elutriate
Number of organisms/chamber	10
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None, unless D.O. < 4.0 mg/L
Test Protocol	USEPA/USACE 1991,1998; EPA-821-R-02-012
Test acceptability criteria	≥ 90 percent mean survival in controls
Reference toxicant	Copper chloride

Table 6. Toxicity Test Methodology and QA/QC Requirements for Suspended Particulate Phase Toxicity Tests Using the Inland Silverside Minnow *Menidia beryllina*

Test organism	Inland silverside - *Menidia beryllina*
Test organism source	Aquatic BioSystems, Fort Collins, CO
Test organism age at initiation	14 days post-hatch
Test duration; endpoint	96 hours; survival
Test solution renewal	None
Feeding	*Artemia* nauplii once daily
Test initiation	Within 24 hours of elutriate preparation
Test chamber	1-L glass jar
Test solution volume	500 mL
Test temperature	25 ± 1°C test-wide mean, 25 ± 3°C daily instantaneous
Lab Control/Dilution water	Natural seawater collected offshore of the Scripps Pier in La Jolla, CA; diluted to 30 ppt with deionized water prior to testing
Test concentrations	10, 50, and 100 percent elutriate
Number of organisms/chamber	10
Number of replicates	5
Photoperiod	16 hours light/8 hours dark
Aeration	None, unless D.O. < 4.0 mg/L
Test Protocol	USEPA/USACE 1991,1998; EPA-821-R-02-012
Test acceptability criteria	≥ 90 percent mean survival in controls
Reference toxicant	Copper chloride

Table 7. Toxicity Test Methodology and QA/QC Requirements for 28-Day Bioaccumulation Tests Using the Marine Clam *Macoma nasuta* and the Marine Polychaete *Nereis virens*

Test organisms	Marine clam *Macoma nasuta* and the marine polychaete *Nereis virens*
Test organism source	Clams: Brezina & Associates, Dillon Beach, CA Worms: Aquatic Research Organisms, Hampton, NH
Test organism age at initiation	Adult
Test duration	28 days + 24-hr depuration period
Test solution renewal	Continuous flow-through
Feeding	None
Test chamber	10-gallon glass tanks
Sediment depth/ volume	5-6 cm
Overlying water volume	Approximately 7 gallons
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C daily instantaneous
Overlying water	Undiluted natural seawater (34 ppt) collected offshore of the Scripps Pier in La Jolla, CA
Test concentrations	Undiluted sediment
Number of organisms/chamber	35 (*Macoma nasuta*), 10 (*Nereis virens*)
Number of replicates	5
Negative control	Sediment from clam collection location
Photoperiod	16 hours light/8 hours dark
Aeration	Continuous
Test Protocol	USEPA/USACE 1991,1998
Test acceptability criteria	Adequate mass of organisms at test completion for detection of target analyte(s)
Reference toxicant	None

2.4 Statistical Analyses

Experiment-wide survival data from solid-phase and bioaccumulation tests were analyzed using one-way analysis of variance (ANOVA). When ANOVA showed a significant difference, multiple comparison t-tests then compared survival in each of the control and test sediments against survival in the LA-2 Reference sediment. Prior to analyses, normality was evaluated with D'Agostino & Pearson Omnibus test and homogeneity of variance was assessed with either Bartlett's Test or the F-Test. When necessary to satisfy these assumptions, proportional survival data were arcsine square-root transformed. Solid-phase and bioaccumulation analyses were performed with GraphPad Prism, Version 4.02.

Statistical analyses of all suspended particulate-phase and reference toxicant data were performed using CETIS Comprehensive Toxicity Data Analysis and Database Software version 1.8.4.23. Comparisons between the lab control and each test concentration were performed using Dunnett's Multiple Comparison Test if data displayed homogenous variance and a normal distribution. Data with heterogeneous variance, or non-normal distributions were analyzed using Steel's Many-One Rank Test.

2.5 Testing Schedule

A summary of the testing schedule is provided in Table 8. The solid-phase amphipod tests were initiated within one week of the receipt of the composite samples. Following results from this test, as well as analytical chemistry measurements of the samples, approval from the AMEC project manager was given to conduct the remaining tests. All remaining tests were initiated within the six week holding time specified in the SAP (AMEC, April 2013).

Table 8. Toxicity Test Schedule

Toxicity Test	Initiation Date
Solid-Phase Tests	
Eohaustorius 10-Day Survival	June 14, 2013
Neanthes 10-Day Survival	July 12, 2013
Suspended Particulate-Phase Tests	
Mytilus 48-Hour Embryo Development	July 10, 2013
Americamysis 96-Hour Survival	July 11, 2013
Menidia 96-Hour Survival	July 11, 2013
Bioaccumulation Tests	
Macoma and *Nereis* 28-Day Exposure	July 12, 2013

3.0 RESULTS

Summaries of toxicity test results are provided in Tables 9-11 and Figures 1-5, detailed results summaries are provided in Appendix A. Water quality and raw data sheets are provided in Appendix B and reference toxicant data can be found in Appendix C. Summaries of statistical analyses are in Appendix D. Chain of custody documentation for all samples is provided in Appendix E.

3.1 Solid-Phase Toxicity Tests

3.1.1 Eohaustorius

Eohaustorius survival in the solid-phase tests was significantly lower in both composite samples compared to that in the LA-2 Reference sediment. Mean amphipod survival in the LA-2 Reference was 98 percent compared to 68 percent in YTI Comp A, and 87 percent in YTI Comp B. Mean survival in the fine-grained control was 95 percent, indicating that the organisms were not overly-sensitive to fine-grained material during this round of testing. (Table 9, Figure 1). A one-way ANOVA showed a significant difference among sites ($p<0.001$). Multiple comparison t-tests revealed a significant reduction in survival in YTI Comp A and YTI Comp B when compared to the LA-2 Reference site. In addition, both composite samples were significantly reduced relative to the fine grain control. It does not appear that ammonia was a contributing factor in reduced survival of *Eohaustorius* based on comparison of measured concentrations to those found in published literature (see Section 4.5.1).

3.1.2 Neanthes

Mean survival of polychaete worms was 96 percent in the lab control, and 100 percent in the reference sediment. Survival in all test sediments was 100 percent (Table 9, Figure 2).

Table 9. Summary of 10-day Solid-Phase Mean Survival Results

Site ID	Amphipod Survival (%)	Polychaete Survival (%)
Lab Control	97	96
Fine Grain Size Control	95	NT
LA-2 Reference	98	100
YTI Comp A	**68***	100
YTI Comp B	**87***	100

NT– Not tested
* Values in **bold** indicate a statistically significant decrease from the LA-2 Reference sediment.

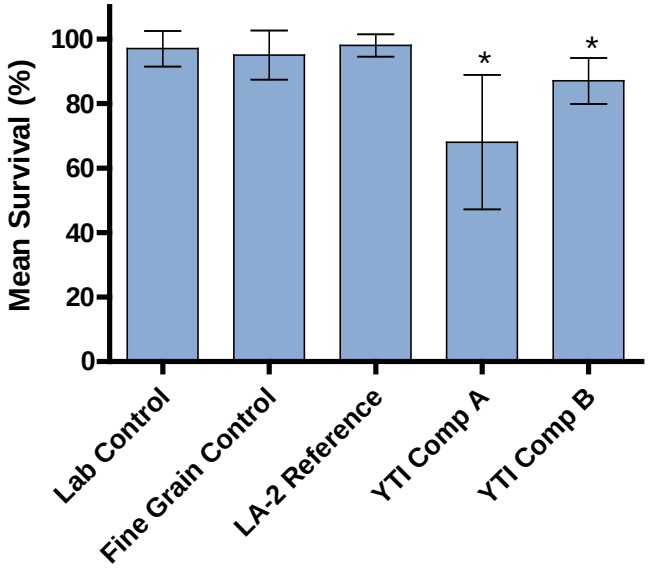


Figure 1. 10-day survival of amphipods (*E. estuarius*) in the solid-phase toxicity test of YTI sediments (mean percent survival ± 95% CI). Columns marked with an asterisk differ significantly from the LA-2 Reference sample (p < 0.05).

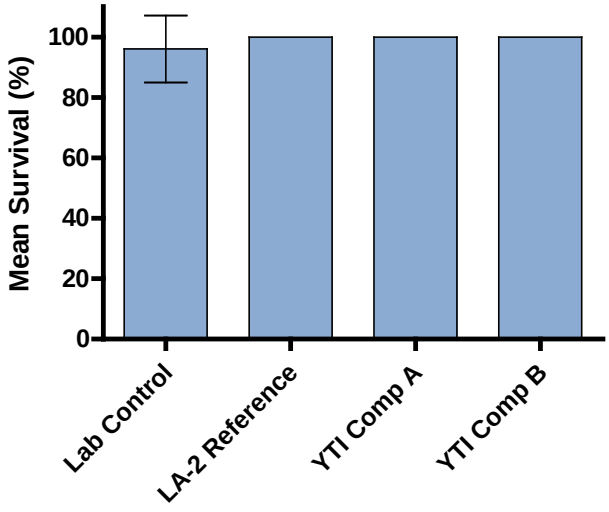


Figure 2. 10-day survival of polychaete worms (*N. arenaceodentata*) in the solid-phase toxicity test of YTI sediments (mean percent survival ± 95% CI).

3.2 Suspended Particulate-Phase Toxicity Tests

Results for the suspended particulate-phase tests are summarized in Table 10. Neither of the sediment elutriates was toxic to the inland silverside minnows or mysid shrimp. However, a significant effect in mussel development was observed in the undiluted elutriate for YTI Comp A compared to the lab control (Figure 3). Mean normal development (percent normal alive) of surviving mussel embryos ranged from 87 to 92 percent in the laboratory controls. Mean percent normal alive was 1.3 in the undiluted elutriate for YTI Comp A, a 98 percent effect from control. No effect was observed in the 10 or 50 percent concentrations and the resulting median effect level (EC_{50}) was 75 percent YTI Comp A elutriate. YTI Comp B showed statistically significant effects to mussel embryos in both the 50 and 100 percent elutriate concentrations (11 and 8.2 percent effect, respectively). There was no significant effect observed in the 10 percent concentration and the resulting EC_{50} value was greater than 100 percent YTI Comp B elutriate. The effects observed in normal development of mussel embryos may have been related to elevated ammonia levels (see Section 4.5.1).

Mean survival of mysids ranged from 94 to 96 percent in laboratory controls and 86 to 92 percent in undiluted elutriates (Figure 4). Mean survival in both controls for the inland silverside test were 96 percent and 94 to 100 percent in undiluted elutriates (Figure 5).

Table 10. Summary of Suspended Particulate-Phase Mean Test Results

Site	Concentration (% Elutriate)	Mussel 48-hr Normal Alive (%)	Mysid Shrimp 96-hr Survival (%)	Inland Silverside 96-hr Survival (%)
YTI Comp A	Lab Control	87	96	96
	10	87	90	98
	50	85	96	100
	100	**1.4***	92	94
YTI COMP B	Lab Control	92	94	96
	10	91	94	100
	50	**82***	96	100
	100	**88***	86	100

* Values in **bold** indicate a statistically significant decrease from the lab control.

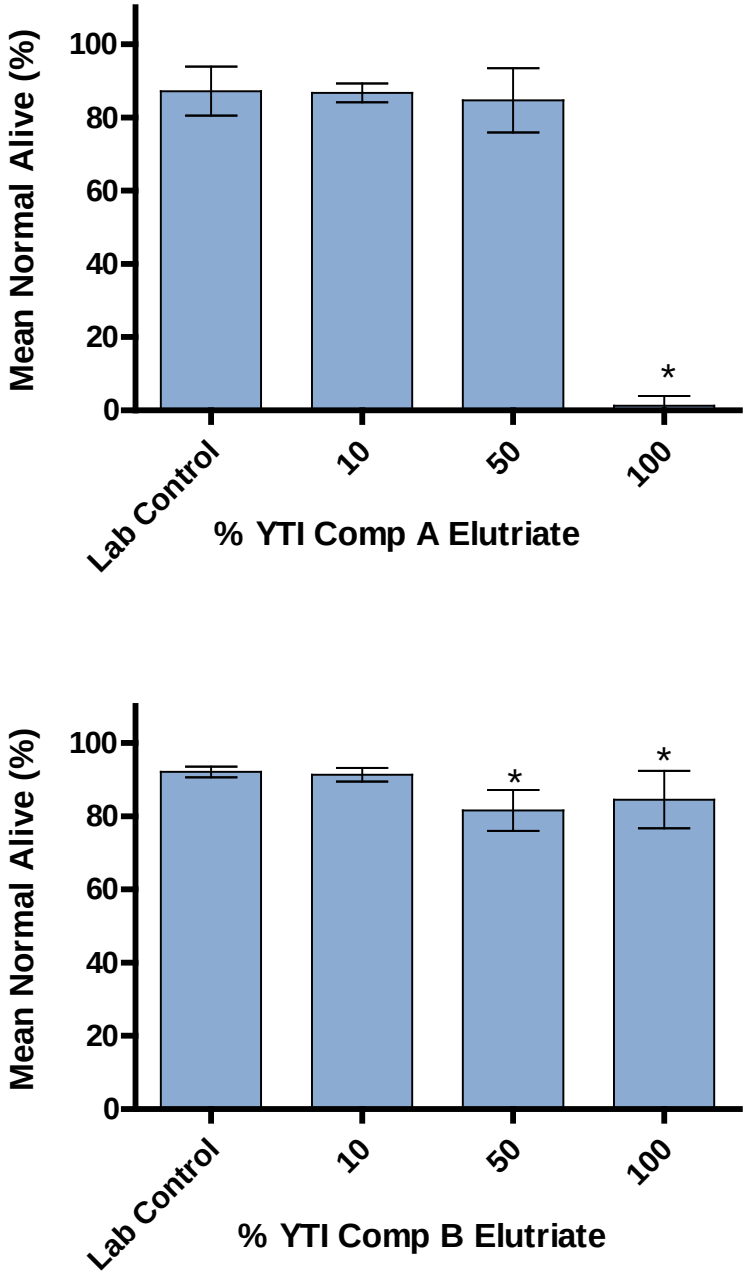


Figure 3. 48-hr percent normal alive of mussel larvae (*M. galloprovincialis*) in the suspended particulate-phase toxicity test of YTI sediment elutriates (mean percent normal alive ± 95% CI). *Columns marked with an asterisk differ significantly from the laboratory control.

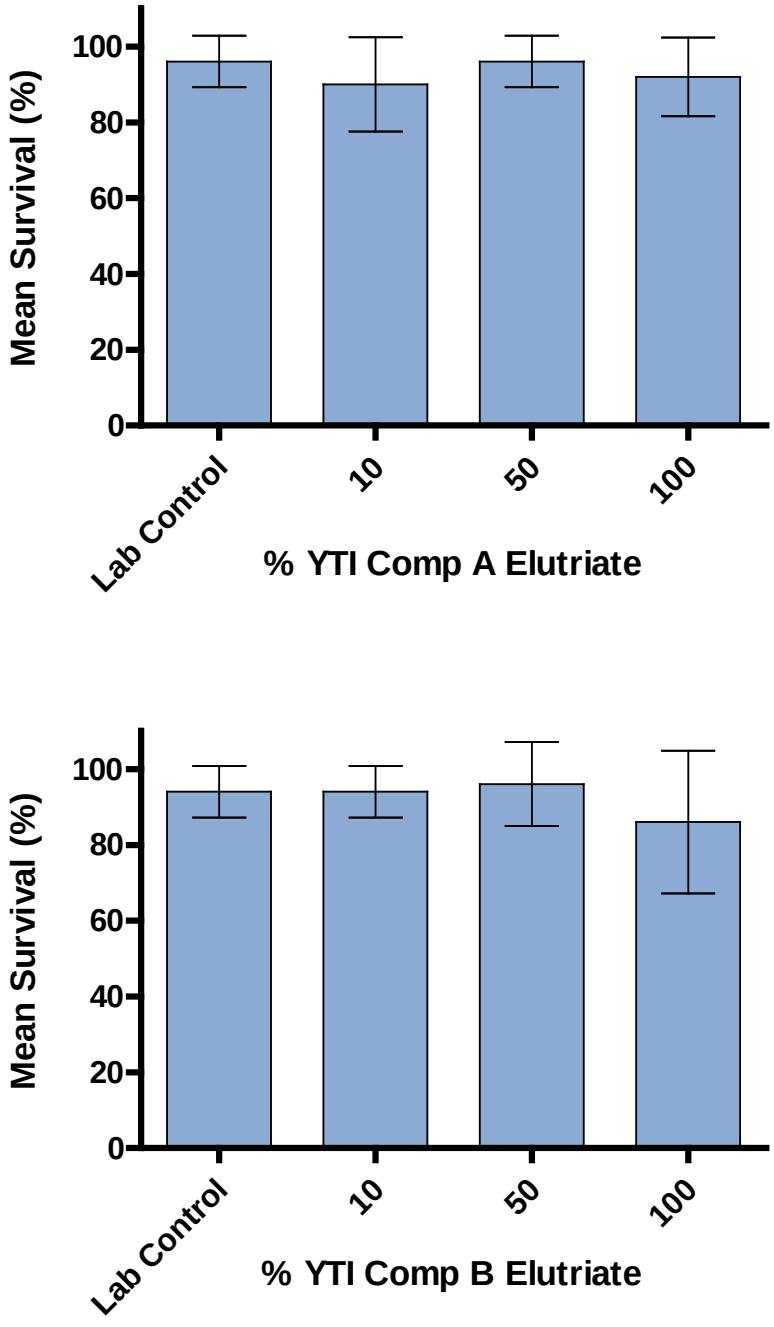


Figure 4. 96-hr survival of mysid shrimp (*A. bahia*) in the suspended particulate-phase toxicity test of YTI sediment elutriates (mean percent survival ± 95% CI).

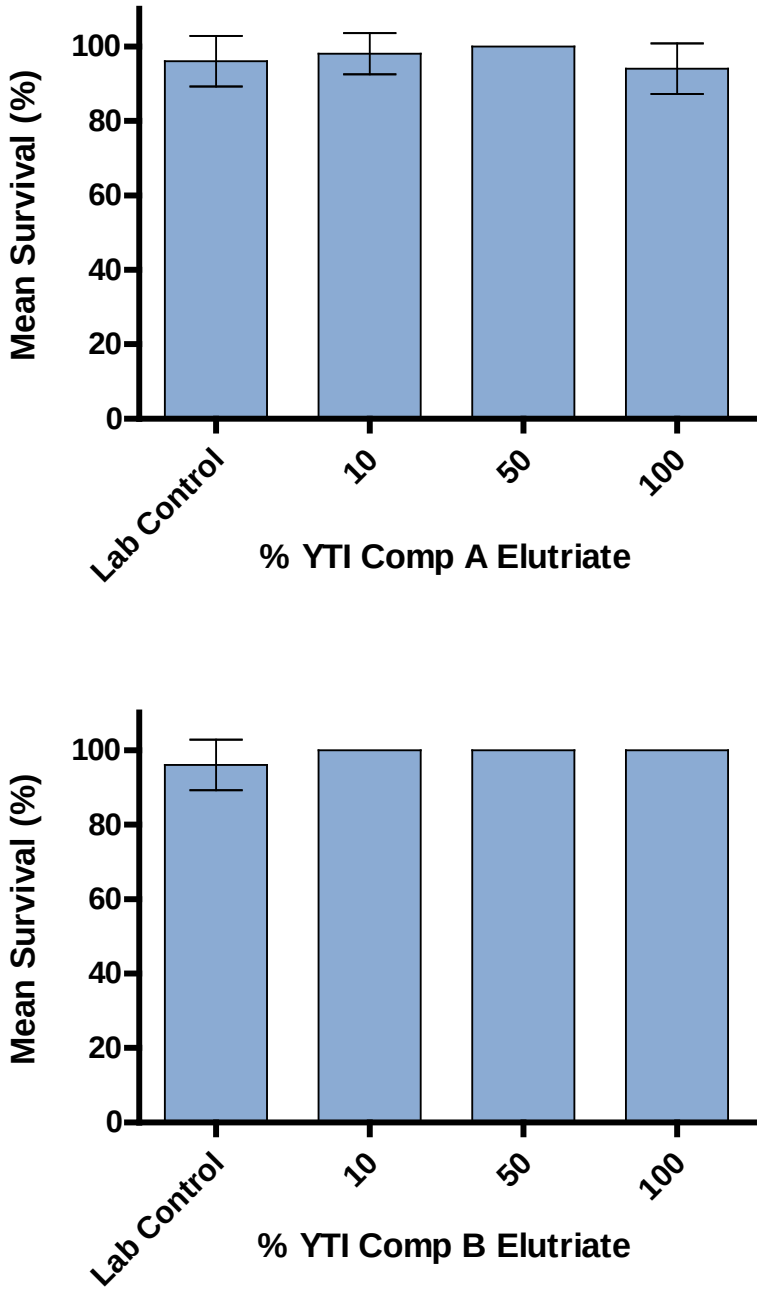


Figure 5. 96-hr survival of inland silverside (*M. beryllina*) in the suspended particulate-phase toxicity test YTI sediment elutriates (mean percent survival ± 95% CI).

3.3 Bioaccumulation Tests

Results of the bioaccumulation tests are summarized in Table 11 and Figures 6 and 7. Mean survival of clams in the laboratory control, LA-2 Reference sediment, and YTI composite sediments was between 87 and 90 percent. Mean survival did not differ significantly among test, reference and control sediments in the experiment-wide ANOVA (Appendix Table D-6, $p = 0.853$). Mean survival of worms in the laboratory control and LA-2 Reference sediment was 100 and 98 percent, respectively, and between 90 and 96 percent for the YTI composite sediments. ANOVA found no significant differences in polychaete survival among test and reference sediments (Appendix Tables D-7, $p = 0.327$).

Table 11. Summary of 28-day Mean Survival in Bioaccumulation Tests

Site ID	Bent-nosed Clam Survival (%)	Polychaete Worm Survival (%)
Laboratory Control	87	100
LA-2 Reference Site	90	98
YTI Comp A	88	96
YTI Comp B	88	90

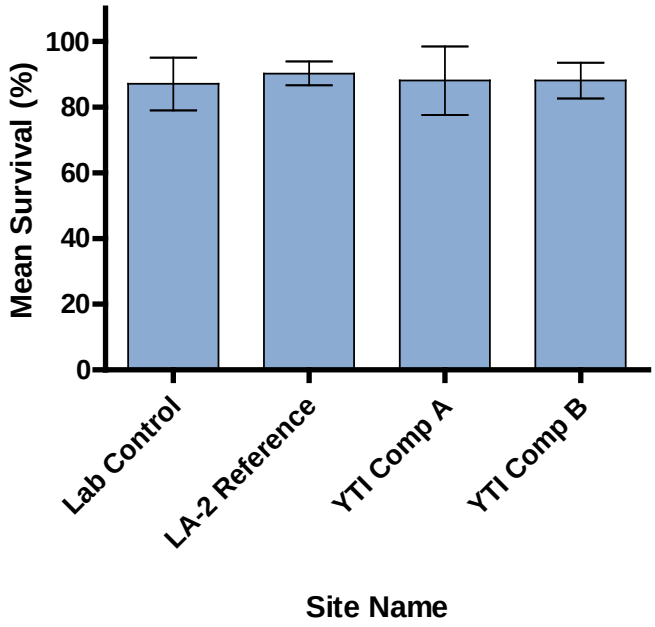


Figure 6. 28-day survival of bent-nosed clams (*M. nasuta)* in the bioaccumulation exposure (mean ± 95% CI).

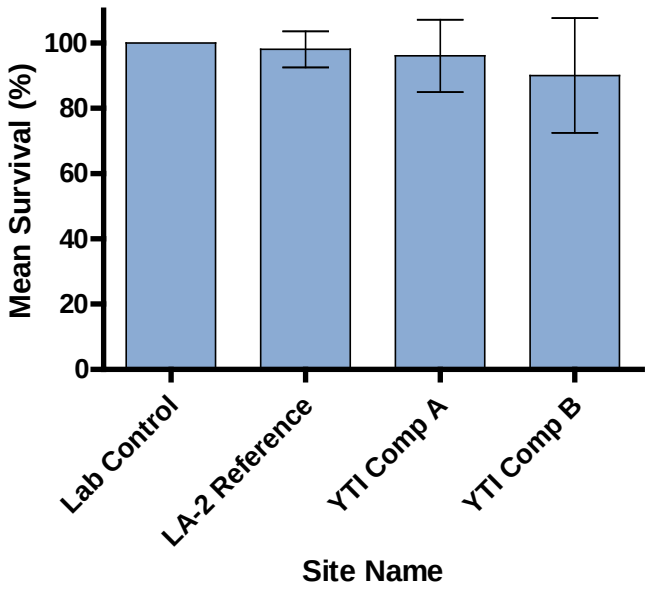


Figure 7. 28-day survival of the blood worm (*N. virens)* in the bioaccumulation exposure (mean ± 95% CI).

4.0 QUALITY ASSURANCE / QUALITY CONTROL

All of the data presented have been thoroughly reviewed and are deemed acceptable for reporting in accordance with our internal QA/QC program and relevant protocols. All toxicity and bioaccumulation tests were initiated within sediment holding time requirements. Any deviations with respect to test conditions and acceptability criteria are summarized below. All deviations were determined to be minor with no bearing on the data or its final interpretation.

4.1 Reference Toxicant Tests

Reference toxicant test results for solid- and suspended particulate-phase tests are provided in Appendix C. All laboratory controls for reference toxicant tests met test acceptability criteria. Additionally, median lethal and median effect (LC_{50}/EC_{50}) concentration values for reference toxicant tests were within two standard deviations of internal control chart means for all species tested.

4.2 Solid-Phase Toxicity Tests

Laboratory control performance for both solid phase tests met minimum test acceptability criteria. All other test acceptability criteria were met and water quality values were within acceptable ranges as defined by the test protocols for both species.

4.3 Suspended Particulate-Phase Toxicity Tests

Fish and mysid survival exceeded the 90 percent criterion in all lab controls. Mussel survival and development met both criteria with greater than 70 percent survival and greater than 70 percent normal shell development of surviving embryos in laboratory controls. Water quality measurements were within specified ranges for the duration of the tests for all species.

4.4 Bioaccumulation Tests

Mean clam and worm survival in laboratory control sediment was 87 and 100 percent, respectively, meeting minimum tissue requirements for chemical analysis. Water quality parameters satisfied test protocol requirements and the data were considered valid without further qualification.

4.5 Potential Confounding Factors

The influence of several potential confounding factors on test performance and interpretation were assessed and are discussed below.

4.5.1 Ammonia

Total and un-ionized ammonia concentrations are summarized in Tables 12 through 15. Un-ionized ammonia, the more toxic form of ammonia, values were calculated from total ammonia measurements (Hampson 1977). Ammonia concentrations were generally below concentrations expected to be toxic, with a few exceptions. The only solid-phase test to show significant toxicity was the *Eohaustorius* solid-phase test, in which both YTI Comp A and YTI Comp B significantly reduced amphipod survival from LA-2 Reference. Total and un-ionized ammonia concentrations in the sediment pore water were well below published toxic thresholds for this species (Table 12). Thus, the toxicity observed in YTI Comp A and YTI Comp B amphipod tests would appear to be unrelated to ammonia concentrations.

Total and un-ionized ammonia was near threshold levels for *Mytilus* in the in the YTI Comp A suspended particulate-phase test, and approximately half that in YTI Comp B. Thus, ammonia may have been a contributing factor in toxicity observed to mussel larvae (Table 14).

Table 12. Total and Un-ionized Ammonia Concentrations in Sediment Pore Water at Test Initiation

	Total Ammonia (mg/L)		**Un-ionized Ammonia (mg/L)**	
Fine Grain Size Control	2.6		0.033	
LA-2 Reference	4.1		0.048	
YTI Comp A	15		0.283	
YTI Comp B	7.6		0.109	
Ammonia Threshold Effect Levels (mg/L)				
	NOEC		96-hr LC_{50}[c]	
Test Organism	Total	Un-ionized	Total	Un-ionized
Eohaustorius[a]	60	0.8	160	1.5
Neanthes[b]	20	0.7 - 1.25	-	-
Nereis	20	0.68	-	-

[a] NOEC values from EPA 1994 & Kohn et al. 1994
[b] Dillon et al. 1993
[c] 96-h LC_{50} values from Nautilus internal data (July 2013)

Table 13. Total and Un-ionized Ammonia Concentrations in Solid-Phase Toxicity Tests

	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
	Day 0	Day 10	Day 0	Day 10
Overlying water				
Eohaustorius				
Lab control	<0.5	<0.5	<0.015	<0.010
Grain Size Control	<0.5	<0.5	<0.014	<0.016
LA-2 Reference	<0.5	1.5	<0.016	0.040
YTI Comp A	1.7	5.0	0.057	0.127
YTI Comp B	<0.5	1.6	<0.015	0.034
Neanthes				
Lab control	<0.5	<0.5	<0.015	<0.017
LA-2 Reference	0.7	0.9	0.028	0.033
YTI Comp A	2.3	3.8	0.087	0.122
YTI Comp B	<0.5	<0.5	<0.019	<0.018
Ammonia Threshold Effect Levels (mg/L)				
	NOEC		96-h LC_{50}[c]	
Test Organism	Total	Un-ionized	Total	Un-ionized
Eohaustorius[a]	60	0.8	160	1.5
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 LC_{50} values from Nautilus internal data (July 2013)

Table 14. Total and Un-ionized Ammonia Concentrations in Suspended Particulate-Phase Toxicity Tests

Sample	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
Mytilus	Initiation	Termination	Initiation	Termination
Lab Control	<0.5	0.7	<0.013	0.018
YTI Comp A	7.1	7.9	0.167	0.239
YTI Comp B	3.2	3.4	0.108	0.101
Americamysis	Initiation	Termination	Initiation	Termination
Lab Control	<0.5	1.2	0.023	0.033
YTI Comp A	6.7	7.7	0.197	0.320
YTI Comp B	2.4	2.3	0.082	0.084
Menidia	Initiation	Termination	Initiation	Termination
Lab Control	2.1	3.1	0.096	0.117
YTI Comp A	8.7	8.3	0.256	0.378
YTI Comp B	3.1	2.9	0.106	0.139
Ammonia Threshold Effect Levels (mg/L)				
	NOEC		96-h LC_{50}/EC_{50}	
Test Organism	Total	Un-ionized	Total	Un-ionized
Mytilus[c]	7.8	0.17	12	0.25
Americamysis	29	-	-	2.3
Menidia	4.0[a]	0.05[b]	-	0.12[c]

Note: Results are presented for each undiluted (i.e. 100 percent) elutriate concentration.

[a] Tang et al. 1997
[b] Marine Pollution Studies Laboratory (personal comm.)
[c] Nautilus internal data (July 2013)

Table 15. Total and Un-ionized Ammonia Concentrations in Bioaccumulation Tests

	Day 0	Day 7	Day 14	Day 21	Day 28
Total Ammonia (mg/L)					
Lab Control	<0.5	<0.5	<0.5	<0.5	<0.5
LA-2 Reference	<0.5	<0.5	<0.5	<0.5	<0.5
YTI A Comp	1.0	<0.5	<0.5	<0.5	<0.5
YTI B Comp	<0.5	0.7	<0.5	<0.5	<0.5
Un-ionized Ammonia (mg/L)					
Lab Control	<0.014	<0.010	<0.010	<0.010	<0.011
LA-2 Reference	<0.016	<0.010	<0.011	<0.012	<0.012
YTI A Comp	0.031	<0.012	<0.011	<0.012	<0.012
YTI B Comp	<0.015	0.015	<0.011	<0.013	<0.012

5.0 REFERENCES

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Appendix A
Summary of Toxicity Test Results

Appendix Table A-1. *Eohaustorius estuarius* 10-day Survival

Sediment Characterization for YTI Terminal

Test initiation: June 14, 2013

Site ID	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	20	100	97	4.5
	B	20	100		
	C	19	95		
	D	18	90		
	E	20	100		
Fine Grain Size Control	A	17	85	95	6.1
	B	19	95		
	C	20	100		
	D	20	100		
	E	19	95		
LA-2 Reference	A	20	100	98	2.7
	B	20	100		
	C	19	95		
	D	19	95		
	E	20	100		
YTI Comp A	A	8	40	**68***	17
	B	14	70		
	C	14	70		
	D	15	75		
	E	17	85		
YTI Comp B	A	16	80	**87***	5.7
	B	17	85		
	C	19	95		
	D	17	85		
	E	18	90		

***Values with a bold asterisk** indicates a statistically significantly decrease from the LA-2 Reference sample.

Initial number of test organisms per replicate = 20

Appendix Table A-2. *Neanthes arenaceodentata* 10-day Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 12, 2013

Site ID	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	5	100	96	8.9
	B	4	80		
	C	5	100		
	D	5	100		
	E	5	100		
LA-2 Reference	A	5	100	100	0.0
	B	5	100		
	C	5	100		
	D	5	100		
	E	5	100		
YTI Comp A	A	5	100	100	0.0
	B	5	100		
	C	5	100		
	D	5	100		
	E	5	100		
YTI Comp B	A	5	100	100	0.0
	B	5	100		
	C	5	100		
	D	5	100		
	E	5	100		

Initial number of test organisms per replicate = 5

Appendix Table A-3. *Mytilus galloprovincialis* 48-hr Survival & Development

Sediment Characterization for YTI Terminal

Test Initiation: July 10, 2013

Site ID: YTI Comp A

Concentration (% Elutriate)	Replicate	Percent Normal Alive	Mean Percent Normal Alive	Standard Deviation
Laboratory Control	A	85	87	5.3
	B	89		
	C	79		
	D	92		
	E	91		
10	A	84	87	2.1
	B	85		
	C	90		
	D	88		
	E	87		
50	A	84	85	7.1
	B	83		
	C	95		
	D	86		
	E	75		
100	A	1.8	**1.3***	2.1
	B	0.0		
	C	0.0		
	D	0.0		
	E	4.9		

***Values with a bold asterisk** indicates a statistically significantly decrease from the lab control.

Appendix Table A-3 cont. *Mytilus galloprovincialis* 48-hr Survival & Development

Sediment Characterization for YTI Terminal

Test Initiation: July 10, 2013

Site ID: YTI Comp B

Concentration (% Elutriate)	Replicate	Percent Normal Alive	Mean Percent Normal Alive	Standard Deviation
Laboratory Control	A	90	92	1.2
	B	94		
	C	92		
	D	93		
	E	92		
10	A	94	91	1.5
	B	91		
	C	90		
	D	91		
	E	91		
50	A	85	**82***	4.5
	B	80		
	C	86		
	D	81		
	E	75		
100	A	77	**85***	6.3
	B	84		
	C	89		
	D	80		
	E	93		

***Values with a bold asterisk** indicates a statistically significantly decrease from the lab control.

Appendix Table A-4. *Americamysis bahia* 96-hr Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 11, 2013

Site ID: YTI Comp A

Concentration (% Elutriate)	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	10	100	96	5.5
	B	9	90		
	C	10	100		
	D	10	100		
	E	9	90		
10	A	10	100	90	10
	B	10	100		
	C	8	80		
	D	9	90		
	E	8	80		
50	A	10	100	96	5.5
	B	9	90		
	C	10	100		
	D	10	100		
	E	9	90		
100	A	10	100	92	8.4
	B	9	90		
	C	10	100		
	D	9	90		
	E	8	80		

Initial number of test organisms per replicate = 10

Appendix Table A-4 cont. *Americamysis bahia* 96-hr Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 11, 2013

Site: YTI Comp B

Concentration (% Elutriate)	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	10	100	94	5.5
	B	9	90		
	C	10	100		
	D	9	90		
	E	9	90		
10	A	10	100	94	5.5
	B	10	100		
	C	9	90		
	D	9	90		
	E	9	90		
50	A	10	100	96	8.9
	B	8	80		
	C	10	100		
	D	10	100		
	E	10	100		
100	A	10	100	86	15
	B	7	70		
	C	9	90		
	D	7	70		
	E	10	100		

Initial number of test organisms per replicate = 10

Appendix Table A-5. *Menidia beryllina* 96-hr Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 11, 2013

Site ID: YTI Comp A

Concentration (% Elutriate)	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	9	90	96	5.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	9	90		
10	A	9	90	98	4.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
50	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
100	A	9	90	94	5.5
	B	10	100		
	C	9	90		
	D	10	100		
	E	9	90		

Initial number of test organisms per replicate = 10

Appendix Table A-5 cont. *Menidia beryllina* 96-hr Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 11, 2013

Site ID: YTI Comp B

Concentration (% Elutriate)	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	9	90	96	5.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	9	90		
10	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
50	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
100	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		

Initial number of test organisms per replicate = 10

Appendix Table A-6. *Macoma nasuta* 28-day Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 12, 2013

Site ID	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	33	94	87	6.7
	B	29	83		
	C	35[a]	78		
	D	31	89		
	E	32	91		
LA-2 Reference	A	31	89	90	3.3
	B	33	94		
	C	32	91		
	D	32	91		
	E	30	86		
YTI Comp A	A	30	86	88	8.4
	B	30	86		
	C	35	100		
	D	32	91		
	E	27	77		
YTI Comp B	A	32	91	88	4.7
	B	30	86		
	C	29	83		
	D	33	94		
	E	30	86		

Initial number of test organisms per replicate = 35

[a] Replicate initiated with 45 clams, technician error

Appendix Table A-7. *Nereis virens* 28-day Survival

Sediment Characterization for YTI Terminal

Test Initiation: July 12, 2013

Site ID	Replicate	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Laboratory Control	A	10	100	100	0.0
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
LA-2 Reference	A	10	100	98	4.5
	B	10	100		
	C	10	100		
	D	10	100		
	E	9	90		
YTI Comp A	A	8	80	96	8.9
	B	10	100		
	C	10	100		
	D	10	100		
	E	10	100		
YTI Comp B	A	10	100	90	14
	B	8	80		
	C	10	100		
	D	10	100		
	E	7	70		

Initial number of test organisms per replicate = 10

Appendix B

Water Quality and Raw Data Sheets

Marine Amphipod (*Eohaustorius estuarius)* 10-day Survival
Solid-Phase Sediment Test
Water Quality and Raw Data Sheets

Sediment Bioassay **Organism Survival**

Client: AMEC/POLA **Test Species:** *E. estuarius*

Project ID: YTI Terminal **Start Date/Time:** 6/14/2013 1445

Initiated by: BG **End Date/Time:** 6/24/2013 1040 VS

Initial No. Organisms: 20/rep **Test No. Series:** 1306-~~S074~~ to S079 SO 76

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
1	20				
2	18				
3	19				
4	20				
5	8	8			
6	14				
7	20				
8	19				
9	14				
10	19	19			
11	15				
12	17				
13	17				
14	19				
15	20	20			
16	20				
17	20				
18	19				
19	20				
20	17	17			
21	19				
22	17				
23	16				
24	20				
25	18	18			
Tech Initials:	BG/PA	BK	Tech Initials:		

Initiation QC Check Initials:

Counts CL/ML/BG All Jars initiated BG Air BG Lights (24 Hour) BG

T_0 pore water WQ (pH, salinity, ammonia) BG All pore water ammonia <60 mg/L BG

Termination QC Check Initials:

T_f ~~pore~~ overlying water WQ (pH, salinity, ammonia) BG

Animal Source/Date Received: Northwestern Aquatic Sciences 6/7/13 **Age at Initiation:** 3-5mm

Comments:

QC Check: BG 7/2/13 **Final Review:** VS 8/8/13

Sediment Bioassay

Daily Observations

Client: AMEC

Project ID: POLA

Test No.: 1306 - ~~5074~~ 5076 to 5079 KS

Test Species: *Eohaustorius estuarius*

Start Date/Time: 6/14/2013 1445

End Date/Time: 6/24/2013 1040

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
1	Ⓐ	Ⓐ	N	N	N	N	N	N	N	N
2	|	|	N	1E	1S	N	N	N	N	1E
3	|	|	1S	N	1E	1S	N	N	1S	N
4	|	|	N	N	N	N	N	N	N	N
5	|	|	N	N	N	N	N	N	N	N
6	|	|	N	N	N	N	N	N	N	N
7	|	|	N	N	N	N	N	N	N	N
8	|	|	N	N	N	N	N	N	N	N
9	|	|	N	1E	N	N	N	N	N	N
10	|	|	N	N	N	N	N	N	N	N
11	|	|	N	1E	N	N	N	N	N	N
12	|	|	N	N	N	N	1E	N	N	N
13	|	|	N	N	N	N	N	N	N	N
14	|	|	N	N	N	N	N	N	N	N
15	|	|	1S	2S	1E	N	N	N	1S	N
16	|	|	N	N	N	N	N	N	N	N
17	|	|	1E	N	N	N	N	N	N	N
18	|	|	N	N	N	N	N	N	N	N
19	|	|	N	N	N	N	N	N	N	N
20	|	|	1S	N	N	N	1S	1S	N	N
21	|	|	1S	N	N	2S	N	N	N	1S
22	|	|	N	N	N	N	N	N	N	N
23	|	|	1E	N	N	N	N	N	N	N
24	|	|	N	N	N	N	N	N	N	N
25	|	|	N	N	N	N	N	N	N	N
26	|	|	N	N	N	N	N	2E	N	N
27	|	|	N	N	N	N	N	N	N	N
28	|	|	1E	2E	N	1E	N	N	N	1E
29	|	|	1E	N	1E	N	1E,1S	1E	1S	N
30	✓	✓	N	1S,1E	3S	1S	N	N	1E	1E

Ⓐ Observations not recorded due to tech error

Observations Key: E = Emerged, specify number. S = Trapped on surface, specify number.
D = No air flow (DO?).

QC Check: BG 7/2/13 **Final Review:** KS 8/8/13

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA **Start Date/Time:** 6/14/2013 1445

Test No.: 1306 - ~~5074~~ 5076 to 5079 **End Date/Time:** 6/24/2013 1040

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
31	(A)	(A)	N	N	N	N	3E, 1S	1E	N	N
32	|	|	1E	N	N	2S	2E	N	N	2E
33	|	|	N	N	N	N	1E	N	1E	1E
34	|	|	1E	N	1S	N	3E	N	N	N
35	↓	↓	N	1E	N	7S	2E, 2S	2E	2S	3E

(A) observations not recorded due to tech error.

Observations Key: E = Emerged, specify number. S = Trapped on surface, specify number. D = No air flow (DO?).

QC Check: BG 7/2/13 **Final Review:** RS 8/8/13

AMEC/POLA
10-Day *Eohaustorius* Survival Bioassay
Random Number Assignment
Project: YTI Terminal
Test Initiation Date: 6/14/13

Site	Rep	Rand #
Lab Control (Eoh home sediment)	A	16
	B	24
	C	8
	D	25
	E	4
Fine Grain Size Control	A	20
	B	21
	C	17
	D	15
	E	3
LA2 Reference	A	19
	B	1
	C	14
	D	10
	E	7
YTI Composite A	A	5
	B	6
	C	9
	D	11
	E	12
YTI Composite B	A	23
	B	22
	C	18
	D	13
	E	2

QC=BG

final review: AC 9/3/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client: AMEC/POLA **Test Species:** *E. estuarius*

Site ID: Lab Control **Start Date/Time:** 6/14/2013 1445

Test No.: 1306-5074 to 5079 **End Date/Time:** 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.1	15.9	8.1	8.11	CL	
1	~~28.4~~ 29.6 AD	15.3	8.5	7.96	AD	
2	30.3	15.3	8.4	8.07	SD	
3	29.9	15.2	7.7	7.98	LN	
4	30.1	14.6	8.7	a ~~7.98~~ 8.01	CL	
5	30.0	14.9	8.7	7.97	CL	
6	30.1	14.8	8.6	7.98	BG	
7	~~29.4~~ 30.0 ML	14.8	8.2	8.04	ML	
8	29.9 ML ~~29.8~~	14.7	8.5	8.08	ML	
9	a ~~30.4~~ 30.0	14.8	8.2	8.05	CL	
10	30.1	14.7	8.7	7.99	BG	

QC Check: BG 7/2/13 **Final Review:** JS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client: AMEC/POLA

Test Species: *E. estuarius*

Site ID: Fine Grain Size Control

Start Date/Time: 6/14/2013 1445

Test No.: 1306-5074 to 5079

End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.5	15.8	8.0	8.09	CL	
1	~~28.7~~ 30.7 AD	14.5	8.5	7.96	~~AD~~	
2	30.8	14.8	7.8	8.08	SD	
3	30.5	14.8	7.7	8.01	LN	
4	30.5	14.4	8.7	8.03	CL	
5	30.5	14.5	8.4	8.06	CL	
6	30.6	14.6	8.3	8.02	BG	
7	ML ~~30.0~~ ~~30.5~~ 30.5	14.5	8.1	8.10	ML	
8	30.4	14.6	8.2	8.16	ML	
9	30.6	14.5	8.1	8.21	CL	
10	30.6	14.4	8.5	8.18	BG	

QC Check: BG 7/2/13

Final Review: YS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client: AMEC/POLA

Test Species: *E. estuarius*

Site ID: LA2 Reference

Start Date/Time: 6/14/2013 1445

Test No.: 1306-S074 to S079

End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.5	15.8	7.9	8.13	CL	
1	30.5	14.9	8.4	8.02	AD	
2	30.8	15.2	8.1	8.14	SD	
3	30.6	15.1	7.6	8.09	LN	
4	30.6	14.9	8.6	8.09	CL	
5	30.7	15.1	8.4	8.13	CL	
6	30.7	15.1	8.3	8.08	BG	
7	30.6	15.1	8.0	8.13	ML	
8	30.6	15.1	8.2	8.18	ML	
9	30.7	15.1	8.0	8.19	CL	
10	30.6	15.0	8.4	8.09	BG	

QC Check: BG 7/2/13

Final Review: YS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client: AMEC/POLA **Test Species:** *E. estuarius*

Site ID: YTI Terminal Comp A **Start Date/Time:** 6/14/2013 1445

Test No.: 1306-5076 **End Date/Time:** 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.1	16.0	7.9	8.16	CL	
1	~~28.6~~ 30.0 AD	14.8	8.4	7.98	AD	
2	30.3	15.1	8.0	8.08	SD	
3	30.1	14.9	7.6	8.05	LN	
4	30.1	14.6	8.5	8.05	CL	
5	30.4	14.6	8.5	8.06	CL	
6	30.2	14.7	8.3	8.02	BG	
7	~~29.7~~ 30.1 ML	14.8	7.9	8.06	ML	
8	30.0	14.8	8.2	8.11	ML	
9	30.4	14.6	8.0	8.14	CL	
10	30.5	14.5	8.3	8.08	BG	

QC Check: BG 7/2/13 **Final Review:** KS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client: AMEC/POLA

Test Species: *E. estuarius*

Site ID: YTI Terminal Comp B

Start Date/Time: 6/14/2013 1445

Test No.: 1306-5077

End Date/Time: 6/24/2013 1040

Test Day	Salinity (ppt)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	30.4	15.9	7.9	8.12	CL	
1	30.5	14.8	8.5	8.05	AD	
2	30.8	15.0	8.2	8.10	SO	
3	30.7	14.8	7.7	8.07	LN	
4	31.0	14.6	8.6	8.05	CL	
5	31.0	14.7	8.4	8.07	CL	
6	30.9	14.9	8.2	8.02	BG	
7	~~24~~ MK 31.0 ~~30.7~~	14.8	8.0	8.03	ML	
8	30.8	14.7	8.3	8.14	ML	
9	30.9	14.7	8.0	8.14	CL	
10	30.7	14.7	8.6	8.00	BG	

QC Check: BG 7/2/13

Final Review: YS 8/8/13

Total Ammonia Analysis
Marine

Pore Water

Client: AMEC/POLA
Project: YTI Terminal
Test Type: Amphipod 10-d survival (Eoh)

DI Blank: 0.0 | 0.0
SW Blank: 0.0 | 0.0

Test Start Date: 6/14/13

Analyst: AC | BG
Analysis Date: 6/11/13 | 6/27/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	pH (units)	Salinity (ppt)	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	NA	NA	8.1	9.9
YTI Comp A	–	6/10/13	Pre-test	ⓓ	ⓓ	16.0	19.5
YTI Comp B	–	6/10/13	Pre-test	↓	↓	8.1	9.9
~~YTI Cat~~ YTI comp B dup	–	6/10/13	Pre-test	↓	↓	7.9	9.6
YTI Comp B Spk	–	6/10/13	Pre-test	↓	↓	16.2	19.8
LA2 REF	–	6/10/13	Pre-test	↓	↓	3.6	4.4
Blank Spike #2							
~~Spike Check~~ (10 mg/L NH_3)		NA	NA	NA	NA	7.7	9.4
Lab Control (EOH home)	1	6/14/13	Day 0 PW	7.60	28.6	0.0	40.5
Lab Control (Sail Bay)	2	6/14/13	Day 0 PW	7.72	30.7	2.1	2.6
YTI Comp A	6	6/14/13	Day 0 PW	7.89	28.8	12.3	15.0
YTI Comp B	7	6/14/13	Day 0 PW	7.77	29.2	6.2	7.6
LA2-REF	3	6/14/13	Day 0 PW	7.68	26.7	3.4	4.1
Sample Duplicate[a]	2	NA	NA	NA	NA	2.0	2.4
Sample Duplicate + Spike[a]		NA	NA	NA	NA	9.2	11.2
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.7	9.4

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%**[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank #2	0.0	NA	9.4	10	NA	94
Lab Control (Sail Bay) #2	2.6	2.4	11.2	10	8	86

Comments: ⓓ Readings not taken

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or more values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/2/13

Final Review: KB 8/8/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC/POLA
Project: YTI Terminal
Test Type: Amphipod 10-d survival (Eoh)

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 6/14/2013

Analyst: BG
Analysis Date: 6/27/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L) N x 1.22	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	7.1	8.7
Lab Control (Eoh Home)	8	6/14/2013	0	0.0	<0.5
Lab Control (Sail Bay)	9	6/14/2013	0	0.1	<0.5
YTI Comp A	13	6/14/2013	0	~~0.4~~ 1.4	1.7
YTI Comp B	14	6/14/2013	0	0.4	<0.5
LA2 REF	10 +2 AC	6/14/13	0 AC	~~2.7~~	~~3.3~~
				0.4	<0.5
Spike Check (10 mg/L NH_3)		NA	NA	7.1	8.7
Lab Control (Eoh Home)	15	6/24/2013	10	0.0	<0.5
Lab Control (Sail Bay)	16	6/24/2013	10	0.0	<0.5
YTI Comp A	20	6/24/2013	10	4.1	5.0
YTI Comp B	21	6/24/2013	10	1.3	1.6
LA2-REF	17	6/24/13	10	1.2	1.5
Sample Duplicate[a]	9	NA	NA	0.2	<0.5
Sample Duplicate + Spike[a]		NA	NA	7.4	9.0
Spike Check (10 mg/L NH_3)		NA	NA	7.1	8.7

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.7	10	NA	87
Lab Control Sail Bay #9	<0.5	<0.5	9.0	10	©	

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/2/13

Final Review: KS 8/8/13

Marine Polychaete Worm (*Neanthes arenaceodentata)* 10-day Survival
Solid-Phase Sediment Test
Water Quality and Raw Data Sheets

Sediment Bioassay

Organism Survival

Client: AMEC/POLA

Test Species: *N. arenacoedentata*

Project ID: YTI Terminal

Start Date/Time: 7/12/2013 1620

Initiated by: ML/CL

End Date/Time: 7/22/2013 1100

Initial No. Organisms: 5/rep

Test No. Series: 1307 - S063, S064, S156

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
1	5				
2	5				
3	5				
4	5				
5	5	5			
6	5				
7	5				
8	5				
9	5	5			
10	5				
11	5				
12	5				
13	4				
14	5	5			
15	5				
16	5				
17	5				
18	5				
19	5	5			
20	5				
Tech Initials:	LA/AB	BG	Tech Initials:		

Initiation QC Check Initials:

Counts BG All Jars initiated CL Air CL Lights (12:12) BG T_0 Weights —

T_0 ~~pore~~ OW water WQ (pH, salinity, ammonia) ~~PW~~ CL All pore water ammonia <30 mg/L BG

Termination QC Check Initials:

T_f ~~pore~~ PW water WQ (pH, salinity, ammonia) LA/AB

Animal Source/Date Received: ATS 7/9/13 **Age at Initiation:** 21 days

Comments:

QC Check: BG 7/23/13 **Final Review:** KS 8/8/13

AMEC/POLA
10-Day Neanthes Survival Bioassay
Random Number Assignment
Project: YTI Terminal
Test Initiation Date: 7/12/13

Site	Rep	Rand #
Lab Control (Scrips sand)	A	8
	B	13
	C	11
	D	18
	E	3
LA2 Reference	A	5
	B	12
	C	20
	D	6
	E	7
YTI Composite A	A	14
	B	19
	C	1
	D	16
	E	9
YTI Composite B	A	4
	B	2
	C	15
	D	17
	E	10

QC= BG

final review: AC 9/3/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal **Test Organism:** *Neanthes arenacoedentata*

Sample ID/Log-in No.: Lab Control **Start Date/Time:** 7/12/2013 1620

Test No.: 1307-S063, 064, 156 **End Date/Time:** 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	19.8	29.8	7.0	7.98	AD	√[a] Collect Ammonia
1	19.8	29.9	7.3	8.07	ML	
2	20.5	29.6	7.1	8.16	AD	
3	20.3	29.9	7.0	7.98	LN	
4	20.2	29.9	7.2	8.08	ML	
5	20.2	30.0	7.2	8.02	AG	
6	20.2	29.9	7.2	8.05	LN	
7	19.9	30.0	7.1	7.98	BK	
8	20.0	29.7	7.1	7.99	LN	
9	20.1	29.9	7.2	8.09	LN	
10	20.0	29.8	7.1	8.03	LN	5 √ Collect Ammonia

QC Check: BG 7/23/13 **Final Review:** VS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal **Test Organism:** *Neanthes arenacoedentata*

Sample ID/Log-in No.: LA2 Reference **Start Date/Time:** 7/12/2013 1620

Test No.: 1307-S156 **End Date/Time:** 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	21.0	30.1	7.1	8.07	AD	✓ Collect Ammonia
1	19.9	30.2	7.1	8.08	ML	
2	20.6	30.4	6.9	8.33	AD	
3	20.4	30.3	6.9	8.02	LN	
4	20.4	30.0	7.2	8.01	ML	
5	20.0	30.4	7.3	8.09	AG	
6	20.3	30.4	7.1	8.10	LN	
7	19.9	30.5	7.1	8.06	BK	
8	20.0	30.2	7.0	8.06	LN	
9	20.1	30.0	7.1	8.13	LN	
10	19.9	30.4	7.0	8.07	LN	✓ Collect Ammonia

QC Check: BG 7/23/13 **Final Review:** VS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal **Test Organism:** *Neanthes arenacoedentata*

Sample ID/Log-in No.: YTI Comp A **Start Date/Time:** 7/12/2013 1620

Test No.: 1307-S063 **End Date/Time:** 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	~~20.7 Q1 21.6 AD~~	29.7	7.0	8.06	AD	✓ Collect Ammonia
1	20.3	29.8	7.1	8.07	ML	
2	20.9	29.9	7.0	8.22	AD	
3	20.7	29.9	7.0	8.01	LN	
4	20.7	29.9	7.1	8.00	ML	
5	20.0	30.0	7.1	8.06	AG	
6	20.5	30.0	7.0	8.07	LN	
7	19.9	30.1	7.1	8.03	BK	
8	20.0	29.9	7.0	8.01	LN	
9	20.1	30.3	7.1	8.08	LN	
10	19.9	30.0	7.1	8.01	LN	✓ Collect Ammonia

QC Check: BG 7/23/13 **Final Review:** VS 8/8/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC/POLA YTI Terminal **Test Organism:** *Neanthes arenacoedentata*

Sample ID/Log-in No.: YTI Comp B **Start Date/Time:** 7/12/2013 1620

Test No.: 1307-S064 **End Date/Time:** 7/22/2013 1100

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	~~20.9 22.0 AD~~	29.9	7.0	8.05	AD	~~QA/QC~~ Collect Ammonia
1	20.5	30.0	7.0	8.05	ML	
2	21.0	30.2	6.9	8.13	~~AD~~	
3	20.8	30.2	7.0	7.96	LN	
4	20.9	30.1	7.1	8.01	ML	
5	20.4	30.2	7.1	8.04	AG	
6	20.6	30.3	7.0	8.05	LN	
7	19.9	30.4	6.9	8.03	BK	
8	20.0	30.1	7.0	8.02	LN	
9	20.1	30.4	7.0	8.10	LN	
10	19.9	30.3	7.0	8.05	LN	Collect Ammonia

QC Check: BG 7/23/13 **Final Review:** YS 8/8/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA YTI Terminal
Test Type: 10-Day *N. arenaceodentata*

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/12/2013

Analyst: AB
Analysis Date: 7/25/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22
Blank Spike (10 mg/L NH_3)		NA	NA	7.0	8.5
Lab Control	N1	7/12/2013	0	0.1	<0.5
Reference	N2	7/12/2013	0	0.6	0.7
YTI Comp A	N3	7/12/2013	0	1.9	2.3
YTI Comp B	N4	7/12/2013	0	0.3	<0.5
Lab Control	N5	7/22/2013	10	0.0	<0.5
Reference	N6	7/22/2013	10	0.7	0.9
YTI Comp A	N7	7/22/2013	10	3.1	~~3.9~~ 3.8
YTI Comp B	N8	7/22/2013	10	0.3	<0.5
Spike Check (10 mg/L NH_3)		NA	NA	6.9	8.4
Sample Duplicate[a]		NA	NA	0.5	0.6
Sample Duplicate + Spike[a]		NA	NA	8.3	10.1
Spike Check (10 mg/L NH_3)		NA	NA	6.9	8.4

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.5	10	NA	85
YTI Comp B (N8)	<0.5	0.6	10.1	10	C	C

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: 7/30/13 BG

Final Review: KL 8/8/13

Mediterranean Mussel (*Mytilus galloprovincialis)* 48-hr Survival and Development
Suspended Particulate-Phase Test
Water Quality and Raw Data Sheets

Embryo Larval Bioassay

48-hour Development

Client: AMEC/POLA

Test Species: *M. galloprovincialis*

Project ID: YTI Terminal (Comp B)

Start Date/Time: 7/10/13 1710

End Date/Time: 7/12/13 1730

Sample	Rep	Number Counted	Number Normal	Technician Initials
21	A	181	167	BK
22	B	180	165	BK
23	C	166	143	BK
24	D	175	162	BK
25	E	146	126	BK debris
26	A	176	159	BK
27	B	148	130	BK
28	C	179	159	BK
29	D	162	146	BK
30	E	145	131	BK
31	A	153	139	BK
32	B	171	160	BK
33	C	144	132	BK
34	D	186	170	BK
35	E	160	151	BK
36	A	151	137	BK
37	B	170	159	BK
38	C	169	153	BK
39	D	133	122	BK
40	E	162	149	BK
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			

Note: #25 was difficult to read.

QC Check: KL 7/31/13

Final Review: SO 8/1/13

AMEC/POLA
48-hr Mussel Development Bioassay
Random Number Assignment
Project/Sample ID: YTI Terminal/COMP B
Test Initiation Date: 7/10/13

Concentration (%)	Rep	Rand #
Lab Control	A	26
	B	37
	C	22
	D	35
	E	21
10	A	32
	B	34
	C	29
	D	38
	E	40
50	A	31
	B	30
	C	23
	D	33
	E	39
100	A	25
	B	36
	C	28
	D	27
	E	24

QC= BK

Marine Chronic Bioassay

Water Quality Measurements

Client: AMEC/POLA
Sample ID: YTI Terminal Comp B
Sample Log No.: 13-3101
Test No.: 1307-SOC66b

Test Species: *M. galloprovincialis*
Start Date/Time: 7/10/13 1710
End Date/Time: 7/12/13 1730

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	29.9	29.5	29.3	16.9	15.5	15.1	8.5	8.6	7.9	8.00	8.05	8.06
10	29.7	29.2	29.1	16.9	15.3	15.0	8.3	8.6	7.8	8.03	8.05	8.05
50	30.0	29.5	29.5	16.9	15.3	15.0	8.2	8.5	7.8	8.07	8.09	8.08
100	30.0	29.4	29.4	16.9	15.4	15.1	7.8	8.4	7.9	~~8.13~~ 8.05 AC	8.18	8.13

Technician Initials:

	0	24	48
WQ Readings:	AC	PA	EC
Dilutions made by:	PA		

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: KL 7/31/13

Final Review: 8/8/13

Embryo Larval Bioassay — 48-hour Development

Client: AMEC/POLA **Test Species:** *M. galloprovincialis*

Project ID: YTI Terminal (Comp A) **Start Date/Time:** 7/10/13 1710

End Date/Time: 7/12/13 1730

Sample	Rep	Number Counted	Number Normal	Technician Initials
1	A	154	137	CL
2	B	164	156	CL
3	C	167	144	CL
4	D	171	143	CL
5	E	161	138	CL
6	A	195	180	CL
7	B	179	155	CL
8	C	162	8	CL
9	D	146	129	CL
10	E	186	159	CL
11	A	162	3	CL
12	B	179	159	CL
13	C	172	154	CL
14	D	150	0	CL
15	E	191	158	CL
16	A	165	150	BK
17	B	126	0	BK
18	C	142	123	BK
19	D	142	0	BK
20	E	194	170	BK
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			
	A			
	B			
	C			
	D			
	E			

QC Check: KL 7/31/13 **Final Review:** 8/8/13

AMEC/POLA
48-hr Mussel Development Bioassay
Random Number Assignment
Project/Sample ID: YTI Terminal/COMP A
Test Initiation Date: 7/10/13

Concentration (%)	Rep	Rand #
Lab Control	A	5
	B	12
	C	9
	D	6
	E	16
10	A	1
	B	10
	C	13
	D	20
	E	7
50	A	4
	B	15
	C	2
	D	3
	E	18
100	A	11
	B	19
	C	17
	D	14
	E	8

QC= BK

Marine Chronic Bioassay

Water Quality Measurements

Client: AMEC/POLA
Sample ID: YTI Terminal Comp A
Sample Log No.: 13-3100, ~~-3101~~
Test No.: 1307-5065b, ~~-5066b~~

Test Species: *M. galloprovincialis*
Start Date/Time: 7/10/13 1710
End Date/Time: 7/12/13 1730

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	29.9	29.3	29.0	16.9	15.4	15.3	8.5	8.6	8.0	8.00	8.05	ec 7 8.02
10	30.2	29.6	29.5	16.9	15.5	15.0	8.3	8.6	7.8	8.00	8.04	8.02
50	30.2	29.7	29.5	16.9	15.4	15.0	7.9	8.6	7.9	7.93	8.07	8.06
100	30.3	29.6	29.6	16.9	15.3	15.1	7.2	8.4	7.8	7.97	8.10	8.14

	0	24	48
WQ Readings:	AC	PA	EC
Dilutions made by:	PA		

Technician Initials:

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: KL 7/31/13

Final Review: SD 8/8/13

Marine Chronic Bioassay | **Larval Development Worksheet**

Client: AMEC/POLA
Test No.: 1307-S065b, -S066b
Test Species: Mytilus galloprovincialis
Animal Source: Taylor shellfish
Date Received: 7/10/13
Test Chambers: ~~scintillation~~ shell vials KL
Sample Volume: 10mls

Start Date/Time: 7/10/2013 ~~1445~~ 1710
End Date/Time: 7/12/2013 ~~1445~~ 1730
Technician Initials: KS KL

Spawn Information

First Gamete Release Time: 1100

Sex	Number Spawning
Male	3
Female	1

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2, 3	good motility + density
Female 1	1	good density, whitish, misshapen
Female 2		
Female 3		

Egg Fertilization Time: 1250

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted:		
	21	7
	12	10
	15	11
	7	17
	15	12

Mean: 12.7

Mean 12.7 X 50/~~42~~ KS = 635 embryos/ml

Initial Density: 635 / Desired Final Density: 300 (to inoculate with 0.5 ml) = 2.12 (dilution factor)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	Mean % Dividing
T0₁	143	145	99.3 KL
T0₂	187	188	
T0₃	154	155	
~~T0~~ 4	167	168	
T0₅	166	167	

$\bar{X}$ = 163

48-h QC: 124/135 = 92%

Comments:

QC Check: KL 7/31/13

Final Review: 8/8/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA Dredge Evaluation
Test Type: Bivalve Elutriate

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/10/13

Analyst: CL
Analysis Date: 7/18/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	6.8	8.3
Lab Control	25	7/10/2013	0	0.0	<0.5
YTI Comp A 10%	26	7/10/2013	0	0.7	0.9
YTI Comp A 50%	27	7/10/2013	0	2.9	3.5
YTI Comp A 100%	28	7/10/2013	0	5.8	7.1
YTI Comp B 10%	29	7/10/2013	0	0.60	0.7
YTI Comp B 50%	30	7/10/2013	0	1.5	1.8
YTI Comp B 100%	31	7/10/2013	0	2.6	3.2
Lab Control	32	7/12/2013	2	0.60	0.7
YTI Comp A 10%	33	7/12/2013	2	1.2	1.5
YTI Comp A 50%	34	7/12/2013	2	3.4	4.1
Spike Check (10 mg/L NH_3)		NA	NA	6.9	8.4
YTI Comp A 100%	35	7/12/2013	2	6.5	7.9
YTI Comp B 10%	36	7/12/2013	2	1.0	1.2
YTI Comp B 50%	37	7/12/2013	2	1.5	1.8
YTI Comp B 100%	38	7/12/2013	2	2.8	3.4
Sample Duplicate[a]		NA	NA	2.7	3.3
Sample Duplicate + Spike[a]		NA	NA	10.5	12.8
Spike Check (10 mg/L NH_3)		NA	NA	6.8	8.3

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.3	10	NA	83
~~X 30~~	3.4	3.3	12.8	10	~~2.9~~ 3.0	94

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/18/13

Final Review: KL 8/0/13

Mysid Shrimp (*Americamysis bahia)* 96-hr Survival
Suspended Particulate-Phase Test
Water Quality and Raw Data Sheets

96-Hour Marine Sediment Bioassay
Suspended Particulate Phase

Water Quality Measurements
& Test Organism Survival

Client: AMEC
Sample ID: YTI Comp A
Test No.: 1307-S065

Test Species: *A. bahia*
Start Date/Time: 7/11/2013 1530
End Date/Time: 7/15/2013 1435

Concentration ____%____	Rep	Number of Live Organisms			Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Percent Survival
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	
Lab Control	A	10	10	10	29.3	30.0	30.1	30.2	30.1	24.2	25.9	25.6	25.5	25.6	8.2	6.0	5.5	5.3	5.1	8.03	7.98	7.92	7.95	7.76	100
	B	10	10	9																					90
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	9																					90
10	A	10	10	10	29.5	30.0	30.1	30.3	30.7	24.3	25.8	25.0	25.6	25.4	8.1	5.9	5.5	5.4	5.6	8.00	7.98	7.92	7.96	7.85	100
	B	10	10	10																					100
	C	10	10	8																					80
	D	10	10	9																					90
	E	10	8	8																					80
50	A	10	10	10	29.5	29.8	29.9	30.2	30.6	24.5	25.9	25.9	25.7	25.3	7.6	5.8	5.4	5.1	5.6	7.91	7.97	7.95	7.99	7.89	100
	B	10	10	9																					90
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	9																					90
100	A	10	10 DI	10	29.1	29.6	29.8	30.0	30.0	24.3	26.0	25.9	25.9	25.7	7.1	5.7	5.5	5.2	5.4	7.82	7.97	7.99	8.07	7.94	100
	B	10	10	9																					90
	C	10	10	10																					100
	D	10	10	9																					90
	E	10	9	8																					80
Technician Initials		SF	ML	LN																					

Animal Source/Date Received: ABS 7/11/13

Age at Initiation: 5 d

Comments:

Feeding Times (hr):

0	24	48	72	96
—	0830	0920	0920	0815
—	1100	1000	1300	1505

QC Check: LN 7/16/13

Final Review: [illegible] 7/18/13

96-Hour Marine Sediment Bioassay
Suspended Particulate Phase

Water Quality Measurements
& Test Organism Survival

Client: AMEC
Sample ID: YTI Comp B
Test No.: 1307-S006

Test Species: *A. bahia*
Start Date/Time: 7/11/2013 1545
End Date/Time: 7/15/2013 1495

Concentration ____%____	Rep	Number of Live Organisms			Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Percent Survival
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	
Lab Control	A	10	10	10	29.2	30.0	30.1	30.3	30.4	24.1	25.4	25.2	25.3	25.0	8.3	6.0	5.7	5.5	5.4	8.00	8.01	7.90	7.97	7.81	100
	B	10	9	9																					90
	C	10	10	10																					100
	D	10	10	9																					90
	E	10	9	9																					90
10	A	10	10	10	29.3	30.0	30.0	30.2	30.2	24.3	25.6	25.4	25.4	25.2	8.4	6.0	5.6	5.4	5.2	7.98	8.02	7.93	7.97	7.82	100
	B	10	10	10																					100
	C	10	10	9																					90
	D	10	10	9																					90
	E	10	9	9																					90
50	A	10	10	10	29.1	29.8	29.9	30.1	30.1	24.2	25.3	25.4	25.4	25.3	8.0	6.0	5.6	5.4	5.1	7.92	8.04	7.95	8.01	7.83	100
	B	10	10	8																					80
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	10																					100
100	A	10	10	10	28.9	29.5	29.7	30.1	30.4	25.4	25.2	25.2	25.1	25.1	7.5	5.9	5.9	5.7	5.5	7.85	8.04	8.00	8.08	7.90	100
	B	10	8	7																					70
	C	10	9	9																					90
	D	10	10	7																					70
	E	10	10	10																					100
Technician Initials		SF	ML	LN																					

Animal Source/Date Received: ABS 7/11/13

Age at Initiation: 5d

Comments:

Feeding Times (hr):

0	24	48	72	96
—	0830	0920	0920	0815
-	1700	1600	1530	1505

QC Check: LN 7/16/13

Final Review: SC 7-18-13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA YTI Comp A
Test Type: Mysid Acute Elutriate

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/11/2013

Analyst: AB
Analysis Date: 7/17/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22
Blank Spike (10 mg/L NH_3)		NA	NA	7.0	8.54 AB
YTI Comp A Lab Control	47	7/11/2013	0	0.0	<0.5
YTI Comp A 10%	48	7/11/2013	0	0.7	0.9
YTI Comp A 50%	49	7/11/2013	0	2.8	3.4
YTI Comp A 100%	50	7/11/2013	0	5.5	6.7
YTI Comp A Lab Control	51	7/15/2013	4	1.0	1.22 AB
YTI Comp A 10%	52	7/15/2013	4	1.4	1.7
YTI Comp A 50%	53	7/15/2013	4	3.6	4.4
YTI Comp A 100%	54	7/15/2013	4	6.3	7.7
Spike Check (10 mg/L NH_3)		NA	NA		
Sample Duplicate[a]		NA	NA	6.6	8.1
Sample Duplicate + Spike[a]		NA	NA	13.6	16.6
Spike Check (10 mg/L NH_3)		NA	NA	7.0	8.5

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0	NA	8.5	10	NA	85
#54	7.7	8.1	16.6	10	5.1	~~5.1~~ AB 89

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/17/13

Final Review: KL 8/9/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA YTI Comp B
Test Type: Mysid Acute Elutriate

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/11/2013

Analyst: AB
Analysis Date: 7/24/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	6.7	8.2
YTI Comp B Lab Control	63	7/11/2013	0	0.7	0.9
YTI Comp B 10%	64	7/11/2013	0	0.7	0.9
YTI Comp B 50%	65	7/11/2013	0	1.3	1.6
YTI Comp B 100%	66	7/11/2013	0	2.0	2.4
YTI Comp B Lab Control	67	7/15/2013	4	0.9	1.1
YTI Comp B 10%	68	7/15/2013	4	0.6	0.7
YTI Comp B 50%	69	7/15/2013	4	1.6	2.0
YTI Comp B 100%	70	7/15/2013	4	1.9	2.3
Spike Check (10 mg/L NH_3)		NA	NA		
Sample Duplicate[a]		NA	NA	2.0	2.4 AB
Sample Duplicate + Spike[a]		NA	NA	8.3	10.1
Spike Check (10 mg/L NH_3)		NA	NA	6.7	8.2

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.2 10.0 AB	10	NA	100 AB 82
YTI Comp B 100 (70)	2.3	2.4	10.1	10	4.3	78

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: LW 8/27/13

Final Review: AC 9/3/13

Elutriate Preparation

Client : AMEC **Test Species:** M. beryllina

Sample IDs : YTI Comp A, YTI Comp B A. bahia

Analyst: PA M. galloprovincialis

Test No(s) : 1307-sde5, a, b; 1307-sde6, a, b

Protocol : EPA-503/8-91/001 Feb 1991

Dilution Water Used to prepare elutriate (circle): (Lab SW) or Site Water

Salinity (ppt): 30

Ratio 1:4 (Sediment:Water):

Sediment Volume: 3 L Example: 2 L Sediment

Water Volume: 12 L 8 L Water

Mix sediment and water in polyethylene plastic-lined 5-gallon bucket with stainless steel mixing blade for a total of 30 min.

(*) YTI B / 7/10/13 Bivalve 1630 mb-4 + my-4 1130

Every 10 minutes, use a stainless steel spoon to manually suspend settled sediment.

~~(Bivalve)~~ YTI A: 1415 / YTI B: ~~1615~~ 1600 7/10/13

YTI A (Bivalve) 7/10/13 -1630 7/11/13

Start Date/Time: ~~(Mb-4 + My-4)~~ (When the elutriate starts settling)

End Date/Time: (mb-4, my-4) -1215 (When the elutriate is siphoned)

Allow sediment to settle for 1-hour. See project manager if settling is insufficient.

Siphon overlying water into a new container and collect Ammonia Samples.

If necessary, centrifuge elutriate to remove particulates (especially for larval testing).

Check Dissolved Oxygen before preparing dilutions (aerate if < 6.0 mg/L). Record below:

Site:	Initial DO (mg/L):	Final DO (mg/L):
YTI Comp A (bivalve)	3.5	6.8
YTI Comp B (bivalve)	3.7	6.5
YTI Comp A (Mys-4 + Mb-4)	4.2	7.1
YTI Comp B (Mys-4 + Mb-4)	4.5	7.2

Comments: (*) Elutriate collected for bivalve tests on 7/10/13 & for mysid and menida tests on 7/11/13.

QC Check: KL 7/31/13 Final Review: JC 8/1/13

Inland Silverside (*Menidia beryllina)* 96-hr Survival
Suspended Particulate-Phase Test
Water Quality and Raw Data Sheets

96-Hour Marine Sediment Bioassay
Suspended Particulate Phase

Water Quality Measurements
& Test Organism Survival

Client: AMEC
Sample ID: YTI Comp A
Test No.: 1307-S0105q

Test Species: *M. beryllina*
Start Date/Time: 7/11/2013 1600
End Date/Time: 7/15/2013 1455

Concentration ___%___	Rep	Number of Live Organisms			Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Percent Survival
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	
Lab Control	A	10	10	9	29.3	30.0	30.2	30.8	31.1	24.2	25.8	25.2	25.1	24.9	8.2	5.5	6.3	6.4	6.2	8.03	7.89	8.01	8.10	7.92	90
	B	10	10	10																					100
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	9	9																					90
10	A	10	10	9	29.5	30.1	30.3	31.0	31.2	24.3	25.8	25.2	25.1	24.9	8.1	5.4	6.2	6.3	6.2	8.00	7.88	8.03	8.09	7.92	90
	B	10	10	10																					100
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	10																					100
50	A	10	10	10	29.5	29.7	30.2	30.8	31.1	24.5	25.8	25.2	25.0	24.9	7.6	5.2	6.3	6.4	6.2	7.91	7.88	8.09	8.14	7.97	100
	B	10	10	10																					100
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	10																					100
100	A	10	10	9	29.1	29.8	30.0	30.8	31.5	24.3	25.8	25.2	25.1	24.8	7.1	5.1	6.3	6.3	6.2	7.82	7.88	8.09	8.17	8.01	90
	B	10	10	10																					100
	C	10	10	9																					90
	D	10	10	10																					100
	E	10	10	9																					90
Technician Initials		ML	BG	LN																					

Animal Source/Date Received: ABS | 7/10/13

Age at Initiation: 14 days

Comments: test aerated at 24 hr

Feeding Times (hr):

0	24	48	72	96
--	0830	0920	0920	0815
-	--	--	--	--

QC Check: LN 7/16/13

Final Review: JC 7-18-13

96-Hour Marine Sediment Bioassay
Suspended Particulate Phase

Water Quality Measurements
& Test Organism Survival

Client: AMEC
Sample ID: YTI Comp B
Test No.: 1307-Sed60d

Test Species: *M. beryllina*
Start Date/Time: 7/11/2013 1615
End Date/Time: 7/15/2013 1510

Concentration ____%____	Rep	Number of Live Organisms			Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Percent Survival
		0	48	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	
Lab Control	A	10	9	9	29.2	29.7	30.1	30.7	31.6	24.1	25.5	25.0	24.9	24.7	8.3	5.4	6.4	6.4	6.3	8.00	7.93	8.02	8.12	7.94	90
	B	10	10	10																					100
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	9																					90
10	A	10	10	10	29.3	29.7	30.0	30.5	31.1	24.3	25.6	25.0	24.8	24.7	8.4	5.4	6.2	6.4	6.2	7.99	7.96	8.00	8.08	7.91	100
	B	10	10	10																					100
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	10																					100
50	A	10	10	10	29.1	25.2 29.4	29.7	30.3	30.7	24.2	25.2	25.1	24.9	24.8	8.0	5.1	6.4	6.4	6.2	7.92	7.92	8.07	8.10	7.99	100
	B	10	10	10																					100
	C	10	10	10																					100
	D	10	10	10																					100
	E	10	10	10																					100
100	A	10	9 10	10	28.7	29.0	29.9	30.0	30.5	25.4	25.7	25.2	25.1	24.9	7.5	4.9	6.3	6.4	6.2	7.85	7.90	8.13	8.19	8.03	100
	B	10	10	10																					100
	C	10	9 10	10																					100
	D	10	10	10																					100
	E	10	9 10	10																					100
Technician Initials		ML	BSG	LN																					

Animal Source/Date Received: ABS 7/10/13

Age at Initiation: 14days

Comments: test aerated at 24hr

Feeding Times (hr):

0	24	48	72	96
--	0930	0920	0920	0915
--	--	--	--	--

QC Check: LN 7/16/13

Final Review: JC 7/18/13

Elutriate Preparation

Client : AMEC **Test Species:** M. beryllina

Sample IDs : YTI Comp A, YTI Comp B A. bahia

Analyst: PA M. galloprovincialis

Test No(s) : 1307-sde5, a, b; 1307-sde6, a, b

Protocol : EPA-503/8-91/001 Feb 1991

Dilution Water Used to prepare elutriate (circle): (Lab SW) or Site Water

Salinity (ppt): 30

Ratio 1:4 (Sediment:Water):

Sediment Volume: 3 L Example: 2 L Sediment

Water Volume: 12 L 8 L Water

Mix sediment and water in polyethylene plastic-lined 5-gallon bucket with stainless steel mixing blade for a total of 30 min.

(*) YTI B / 7/10/13 Bivalve 1630 mb-4 + my-4 1130

Every 10 minutes, use a stainless steel spoon to manually suspend settled sediment.

~~(Bivalve)~~ YTI A: 1415 / YTI B: ~~1615~~ 1600 7/10/13

YTI A (Bivalve) 7/10/13 -1630 7/11/13

Start Date/Time: ~~(Mb-4 + My-4)~~ (When the elutriate starts settling)

End Date/Time: (mb-4, my-4) -1215 (When the elutriate is siphoned)

Allow sediment to settle for 1-hour. See project manager if settling is insufficient.

Siphon overlying water into a new container and collect Ammonia Samples.

If necessary, centrifuge elutriate to remove particulates (especially for larval testing).

Check Dissolved Oxygen before preparing dilutions (aerate if < 6.0 mg/L). Record below:

Site:	Initial DO (mg/L):	Final DO (mg/L):
YTI Comp A (bivalve)	3.5	6.8
YTI Comp B (bivalve)	3.7	6.5
YTI Comp A (Mys-4 + Mb-4)	4.2	7.1
YTI Comp B (Mys-4 + Mb-4)	4.5	7.2

Comments: (*) Elutriate collected for bivalve tests on 7/10/13 & for mysid and menida tests on 7/11/13.

QC Check: KL 7/31/13 Final Review: JC 8/1/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA YTI Comp A
Test Type: Menidia Acute Elutriate

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/11/13

Analyst: AD
Analysis Date: 7/25/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	8.2	10.0
YTI Comp A Lab Control	39	7/11/2013	0	1.7	2.1
YTI Comp A 10%	40	7/11/2013	0	2.4	2.9
YTI Comp A 50%	41	7/11/2013	0	4.7	5.7
YTI Comp A 100%	42	7/11/2013	0	7.1	8.7
YTI Comp A Lab Control	43	7/15/2013	4	2.5	3.1
YTI Comp A 10%	44	7/15/2013	4	3.0	3.7
YTI Comp A 50%	45	7/15/2013	4	4.7	5.7
YTI Comp A 100%	46	7/15/2013	4	6.8	8.3
Spike Check (10 mg/L NH_3)		NA	NA	8.2	10.0
Sample Duplicate[a]		NA	NA	7.1	8.7
Sample Duplicate + Spike[a]		NA	NA	14.9	18.2
Spike Check (10 mg/L NH_3)		NA	NA	8.2	10.0

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	10.0	10	NA	100
~~YTI Comp A 100 (46)~~	8.3	8.7	18.2	10	LN ~~4.5~~ AC 4.7	99

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] Calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: LN 9/27/13

Final Review: AC 9/3/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA YTI Comp B
Test Type: Menidia Acute Elutriate

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/11/2013

Analyst: CL
Analysis Date: 7/17/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22
Blank Spike (10 mg/L NH_3)		NA	NA	7.4	9.0
YTI Comp B Lab Control	55	7/11/2013	0	0.4	0.5
YTI Comp B 10%	56	7/11/2013	0	0.7	0.9
YTI Comp B 50%	57	7/11/2013	0	1.2	1.5
YTI Comp B 100%	58	7/11/2013	0	2.5	3.1
YTI Comp B Lab Control	59	7/15/2013	4	0.7	0.9
YTI Comp B 10%	60	7/15/2013	4	0.8	1.0
YTI Comp B 50%	61	7/15/2013	4	1.7	2.1
YTI Comp B 100%	62	7/15/2013	4	2.4	2.9
Spike Check (10 mg/L NH_3)		NA	NA		
Sample Duplicate[a]		NA	NA	2.4	2.9
Sample Duplicate + Spike[a]		NA	NA	10.9	13.3
Spike Check (10 mg/L NH_3)		NA	NA	7.1	8.7

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.0	10	NA	90
✱62	2.9	2.9	13.3	10	0	104

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/17/13

Final Review: KLB 10/13

Marine Clam (*Macoma nasuta*) and Polychaete Worm (*Nereis virens*)
28-day Bioaccumulation Test
Water Quality and Raw Data Sheets

28-Day Marine Sediment Bioassay
Bioaccumulation

Organism Survival

Client: AMEC/ POLA
Project ID: YTI Terminal

Start Date/Time: 7/12/2013 1500
End Date/Time: 8/9/2013 1000

Worm Species: *Nereis virens*
Clam Species: *Macoma nasuta*

Initial Number of Each Species: 35 clams / 10 worms

Site	Rep	Number of Surviving Worms	Number of Surviving Clams
Lab	A	10	33
Control	B	10	29
	C@	10	35
	D	10	31
	E	10	32
LA2	A	10	31
Reference	B	10	33
	C	10	32
	D	10	32
	E	9	30
YTI Comp A	A	~~8~~	30
	B	10	30
	C	10	35
	D	10	32
	E	10	27
YTI Comp B	A	10	32
	B	8	30
	C	10	29
	D	10*	~~32~~ 33
	E	7	~~32~~ 30
	A		
	B		
	C		
	D		
	E		
	A		
	B		
	C		
	D		
	E		
	A		
	B		
	C		
	D		
	E		

QC Check: AC 8/30/13

Final Review: 9/26/13

@ Replicate initiated with 45 clams; tech error.

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

* Worm split in half.

28-Day Marine Sediment Bioassay
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA **Test Organism:** *Macoma nasuta* and *Nereis virens*

Sample ID/Log-in No.: Lab Control **Start Date/Time:** 7/12/2013 1500

Test No.: 1307-S067 to S068 +S157 **End Date/Time:** 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
A-D	1	0	A-D		ML
B, C	2	2clam, 1 clam			
A-E	3	1 clam / each			LN
~~A, E~~ ML ~~A,B~~	4	ML ~~1 clam~~, ~~2 clams~~			~~ML~~ ~~AG~~ ML
LN C,D ~~A,B,D~~	5	LN ~~2clam, 1clam~~			AG ~~LN~~ LN
LN C,D	6	2clam, 1 clam			LN
—	7	—			BK
—	8	—			LN
—	9	—			LN
—	10	—			LN
—	11	—			LN
—	12	—			LN
—	13	—			AG
—	14	—			BG
C	15	1 clam			BK
—	16	—			LN
C	17	1 clam			BG
D	18	1 clam			BK
—	19	—			ML
C, E	20	1clam, 1clam			BK
—	21	—			ML
—	22	—			ML
—	23	—			~~AG~~
B	24	1clam			LN
B, C	25	1clam, 1clam			LN
E	26	1clam			ML
—	27	—			ML
C	28	1 clam			BK

QC Check: AC 9/3/13 **Final Review:** LN 9/26/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA

Test Organism: *Macoma nasuta* and *Nereis virens*

Sample ID/Log-in No.: LA2 Reference

Start Date/Time: 7/12/2013 1500

Test No.: 1307-S1-57

End Date/Time: 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
A-E	1	0	A↓, B-E↑		ML
B, D	2	2 clams, 1 clam			[illegible]
C, D, E	3	1 clam, 2 clam, 1 clam			LN
A, E	4	4 clams, 2 clams			ML
D	5	1 clam			AC
—	6	—			LN
C	7	1 clam			BK
—	8	—			LN
—	9	—			LN
—	10	—			LN
—	11	—			LN
—	12	—			LN
—	13	—			AG
—	14	—			BG
—	15	—			BK
—	16	—			LN
—	17	—			BG
—	18	—			BK
E	19	2 clams			ML
—	20	—			BK
—	21	—			ML
—	22	—			ML
—	23	—			RSO
—	24	—			LN
—	25	—			LN
—	26	—			ML
—	27	—			ML
—	28	—			BK

QC Check: AC & 9/3/13

Final Review: [illegible] 9/26/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA

Sample ID/Log-in No.: YTI Comp A

Test No.: 1307-5067

Test Organism: *Macoma nasuta* and *Nereis virens*

Start Date/Time: 7/12/2013 1500

End Date/Time: 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
A+C	1	0	A+C ↑		ML
A, B	2	1 clam, 1 clam,	~~C~~		~~C~~
A-E	3	0	C↑		LN
A, B, E	4	2, 1, 1 clams			ML
A, D	5	1 clam each			AG
E	6	2 clams			LN
E	7	1 clam			BK
—	8	—			LN
—	9	—			LN
—	10	—			LN
—	11	—			LN
—	12	—			LN
—	13	—			~~AG~~
E	14	2 clams			BG
—	15	—			BK
—	16	—			LN
—	17	—			BG
—	18	—			BK
B	19	2 ~~M~~ clams			ML
—	20	—			BK
—	21	—			ML
—	22	—			ML
—	23	—			~~AD~~
—	24	—			LN
—	25	—			LN
A, D	26	1 clam, 2 clams			ML
—	27	—			ML
—	28	—			BK

QC Check: AC 9/3/13

Final Review: LA 9/26/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Observations

Client/Project ID: AMEC/POLA

Test Organism: *Macoma nasuta* and *Nereis virens*

Sample ID/Log-in No.: YTI Comp B

Start Date/Time: 7/12/2013 1500

Test No.: 1307-5068

End Date/Time: 8/9/2013 1000

Rep	Day	Mortalities	Flow Adjustments	Additional Comments	Technician Initials
—	1	—			ML
A, C, D	2	1 clam, 2 clams, 1 clam,			CJ
A, B, E	3	1 clam, 1 clam, 1 clam			LN
~~A~~ B —	4	~~A~~ 1 clam —			~~AG~~ ML
— B	5	— 1 clam			AG
—	6	—			LN
—	7	—			BK
C	8	1 clam			LN
—	9	—			LN
C	10	1 clam			LN
—	11	—			LN
—	12	—			LN
—	13	—			AG
C	14	1 clam			BG
—	15	—			BK
—	16	—			LN
—	17	—			BG
—	18	—			BK
ML B	19	1 clam	—		ML
BK ~~B~~ E	20	1 clam			BK
—	21	—	—		ML
E	22	1 clam			ML
—	23	—			AG
—	24	—			LN
—	25	—			LN
—	26	—			ML
—	27	—			ML
BK ~~A~~ A, B, C, E	28	~~AB~~ 1 clam, 2 clam, 1 clam, 3 clams			BK

QC Check: AC 9/3/13

Final Review: ~~LS~~ 9/26/13

Water Quality Measurements

28-Day Marine Sediment Bioassay
Bioaccumulation

Client: AMEC/POLA **Project ID:** YTI Terminal **Start Date/Time:** 7/12/2013 1500

Test Species: *Macoma and Nereis* **Site ID:** Lab Control **End Date/Time:** ~~8/2/2013~~ 8/9/13 1000

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	14.0	14.0	14.2	14.3	14.4	8.5	8.5	8.4	8.4	8.4	8.11	8.12	8.08	8.09	8.10	33.0	33.0	33.0	33.0	33.3	AG
1	17.4	16.6	16.1	16.2	15.2	7.2	7.5	7.7	7.7	7.6	7.76	7.86	7.88	7.91	7.87	33.2	33.2	33.2	33.2	33.1	ML
2	14.7	14.4	15.2	15.6	15.2	8.1	~~8.2~~	7.9	7.8	7.8	7.86	7.91	7.89	7.90	7.90	~~33.2~~	33.0	33.1	33.2	33.2	33.2	S
3	14.9	14.2	15.3	15.7	15.5	8	8.1	7.9	7.7	7.8	7.73	7.79	7.77	7.77	7.75	33.1	33.2	33.2	33.3	33.3	LN
4	14.9	14.4	15.6	15.2	15.5	8.2	8.3	8.0	8.1	8.0	7.90	7.97	7.92	7.96	7.90	33.2	33.3	33.4	33.3	~~33.4~~ 33.4	ML
5	15.1	14.2	15.7	15.1	15.4	8.1	8.3	7.8	8.0	7.7	7.85	7.96	7.92	7.96	7.91	33.1	33.2	33.3	33.3	33.3	AG
6	15.2	14.4	15.9	15.3	15.6	7.9	8.2	7.7	8.1	7.7	7.87	7.95	7.86	7.93	7.89	33.2	33.3	33.5	33.4	33.4	LN
7*	15.3	14.6	15.1	15.2	15.7	7.9	8.1	8.0	8.1	7.8	7.84	7.94	7.90	7.94	7.88	33.3	33.4	33.4	33.4	33.4	BK
8	15.3	14.8	15.3	15.4	15.7	7.7	7.9	7.9	7.8	7.8	7.81	7.89	7.86	7.89	7.87	33.2	33.2	33.3	33.3	33.3	LN
9	15.5	15.1	15.4	15.5	15.6	8.0	8.1	8.0	7.9	7.9	7.87	7.98	7.95	7.97	7.96	33.4	33.4	33.5	33.5	33.8	LN
10	15.4	14.8	15.3	15.5	15.8	7.8	8.0	7.9	7.7	7.7	7.84	7.91	7.87	7.90	7.88	33.2	33.2	33.3	33.3	33.3	LN
11	15.9	15.2	15.6	15.7	15.9	7.8	8.0	7.8	7.8	7.7	~~7.84~~	7.90	7.87	7.89	7.87	33.0	33.1	33.1	33.3	33.2	LN
12	14.8	14.8	15.4	15.4	14.8	8.3	8.3	8.1	8.1	8.2	7.94	7.96	7.94	7.96	7.95	33.0	33.1	33.2	33.2	33.1	ML
13	14.5	14.8	14.9	15.3	14.9	8.1	8.0	7.9	7.8	7.9	7.76	7.80	7.78	7.83	7.82	33.2	33.3	33.4	33.4	33.4	AG
14*	14.8	15.0	15.6	15.6	15.0	8.5	8.5	8.2	8.3	8.3	7.91	7.95	7.92	7.95	7.93	33.2	33.3	33.5	33.5	33.4	BG
15	14.7	14.9	15.4	15.5	14.9	8.2	8.3	8.0	8.0	7.9	7.89	7.95	7.94	7.96	7.94	33.0	33.1	33.2	33.2	33.1	BK
16	14.9	14.8	15.2	15.4	14.8	8.4	8.4	8.2	8.2	7.3	7.88	7.93	7.92	7.96	~~7.81~~ 8.03	33.0	33.0	33.1	33.1	33.1	LN
17	14.5	14.8	15.2	15.5	14.9	8.5	8.4	8.3	8.2	8.3	7.92	7.95	7.90	7.94	7.93	33.1	33.2	33.3	33.3	33.2	BG
18	14.5	14.7	15.2	15.4	14.8	8.5	8.3	8.1	8.0	8.2	7.93	7.96	7.93	7.91	7.93	32.5	32.8	33.0	33.0	33.0	CL
19	14.7	14.8	15.3	15.4	14.8	8.2	8.1	8.0	8.0	8.2	7.92	7.93	7.93	7.93	7.93	32.7	32.8	33.9	33.9	33.9	ML
20	14.5	14.7	15.2	15.3	14.6	8.6	8.3	8.2	8.2	8.3	8.00	8.03	8.01	8.02	7.99	~~33.5~~ 33.1	33.8	33.9	33.9	33.8	CL
21*	14.8	14.8	15.3	15.4	14.7	8.5	8.2	8.0	8.0	8.2	7.90	7.94	7.91	7.94	7.95	33.3	33.5	33.4	33.5	33.7	ML
22	14.6	14.7	15.3	15.3	14.7	8.4	8.3	8.1	8.1	8.3	7.89	7.94	7.91	7.95	7.95	32.9	33.2	33.3	33.3	33.2	ML
23	14.7	14.7	15.1	14.9	14.8	8.5	8.3	8.2	8.1	8.2	7.91	7.93	7.90	7.96	7.97	33.0	33.4	33.5	33.4	33.3	AD
24	14.8	15.0	15.5	15.4	15.4	8.3	8.3	8.2	8.2	8.3	7.87	7.91	7.92	7.95	7.94	33.2	33.3	33.4	33.4	33.3	LN
25	15.8	15.6	15.9	15.8	15.5	7.9	7.8	7.9	7.8	7.9	7.89	7.89	7.88	7.84	7.84	33.4	33.6	33.6	33.6	33.3	LN
26	14.7	14.8	14.8	15.2	14.6	8.3	8.2	8.0	8.1	8.1	~~7.89~~	~~7.90~~	7.90	7.93	7.90	33.3	33.4	33.5	33.5	33.4	ML
27	14.5	14.8	14.9	15.2	14.7	8.4	8.3	8.2	8.2	8.2	7.94	7.98	7.96	7.98	7.95	33.4	33.5	33.6	33.6	33.5	ML
28*	14.7	14.9	14.9	15.3	14.8	8.3	8.1	8.1	8.0	8.1	7.96	8.00	7.98	8.00	7.96	33.4	33.5	33.5	33.6	33.5	BK

Comments: * Collect NH_3 Samples

Final Review: 9/26/13

QC Check: ~~AC~~ 9/3/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Water Quality Measurements

Client: AMEC/POLA **Project ID:** YTI Terminal **Start Date/Time:** 7/12/2013 1500

Test Species: *Macoma and Nereis* **Site ID:** LA2 Reference **End Date/Time:** 8/2/2013 1000

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	14.7	14.8	14.9	14.9	15.8	8.3	8.2	8.1	8.2	7.8	8.15	8.14	8.14	8.13	8.10	33.4	33.3	33.4	33.2	33.2	AG
1	14.1	15.8	16.2	15.9	16.1	8.2	7.6	7.5	7.4	7.6	7.98	7.94	7.93	7.90	7.97	33.1	33.2	33.3	33.2	33.2	ML
2	14.5	14.6	14.6	15.0	15.2	7.9	8.0	7.9	7.4	7.7	7.91	7.92	7.93	7.84	7.91	33.2	33.2	33.1	33.2	33.3	S
3	14.7	14.7	15.2	15.3	15.4	7.7	7.9	7.7	7.8	7.8	7.81	7.86	7.76	7.84	7.78	33.2	33.3	33.2	33.3	33.4	LN
4	14.8	15.0	15.1	15.2	15.5	7.9	8.1	7.9	8.0	7.8	7.89	7.96	7.94	7.96	7.92	33.3	33.4	33.4	33.4	33.4	ML
5	14.7	14.9	15.1	15.2	15.2	7.9	8.0	8.0	7.9	7.9	7.95	7.99	7.96	7.97	7.97	33.2	33.3	33.3	33.3	33.3	AG
6	14.9	15.0	15.3	15.6	15.7	8.0	8.0	7.9	8.0	7.8	7.94	7.96	7.94	7.96	7.94	33.3	33.4	33.4	33.4	33.4	LN
7*	14.9	15.1	15.4	15.5	15.6	7.9	8.2	8.0	7.8	7.8	7.94	7.96	7.93	7.96	7.95	33.4	33.4	33.5	33.5	33.4	BK
8	15.0	15.1	15.5	15.6	15.7	7.9	7.8	7.7	7.7	7.6	7.87	7.91	7.89	7.92	7.90	33.2	33.2	33.3	33.3	33.1	LN
9	15.0	15.2	15.6	15.6	15.8	8.1	7.8	7.8	7.9	7.9	7.94	7.98	7.94	8.01	7.96	33.4	33.5	33.2	33.5	33.5	LN
10	14.9	15.2	15.5	15.6	15.8	7.8	7.9	7.7	7.7	7.7	7.89	7.90	7.88	7.92	7.91	33.1	33.2	33.3	33.3	33.3	LN
11	~~15.1~~ 15.4	15.5	15.9	15.9	15.9	7.7	7.8	7.7	7.7	7.6	7.89	7.90	7.88	7.96	7.94	33.0	33.2	33.2	33.2	33.3	LN
12	14.7	15.0	15.1	14.4	14.8	8.2	8.2	8.1	8.3	8.2	7.96	7.98	7.96	7.97	7.99	33.1	33.2	33.2	33.1	33.1	ML
13	14.7	14.9	15.0	14.5	14.7	7.9	7.9	7.8	7.9	7.9	7.84	7.85	7.86	7.90	7.89	33.3	33.4	33.4	33.4	33.4	AG
14*	14.9	15.2	15.3	14.6	15.0	8.3	8.3	8.1	8.5	8.3	7.94	7.95	7.93	7.99	7.97	33.4	33.5	33.3	33.3	33.3	BG
15	15.0	15.1	15.2	14.6	14.9	7.8	8.0	8.0	8.1	8.0	7.92	7.94	7.92	7.98	7.94	33.1	33.1	33.2	33.0	33.1	BK
16	14.8	15.0	15.1	15.0	14.7	8.4	8.2	8.1	8.2	8.3	7.98	8.00	7.97	8.02	7.95	33.1	33.1	33.1	33.1	33.1	LN
17	14.7	15.0	15.3	14.4	14.6	8.3	8.2	8.2	8.3	8.3	7.94	7.95	7.94	7.98	7.97	33.2	33.2	33.2	33.1	33.2	BG
18	14.6	15.0	15.2	14.3	14.8	8.2	8.1	8.0	8.3	8.1	7.95	7.95	7.93	7.97	7.95	32.9	33.1	33.1	33.0	33.1	CC
19	14.6	15.1	15.3	14.5	14.8	8.1	8.0	8.0	8.2	8.1	7.94	7.94	7.94	7.97	7.96	33.9	33.9	33.8	33.8	33.8	ML
20	14.4	14.9	15.1	14.3	14.6	8.3	8.2	8.1	8.4	8.3	8.02	8.02	8.02	8.05	8.04	33.9	33.9	33.5	33.5	33.5	CC
21*	14.6	15.0	15.5	14.3	14.7	8.2	8.1	7.9	8.3	8.2	7.98	7.97	7.97	8.02	8.01	33.3	33.8	33.8	33.8	33.8	ML
22	14.6	14.8	15.2	14.2	14.6	8.1	8.1	8.0	8.3	8.2	7.95	7.96	7.96	7.99	7.97	33.2	33.3	33.3	33.3	33.3	ML
23	14.5	14.7	15.0	14.5	14.9	8.0	8.2	8.1	8.2	8.4	7.97	7.98	7.97	7.99	7.98	33.3	33.5	33.4	33.4	33.5	BB
24	15.1	15.0	15.2	14.3	14.7	8.2	8.2	8.2	8.3	8.3	7.91	7.94	7.95	7.98	7.97	33.3	33.3	33.3	33.3	33.4	LN
25	15.5	15.5	15.7	15.2	15.4	7.9	7.9	7.8	7.8	7.8	7.87	7.87	7.86	7.90	7.89	33.4	33.6	33.6	33.7	33.7	LN
26	14.4	14.8	15.0	14.0	14.6	8.2	8.1	8.0	8.4	8.2	7.97	7.97	7.98	8.00	8.01	33.4	33.5	33.5	33.5	33.5	ML
27	14.5	14.8	15.1	14.5	14.7	8.3	8.1	8.1	8.3	8.2	7.99	7.99	7.98	8.01	8.00	33.6	33.6	33.6	33.6	33.6	ML
28*	14.5	14.9	15.1	14.7	14.7	7.9	7.9	8.1	8.2	8.2	8.01	8.01	7.99	8.01	8.03	33.5	33.5	33.5	33.5	33.5	BK

Comments: * Collect NH_3 Samples

QC Check: AC 9/3/13 **Final Review:** ~~AC~~ 9/26/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Water Quality Measurements

Client: AMEC/POLA **Project ID:** YTI Terminal **Start Date/Time:** 7/12/2013 1500

Test Species: *Macoma and Nereis* **Site ID:** YTI Comp A **End Date/Time:** ~~8/2/2013~~ 8/9/13 1000

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	15.4	15.7	15.3	15.4	15.6	8.1	8.1	8.2	8.1	8.1	8.12	8.12	8.13	8.12	8.12	33.0	33.0	33.0	33.0	33.0	AG
1 Q	15.8	16.7	16.5	15.4	14.7	7.1	7.6	7.4	7.7	7.9	7.82	7.98	7.96	7.97	7.99	~~7.96~~	33.0	33.0	33.0	33.0	ML
2	15.5	15.6	15.5	15.5	15.5	7.2	7.6	7.7	7.8	7.8	7.83	7.93	7.92	7.96	7.95	33.1	33.4	33.2	33.3	33.1	LN
3 Q	16.0	16.0	16.3	15.9	15.8	7.6	7.7	7.4	7.6	7.7	7.91	7.86	7.82	7.84	7.87	33.3	33.2	33.3	33.3	33.3	LN
4	14.5	14.3	14.9	15.8	15.7	8.1	8.3	8.0	7.8	7.7	8.01	8.02	7.98	7.97	7.94	33.3	33.3	33.3	33.4	33.3	ML
5	14.6	14.4	14.4	15.0	15.2	8.2	8.2	8.1	8.0	8.0	7.97	8.02	8.02	7.98	7.98	33.1	33.1	33.3	33.3	33.3	AG
6	14.6	14.5	14.6	15.5	15.5	8.0	8.3	8.1	8.0	7.7	8.01	8.01	8.00	8.01	7.92	33.3	33.3	33.3	33.4	33.3	LN
7*	14.7	14.7	14.7	15.5	15.6	8.1	8.2	8.1	7.9	7.8	8.00	8.01	7.99	7.96	7.93	33.4	33.4	33.4	33.5	33.5	BK
8	14.9	14.7	14.9	15.6	15.4	7.9	8.0	7.9	7.8	7.8	7.94	7.96	7.93	7.92	7.88	33.2	33.2	33.2	33.3	33.3	LN
9	14.9	14.7	14.9	15.7	15.5	8.1	8.2	8.1	7.9	7.9	7.97	8.03	7.98	7.98	7.97	33.4	33.4	33.5	33.6	33.6	LN
10	14.4	14.7	14.7	15.6	15.5	7.9	8.0	7.9	7.7	7.7	7.91	7.95	7.92	7.92	7.92	33.2	33.2	33.1	33.4	33.2	LN
11	15.5	15.3	15.1	15.9	15.9	7.9	7.9	7.8	7.7	7.7	7.93	7.96	7.93	7.92	7.92	33.1	33.1	33.2	33.2	33.2	LN
12	14.6	14.5	14.8	15.3	15.0	8.2	8.3	8.2	8.0	8.1	8.01	8.02	7.98	7.98	7.98	33.1	33.0	33.1	33.2	33.1	ML
13	14.6	14.6	14.7	15.1	15.0	7.9	7.9	7.9	7.8	7.9	7.91	7.92	7.90	7.90	7.91	33.3	33.4	33.4	33.3	33.3	AG
14*	14.9	14.9	15.0	15.2	15.1	8.4	8.4	8.3	8.2	8.3	7.98	8.00	7.94	7.96	7.97	33.3	33.4	333	33.3	333	BG
15	14.7	14.8	14.7	15.1	15.0	8.1	8.2	8.0	7.9	8.0	7.97	8.02	7.95	7.96	7.98	33.1	33.1	33.1	33.2	33.1	BK
16	14.6	14.5	14.6	15.0	14.9	8.4	8.2	8.3	8.1	8.0	7.97	8.03	7.98	8.00	8.01	33.2	33.2	33.2	33.1	33.1	LN
17	14.6	14.6	14.6	14.9	14.9	8.3	8.3	8.3	8.3	8.4	7.99	8.02	7.95	7.97	7.98	33.2	33.2	33.2	33.2	33.2	BG
18	14.7	14.6	14.8	14.6	14.8	8.2	8.3	8.1	8.2	8.1	7.95	7.96	7.93	7.96	7.96	33.0	33.1	33.2	33.1	33.1	CC
19	14.6	14.7	15.1	14.8	14.9	8.1	8.1	8.1	8.1	8.1	7.97	7.96	7.94	7.96	7.97	33.8	33.8	33.8	33.8	33.8	ML
20	14.4	14.3	14.6	14.4	14.7	8.4	8.4	8.3	8.3	8.3	8.08	8.08	8.03	8.04	8.05	33.5	33.5	33.5	33.4	33.4	CC
21*	14.8	14.4	14.7	14.5	14.7	8.2	8.3	8.1	8.2	8.2	8.02	8.04	8.01	8.02	8.03	33.7	33.6	33.6	33.6	33.5	ML
22	14.7	14.4	14.5	14.3	14.7	8.1	8.3	8.2	8.2	8.2	7.98	8.00	7.97	7.98	7.99	33.7	333	333	33.3	333	ML
23	14.6	14.5	14.9	14.7	14.8	8.1	8.2	8.2	8.3	8.1	7.99	8.00	7.98	7.99	8.00	33.6	33.5	33.4	33.5	33.6	AG
24	15.1	14.7	14.9	14.6	14.8	8.2	8.3	8.2	8.3	8.2	7.94	7.98	7.95	7.96	7.98	33.3	33.3	33.5	33.5	33.5	LN
25	15.4	15.4	15.4	15.4	15.4	7.9	7.9	7.8	7.8	7.9	7.89	7.91	7.90	7.90	7.91	33.7	33.7	33.7	33.7	33.7	LN
26	14.6	14.3	14.5	14.4	14.6	8.0	8.3	8.2	8.2	8.2	8.02	8.04	8.03	8.03	8.06	33.5	33.3	33.5	33.5	33.5	ML
27	14.6	14.6	14.7	14.4	14.7	8.2	8.3	8.2	8.2	8.3	8.01	8.02	8.00	8.00	8.00	33.6	33.6	33.6	33.6	33.6	ML
28*	14.3	14.5	14.7	14.5	14.8	8.2	8.1	8.2	8.0	8.2	8.03	8.04	8.03	8.03	8.02	33.5	33.5	33.4	33.5	33.5	BK

Comments: * Collect NH_3 Samples

QC Check: AC 9/3/13

Final Review: [illegible] 9/26/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Water Quality Measurements

Client: AMEC/POLA **Project ID:** YTI Terminal **Start Date/Time:** 7/12/2013 1500

Test Species: *Macoma and Nereis* **Site ID:** YTI Comp B **End Date/Time:** ~~8/2/2013~~ AC 1000 8/9/13

Day	Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)					Salinity (ppt)					Analyst
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
0*	14.3	15.2	15.6	15.6	15.9	8.4	8.1	8.0	8.1	8.0	8.10	8.09	8.09	8.09	8.09	33.1	33.0	33.0	33.0	33.1	AG
1	15.2	15.4	15.3	15.0	15.3	7.8	7.7	7.8	8.0	7.7	7.89	7.89	7.95	7.97	7.89	33.1	33.2	33.2	33.1	33.2	ML
2	14.8	15.2	15.2	14.8	15.2	7.9	7.6	7.8	7.9	7.8	7.92	7.90	7.97	7.99	7.96	33.2	33.3	33.2	33.3	33.1	~~LN~~
3	15.1	15.6	15.6	15.2	15.3	7.8	7.6	7.7	7.8	7.7	7.79	7.78	7.86	7.87	7.87	33.2	33.3	33.3	33.3	33.3	LN
4	15.0	15.4	15.3	14.9	15.4	7.9	7.7	7.9	8.0	7.9	7.93	7.91	7.97	7.96	7.96	33.3	33.4	33.4	33.4	33.4	ML
5	15.0	15.3	15.3	15.0	15.3	7.9	7.5	7.8	7.9	7.8	7.93	7.86	7.96	7.97	7.96	33.3	33.4	33.4	33.3	33.3	AG
6	15.4	15.2	15.4	14.9	15.3	7.9	7.7	7.9	8.0	7.7	7.90	7.86	7.93	7.98	7.95	33.2	33.3	33.4	33.3	33.4	LN
7*	15.1	15.5	15.5	14.9	15.3	8.0	7.7	7.7	7.9	7.9	7.92	7.84	7.89	7.98	7.93	33.4	33.4	33.5	33.5	33.5	BK
8	15.2	15.5	15.6	15.1	15.4	7.7	7.5	7.5	7.9	7.8	7.87	7.78	7.90	7.96	7.91	33.2	33.3	33.3	33.3	33.3	LN
9	15.3	15.5	15.4	15.1	15.4	7.9	7.7	7.6	8.0	8.0	7.93	7.96	7.95	8.01	7.98	33.2	33.4	33.5	33.5	33.5	LN
10	15.2	15.6	15.6	15.1	15.3	7.7	7.6	7.7	7.9	7.8	7.86	7.81	7.88	7.94	7.89	33.1	33.3	33.3	33.2	33.3	LN
11	15.7	15.7	15.8	15.2	15.6	7.7	7.6	7.6	7.9	7.8	7.84	7.80	7.89	7.94	7.91	33.1	33.2	33.2	33.2	33.2	LN
12	15.4	15.4	15.1	14.5	14.9	8.1	7.8	8.1	8.4	8.1	7.88	7.85	7.95	7.99	7.99	33.0	33.1	33.1	33.1	33.1	ML
13	15.0	15.2	14.7	14.5	14.8	7.8	7.7	7.8	8.0	7.8	7.87	7.82	7.90	7.94	7.92	33.3	33.4	33.3	33.4	33.3	AG
14*	15.1	15.5	14.9	14.7	15.2	8.1	7.9	8.2	8.5	8.1	7.90	7.88	7.95	7.98	7.94	33.3	33.3	33.3	33.3	33.3	BG
15	15.1	15.4	14.9	14.5	15.2	7.9	7.7	8.1	8.0	7.9	7.90	7.86	7.95	7.99	7.94	33.1	33.2	33.1	33.1	33.2	BK
16	15.0	15.1	15.1	14.4	15.0	8.0	7.9	8.0	8.2	8.1	7.93	7.90	7.98	8.02	7.98	33.1	33.2	33.1	33.1	33.2	LN
17	14.9	15.3	14.7	14.4	15.0	8.2	8.0	8.2	8.4	8.3	7.92	7.88	7.96	7.99	7.95	33.2	33.2	33.2	33.2	33.3	BG
18	15.0	15.3	14.8	14.3	15.0	8.0	7.8	8.1	8.3	8.0	7.90	7.86	7.93	7.97	7.90	33.1	33.1	33.1	33.1	33.2	CL
19	15.1	15.4	14.8	14.4	15.1	7.9	7.4	8.0	8.2	8.0	7.91	~~7.41~~ MD	7.94	7.98	7.93	33.8	33.6	33.6	34.1	33.6	ML
20	15.2	15.2	14.7	14.3	14.9	8.0	7.7	8.2	8.3	8.1	7.98	7.88	8.02	8.04	7.99	33.4	33.5	33.4	33.4	33.4	CL
21*	15.3	15.4	14.9	14.5	15.3	7.9	7.7	~~7.0~~ MD	8.3	8.1	7.96	8.07	8.02	8.04	7.99	33.5	33.6	33.6	33.6	33.6	ML
22	15.3	15.4	14.9	14.7	15.4	7.8	7.6	8.1	8.2	8.0	7.89	7.82	7.96	7.99	7.94	33.3	33.3	33.3	33.3	33.5	ML
23	15.1	15.3	14.8	14.8	15.1	7.9	7.8	8.0	8.1	8.0	7.90	7.91	7.98	8.00	7.96	33.4	33.5	33.4	33.4	33.6	~~AG~~
24	15.7	15.5	15.0	14.6	15.3	8.0	7.5	8.1	8.3	8.1	7.89	7.80	7.93	7.94	7.96	33.5	33.5	33.6	33.6	33.7	LN
25	15.8	15.7	15.4	15.2	15.5	7.8	7.6	7.8	7.9	7.8	7.81	7.75	7.87	7.81	7.88	33.8	33.8	33.8	33.7	33.7	LN
26	15.2	15.3	14.8	14.4	14.5	7.8	7.7	7.9	8.2	8.1	7.97	7.92	8.02	8.05	8.00	33.5	33.5	33.5	33.5	33.5	ML
27	15.2	15.4	15.0	14.5	14.8	7.9	7.6	8.0	8.2	8.1	7.93	7.84	7.97	8.00	7.99	33.6	33.6	33.6	33.5	33.5	ML
28*	15.4	15.5	15.0	14.7	14.6	7.9	7.7	7.9	8.1	8.1	7.96	7.88	8.00	8.04	8.01	33.5	33.6	33.5	33.5	33.5	BK

Comments: * Collect NH_3 Samples

QC Check: AC 9/3/13 **Final Review:** LA 9/6/13

28-Day Marine Sediment Bioassay
Bioaccumulation

Water Quality Measurements

Client: AMEC/POLA
Test Species: Macoma and Nereis
Project ID: YT, Terminal
Site ID: Comp A+B
Start Date/Time: 9/9/13 AC ~~9/12/13 1300~~ 1500
End Date/Time: ~~8/9/13 1300~~ 9/10/13

Day	Temperature (°C) A	B	C	D	E	Dissolved Oxygen (mg/L) A	B	C	D	E	pH (pH units) A	B	C	D	E	Salinity (ppt) A	B	C	D	E	Analyst
29 (worm)	14.6	14.1	14.1	14.0	14.0	8.0	7.8	8.3	8.4	8.4	7.95	7.68	7.93	8.00	8.00	33.8	33.8	33.8	33.9	33.9	AC
29 (Clam)	15.4	15.9	15.7	16.0	15.7	7.7	7.6	7.6	7.7	7.4	7.92	7.89	7.88	7.97	7.84	33.7	33.6	33.7	33.7	33.6	CE

Comments:

QC Check: AC 9/3/13

Final Review: [illegible] 9/26/13

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

AMEC/POLA 28-day Bioaccumulation
YTI Terminal
Test Species: *Macoma nasuta* and *Nereis virens*
Test Date: 7/12/13

Site	Rep	Rand #
LA2 Reference	A	9
	B	12
	C	4
	D	6
	E	10
YTI Composite A	A	7
	B	5
	C	11
	D	14
	E	13
YTI Composite B	A	8
	B	2
	C	1
	D	3
	E	15

Indicate C for clam, or W for worm next to random number

QC-AL

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA
Test Type: 28-Day Bioaccumulation

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/12/2013

Analyst: TS
Analysis Date: 9/24/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L) N x 1.22	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	7.6	9.3
Lab Control	B1	7/12/2013	0	-0.1	<0.5
Reference	B2	7/12/2013	0	0.4	<0.5
YTI Comp A	B3	7/12/2013	0	0.8	1.0
YTI Comp B	B4	7/12/2013	0	0.3	<0.5
Lab Control	B5	7/19/2013	7	0.2	<0.5
Reference	B6	7/19/2013	7	0.2	0.5
YTI Comp A	B7	7/19/2013	7	0.3	<0.5
YTI Comp B	B8	7/19/2013	7	0.6	0.7
Lab Control	B9	7/26/2013	14	0.0	<0.5
Reference	B10	7/26/2013	14	0.1	<0.5
Spike Check (10 mg/L NH_3)		NA	NA	7.6	9.3
YTI Comp A	B11	7/26/2013	14	0.1	<0.5
YTI Comp B	B12	7/26/2013	14	0.2	<0.5
Lab Control	B13	8/2/2013	21	-0.1	<0.5
Reference	B14	8/2/2013	21	0.0	<0.5
YTI Comp A	B15	8/2/2013	21	0.0	<0.5
YTI Comp B	B16	8/2/2013	21	0.4	<0.5
Lab Control	B17	8/9/2013	28	0.0	<0.5
Reference	B18	8/9/2013	28	-0.2	<0.5
YTI Comp A	B19	8/9/2013	28	0.0	<0.5
YTI Comp B	B20	8/9/2013	28	0.0	<0.5
Sample Duplicate[a]		NA	NA	0.3	<0.5
Sample Duplicate + Spike[a]		NA	NA	7.8	9.5
Spike Check (10 mg/L NH_3)		NA	NA	7.6	9.3

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	~~9.3~~ 0.0	NA	9.3	10	NA	93
YTI Comp B	<0.5	<0.5	9.5	10	C	98

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: AC 9/18/13

Final Review: 9/25/13

Appendix C

Reference Toxicant Data

Marine Amphipod (*Eohaustorius estuarius)*

CETIS Summary Report

Acute Amphipod Survival Test					Nautilus Environmental (CA)
Batch ID:	01-5191-3962	Test Type:	Survival (96h)	Analyst:	
Start Date:	14 Jun-13 16:05	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Diluted Natural Seawater
Ending Date:	18 Jun-13 14:30	Species:	Eohaustorius estuarius	Brine:	Not Applicable
Duration:	94h	Source:	Northwestern Aquatic Science, OR	~~Age:~~ Size	3-5 mm

Sample ID:	00-0192-5160	Code:	130614eera	Client:	Internal
Sample Date:	14 Jun-13	Material:	Cadmium chloride	Project:	
Receive Date:	14 Jun-13	Source:	Reference Toxicant		
Sample Age:	16h	Station:	Cadmium chloride		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-3812-0276	96h Survival Rate	1.25	2.5	1.768	15.1%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
15-9339-8356	96h Survival Rate	EC50	9.612	7.784	11.87		Trimmed Spearman-Kärber

96h Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
1.25		4	0.9	0.8695	0.9305	0.8	1	0.04082	0.08165	9.07%	10.0%
2.5		4	0.825	0.778	0.872	0.7	1	0.06292	0.1258	15.25%	17.5%
5		4	0.725	0.669	0.781	0.6	0.9	0.075	0.15	20.69%	27.5%
10		4	0.7	0.6695	0.7305	0.6	0.8	0.04082	0.08165	11.66%	30.0%
20		4	0.1	0.05688	0.1431	0	0.2	0.05774	0.1155	115.5%	90.0%

96h Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
1.25		0.8	1	0.9	0.9
2.5		1	0.8	0.8	0.7
5		0.6	0.6	0.9	0.8
10		0.6	0.8	0.7	0.7
20		0.2	0	0	0.2

Acute Amphipod Survival Test — Nautilus Environmental (CA)

Analysis ID: 18-3812-0276 Endpoint: 96h Survival Rate CETIS Version: CETISv1.8.4
Analyzed: 19 Jun-13 10:04 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	1.25	2.5	1.768		15.1%

Dunnett Multiple Comparison Test

Control	vs	C-mg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		1.25	1.575	2.407	0.241	6	0.2046	CDF	Non-Significant Effect
		2.5*	2.555	2.407	0.241	6	0.0376	CDF	Significant Effect
		5*	3.796	2.407	0.241	6	0.0029	CDF	Significant Effect
		10*	4.177	2.407	0.241	6	0.0013	CDF	Significant Effect
		20*	11	2.407	0.241	6	<0.0001	CDF	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.102	2.802	0.6778	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.920323	0.5840646	5	29.15	<0.0001	Significant Effect
Error	0.3606956	0.02003864	18			
Total	3.281018		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.089	4.248	0.1141	Equal Variances
Variances	Levene Equality of Variance	3.433	4.248	0.0236	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9184	0.884	0.0537	Normal Distribution

96h Survival Rate Summary

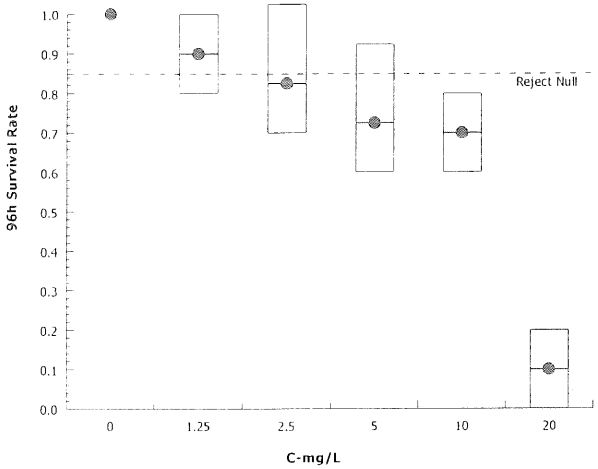
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
1.25		4	0.9	0.7701	1	0.9	0.8	1	0.04082	9.07%	10.0%
2.5		4	0.825	0.6248	1	0.8	0.7	1	0.06292	15.25%	17.5%
5		4	0.725	0.4863	0.9637	0.7	0.6	0.9	0.075	20.69%	27.5%
10		4	0.7	0.5701	0.8299	0.7	0.6	0.8	0.04082	11.66%	30.0%
20		4	0.1	0	0.2837	0.1	0	0.2	0.05774	115.5%	90.0%

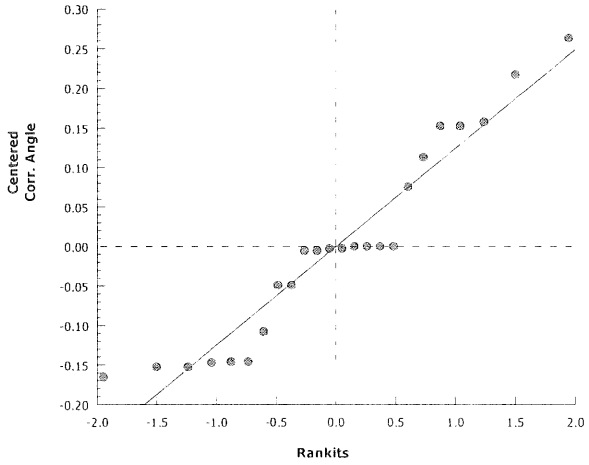
Angular (Corrected) Transformed Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
1.25		4	1.254	1.056	1.453	1.249	1.107	1.412	0.06231	9.94%	11.17%
2.5		4	1.156	0.8637	1.449	1.107	0.9912	1.419	0.09191	15.9%	18.11%
5		4	1.032	0.7484	1.316	0.9966	0.8861	1.249	0.08914	17.27%	26.91%
10		4	0.9939	0.8502	1.138	0.9912	0.8861	1.107	0.04515	9.09%	29.61%
20		4	0.3112	0.03113	0.5913	0.3112	0.1588	0.4636	0.08801	56.56%	77.96%

Acute Amphipod Survival Test					Nautilus Environmental (CA)
Analysis ID:	18-3812-0276	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.8.4
Analyzed:	19 Jun-13 10:04	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Graphics





CETIS Analytical Report

Acute Amphipod Survival Test					Nautilus Environmental (CA)
Analysis ID:	15-9339-8356	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	19 Jun-13 10:05	**Analysis:**	Trimmed Spearman-Kärber	**Official Results:**	Yes

Trimmed Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	10.00%	0.9828	0.0458	9.612	7.784	11.87

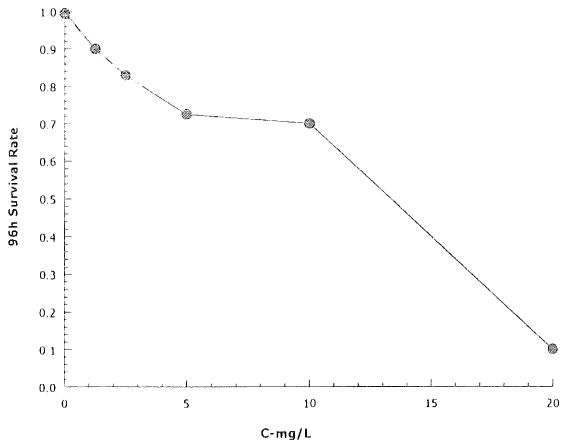
Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.102	2.802	0.6778	No Outliers Detected

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	4	1	1	1	0	0	0.0%	0.0%	40	40
1.25		4	0.9	0.8	1	0.04082	0.08165	9.07%	10.0%	36	40
2.5		4	0.825	0.7	1	0.06292	0.1258	15.25%	17.5%	34	41
5		4	0.725	0.6	0.9	0.075	0.15	20.69%	27.5%	29	40
10		4	0.7	0.6	0.8	0.04082	0.08165	11.66%	30.0%	28	40
20		4	0.1	0	0.2	0.05774	0.1155	115.5%	90.0%	4	40

Graphics

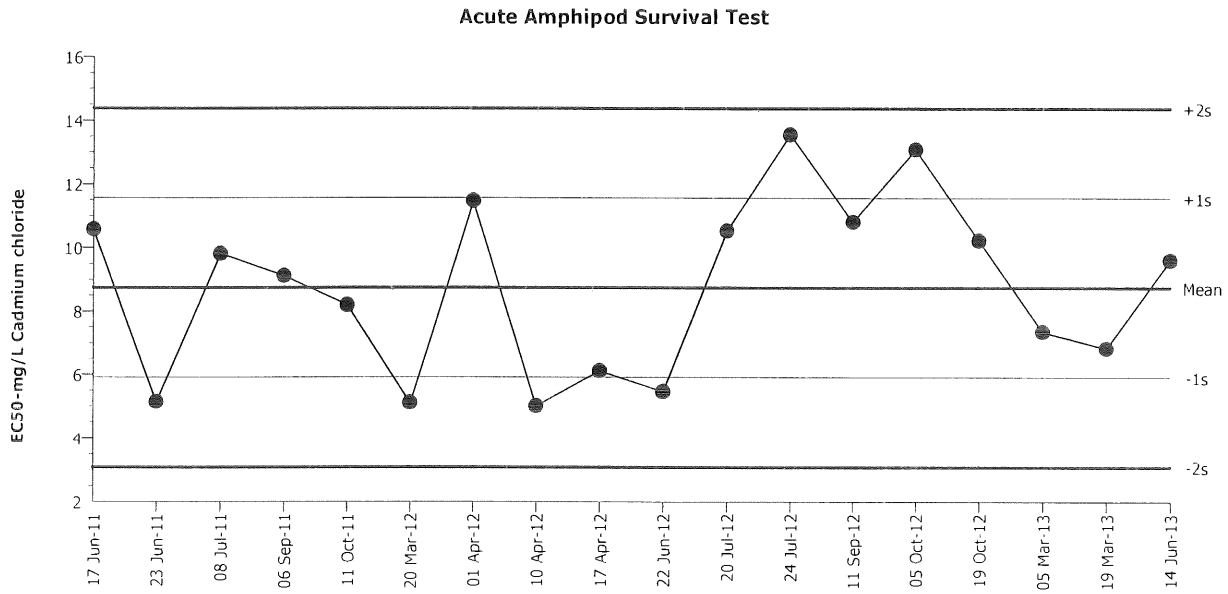


CETIS QC Plot

Report Date: 19 Jun-13 10:12 (1 of 1)

Acute Amphipod Survival Test — Nautilus Environmental (CA)

Test Type:	Survival (96h)	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Cadmium chloride
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	8.738	**Count:**	17	**-1s Warning Limit:**	5.916	**-2s Action Limit:**	3.094
Sigma:	2.822	**CV:**	32.30%	**+1s Warning Limit:**	11.56	**+2s Action Limit:**	14.38

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Jun	17	10.58	1.844	0.6535			04-7355-3643	07-6874-3745
2			23	5.151	-3.587	-1.271	(-)		13-2405-8190	14-5588-5921
3		Jul	8	9.819	1.081	0.3831			15-6016-6275	08-2935-4591
4		Sep	6	9.123	0.3854	0.1366			19-8263-9958	15-3049-8972
5		Oct	11	8.208	-0.53	-0.1878			04-5683-5278	08-5229-4738
6	2012	Mar	20	5.125	-3.613	-1.28	(-)		08-7199-6871	10-8279-6045
7		Apr	1	11.49	2.749	0.9741			16-6898-4384	19-8941-9944
8			10	5.017	-3.721	-1.319	(-)		17-6920-6681	20-9566-8272
9			17	6.123	-2.615	-0.9268			09-5184-8036	12-7137-1039
10		Jun	22	5.471	-3.267	-1.158	(-)		07-6049-5353	11-0995-0121
11		Jul	20	10.54	1.804	0.6392			16-2846-0234	13-2124-5320
12			24	13.56	4.822	1.709	(+)		13-0734-2251	08-2819-6469
13		Sep	11	10.82	2.083	0.738			04-2672-2264	19-7399-3537
14		Oct	5	13.09	4.356	1.544	(+)		11-0626-8499	15-2615-3111
15			19	10.24	1.5	0.5315			20-1096-6081	15-0965-7000
16	2013	Mar	5	7.357	-1.381	-0.4895			15-1987-8538	07-6132-5027
17			19	6.83	-1.908	-0.676			15-7965-1544	07-5996-2822
18		Jun	14	9.612	0.8735	0.3095			07-2203-5945	15-9339-8356

96-hour Marine Acute Bioassay
Static Conditions

Water Quality Measurements
& Test Organism Survival

Client: Internal
Sample ID: $CdCl_2$
Test No.: 130614eera

Test Species: *E. estuarius*
Start Date/Time: 6/14/2013 1605
End Date/Time: 6/18/2013 1430

	Tech Initials				
	0	24	48	72	96
Counts:	ML				CL
Readings:	CL	AD	SO	LN	CL
Dilutions made by:	CL				
High conc. made (mg/L):	20				
Vol. Cd stock added (mL):	76.9				
Final Volume (mL):	4000				

Cd stock concentration (mg/L): 1040

Concentration mg/L	RAND #	Number of Live Organisms		Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	10	10	10	30.0	~~28.5~~ 30.0	30.3	30.4	30.2	14.8	14.2	14.2	14.2	13.9	8.6	8.2	7.9	7.6	8.7	8.14	8.02	7.96	7.92	7.93
	5	10	10																				
	6	10	10																				
	11	10	10																				
1.25	22	10	8	30.2	~~28.6~~ 30.1	30.4	30.2	30.6	14.5	14.1	14.0	14.0	13.9	8.6	8.3	7.9	7.5	8.4	8.15	8.03	7.96	7.94	7.92
	2	10	10																				
	24	10	9																				
	19	10	9																				
2.5	4	~~11~~ 10	11	30.2	~~28.5~~ 30.0	30.3	30.5	30.5	14.6	14.1	14.0	14.0	13.8	8.6	8.2	7.9	7.7	8.5	8.16	8.02	7.97	7.96	7.96
	1	10	8																				
	21	10	8																				
	23	10	7																				
5.0	20	10	6	30.1	~~28.4~~ 29.9	30.1	30.2	30.3	14.5	14.1	14.0	14.1	13.8	8.6	8.1	7.8	7.5	8.5	8.18	8.02	7.97	7.96	7.95
	18	10	6																				
	3	10	9																				
	14	10	8																				
10	17	10	6	30.0	~~28.9~~ 29.8	30.1	30.2	30.2	14.6	14.2	14.1	14.1	13.9	8.6	8.2	8.0	7.5	8.3	8.17	8.02	7.99	7.98	7.92
	12	10	8		29.8																		
	8	10	7																				
	9	10	7																				
20	15	10	2	29.6	~~28.1~~ 29.6	29.8	29.7	29.9	14.6	14.0	14.0	14.0	13.6	8.6	8.4	8.2	7.7	8.6	8.17	8.03	8.01	7.98	7.96
	16	10	0																				
	13	10	0																				
	7	10	2																				

Initial Counts QC'd by: KS

Animal Source/Date Received: Northwestern Aquatic Sciences 6/7/13

Size at Initiation: 3-5mm

Comments:

QC Check: 6/19/13 BG

Final Review: VPP 6/14/13

Marine Polychaete Worm (*Neanthes arenaceodentata)*

CETIS Summary Report

Neanthes 96-h Survival Test — **Nautilus Environmental (CA)**

Batch ID:	00-6759-6780	**Test Type:**	Survival	**Analyst:**	
Start Date:	12 Jul-13 16:55	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Diluted Natural Seawater
Ending Date:	16 Jul-13 15:10	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Tox Support	**Age:**	21 d

Sample ID:	02-7431-4815	**Code:**	130712nara	**Client:**	Internal
Sample Date:	12 Jul-13	**Material:**	Cadmium chloride	**Project:**	
Receive Date:	12 Jul-13	**Source:**	Reference Toxicant		
Sample Age:	17h	**Station:**	Cadmium chloride		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-0383-2761	Survival Rate	5	10	7.071	9.55%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
14-3553-9167	Survival Rate	EC50	7.629	7.078	8.224		Trimmed Spearman-Kärber

Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
2.5		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	2.5%
5		4	1	1	1	1	1	0	0	0.0%	0.0%
10		4	0.125	0.07801	0.172	0	0.3	0.06292	0.1258	100.7%	87.5%
20		4	0	0	0	0	0	0	0		100.0%
40		4	0	0	0	0	0	0	0		100.0%

Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
2.5		1	0.9	1	1
5		1	1	1	1
10		0.3	0	0.1	0.1
20		0	0	0	0
40		0	0	0	0

Neanthes 96-h Survival Test — Nautilus Environmental (CA)

Analysis ID: 07-0383-2761 Endpoint: Survival Rate CETIS Version: CETISv1.8.4
Analyzed: 24 Jul-13 11:57 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	5	10	7.071		9.55%

Steel Many-One Rank Sum Test

Control	vs	C-mg/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	16	10	1	6	0.5065	Asymp	Non-Significant Effect
		5	18	10	1	6	0.7500	Asymp	Non-Significant Effect
		10*	10	10	0	6	0.0276	Asymp	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.330569	1.11019	3	120.3	<0.0001	Significant Effect
Error	0.1107333	0.009227772	12			
Total	3.441303		15			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.724	5.953	0.2151	Equal Variances
Variances	Levene Equality of Variance	3.712	5.953	0.0425	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7869	0.8408	0.0018	Non-normal Distribution

Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
2.5		4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	2.5%
5		4	1	1	1	1	1	1	0	0.0%	0.0%
10		4	0.125	0	0.3252	0.1	0	0.3	0.06292	100.7%	87.5%
20		4	0	0	0	0	0	0	0		100.0%
40		4	0	0	0	0	0	0	0		100.0%

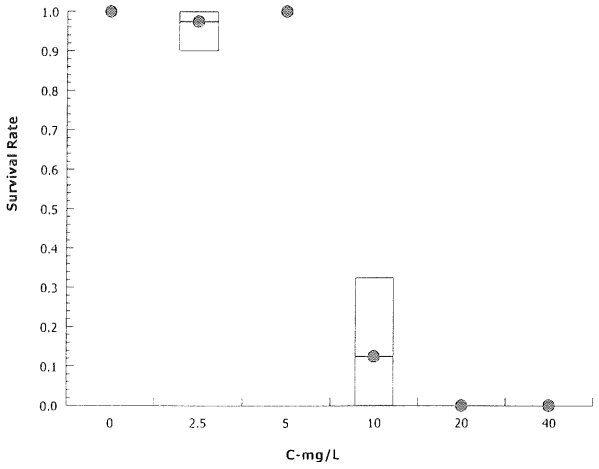
Angular (Corrected) Transformed Summary

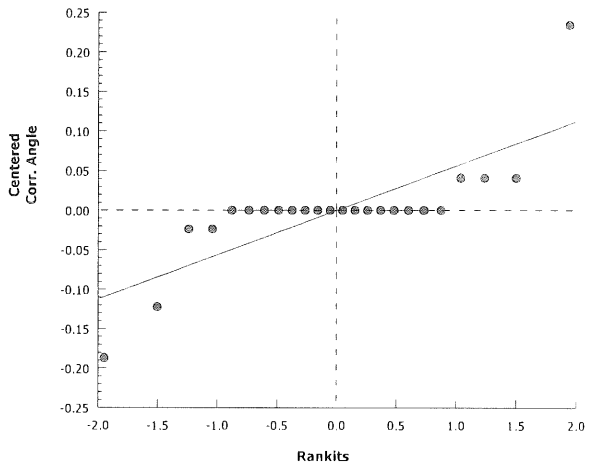
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
2.5		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	2.89%
5		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
10		4	0.3455	0.06863	0.6223	0.3218	0.1588	0.5796	0.08699	50.36%	75.53%
20		4	0.1588	0.1588	0.1588	0.1588	0.1588	0.1588	0	0.0%	88.76%
40		4	0.1588	0.1588	0.1588	0.1588	0.1588	0.1588	0	0.0%	88.76%

Neanthes 96-h Survival Test — Nautilus Environmental (CA)

Analysis ID:	07-0383-2761	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-13 11:57	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

Neanthes 96-h Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	14-3553-9167	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-13 11:57	**Analysis:**	Trimmed Spearman-Kärber	**Official Results:**	Yes

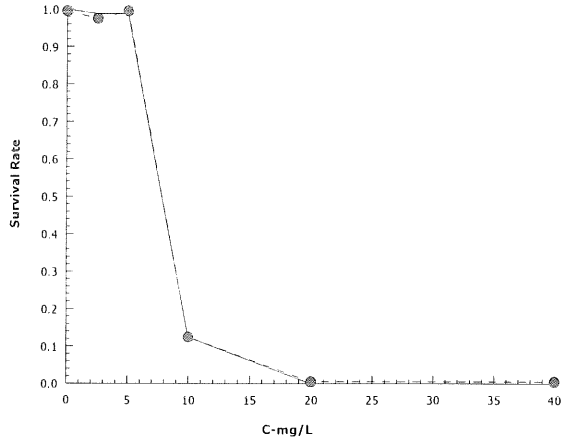
Trimmed Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	1.25%	0.8825	0.01629	7.629	7.078	8.224

Survival Rate Summary

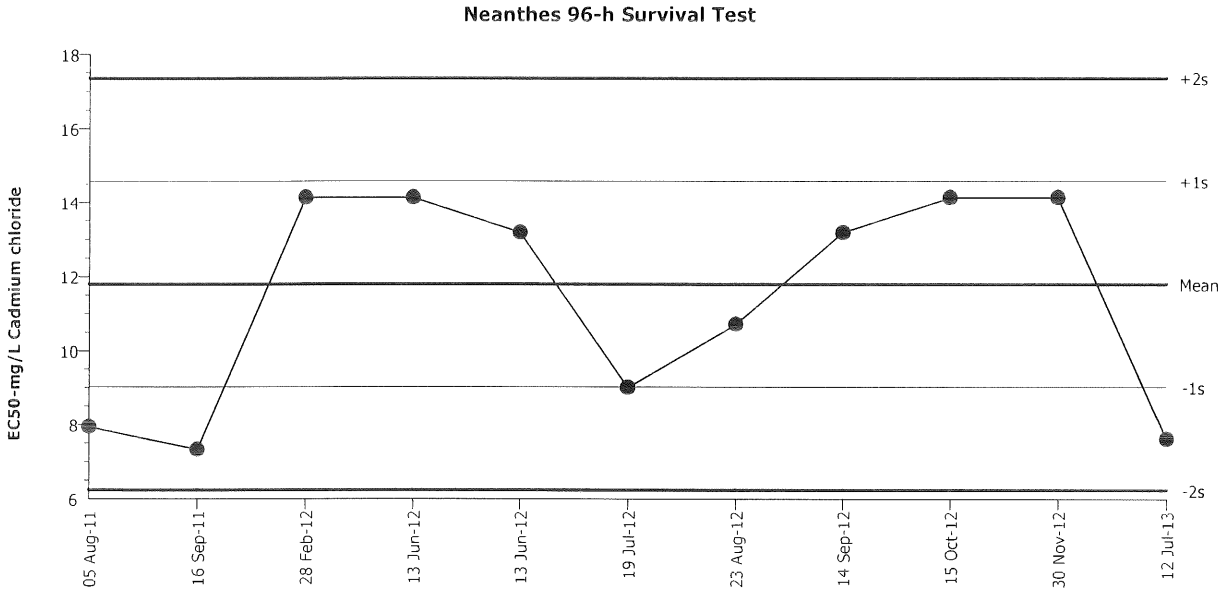
			Calculated Variate(A/B)								
C-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	4	1	1	1	0	0	0.0%	0.0%	40	40
2.5		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40
5		4	1	1	1	0	0	0.0%	0.0%	40	40
10		4	0.125	0	0.3	0.06292	0.1258	100.7%	87.5%	5	40
20		4	0	0	0	0	0		100.0%	0	40
40		4	0	0	0	0	0		100.0%	0	40

Graphics



Neanthes 96-h Survival Test | Nautilus Environmental (CA)

Test Type:	Survival	**Organism:**	Neanthes arenaceodentata (Polycha	**Material:**	Cadmium chloride
Protocol:	ASTM E1611-00 (2000)	**Endpoint:**	Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	11.8	**Count:**	10	**-1s Warning Limit:**	9.021	**-2s Action Limit:**	6.242
Sigma:	2.779	**CV:**	23.60%	**+1s Warning Limit:**	14.58	**+2s Action Limit:**	17.36

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Aug	5	7.954	-3.846	-1.384	(-)		20-3080-1811	03-7530-2445
2		Sep	16	7.334	-4.466	-1.607	(-)		18-2093-5043	17-5340-3813
3	2012	Feb	28	14.14	2.342	0.8428			16-6209-9761	07-9744-0637
4		Jun	13	14.14	2.342	0.8428			19-3428-8273	00-9159-1641
5			13	13.2	1.395	0.502			08-3573-0593	08-2667-0688
6		Jul	19	9.013	-2.787	-1.003	(-)		05-3194-5614	06-9744-1383
7		Aug	23	10.72	-1.082	-0.3894			00-6415-4847	03-7452-2860
8		Sep	14	13.2	1.395	0.502			01-3108-0767	00-3026-5642
9		Oct	15	14.14	2.342	0.8428			12-2615-0269	05-9401-1565
10		Nov	30	14.14	2.342	0.8428			00-0423-6005	16-0678-5834
11	2013	Jul	12	7.629	-4.171	-1.501	(-)		12-6036-7885	05-4895-6417

Marine Acute Bioassay
Static Conditions

Water Quality Measurements
& Test Organism Survival

Client: Internal
Sample ID: $CdCl_2$
Test No.: 130712nava

Test Species: *N. arenaceodentata*
Start Date/Time: 7/12/2013 1655
End Date/Time: 7/16/2013 1510

	Tech Initials				
	0	24	48	72	96
Counts:	BG CL				CL
Readings:	ML	ML	AD	LN	ML
Dilutions made by:	CL				
High conc. made (mg/L):	40				
Vol. Cd stock added (mL):	15.4				
Final Volume (mL):	4000				

Cd stock concentration (mg/L): 1,040

Concentration mg/L	Rand #	Number of Live Organisms		Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	3	5/10	10	30.0	30.0	30.0	29.9	29.9	19.8	19.4	19.6	19.7	19.5	6.8	6.7	6.6	6.5	6.7	7.97	7.97	7.98	7.96	7.86
	4	5/10	10																				
	2	5/10	10																				
	9	5/10	10																				
2.5	22	5/10	10	~~29.4~~	29.9	30.1	30.0	30.1	19.7	19.3	19.4	19.5	19.3	6.9	6.7	6.7	6.6	6.8	7.98	7.97	8.01	7.95	~~7.80~~ 7.90 ML
	23	5/10	9	29.6																			
	19	5/10	10	ML																			
	15	5/10	10																				
5	1	5/10	10	~~29.4~~	30.2	30.0	29.9	29.9	19.9	19.3	19.6	19.6	19.5	6.9	6.7	6.7	6.5	6.7	7.99	7.97	8.07	7.84	7.90
	18	5/10	10	29.6																			
	24	5/10	10																				
	16	5/10	10																				
10	6	5/10	3	29.7	29.7	29.9	30.1	30.2	19.8	19.3	19.5	19.5	19.5	6.9	6.8	6.7	6.6	6.7	7.99	7.96	8.05	7.85	7.91
	20	5/10	0																				
	5	5/10	1																				
	12	5/10	1																				
20	10	5/10	0	29.4	29.5	29.6	29.8	29.6	19.9	19.3	19.5	19.5	19.4	6.9	6.9	6.8	6.7	6.0	7.99	7.98	8.04	7.86	7.84
	7	5/10	0																				
	13	5/10	0																				
	17	5/10	0																				
40	8	5/10	0	~~28.7~~	29.0	29.1	29.1	29.2	19.7	19.2	19.5	19.5	19.5	7.0	7.0	6.9	6.9	6.2	8.00	7.99	8.05	7.85	7.86
	11	5/10	0																				
	14	5/10	0																				
	21	5/10	0																				

QC ML

Animal Source/Date Received: ATS 7/9/13
Age at Initiation: 21 days

Comments:

QC Check: BG 7/17/13
Final Review: KS 8/8/13

Mediterranean Mussel (*Mytilus galloprovincialis)*

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Batch ID:	08-8607-9570	Test Type:	Development-Survival	Analyst:	
Start Date:	10 Jul-13 14:45	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Diluted Natural Seawater
Ending Date:	12 Jul-13 14:45	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Duration:	48h	Source:	Taylor Shellfish, WA	Age:	

Sample ID:	05-0458-8522	Code:	130710msdv	Client:	Internal
Sample Date:	10 Jul-13	Material:	Copper chloride	Project:	
Receive Date:	10 Jul-13	Source:	Reference Toxicant		
Sample Age:	15h	Station:	Copper Chloride		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-3998-0218	Combined Development Ra	5	10	7.071	8.38%		Steel Many-One Rank Sum Test
18-4348-0015	Development Rate	5	10	7.071	6.31%		Dunnett Multiple Comparison Test
04-5405-3327	Survival Rate	20	40	28.28	7.36%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
03-5789-9070	Combined Development Ra	EC25	9.081	7.927	11.02		Linear Interpolation (ICPIN)
		EC50	12.82	11.86	13.97		
04-7883-9678	Development Rate	EC25	8.945	7.875	10.7		Linear Interpolation (ICPIN)
		EC50	12.71	11.71	13.76		
15-6444-9625	Survival Rate	EC25	25.92	24.3	30.4		Linear Interpolation (ICPIN)
		EC50	32.45	29.51	41.92		

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
04-7883-9678	Development Rate	Control Resp	0.8931	0.9 - NL	Yes	Below Acceptability Criteria (*)
18-4348-0015	Development Rate	Control Resp	0.8931	0.9 - NL	Yes	Below Acceptability Criteria
04-5405-3327	Survival Rate	Control Resp	1	0.5 - NL	Yes	Passes Acceptability Criteria
15-6444-9625	Survival Rate	Control Resp	1	0.5 - NL	Yes	Passes Acceptability Criteria
12-3998-0218	Combined Development Ra	PMSD	0.08384	NL - 0.25	No	Passes Acceptability Criteria

(*) the development rate in the control was slightly below the EPA 1995 mean test acceptability criterion of 90% (89.3%). however, a dose response was observed, and the calculated effect concentration was within two standard deviations of the historical mean. the test was therefore deemed valid.

This test meets the Inland testing manual (EPA 1998) control criterion of ≥70%.

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Combined Development Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9051	0.8937	0.9165	0.8646	0.9448	0.01365	0.03053	3.37%	0.0%
2.5		5	0.8896	0.8674	0.9117	0.8405	0.9877	0.02653	0.05932	6.67%	1.72%
5		5	0.8977	0.889	0.9064	0.8712	0.9264	0.0104	0.02325	2.59%	0.82%
10		5	0.6294	0.599	0.6599	0.5706	0.773	0.03643	0.08146	12.94%	30.46%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Development Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8931	0.8834	0.9028	0.8646	0.9239	0.01158	0.0259	2.9%	0.0%
2.5		5	0.9105	0.9031	0.918	0.8903	0.936	0.0089	0.0199	2.19%	-1.95%
5		5	0.8934	0.8762	0.9105	0.8212	0.9467	0.02055	0.04595	5.14%	-0.03%
10		5	0.6194	0.5921	0.6468	0.5537	0.7412	0.03276	0.07325	11.82%	30.64%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	1	1	1	1	1	0	0	0.0%	0.0%
2.5		5	0.9656	0.9518	0.9794	0.908	1	0.01653	0.03696	3.83%	3.44%
5		5	0.9816	0.9686	0.9946	0.9202	1	0.01552	0.0347	3.54%	1.84%
10		5	0.9791	0.9662	0.9921	0.9202	1	0.01547	0.0346	3.53%	2.09%
20		5	0.9804	0.9705	0.9903	0.9387	1	0.01186	0.02653	2.71%	1.96%
40		5	0.211	0.1039	0.3182	0.06748	0.7239	0.1283	0.287	136.0%	78.9%

Combined Development Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.8967	0.8646	0.9239	0.8957	0.9448
2.5		0.8405	0.9877	0.8466	0.8957	0.8773
5		0.9119	0.8712	0.9018	0.9264	0.8773
10		0.6012	0.5706	0.5951	0.6074	0.773
20		0	0	0	0	0
40		0	0	0	0	0

Development Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.8967	0.8646	0.9239	0.869	0.9112
2.5		0.9257	0.936	0.8903	0.9068	0.8938
5		0.9119	0.9467	0.8212	0.8988	0.8882
10		0.5537	0.62	0.6101	0.5723	0.7412
20		0	0	0	0	0
40		0	0	0	0	0

Survival Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	1	1	1	1	1
2.5		0.908	1	0.9509	0.9877	0.9816
5		1	0.9202	1	1	0.9877
10		1	0.9202	0.9755	1	1
20		0.9387	0.9939	1	0.9693	1
40		0.07362	0.7239	0.09816	0.06748	0.09202

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Combined Development Rate Binomials

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	165/184	166/192	170/184	146/163	154/163
2.5		137/163	161/163	138/163	146/163	143/163
5		176/193	142/163	147/163	151/163	143/163
10		98/163	93/163	97/163	99/163	126/163
20		0/163	0/163	0/163	0/163	0/163
40		0/163	0/163	0/163	0/163	0/163

Development Rate Binomials

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	165/184	166/192	170/184	146/168	154/169
2.5		137/148	161/172	138/155	146/161	143/160
5		176/193	142/150	147/179	151/168	143/161
10		98/177	93/150	97/159	99/173	126/170
20		0/153	0/162	0/172	0/158	0/180
40		0/12	0/118	0/16	0/11	0/15

Survival Rate Binomials

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	163/163	163/163	163/163	163/163	163/163
2.5		148/163	163/163	155/163	161/163	160/163
5		163/163	150/163	163/163	163/163	161/163
10		163/163	150/163	159/163	163/163	163/163
20		153/163	162/163	163/163	158/163	163/163
40		12/163	118/163	16/163	11/163	15/163

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	12-3998-0218	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	31 Jul-13 10:14	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	5	10	7.071		8.38%

Steel Many-One Rank Sum Test

Control	vs	C-µg/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	22.5	17	1	8	0.3045	Asymp	Non-Significant Effect
		5	27	17	0	8	0.7105	Asymp	Non-Significant Effect
		10*	15	17	0	8	0.0123	Asymp	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.4180117	0.1393372	3	20.52	<0.0001	Significant Effect
Error	0.1086542	0.006790886	16			
Total	0.5266659		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.272	11.34	0.1529	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8504	0.866	0.0054	Non-normal Distribution

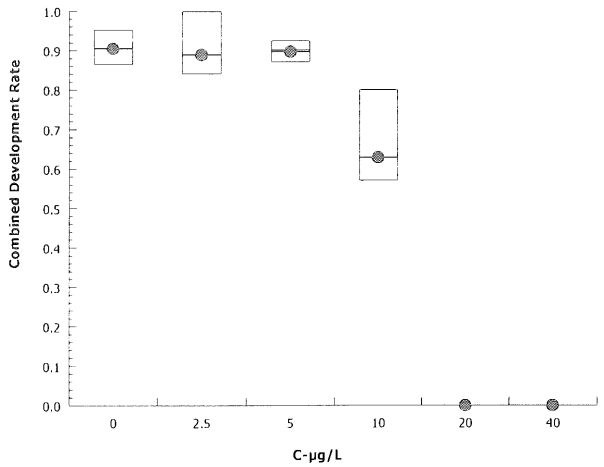
Combined Development Rate Summary

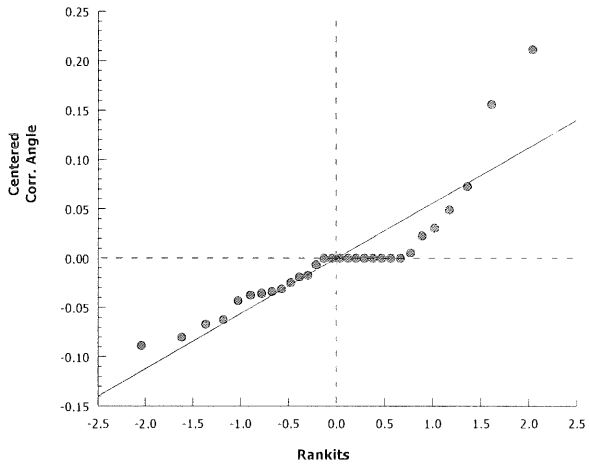
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9051	0.8672	0.9431	0.8967	0.8646	0.9448	0.01365	3.37%	0.0%
2.5		5	0.8896	0.8159	0.9632	0.8773	0.8405	0.9877	0.02653	6.67%	1.72%
5		5	0.8977	0.8689	0.9266	0.9018	0.8712	0.9264	0.0104	2.59%	0.82%
10		5	0.6294	0.5283	0.7306	0.6012	0.5706	0.773	0.03643	12.94%	30.46%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.261	1.195	1.327	1.244	1.194	1.334	0.02382	4.23%	0.0%
2.5		5	1.249	1.096	1.401	1.213	1.16	1.46	0.05487	9.83%	0.98%
5		5	1.247	1.199	1.295	1.252	1.204	1.296	0.01728	3.1%	1.12%
10		5	0.9185	0.809	1.028	0.8873	0.8562	1.074	0.03944	9.6%	27.16%
20		5	0.03917	0.03916	0.03918	0.03917	0.03917	0.03917	0	0.0%	96.89%
40		5	0.03917	0.03916	0.03918	0.03917	0.03917	0.03917	0	0.0%	96.89%

Graphics





Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID: 18-4348-0015 Endpoint: Development Rate CETIS Version: CETISv1.8.4
Analyzed: 31 Jul-13 10:14 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	5	10	7.071		6.31%

Dunnett Multiple Comparison Test

Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	-0.7606	2.227	0.085	8	0.9356	CDF	Non-Significant Effect
		5	-0.1086	2.227	0.085	8	0.7872	CDF	Non-Significant Effect
		10*	8.729	2.227	0.085	8	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.4440236	0.1480079	3	40.89	<0.0001	Significant Effect
Error	0.05790778	0.003619236	16			
Total	0.5019314		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.081	11.34	0.3792	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9762	0.866	0.8767	Normal Distribution

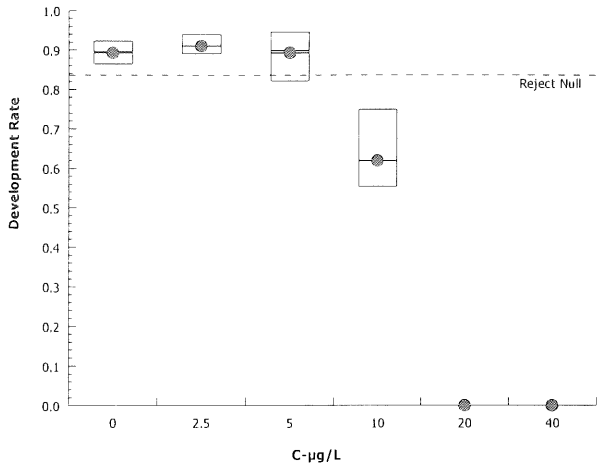
Development Rate Summary

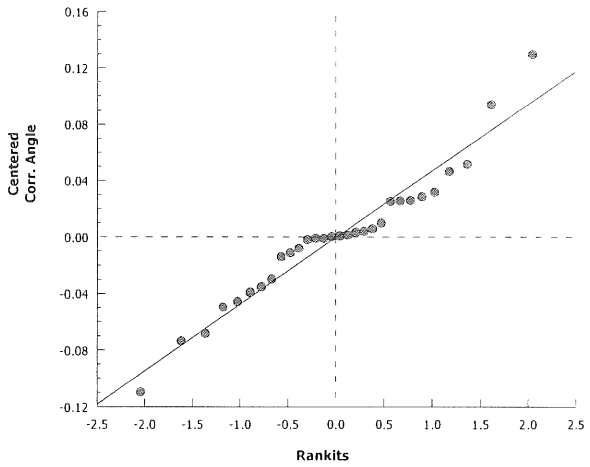
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8931	0.8609	0.9253	0.8967	0.8646	0.9239	0.01158	2.9%	0.0%
2.5		5	0.9105	0.8858	0.9352	0.9068	0.8903	0.936	0.0089	2.19%	-1.95%
5		5	0.8934	0.8363	0.9504	0.8988	0.8212	0.9467	0.02055	5.14%	-0.03%
10		5	0.6194	0.5285	0.7104	0.6101	0.5537	0.7412	0.03276	11.82%	30.64%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.24	1.187	1.292	1.244	1.194	1.291	0.01888	3.41%	0.0%
2.5		5	1.268	1.224	1.313	1.261	1.233	1.315	0.01589	2.8%	-2.34%
5		5	1.244	1.152	1.335	1.247	1.134	1.338	0.03293	5.92%	-0.33%
10		5	0.9074	0.8112	1.004	0.8964	0.8392	1.037	0.03467	8.54%	26.79%
20		5	0.03899	0.0374	0.04057	0.03929	0.03728	0.04043	0.000569	3.27%	96.85%
40		5	0.1194	0.06678	0.172	0.1295	0.04604	0.1513	0.01895	35.49%	90.37%

Graphics





Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID: 04-5405-3327 Endpoint: Survival Rate CETIS Version: CETISv1.8.4
Analyzed: 31 Jul-13 10:14 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	20	40	28.28		7.36%

Steel Many-One Rank Sum Test

Control	vs	C-µg/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	17.5	16	1	8	0.0695	Asymp	Non-Significant Effect
		5	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		10	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		20	20	16	1	8	0.1899	Asymp	Non-Significant Effect
		40*	15	16	0	8	0.0191	Asymp	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.438498	0.8876997	5	35.69	<0.0001	Significant Effect
Error	0.5969064	0.0248711	24			
Total	5.035405		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.6445	4.248	0.6690	Equal Variances
Variances	Levene Equality of Variance	3.529	3.895	0.0156	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7816	0.9031	<0.0001	Non-normal Distribution

Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1	1	1	1	1	1	0	0.0%	0.0%
2.5		5	0.9656	0.9197	1	0.9816	0.908	1	0.01653	3.83%	3.44%
5		5	0.9816	0.9385	1	1	0.9202	1	0.01552	3.54%	1.84%
10		5	0.9791	0.9362	1	1	0.9202	1	0.01547	3.53%	2.09%
20		5	0.9804	0.9474	1	0.9939	0.9387	1	0.01186	2.71%	1.96%
40		5	0.211	0	0.5674	0.09202	0.06748	0.7239	0.1283	136.0%	78.9%

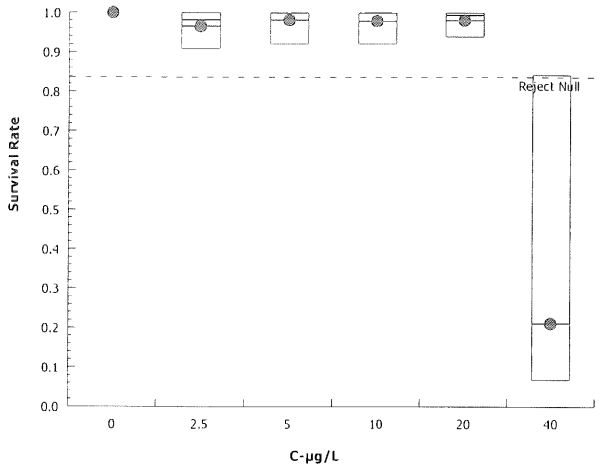
Angular (Corrected) Transformed Summary

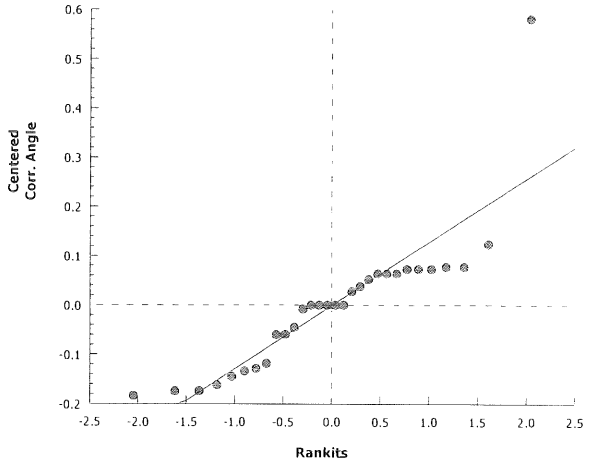
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.532	1.531	1.532	1.532	1.532	1.532	0	0.0%	0.0%
2.5		5	1.407	1.278	1.537	1.435	1.263	1.532	0.04663	7.41%	8.12%
5		5	1.468	1.335	1.601	1.532	1.284	1.532	0.0479	7.3%	4.17%
10		5	1.459	1.322	1.595	1.532	1.284	1.532	0.04917	7.54%	4.77%
20		5	1.454	1.338	1.57	1.492	1.321	1.532	0.04175	6.42%	5.06%
40		5	0.4364	0.03199	0.8408	0.3082	0.2628	1.018	0.1457	74.63%	71.51%

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	04-5405-3327	Endpoint:	Survival Rate	CETIS Version:	CETISv1.8.4
Analyzed:	31 Jul-13 10:14	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes

Graphics





CETIS Analytical Report

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	03-5789-9070	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	31 Jul-13 10:14	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1359064	1000	Yes	Two-Point Interpolation

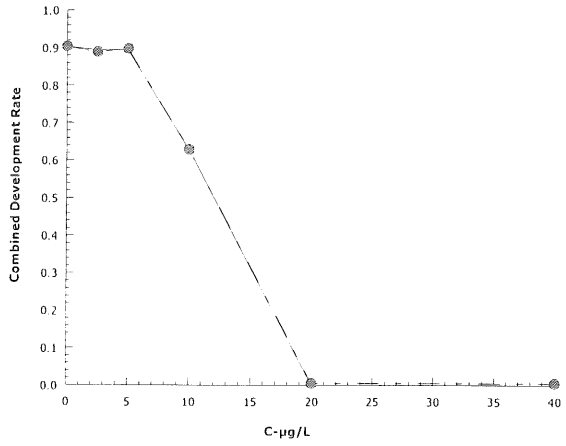
Point Estimates

Level	µg/L	95% LCL	95% UCL
EC25	9.081	7.927	11.02
EC50	12.82	11.86	13.97

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9051	0.8646	0.9448	0.01365	0.03053	3.37%	0.0%	801	886
2.5		5	0.8896	0.8405	0.9877	0.02653	0.05932	6.67%	1.72%	725	815
5		5	0.8977	0.8712	0.9264	0.0104	0.02325	2.59%	0.82%	759	845
10		5	0.6294	0.5706	0.773	0.03643	0.08146	12.94%	30.46%	512	815
20		5	0	0	0	0	0		100.0%	0	815
40		5	0	0	0	0	0		100.0%	0	815

Graphics



Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	04-7883-9678	Endpoint:	Development Rate	CETIS Version:	CETISv1.8.4
Analyzed:	31 Jul-13 10:14	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	93938	1000	Yes	Two-Point Interpolation

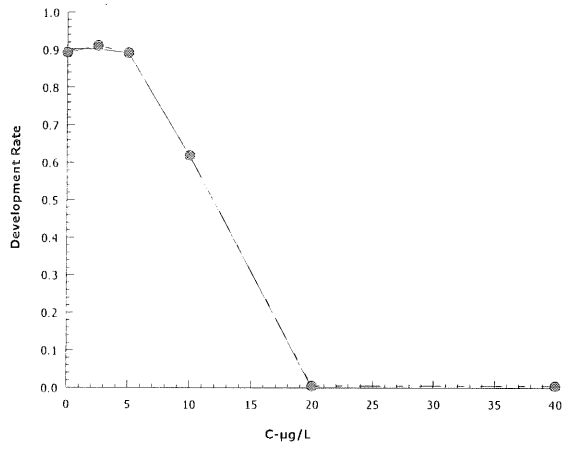
Point Estimates

Level	µg/L	95% LCL	95% UCL
EC25	8.945	7.875	10.7
EC50	12.71	11.71	13.76

Development Rate Summary

			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.8931	0.8646	0.9239	0.01158	0.0259	2.9%	0.0%	801	897
2.5		5	0.9105	0.8903	0.936	0.0089	0.0199	2.19%	-1.95%	725	796
5		5	0.8934	0.8212	0.9467	0.02055	0.04595	5.14%	-0.03%	759	851
10		5	0.6194	0.5537	0.7412	0.03276	0.07325	11.82%	30.64%	513	829
20		5	0	0	0	0	0		100.0%	0	825
40		5	0	0	0	0	0		100.0%	0	172

Graphics



Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	15-6444-9625	Endpoint:	Survival Rate	CETIS Version:	CETISv1.8.4
Analyzed:	31 Jul-13 10:14	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1204356	1000	Yes	Two-Point Interpolation

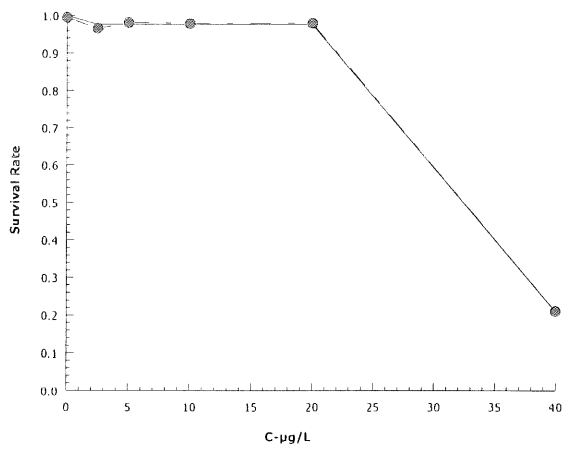
Point Estimates

Level	µg/L	95% LCL	95% UCL
EC25	25.92	24.3	30.4
EC50	32.45	29.51	41.92

Survival Rate Summary

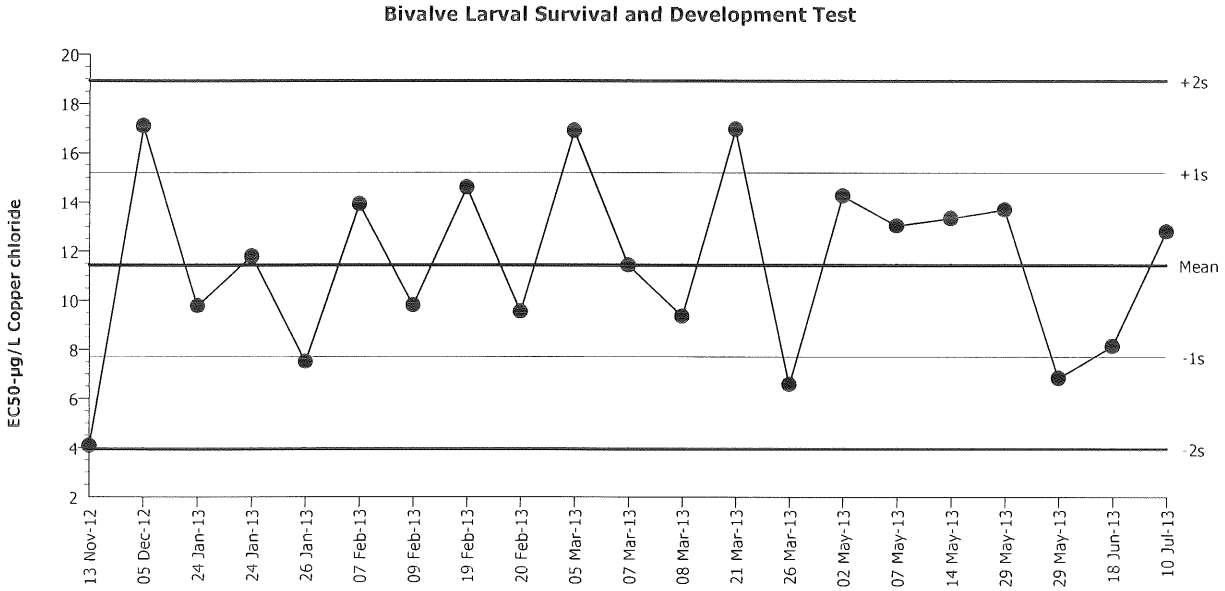
			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	1	1	1	0	0	0.0%	0.0%	815	815
2.5		5	0.9656	0.908	1	0.01653	0.03696	3.83%	3.44%	787	815
5		5	0.9816	0.9202	1	0.01552	0.0347	3.54%	1.84%	800	815
10		5	0.9791	0.9202	1	0.01547	0.0346	3.53%	2.09%	798	815
20		5	0.9804	0.9387	1	0.01186	0.02653	2.71%	1.96%	799	815
40		5	0.211	0.06748	0.7239	0.1283	0.287	136.0%	78.9%	172	815

Graphics



Bivalve Larval Survival and Development Test | Nautilus Environmental (CA)

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Copper chloride
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Combined Development Rate	**Source:**	Reference Toxicant-REF



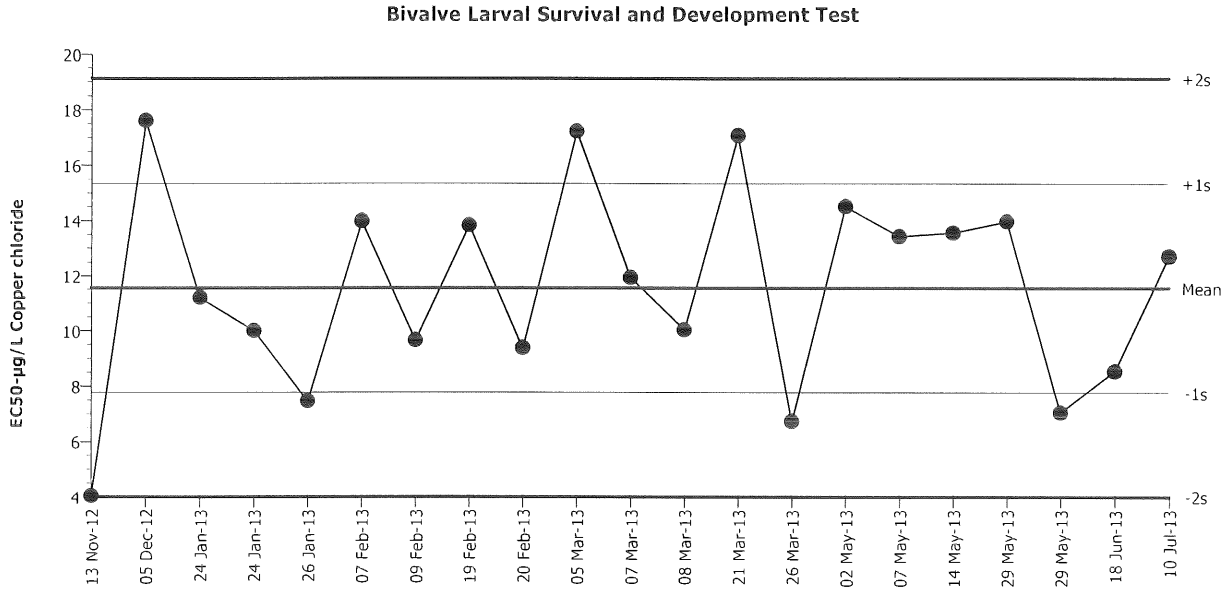
Mean:	11.44	**Count:**	20	**-1s Warning Limit:**	7.695	**-2s Action Limit:**	3.95
Sigma:	3.745	**CV:**	32.70%	**+1s Warning Limit:**	15.19	**+2s Action Limit:**	18.93

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Nov	13	4.091	-7.349	-1.962	(-)		16-2586-9280	19-7451-6090
2		Dec	5	17.1	5.658	1.511	(+)		17-5951-5975	13-1946-8153
3	2013	Jan	24	9.788	-1.652	-0.4411			20-8582-9547	09-0079-6369
4			24	11.8	0.3635	0.09707			14-2291-4286	02-1982-6605
5			26	7.51	-3.93	-1.049	(-)		04-1387-5400	03-9637-5631
6		Feb	7	13.93	2.49	0.6648			11-7014-2670	05-8474-1082
7			9	9.81	-1.63	-0.4352			03-6836-9424	12-1620-4564
8			19	14.61	3.167	0.8456			04-5663-0104	17-4674-6012
9			20	9.557	-1.883	-0.5029			21-1062-2821	21-4473-8496
10		Mar	5	16.91	5.469	1.46	(+)		08-9136-0206	00-8102-9322
11			7	11.44	0.00163	0.000435			05-5501-3020	15-2467-0428
12			8	9.363	-2.077	-0.5545			12-9537-7450	09-1022-1133
13			21	16.98	5.535	1.478	(+)		05-9590-7799	20-0082-7594
14			26	6.583	-4.857	-1.297	(-)		11-3003-2528	12-2262-3339
15		May	2	14.26	2.821	0.7534			16-0143-2407	08-3550-0080
16			7	13.05	1.607	0.4291			02-6091-8512	00-2150-5072
17			14	13.35	1.907	0.5092			18-9528-2070	03-8361-8573
18			29	13.7	2.264	0.6045			06-8722-8513	03-9638-2513
19			29	6.845	-4.595	-1.227	(-)		14-9746-9153	04-5524-7511
20		Jun	18	8.15	-3.29	-0.8785			12-2146-1379	18-2724-8163
21		Jul	10	12.82	1.379	0.3681			10-9836-3796	03-5789-9070

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type: Development-Survival **Organism:** Mytilus galloprovincialis (Bay Mussel **Material:** Copper chloride
Protocol: EPA/600/R-95/136 (1995) **Endpoint:** Development Rate **Source:** Reference Toxicant-REF



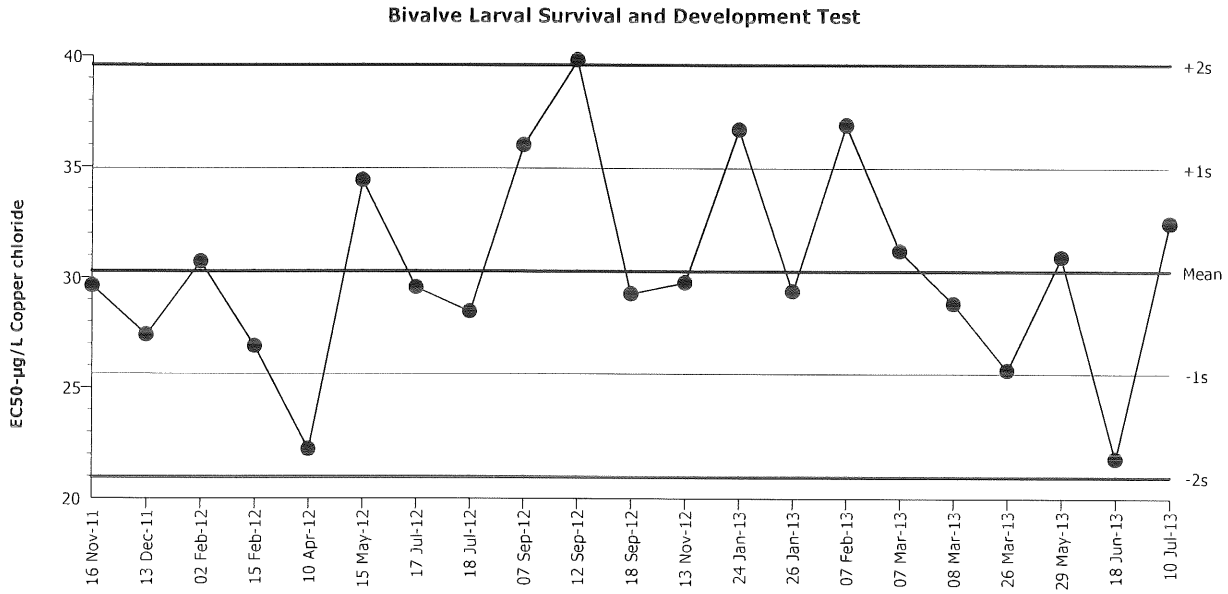
Mean:	11.57	**Count:**	20	**-1s Warning Limit:**	7.791	**-2s Action Limit:**	4.012
Sigma:	3.779	**CV:**	32.70%	**+1s Warning Limit:**	15.35	**+2s Action Limit:**	19.13

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Nov	13	4.041	-7.529	-1.992	(-)		16-2586-9280	16-8301-8577
2		Dec	5	17.62	6.052	1.601	(+)		17-5951-5975	13-3724-4809
3	2013	Jan	24	11.22	-0.3513	-0.09297			14-2291-4286	06-2822-0925
4			24	10.01	-1.558	-0.4123			20-8582-9547	05-5941-2374
5			26	7.483	-4.087	-1.081	(-)		04-1387-5400	04-9418-6756
6		Feb	7	13.99	2.421	0.6405			11-7014-2670	03-7347-9680
7			9	9.673	-1.897	-0.5019			03-6836-9424	04-9175-8387
8			19	13.83	2.264	0.5991			04-5663-0104	12-7309-6114
9			20	9.397	-2.173	-0.575			21-1062-2821	08-3144-0973
10		Mar	5	17.23	5.662	1.498	(+)		08-9136-0206	18-0505-8125
11			7	11.94	0.3691	0.09767			05-5501-3020	01-1708-3412
12			8	10.04	-1.527	-0.404			12-9537-7450	03-6244-3019
13			21	17.09	5.519	1.46	(+)		05-9590-7799	12-0274-6486
14			26	6.754	-4.816	-1.274	(-)		11-3003-2528	03-7867-8973
15		May	2	14.52	2.953	0.7814			16-0143-2407	03-8019-1302
16			7	13.43	1.862	0.4927			02-6091-8512	20-1774-5230
17			14	13.56	1.989	0.5265			18-9528-2070	03-1135-2986
18			29	13.97	2.402	0.6357			06-8722-8513	07-9875-3443
19			29	7.06	-4.51	-1.194	(-)		14-9746-9153	09-3883-6352
20		Jun	18	8.553	-3.017	-0.7983			12-2146-1379	07-1806-0886
21		Jul	10	12.71	1.143	0.3024			10-9836-3796	04-7883-9678

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Copper chloride
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	30.28	**Count:**	20	**-1s Warning Limit:**	25.62	**-2s Action Limit:**	20.97
Sigma:	4.656	**CV:**	15.40%	**+1s Warning Limit:**	34.94	**+2s Action Limit:**	39.59

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Nov	16	29.63	-0.6504	-0.1397			01-3866-2459	09-7123-6611
2		Dec	13	27.4	-2.875	-0.6175			16-5303-6389	03-4314-1413
3	2012	Feb	2	30.73	0.4486	0.09636			02-8290-1129	06-5308-1220
4			15	26.89	-3.39	-0.7281			03-9202-5766	03-0054-0264
5		Apr	10	22.23	-8.054	-1.73	(-)		15-7981-3111	00-9478-2939
6		May	15	34.4	4.12	0.8849			19-9919-9115	06-3888-9077
7		Jul	17	29.56	-0.7243	-0.1556			00-3685-9935	09-6737-3689
8			18	28.46	-1.817	-0.3902			00-9675-8352	17-9922-1502
9		Sep	7	35.99	5.705	1.225	(+)		02-8412-2333	13-0108-2795
10			12	39.82	9.541	2.049	(+)	(+)	11-2649-8855	01-9640-6551
11			18	29.27	-1.009	-0.2166			04-8953-1458	18-1880-6886
12		Nov	13	29.77	-0.5051	-0.1085			16-2586-9280	01-0474-2618
13	2013	Jan	24	36.69	6.41	1.377	(+)		20-8582-9547	07-5471-1162
14			26	29.38	-0.9023	-0.1938			04-1387-5400	19-1179-1229
15		Feb	7	36.89	6.611	1.42	(+)		11-7014-2670	04-6605-1393
16		Mar	7	31.21	0.9257	0.1988			05-5501-3020	15-0705-6905
17			8	28.83	-1.451	-0.3116			12-9537-7450	13-1150-4633
18			26	25.8	-4.481	-0.9625			11-3003-2528	01-1386-0792
19		May	29	30.92	0.6447	0.1385			14-9746-9153	17-7839-1939
20		Jun	18	21.8	-8.478	-1.821	(-)		12-2146-1379	02-6513-2144
21		Jul	10	32.45	2.172	0.4665			10-9836-3796	15-6444-9625

CETIS Test Data Worksheet

Report Date: 02 Jul-13 13:35 (p 1 of 1)
Test Code: 10-9836-3796/130710msdv

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Start Date: 10 Jul-13
End Date: 12 Jul-13
Sample Date: ~~02~~ 10 Jul-13 ~~13:34~~

Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Copper chloride

Sample Code: 130710msdv
Sample Source: Reference Toxicant
Sample Station: Copper Chloride

C-µg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
			1			192	166	NH
			2			169	154	
			3			172	0	
			4			15	0	
			5			150	93	
			6			180	0	
			7			162	0	
			8			158	0	
			9			179	147	
			10			168	146	
			11			144	137	
			12			173	99	
			13			155	138	
			14			161	146	
			15			193	176	
			16			159	97	
			17			172	161	
			18			118	0	
			19			184	170	
			20			168	151	
			21			160	143	
			22			150	142	
			23			16	0	
			24			177	98	
			25			184	165	
			26			12	0	
			27			170	126	
			28			153	0	
			29			161	143	
			30			11	0	

MS-d: $CuCl_2$ 130710msdv

Analyst: N H

QA: KL 7/3/13

CETIS Test Data Worksheet

Bivalve Larval Survival and Development Test			Nautilus Environmental (CA)
Start Date: 10 Jul-13	**Species:** Mytilus galloprovincialis	**Sample Code:**	130710msdv
End Date: 12 Jul-13	**Protocol:** EPA/600/R-95/136 (1995)	**Sample Source:**	Reference Toxicant
Sample Date: ~~02~~ 10 Jul-13 ~~13:34~~ 12	**Material:** Copper chloride	**Sample Station:**	Copper Chloride

C-µg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	25					
0	LC	2	1					
0	LC	3	19					
0	LC	4	10					
0	LC	5	2					
2.5		1	11					
2.5		2	17					
2.5		3	13					
2.5		4	14					
2.5		5	21					
5		1	15					
5		2	22					
5		3	9					
5		4	20					
5		5	29					
10		1	24					
10		2	5					
10		3	16					
10		4	12					
10		5	27					
20		1	28					
20		2	7					
20		3	3					
20		4	8					
20		5	6					
40		1	26					
40		2	18					
40		3	23					
40		4	30					
40		5	4					

QC ok

Marine Chronic Bioassay

Water Quality Measurements

Client: Internal
Sample ID: $CuCl_2$
Test No.: 130710msdv

Test Species: *M. galloprovincialis*
Start Date/Time: 7/10/2013 1445
End Date/Time: 7/12/2013 1445

Concentration (µg/L)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	32.1	31.6	31.5	15.8	14.9	14.9	8.2	8.7	8.0	8.02	7.98	8.01
2.5	32.3	31.9	31.7	15.7	14.9	14.6	8.0	8.7	8.1	8.02	7.95	8.02
5	32.4	31.9	31.8	15.9	15.1	14.5	7.9	8.7	8.0	8.03	8.01	8.02
10	32.4	31.8	31.7	15.9	15.2	14.5	8.0	8.7 ee 7.9		8.03	7.98	8.02
20	32.4	31.8	31.7	16.0	15.1	14.4	8.0	8.7	7.9	8.02	7.99	8.04
40	32.3	31.7	31.6	16.0	15.2	14.4	7.9	8.7	8.0	8.03	7.99	8.03

Technician Initials:

	0	24	48
WQ Readings:	BK		EC
Dilutions made by:	A		

High conc. made (µg/L):	40
Vol. Cu stock added (mL):	2.2
Final Volume (mL):	500
Cu stock concentration (µg/L):	9330

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: KL 7/31/13

Final Review: KFP 8/1/13

Marine Chronic Bioassay

Larval Development Worksheet

Client: Internal
Test No.: 1307 lomsdv
Test Species: Mytilus galloprovincialis
Animal Source: Taylor shellfish
Date Received: 7/10/13
Test Chambers: ~~scintillation~~ Shell vials KL
Sample Volume: 10mls

Start Date/Time: 7/10/2013 1445
End Date/Time: 7/12/2013 1445
Technician Initials: KS

Spawn Information

First Gamete Release Time: 1100

Sex	Number Spawning
Male	3
Female	1

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2, 3	good motility + density
Female 1	1	good density, whitish, misshapen
Female 2		
Female 3		

Egg Fertilization Time: 1250

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted:		
	21	7
	12	10
	15	11
	7	17
	15	12

Mean: 12.7

Mean 12.7 × 50/4/2 KS = 635 embryos/ml

Initial Density: 635 = 2.12 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	Mean % Dividing
T0 1	143	145	99.3 KL
T0 2	187	188	
T0 3	154	155	
T0 4	167	168	
T0 5	166	167	

48-h QC: 124/135 = 92%

Comments: $\bar{x}$ = 163

QC Check: KL 7/31/13

Final Review: KAP 8/1/13

Mysid Shrimp (*Americamysis bahia)*

CETIS Summary Report

Mysid 96-h Acute Survival Test — Nautilus Environmental (CA)

Batch ID:	06-1825-4355	Test Type:	Survival (96h)	Analyst:	
Start Date:	11 Jul-13 16:00	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Diluted Natural Seawater
Ending Date:	15 Jul-13 14:50	Species:	Americamysis bahia	Brine:	Not Applicable
Duration:	95h	Source:	Aquatic Biosystems, CO	Age:	5d

Sample ID:	15-9451-0623	Code:	130711myra	Client:	Internal
Sample Date:	11 Jul-13	Material:	Copper chloride	Project:	
Receive Date:	11 Jul-13	Source:	Reference Toxicant		
Sample Age:	16h	Station:	Copper Chloride		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
06-5926-1608	96h Survival Rate	200	400	282.8	22.4%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
15-7501-2492	96h Survival Rate	EC50	276.3	239.8	318.3		Spearman-Kärber

96h Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.95	0.9127	0.9873	0.8	1	0.05	0.1	10.53%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	-5.26%
100		4	1	1	1	1	1	0	0	0.0%	-5.26%
200		4	0.85	0.7785	0.9215	0.6	1	0.09574	0.1915	22.53%	10.53%
400		4	0.1	0.02532	0.1747	0	0.4	0.1	0.2	200.0%	89.47%
800		4	0	0	0	0	0	0	0		100.0%

96h Survival Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	0.8	1
50		1	1	1	1
100		1	1	1	1
200		1	1	0.6	0.8
400		0	0	0.4	0
800		0	0	0	0

Mysid 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID: 06-5926-1608 Endpoint: 96h Survival Rate CETIS Version: CETISv1.8.4
Analyzed: 16 Jul-13 17:21 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	200	400	282.8		22.4%

Dunnett Multiple Comparison Test

Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		50	-0.5538	2.356	0.253	6	0.9298	CDF	Non-Significant Effect
		100	-0.5538	2.356	0.253	6	0.9298	CDF	Non-Significant Effect
		200	1.068	2.356	0.253	6	0.3552	CDF	Non-Significant Effect
		400*	8.795	2.356	0.253	6	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.947818	0.7369545	4	31.89	<0.0001	Significant Effect
Error	0.3466905	0.0231127	15			
Total	3.294508		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.441	4.893	0.2689	Equal Variances
Variances	Levene Equality of Variance	6.038	4.893	0.0042	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9291	0.866	0.1483	Normal Distribution

96h Survival Rate Summary

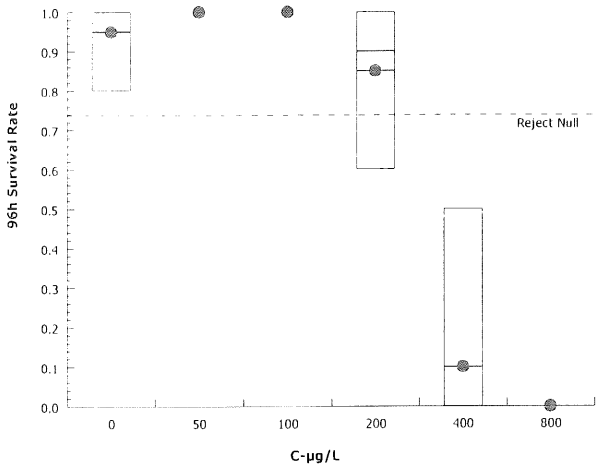
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
50		4	1	1	1	1	1	1	0	0.0%	-5.26%
100		4	1	1	1	1	1	1	0	0.0%	-5.26%
200		4	0.85	0.5453	1	0.9	0.6	1	0.09574	22.53%	10.53%
400		4	0.1	0	0.4182	0	0	0.4	0.1	200.0%	89.47%
800		4	0	0	0	0	0	0	0		100.0%

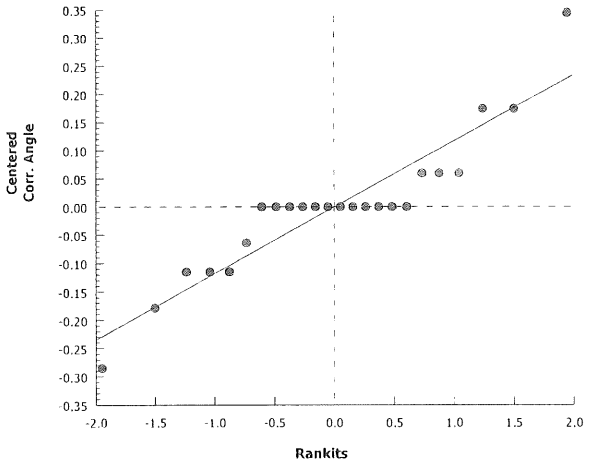
Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
200		4	1.171	0.8199	1.522	1.226	0.8861	1.345	0.1103	18.84%	8.93%
400		4	0.3403	-0.02503	0.7057	0.2255	0.2255	0.6847	0.1148	67.47%	73.53%
800		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	82.46%

Mysid 96-h Acute Survival Test					Nautilus Environmental (CA)
Analysis ID:	06-5926-1608	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.8.4
Analyzed:	16 Jul-13 17:21	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Graphics





CETIS Analytical Report

Test Code: 130711myra | 12-4282-0224

Mysid 96-h Acute Survival Test				Nautilus Environmental (CA)
Analysis ID:	15-7501-2492	Endpoint:	96h Survival Rate	CETIS Version: CETISv1.8.4
Analyzed:	16 Jul-13 17:21	Analysis:	Untrimmed Spearman-Kärber	Official Results: Yes

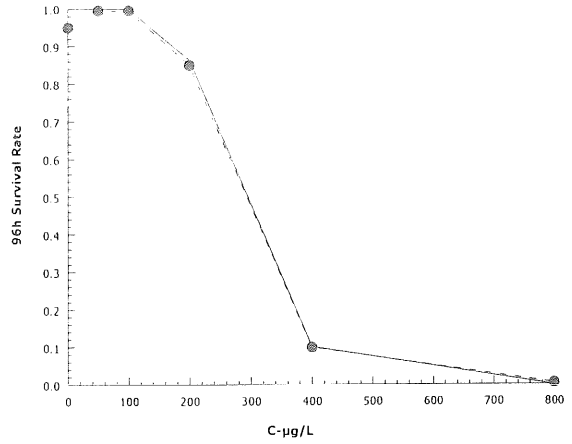
Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.05	0.00%	2.441	0.03074	276.3	239.8	318.3

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	4	0.95	0.8	1	0.05	0.1	10.53%	0.0%	19	20
50		4	1	1	1	0	0	0.0%	-5.26%	20	20
100		4	1	1	1	0	0	0.0%	-5.26%	20	20
200		4	0.85	0.6	1	0.09574	0.1915	22.53%	10.53%	17	20
400		4	0.1	0	0.4	0.1	0.2	200.0%	89.47%	2	20
800		4	0	0	0	0	0		100.0%	0	20

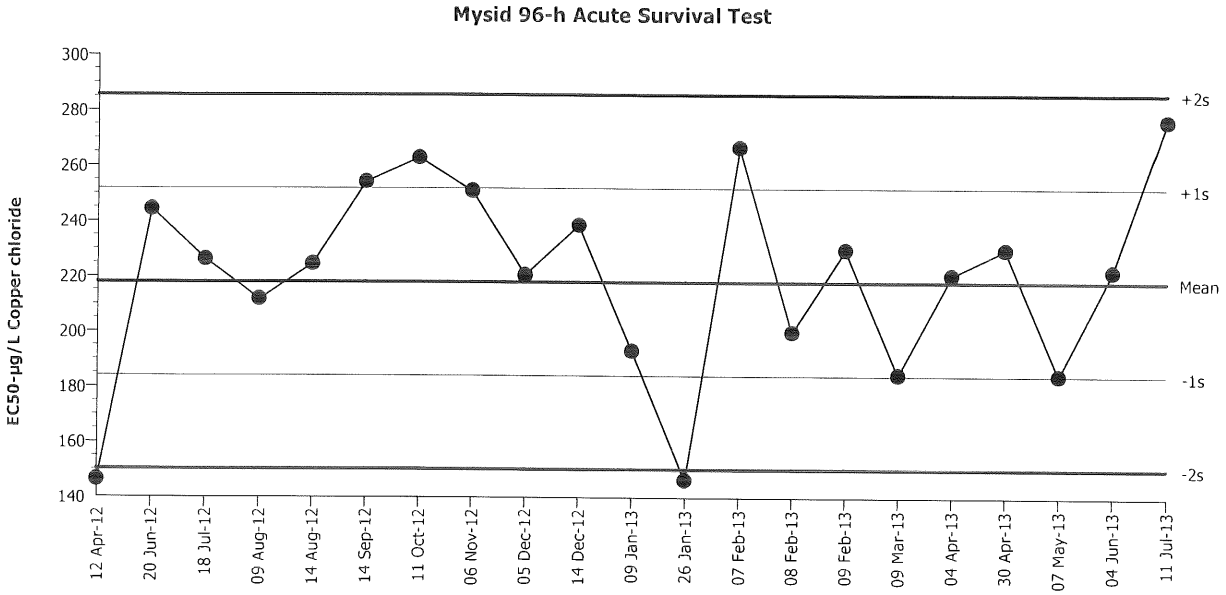
Graphics



Analyst: LN QA: 7/10/13

Mysid 96-h Acute Survival Test — Nautilus Environmental (CA)

Test Type:	Survival (96h)	**Organism:**	Americamysis bahia (Opossum Shri	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	217.9	**Count:**	20	**-1s Warning Limit:**	184	**-2s Action Limit:**	150.2
Sigma:	33.87	**CV:**	15.50%	**+1s Warning Limit:**	251.8	**+2s Action Limit:**	285.6

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Apr	12	146.4	-71.49	-2.111	(-)	(-)	18-4156-9891	06-8116-5972
2		Jun	20	244.4	26.54	0.7836			14-4876-2820	15-5597-1021
3		Jul	18	226.2	8.305	0.2452			19-0591-6573	01-8064-5028
4		Aug	9	211.9	-6.007	-0.1774			03-7650-1350	01-2638-0993
5			14	224.5	6.592	0.1946			00-4657-5056	17-8150-2104
6		Sep	14	254.2	36.33	1.073	(+)		02-3745-0967	07-8515-2357
7		Oct	11	262.9	45.04	1.33	(+)		16-6426-6275	09-7589-5463
8		Nov	6	251	33.08	0.9767			10-8430-0036	06-6663-1893
9		Dec	5	220.5	2.638	0.07788			04-0398-2004	00-6325-8584
10			14	238.6	20.67	0.6103			18-8768-0228	02-9826-1371
11	2013	Jan	9	193.2	-24.71	-0.7296			03-0771-5543	14-5886-5607
12			26	146.4	-71.49	-2.111	(-)	(-)	17-7211-3223	08-8577-1525
13		Feb	7	266.7	48.81	1.441	(+)		19-2692-5068	03-4918-2198
14			8	200	-17.9	-0.5285			06-9316-5762	17-6117-6270
15			9	229.7	11.84	0.3496			20-8185-6664	18-8287-9152
16		Mar	9	184.7	-33.25	-0.9817			12-8356-2336	06-9480-6166
17		Apr	4	220.5	2.638	0.07788			07-3349-2487	06-7553-2117
18			30	229.7	11.84	0.3496			17-7383-1596	04-6524-3221
19		May	7	184.3	-33.56	-0.9907			00-3243-0139	19-9640-3177
20		Jun	4	221.9	4.014	0.1185			12-8621-3943	18-1045-5488
21		Jul	11	276.3	58.37	1.723	(+)		12-4282-0224	15-7501-2492

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: Internal
Test Species: *A. bahia*
Sample ID: $CuCl_2$
Start Date/Time: 7/10/2013 1530 1600
Test No.: ~~1307~~ myra 130710 myra 130711myra
End Date/Time: 7/14/2013 1450

	Tech Initials				
	0	24	48	72	96
Counts:	PA	BG	ML	AD	ML
Readings:	EC	EC	ML	AD	LN
Dilutions made by:	LN		BG		
High conc. made (µg/L):	800	--	800	--	--
Vol. Cu stock added (mL):	17.6	--	17.6	--	--
Final Volume (mL):	2000	--	2000	--	--

Cu stock concentration (µg/L): 90,900

Concentration (µg/L)	Rand #	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	8	5	5	5	5	5	29.8	30.2	29.9	30.3	30.4	24.5	25.0	24.0	25.1	25.1	8.0	6.0	7.1	5.5	5.7	7.91	8.01	8.02	7.88	7.90
	7	5	5	5	5	5			30.3					25.3			7.2 ec		5.6					7.92	AD	
	15	5	5	~~5~~ 4	4	4																				
	4	5	5	5	5	5																				
50	11	5	5	5	5	5	29.9	30.2	29.9	30.6	30.7	24.4	25.5	24.0	24.5	25.2	8.0	6.1	7.0	6.0	5.7	7.92	8.01	8.05	7.98	7.89
	12	5	5	5	5	5			30.3					25.2			7.1 ec		6.0					7.97		
	2	5	5	5	5	5																				
	21	5	5	5	5	5																				
100	10	5	5	5	5	5	29.9	30.3	29.9	30.4	30.4	24.5	25.4	24.1	25.2	25.3	8.0	5.9	7.0	5.7	5.7	7.92	8.01	8.05	7.98	7.89
	13	5	5	5	5	5			25					25.1			7.2 ec		5.9					7.97		
	1	5	5	5	5	5			30.4 mc																	
	23	5	5	5	5	5																				
200	20	5	5	5	5	5	29.9	30.3	29.9	30.4	30.4	24.5	25.0	24.0	25.3	25.3	8.1	6.0	7.0	5.6	5.8	7.93	8.02	8.06	7.99	7.89
	14	5	5	5	5	5			30.4					25.3			7.2 ec		5.9					7.97		
	6	5	4	4	3	3																				
	22	5	4	4	4	4																				
400	3	5	3	0	-	-	29.8	30.1	29.8	30.2	30.3	24.5	25.4	24.0	25.4	25.4	8.1	6.2	7.0	6.2	5.9	7.92	8.02	8.04	8.04	7.92
	19	5	4	2	0	-			25					25.3			7.2 ec		5.8					7.98		
	16	5	3	2	2	2			30.2 mc																	
	9	5	0	-	-	-																				
800	5	5	3	0	-	-	29.7	30.0	29.8	30.1	30.1	24.5	25.3	24.0	25.4	25.4	8.1	6.1	7.0	6.2	5.8	7.90	8.02	8.02	8.05	7.91
	24	5	2	1	1	0			30.2					25.1			7.1 ec		6.0					7.99		
	18	5	1	0	-	-																				
	17	5	1	0	-	-																				

Initial Counts QC'd by: EC

Animal Source/Date Received: 7/10/13 ABS
Age at Initiation: 5 days

	Feeding Times				
	0	24	48	72	96
AM:	-	0830	0920	1020	0815
PM:	-	1740	1600	1350	-

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one (y) / n)

QC Check: LN 7/11/13
Final Review: KL 7/18/13

Inland Silverside (*Menidia beryllina)*

CETIS Summary Report

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Batch ID:	00-1540-0493	Test Type:	Survival (96h)	Analyst:	
Start Date:	11 Jul-13 16:35	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Diluted Natural Seawater
Ending Date:	15 Jul-13 14:40	Species:	Menidia beryllina	Brine:	Not Applicable
Duration:	94h	Source:	Aquatic Biosystems, CO	Age:	14d

Sample ID:	01-7071-2299	Code:	130711mbra	Client:	Internal
Sample Date:	11 Jul-13	Material:	Copper chloride	Project:	
Receive Date:	11 Jul-13	Source:	Reference Toxicant		
Sample Age:	17h	Station:	Copper Chloride		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
05-1902-3886	96h Survival Rate	100	200	141.4	13.9%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
21-2743-4643	96h Survival Rate	EC50	141.4	124	161.3		Spearman-Kärber

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
05-1902-3886	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria
21-2743-4643	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	0.9	0.8569	0.9431	0.8	1	0.05774	0.1155	12.83%	10.0%
200		4	0.1	0.05688	0.1431	0	0.2	0.05774	0.1155	115.5%	90.0%
400		4	0	0	0	0	0	0	0		100.0%
800		4	0	0	0	0	0	0	0		100.0%

96h Survival Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
50		1	1	1	1
100		0.8	1	1	0.8
200		0	0.2	0	0.2
400		0	0	0	0
800		0	0	0	0

CETIS Analytical Report

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID: 05-1902-3886 Endpoint: 96h Survival Rate CETIS Version: CETISv1.8.4
Analyzed: 16 Jul-13 17:29 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	200	141.4		13.9%

Dunnett Multiple Comparison Test

Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		50	0	2.287	0.157	6	0.7500	CDF	Non-Significant Effect
		100	1.732	2.287	0.157	6	0.1239	CDF	Non-Significant Effect
		200*	14.56	2.287	0.157	6	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.808445	0.9361485	3	99.05	<0.0001	Significant Effect
Error	0.1134158	0.009451317	12			
Total	2.921861		15			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Distribution	Shapiro-Wilk W Normality	0.8197	0.8408	0.0050	Non-normal Distribution

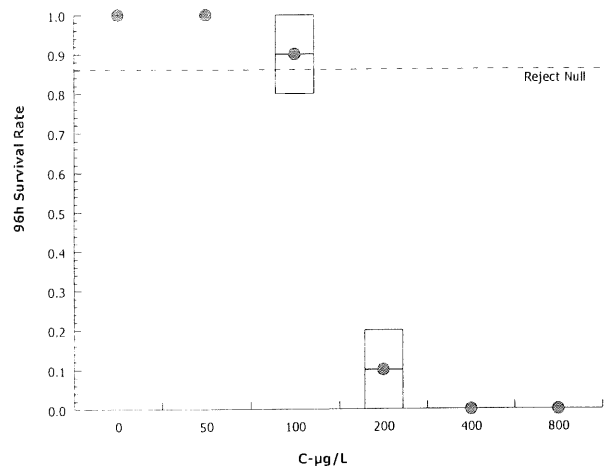
96h Survival Rate Summary

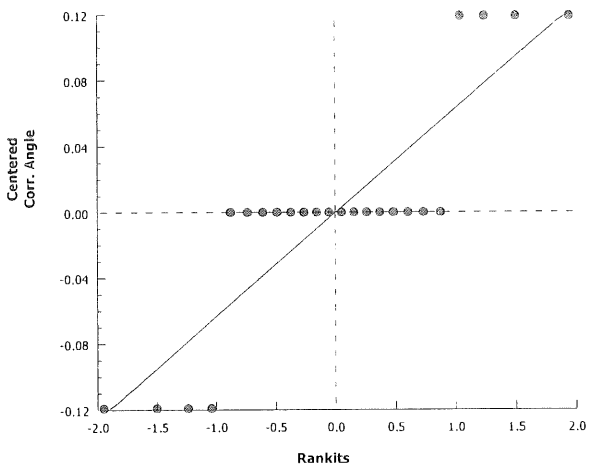
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
50		4	1	1	1	1	1	1	0	0.0%	0.0%
100		4	0.9	0.7163	1	0.9	0.8	1	0.05774	12.83%	10.0%
200		4	0.1	0	0.2837	0.1	0	0.2	0.05774	115.5%	90.0%
400		4	0	0	0	0	0	0	0		100.0%
800		4	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
100		4	1.226	1.007	1.445	1.226	1.107	1.345	0.06874	11.21%	8.85%
200		4	0.3446	0.1258	0.5634	0.3446	0.2255	0.4636	0.06874	39.9%	74.39%
400		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	83.24%
800		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	83.24%

Graphics





CETIS Analytical Report

Test Code: 130711mbra | 06-9216-5908

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID:	21-2743-4643	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	16 Jul-13 17:29	**Analysis:**	Untrimmed Spearman-Kärber	**Official Results:**	Yes

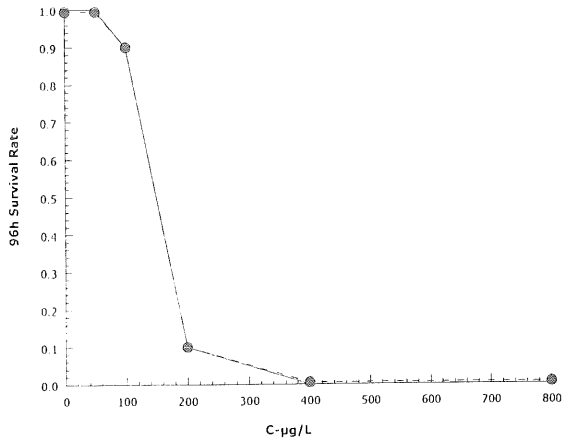
Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	0.00%	2.151	0.02856	141.4	124	161.3

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	4	1	1	1	0	0	0.0%	0.0%	20	20
50		4	1	1	1	0	0	0.0%	0.0%	20	20
100		4	0.9	0.8	1	0.05774	0.1155	12.83%	10.0%	18	20
200		4	0.1	0	0.2	0.05774	0.1155	115.5%	90.0%	2	20
400		4	0	0	0	0	0		100.0%	0	20
800		4	0	0	0	0	0		100.0%	0	20

Graphics



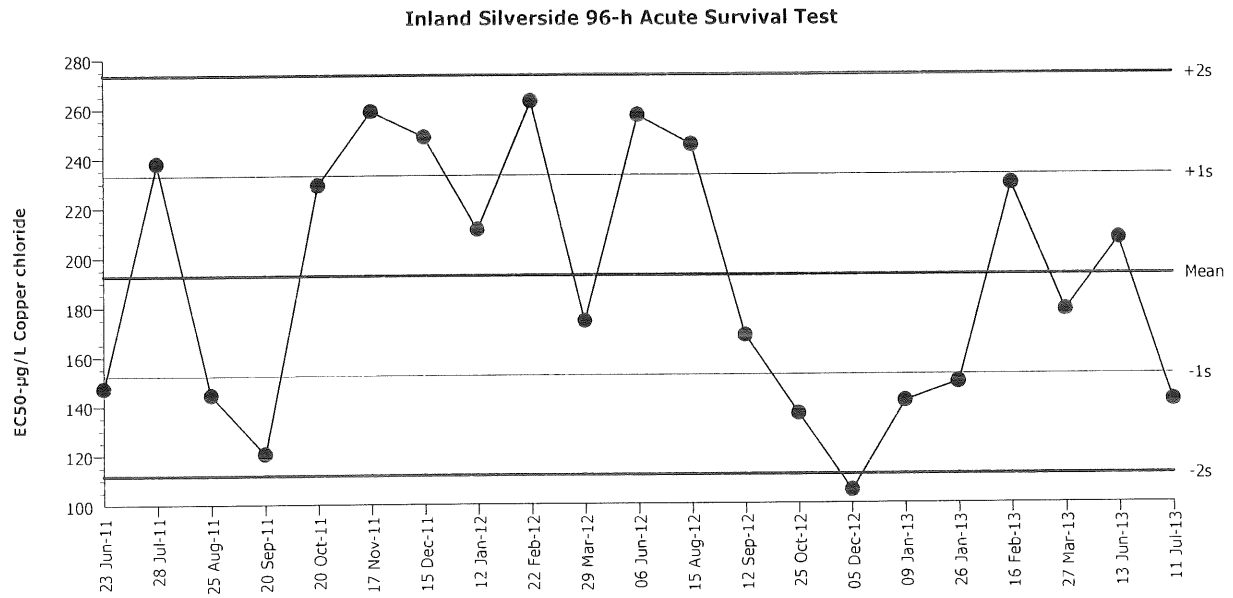
Analyst: LN QA: VL 7/18/13

CETIS QC Plot

Report Date: 16 Jul-13 17:31 (1 of 1)

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Test Type:	Survival (96h)	**Organism:**	Menidia beryllina (Inland Silverside)	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	192.6	**Count:**	20	**-1s Warning Limit:**	152.2	**-2s Action Limit:**	111.7
Sigma:	40.45	**CV:**	21.00%	**+1s Warning Limit:**	233	**+2s Action Limit:**	273.5

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2011	Jun	23	147.3	-45.29	-1.12	(-)		05-2107-1041	05-9540-6331
2		Jul	28	238.1	45.53	1.126	(+)		01-6343-6449	12-9704-3526
3		Aug	25	144.5	-48.08	-1.189	(-)		05-5823-2261	15-2283-7803
4		Sep	20	120.5	-72.08	-1.782	(-)		06-3695-9039	12-2236-1593
5		Oct	20	229.2	36.57	0.9042			07-3892-1606	02-4474-7245
6		Nov	17	259	66.36	1.641	(+)		17-8936-4519	19-9945-6978
7		Dec	15	248.6	55.95	1.383	(+)		01-4479-8124	14-1199-6620
8	2012	Jan	12	211.3	18.66	0.4614			19-8808-8752	12-8970-8273
9		Feb	22	262.9	70.34	1.739	(+)		06-7665-9706	20-9384-3150
10		Mar	29	174.1	-18.49	-0.4572			05-6826-0640	08-0221-7732
11		Jun	6	257.2	64.57	1.597	(+)		18-8343-8398	07-5920-5510
12		Aug	15	245.4	52.76	1.304	(+)		09-7983-0200	09-2700-9318
13		Sep	12	168.2	-24.42	-0.6038			03-5102-6858	08-5346-6708
14		Oct	25	136.4	-56.24	-1.391	(-)		07-9246-4343	01-9148-8858
15		Dec	5	105.2	-87.42	-2.161	(-)	(-)	06-0212-4364	02-3516-9009
16	2013	Jan	9	141.4	-51.18	-1.265	(-)		17-2187-6754	18-4890-8322
17			26	149.2	-43.43	-1.074	(-)		18-1935-7382	02-8788-6074
18		Feb	16	229.4	36.8	0.9097			10-2313-3759	14-4667-5668
19		Mar	27	178.2	-14.42	-0.3565			07-8835-5536	15-9493-1462
20		Jun	13	207.1	14.45	0.3573			15-3690-9471	03-7822-6454
21		Jul	11	141.4	-51.18	-1.265	(-)		06-9216-5908	21-2743-4643

Q18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements & Test Organism Survival

Client: Internal
Sample ID: $CuCl_2$
Test No.: 130711mbcu

Test Species: *M. beryllina*
Start Date/Time: 7/12/2013 1135 (11 LW)
End Date/Time: 7/16/2013 1440 (15 LW)

Cu stock concentration (µg/L): 20,900

	Tech Initials				
	0	24	48	72	96
Counts:	ML	BG	ML	AD	ML
Readings:	EC	EC	ML	AD	LW
Dilutions made by:	LW		BG		
High conc. made (µg/L):	800	--	200	--	--
Vol. Cu stock added (mL):	19.0	--	4.6	--	--
Final Volume (mL):	2000	--	2000	--	--

Concentration (µg/L)	Rand #	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	19	5	5	5	5	5	29.8	30.1	i 30.0	30.3	30.2	24.4	25.2	i 24.0	25.3	25.4	7.9	5.2	i 7.1	4.9	4.9	7.88	7.91	i 8.03	7.91	7.75
	14	5	5	5	5	5			f 30.2					f 25.2			dr		f 5.6					f 7.89		
	6	5	5	5	5	5																				
	24	5	5	5	5	5																				
50	11	5	5	5	5	5	29.8	30.3	i 30.0	30.2	30.3	24.4	25.3	i 24.0	25.4	25.4	7.8	5.2	i 7.1	5.1	5.3	7.98	7.95	i 8.04	7.95	7.80
	20	5	5	5	5	5			f 30.2					f 25.3			dr		f 5.3					f 7.86		
	1	5	5	5	5	5																				
	7	5	5	5	5	5																				
100	5	5	4	4	4	4	29.8	30.2	i 30.0	30.3	30.4	24.5	25.0	i 24.0	25.4	25.3	8.0	5.2	i 7.1	5.3	5.4	7.90	7.95	i 8.04	7.97	7.83
	9	5	5	5	5	5			f 30.1					f 25.3			7.2 dr		f 5.6					f 7.90		
	18	5	5	5	5	5																				
	2	5	4	4	4	4																				
200	21	5	0	-	-	-	29.7	30.2	i 29.9	30.2	30.5	24.6	25.0	i 24.0	25.4	25.4	8.1	5.6	i 7.1	5.8	5.6	7.91	7.97	i 8.03	8.03	7.88
	4	5	1	1	1	1			f 30.1					f 25.3			7.2 dr		f 5.7					f 7.93		
	17	5	0	-	-	-																				
	22	5	1	1	1	1																				
400	10	5	0	-	-	-	29.7	30.1	i			24.5	25.3	i			8.1	5.5	i			7.91	7.97	i		
	23	5	0	-	-	-			f					f			7.1 dr		f					f		
	12	5	0	-	-	-																				
	8	5	0	-	-	-																				
800	16	5	0	-	-	-	29.5	30.0	i			24.5	25.0	i			8.0	5.2	i			7.89	7.95	i		
	13	5	0	-	-	-			f					f			7.2 dr		f					f		
	3	5	0	-	-	-																				
	15	5	0	-	-	-																				

Initial Counts QC'd by: AG

Animal Source/Date Received: ABS | 7/10/13

Age at Initiation: 14d

Feeding Times					
	0	24	48	72	96
AM:		0837	0920	0900	0815
PM:	-				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal

Organisms fed prior to initiation, circle one ((y) / n)

QC Check: LW 7/16/13

Final Review: KL 7/10/13

Appendix D

Summary of Statistical Analyses

Appendix Table D-1. Statistical Analysis of *Eohaustorius* Survival

Sediment Characterization for YTI Terminal

Test initiation: June 14, 2013

Analysis of Variance (ANOVA)

Dependent variable:	*Eohaustorius* Survival				
Source	SS	df	MS	F	p
Site	0.6635	4	0.1659	12.35	**<0.0001***
Residual	0.2687	20	0.01344		

Bold asterisk indicates a statistically significant difference in amphipod survival among sediments (p<0.05).

Multiple Comparison t-tests

Comparison		Percent Difference	p
LA-2 Reference vs.	YTI Comp A	-30	**0.0004***
LA-2 Reference vs.	YTI Comp B	-11	**0.0016***
Fine Grain Control vs.	YTI Comp A	-27	**0.0021***
Fine Grain Control vs.	YTI Comp B	-8	**0.0289***

Bold asterisk indicates a statistically significant reduction in survival relative to the LA-2 Reference sediment or Fine Grain Size Control (p<0.05).

Appendix Table D-2. Analysis of *Neanthes arenaceodentata* Survival

Sediment Characterization for YTI Terminal

Test initiation: July 10, 2013

Analysis of Variance (ANOVA)					
Dependent variable:			*Neanthes* Survival		
Source	SS	df	MS	F	P
Site	0.006000	3	0.002000	1.000	0.4182
Residual	0.0320	16	0.0020		

Appendix D-3. Analysis of *Americamysis bahia* Survival

Sediment Characterization for YTI Terminal

Test initiation: July 11, 2013

CETIS Summary Report

Mysid 96-h Acute Survival Test — Nautilus Environmental (CA)

Batch ID:	06-2275-4419	Test Type:	Survival (96h)	Analyst:	
Start Date:	11 Jul-13 15:30	Protocol:	EPA/821/R-02-012 (2002) / EPA/ACE 1991, 1998	Diluent:	~~Not Applicable~~ Diluted Natural Seawater
Ending Date:	15 Jul-13 14:35	Species:	Americamysis bahia	Brine:	Not Applicable
Duration:	95h	Source:	Aquatic Biosystems, CO	Age:	5d

Sample ID:	01-9219-3544	Code:	13-3100	Client:	AMEC
Sample Date:	11 Jul-13 12:15	Material:	Elutriate	Project:	
Receive Date:	11 Jul-13 12:15	Source:	AMEC POLA (AMEC/POLA)		
Sample Age:	3h	Station:	YTI Comp A		

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-5809-2743	96h Survival Rate	100	>100	NA	10.9%	1	Dunnett Multiple Comparison Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
10		5	0.9	0.8627	0.9373	0.8	1	0.04472	0.1	11.11%	6.25%
50		5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
100		5	0.92	0.8888	0.9512	0.8	1	0.03742	0.08367	9.09%	4.17%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	1	0.9	1	1	0.9
10		1	1	0.8	0.9	0.8
50		1	0.9	1	1	0.9
100		1	0.9	1	0.9	0.8

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	10/10	9/10	10/10	10/10	9/10
10		10/10	10/10	8/10	9/10	8/10
50		10/10	9/10	10/10	10/10	9/10
100		10/10	9/10	10/10	9/10	8/10

CETIS Analytical Report

Mysid 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	18-5809-2743	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	16 Jul-13 17:54	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	10.9%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	1.196	2.227	0.166	8	0.2602	CDF	Non-Significant Effect
		50	0	2.227	0.166	8	0.7500	CDF	Non-Significant Effect
		100	0.8162	2.227	0.166	8	0.4065	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.030261	0.010087	3	0.7229	0.5529	Non-Significant Effect
Error	0.2232544	0.0139534	16			
Total	0.2535154		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.575	11.34	0.6650	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9134	0.866	0.0741	Normal Distribution

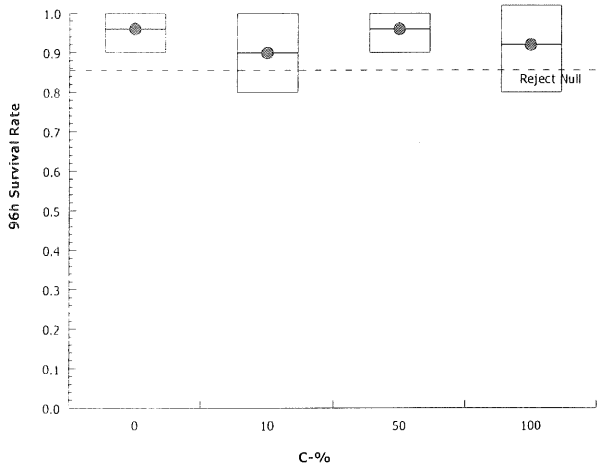
96h Survival Rate Summary

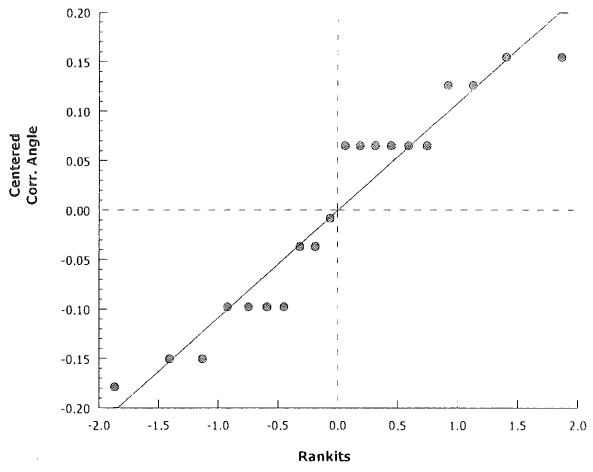
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
10		5	0.9	0.7758	1	0.9	0.8	1	0.04472	11.11%	6.25%
50		5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
100		5	0.92	0.8161	1	0.9	0.8	1	0.03742	9.09%	4.17%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
10		5	1.257	1.068	1.447	1.249	1.107	1.412	0.0682	12.13%	6.63%
50		5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
100		5	1.286	1.126	1.446	1.249	1.107	1.412	0.05765	10.03%	4.53%

Graphics





CETIS Summary Report

Mysid 96-h Acute Survival Test — Nautilus Environmental (CA)

Batch ID:	08-0647-8475	Test Type:	Survival (96h)	Analyst:	
Start Date:	11 Jul-13 15:45	Protocol:	EPA/821/R-02-012 (2002) / EPA/AEC 1991, 1998	Diluent:	~~Not Applicable~~ Diluted Natural Seawater
Ending Date:	15 Jul-13 14:45	Species:	Americamysis bahia	Brine:	Not Applicable
Duration:	95h	Source:	Aquatic Biosystems, CO	Age:	5d

Sample ID:	01-5409-7810	Code:	13-3101	Client:	AMEC
Sample Date:	11 Jul-13 11:30	Material:	Elutriate	Project:	
Receive Date:	11 Jul-13 11:30	Source:	AMEC POLA (AMEC/POLA)		
Sample Age:	4h	Station:	YTI Comp B		

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-8090-0520	96h Survival Rate	100	>100	NA	14.1%	1	Dunnett Multiple Comparison Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.94	0.9195	0.9605	0.9	1	0.02449	0.05477	5.83%	0.0%
10		5	0.94	0.9195	0.9605	0.9	1	0.02449	0.05477	5.83%	0.0%
50		5	0.96	0.9266	0.9934	0.8	1	0.04	0.08944	9.32%	-2.13%
100		5	0.86	0.8034	0.9166	0.7	1	0.06782	0.1517	17.63%	8.51%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	1	0.9	1	0.9	0.9
10		1	1	0.9	0.9	0.9
50		1	0.8	1	1	1
100		1	0.7	0.9	0.7	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	10/10	9/10	10/10	9/10	9/10
10		10/10	10/10	9/10	9/10	9/10
50		10/10	8/10	10/10	10/10	10/10
100		10/10	7/10	9/10	7/10	10/10

CETIS Analytical Report

Mysid 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	20-8090-0520	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	16 Jul-13 17:58	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	14.1%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	0	2.227	0.198	8	0.7500	CDF	Non-Significant Effect
		50	-0.4135	2.227	0.198	8	0.8725	CDF	Non-Significant Effect
		100	1.159	2.227	0.198	8	0.2730	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.05447748	0.01815916	3	0.9165	0.4551	Non-Significant Effect
Error	0.3170224	0.0198139	16			
Total	0.3714998		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.882	11.34	0.2745	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9125	0.866	0.0713	Normal Distribution

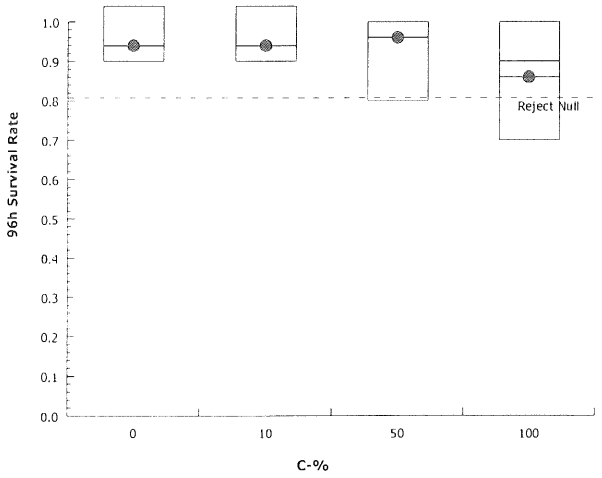
96h Survival Rate Summary

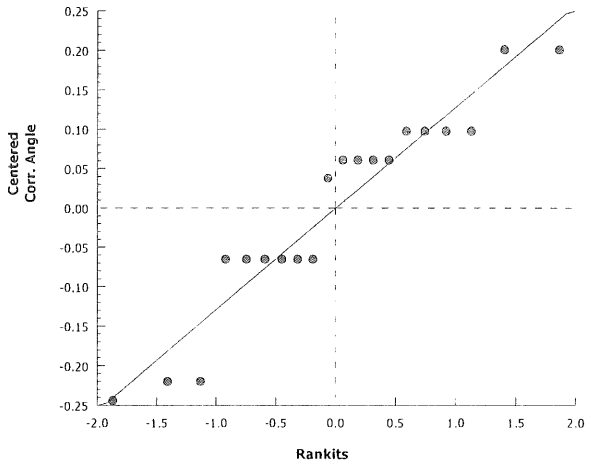
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.94	0.872	1	0.9	0.9	1	0.02449	5.83%	0.0%
10		5	0.94	0.872	1	0.9	0.9	1	0.02449	5.83%	0.0%
50		5	0.96	0.8489	1	1	0.8	1	0.04	9.32%	-2.13%
100		5	0.86	0.6717	1	0.9	0.7	1	0.06782	17.63%	8.51%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.314	1.203	1.425	1.249	1.249	1.412	0.03992	6.79%	0.0%
10		5	1.314	1.203	1.425	1.249	1.249	1.412	0.03992	6.79%	0.0%
50		5	1.351	1.182	1.52	1.412	1.107	1.412	0.06097	10.09%	-2.8%
100		5	1.211	0.9485	1.474	1.249	0.9912	1.412	0.09458	17.46%	7.85%

Graphics





Appendix D-4. Analysis of *Menidia beryllina* Survival

Sediment Characterization for YTI Terminal

Test initiation: July 11, 2013

CETIS Summary Report

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Batch ID:	18-2557-7449	Test Type:	Survival (96h)	Analyst:	
Start Date:	11 Jul-13 16:00	Protocol:	EPA/821/R-02-012 (2002) / EPA/ACE 1991, 1998	Diluent:	~~Artificial Saltwater~~ Diluted Natural Sea Water
Ending Date:	15 Jul-13 14:55	Species:	Menidia beryllina	Brine:	~~Instant Ocean~~ NA
Duration:	95h	Source:	Aquatic Indicators	Age:	14d

Sample ID:	21-0470-2153	Code:	13-3100	Client:	AMEC
Sample Date:	11 Jul-13 12:15	Material:	Elutriate	Project:	
Receive Date:	11 Jul-13 12:15	Source:	AMEC POLA (AMEC/POLA)		
Sample Age:	4h	Station:	YTI Comp A		

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 °C

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-3585-5603	96h Survival Rate	100	>100	NA	6.56%	1	Dunnett Multiple Comparison Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
09-3585-5603	96h Survival Rate	Control Resp	0.96	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
10		5	0.98	0.9633	0.9967	0.9	1	0.02	0.04472	4.56%	-2.08%
50		5	1	1	1	1	1	0	0	0.0%	-4.17%
100		5	0.94	0.9195	0.9605	0.9	1	0.02449	0.05477	5.83%	2.08%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9	1	1	1	0.9
10		0.9	1	1	1	1
50		1	1	1	1	1
100		0.9	1	0.9	1	0.9

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	9/10	10/10	10/10	10/10	9/10
10		9/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10	10/10
100		9/10	10/10	9/10	10/10	9/10

CETIS Analytical Report

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID: 09-3585-5603 Endpoint: 96h Survival Rate CETIS Version: CETISv1.8.4
Analyzed: 17 Jul-13 16:10 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	6.56%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	-0.7071	2.227	0.103	8	0.9280	CDF	Non-Significant Effect
		50	-1.414	2.227	0.103	8	0.9860	CDF	Non-Significant Effect
		100	0.7071	2.227	0.103	8	0.4534	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02655933	0.00885311	3	1.667	0.2140	Non-Significant Effect
Error	0.08498986	0.005311866	16			
Total	0.1115492		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	5.953	0.4262	Equal Variances
Variances	Levene Equality of Variance	10.67	5.292	0.0004	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9344	0.866	0.1876	Normal Distribution

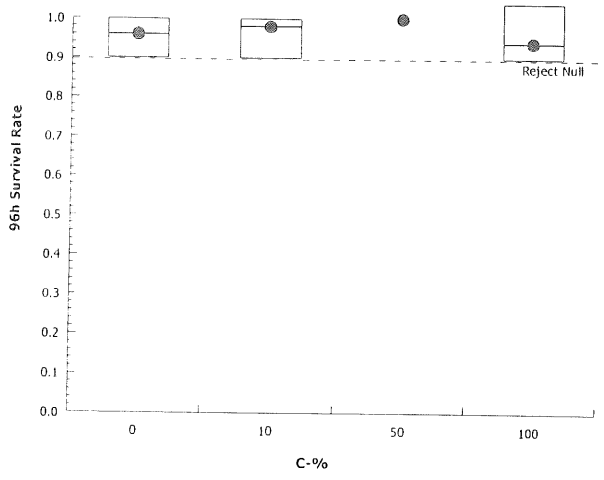
96h Survival Rate Summary

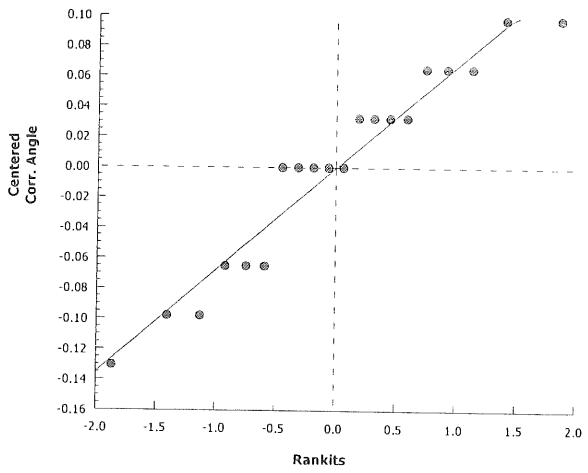
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
10		5	0.98	0.9245	1	1	0.9	1	0.02	4.56%	-2.08%
50		5	1	1	1	1	1	1	0	0.0%	-4.17%
100		5	0.94	0.872	1	0.9	0.9	1	0.02449	5.83%	2.08%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
10		5	1.379	1.289	1.47	1.412	1.249	1.412	0.03259	5.28%	-2.42%
50		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%
100		5	1.314	1.203	1.425	1.249	1.249	1.412	0.03992	6.79%	2.42%

Graphics





CETIS Summary Report

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Batch ID:	14-8834-6613	Test Type:	Survival (96h)	Analyst:	
Start Date:	11 Jul-13 16:15	Protocol:	EPA/821/R-02-012 (2002) / EPA/ACE 1991, 1998	Diluent:	~~Artificial Saltwater~~ Diluted Natural Seawater
Ending Date:	15 Jul-13 15:10	Species:	Menidia beryllina	Brine:	~~Instant Ocean~~ N/A
Duration:	95h	Source:	Aquatic Indicators	Age:	14d

Sample ID:	16-0162-3596	Code:	13-3101	Client:	AMEC
Sample Date:	11 Jul-13 11:30	Material:	Elutriate	Project:	
Receive Date:	11 Jul-13 11:30	Source:	AMEC POLA (AMEC/POLA)		
Sample Age:	5h	Station:	YTI Comp B		

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 °C

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-5408-7641	96h Survival Rate	100	>100	NA	4.17%	1	Steel Many-One Rank Sum Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
08-5408-7641	96h Survival Rate	Control Resp	0.96	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.96	0.9395	0.9805	0.9	1	0.02449	0.05477	5.71%	0.0%
10		5	1	1	1	1	1	0	0	0.0%	-4.17%
50		5	1	1	1	1	1	0	0	0.0%	-4.17%
100		5	1	1	1	1	1	0	0	0.0%	-4.17%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9	1	1	1	0.9
10		1	1	1	1	1
50		1	1	1	1	1
100		1	1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	9/10	10/10	10/10	10/10	9/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10	10/10

CETIS Analytical Report

Inland Silverside 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID:	08-5408-7641	**Endpoint:**	96h Survival Rate
Analyzed:	17 Jul-13 16:18	**Analysis:**	Nonparametric-Control vs Treatments
CETIS Version:	CETISv1.8.4		
Official Results:	Yes		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1	4.17%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	32.5	17	1	8	0.9699	Asymp	Non-Significant Effect
		50	32.5	17	1	8	0.9699	Asymp	Non-Significant Effect
		100	32.5	17	1	8	0.9699	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0159356	0.005311866	3	2.667	0.0829	Non-Significant Effect
Error	0.0318712	0.00199195	16			
Total	0.0478068		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	3	5.953	0.0728	Equal Variances
Variances	Levene Equality of Variance	96	5.292	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.6711	0.866	<0.0001	Non-normal Distribution

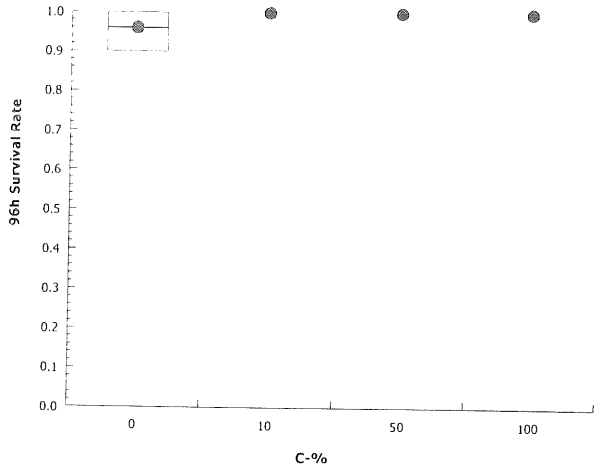
96h Survival Rate Summary

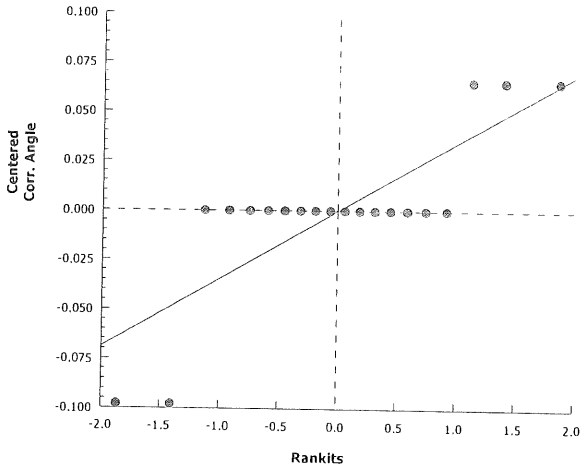
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.96	0.892	1	1	0.9	1	0.02449	5.71%	0.0%
10		5	1	1	1	1	1	1	0	0.0%	-4.17%
50		5	1	1	1	1	1	1	0	0.0%	-4.17%
100		5	1	1	1	1	1	1	0	0.0%	-4.17%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.347	1.236	1.458	1.412	1.249	1.412	0.03992	6.63%	0.0%
10		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%
50		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%
100		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-4.84%

Graphics





Appendix D-5. Analysis of *Mytilus galloprovincialis* Embryo Development

Sediment Characterization for YTI Terminal

Test initiation: July 10, 2013

CETIS Summary Report

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Batch ID:	05-7772-3829	Test Type:	Development-Survival	Analyst:	
Start Date:	10 Jul-13 17:10	Protocol:	EPA/600/R-95/136 (1995) EPA/ACE 1991, 1996	Diluent:	Diluted Natural Seawater
Ending Date:	12 Jul-13 17:30	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Duration:	48h	Source:	Taylor Shellfish	Age:	

Sample ID:	01-6796-9334	Code:	13-3100	Client:	AMEC
Sample Date:	10 Jul-13 16:30	Material:	Elutriate	Project:	
Receive Date:	10 Jul-13 16:30	Source:	AMEC POLA (AMEC/POLA)		
Sample Age:	40m	Station:	YTI Comp A		

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4°C

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
19-2119-5373	Combined Development Ra	50	100	70.71	9.15%	2	Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
15-2801-7410	Combined Development Ra	EC25	61.43	56.87	63.49	1.628	Linear Interpolation (ICPIN)
		EC50	74.56	71.35	76.25	1.341	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
19-2119-5373	Combined Development Ra	PMSD	0.09149	NL - 0.25	No	Passes Acceptability Criteria

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8717	0.8518	0.8916	0.7914	0.9231	0.02386	0.05336	6.12%	0.0%
10		5	0.8666	0.8588	0.8744	0.8405	0.8953	0.00933	0.02086	2.41%	0.59%
50		5	0.8463	0.8198	0.8728	0.7546	0.9512	0.03173	0.07095	8.38%	2.91%
100		5	0.0135	0.005495	0.0215	0	0.04908	0.009583	0.02143	158.8%	98.45%

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.8466	0.8883	0.7914	0.9231	0.9091
10		0.8405	0.8548	0.8953	0.8763	0.8659
50		0.8363	0.8272	0.9512	0.8623	0.7546
100		0.0184	0	0	0	0.04908

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	138/163	159/179	129/163	180/195	150/165
10		137/163	159/186	154/172	170/194	155/179
50		143/171	158/191	156/164	144/167	123/163
100		3/163	0/163	0/163	0/163	8/163

CETIS Analytical Report

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	19-2119-5373	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	26 Sep-13 15:12	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 C

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	50	100	70.71	2	9.15%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	0.2396	2.227	0.113	8	0.6570	CDF	Non-Significant Effect
		50	0.6388	2.227	0.113	8	0.4834	CDF	Non-Significant Effect
		100*	22.03	2.227	0.113	8	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.53699	1.51233	3	236.3	<0.0001	Significant Effect
Error	0.102395	0.006399687	16			
Total	4.639385		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.616	11.34	0.2022	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9655	0.866	0.6587	Normal Distribution

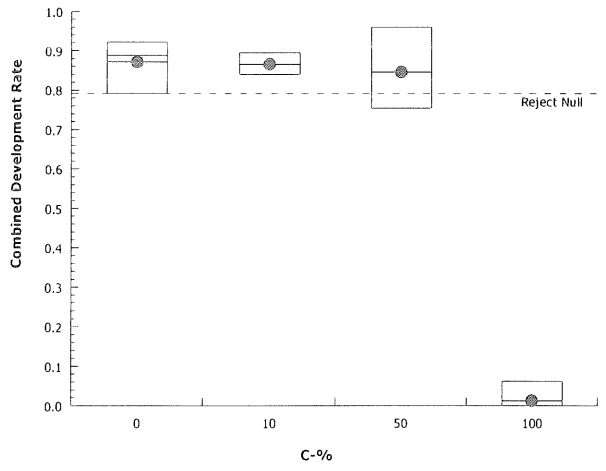
Combined Development Rate Summary

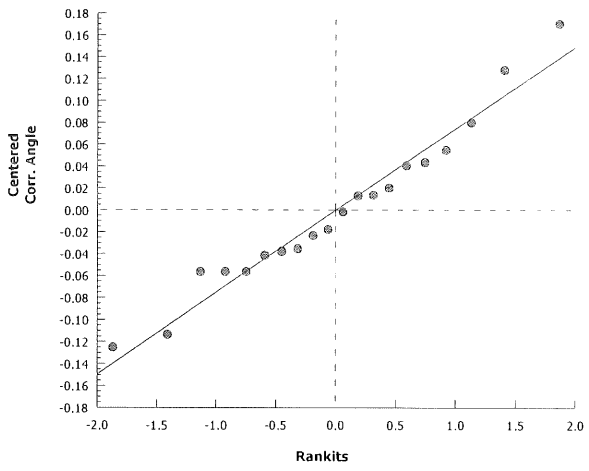
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8717	0.8054	0.9379	0.8883	0.7914	0.9231	0.02386	6.12%	0.0%
10		5	0.8666	0.8407	0.8925	0.8659	0.8405	0.8953	0.00933	2.41%	0.59%
50		5	0.8463	0.7582	0.9344	0.8363	0.7546	0.9512	0.03173	8.38%	2.91%
100		5	0.0135	0	0.0401	0	0	0.04908	0.009583	158.8%	98.45%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.21	1.113	1.307	1.23	1.096	1.29	0.03489	6.45%	0.0%
10		5	1.198	1.159	1.236	1.196	1.16	1.241	0.01385	2.59%	1.0%
50		5	1.178	1.043	1.312	1.154	1.053	1.348	0.04832	9.18%	2.67%
100		5	0.0954	-0.0076	0.1984	0.03917	0.03917	0.2234	0.0371	86.95%	92.11%

Graphics





Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	15-2801-7410	Endpoint:	Combined Development Rate	CETIS Version:	CETISv1.8.4
Analyzed:	26 Sep-13 15:12	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Sample Note: Sediment sample date/time: 6/11/2013, 09:00; Receipt date/time: 6/11/2013, 17:00; Receipt temperature 4 C

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	821978	1000	Yes	Two-Point Interpolation

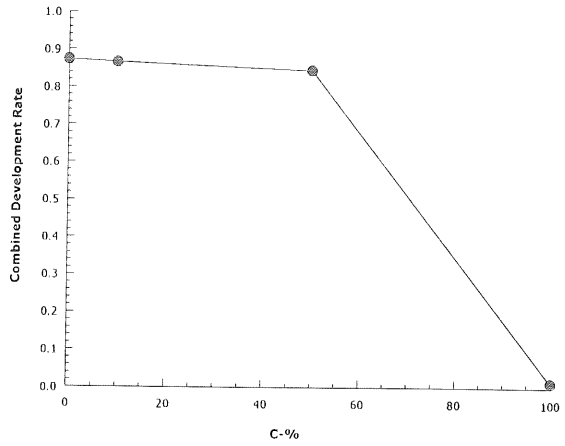
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	61.43	56.87	63.49	1.628	1.575	1.758
EC50	74.56	71.35	76.25	1.341	1.312	1.401

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.8717	0.7914	0.9231	0.02386	0.05336	6.12%	0.0%	756	865
10		5	0.8666	0.8405	0.8953	0.00933	0.02086	2.41%	0.59%	775	894
50		5	0.8463	0.7546	0.9512	0.03173	0.07095	8.38%	2.91%	724	856
100		5	0.0135	0	0.04908	0.009583	0.02143	158.8%	98.45%	11	815

Graphics



CETIS Summary Report

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Batch ID:	21-2538-5141	Test Type:	Development-Survival	Analyst:	
Start Date:	10 Jul-13 17:10	Protocol:	EPA/600/R-95/136 (1995) / EPA/ACE 1991, 1998	Diluent:	Diluted Natural Seawater
Ending Date:	12 Jul-13 17:30	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Duration:	48h	Source:	Taylor Shellfish	Age:	

Sample ID:	10-7254-0976	Code:	13-3101	Client:	AMEC
Sample Date:	10 Jul-13 16:30	Material:	Elutriate	Project:	
Receive Date:	10 Jul-13 16:30	Source:	AMEC POLA (AMEC/POLA)		
Sample Age:	40m	Station:	YTI Comp B		

Batch Note: Sediment sample date/time: 6/11/13, 15:00; Receipt date/time: 6/11/13, 17:00; Receipt temperature 4°C.

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-9155-9066	Combined Development Ra	10	50	22.36	5.17%	10	Dunnett Multiple Comparison Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
12-9155-9066	Combined Development Ra	PMSD	0.05169	NL - 0.25	No	Passes Acceptability Criteria

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9209	0.9164	0.9253	0.9034	0.9353	0.005311	0.01188	1.29%	0.0%
10		5	0.913	0.9074	0.9185	0.8957	0.9357	0.006611	0.01478	1.62%	0.86%
50		5	0.8152	0.7984	0.8321	0.7485	0.8614	0.0202	0.04518	5.54%	11.47%
100		5	0.845	0.8215	0.8685	0.773	0.9257	0.02814	0.06293	7.45%	8.24%

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9034	0.9353	0.9167	0.9264	0.9227
10		0.9357	0.914	0.8957	0.9053	0.9141
50		0.8528	0.8037	0.8614	0.8098	0.7485
100		0.773	0.8405	0.8883	0.7975	0.9257

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	159/176	159/170	165/180	151/163	167/181
10		160/171	170/186	146/163	153/169	149/163
50		139/163	131/163	143/166	132/163	122/163
100		126/163	137/163	159/179	130/163	162/175

CETIS Analytical Report

Test Code: 1307-S066b | 16-6834-7350

Bivalve Larval Survival and Development Test					Nautilus Environmental (CA)
Analysis ID:	01-7701-6282	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	26 Sep-13 16:24	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch Note: Sediment sample date/time: 6/11/13, 15:00; Receipt date/time: 6/11/13, 17:00; Receipt temperature 4 C.

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	839123	1000	Yes	Two-Point Interpolation

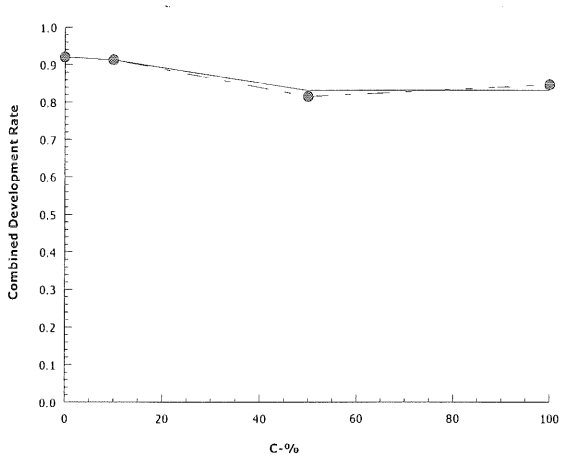
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9209	0.9034	0.9353	0.005311	0.01188	1.29%	0.0%	801	870
10		5	0.913	0.8957	0.9357	0.006611	0.01478	1.62%	0.86%	778	852
50		5	0.8152	0.7485	0.8614	0.0202	0.04518	5.54%	11.47%	667	818
100		5	0.845	0.773	0.9257	0.02814	0.06293	7.45%	8.24%	714	843

Graphics



Analyst: KyAc QA: AC 9/26/13

CETIS Analytical Report

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Analysis ID:	12-9155-9066	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	26 Sep-13 15:14	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch Note: Sediment sample date/time: 6/11/13, 15:00; Receipt date/time: 6/11/13, 17:00; Receipt temperature 4 C.

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	10	50	22.36	10	5.17%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		10	0.3952	2.227	0.079	8	0.5908	CDF	Non-Significant Effect
		50*	4.42	2.227	0.079	8	0.0006	CDF	Significant Effect
		100*	3.187	2.227	0.079	8	0.0076	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.08803269	0.02934423	3	9.229	0.0009	Significant Effect
Error	0.0508741	0.003179631	16			
Total	0.1389068		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.635	11.34	0.0346	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9664	0.866	0.6786	Normal Distribution

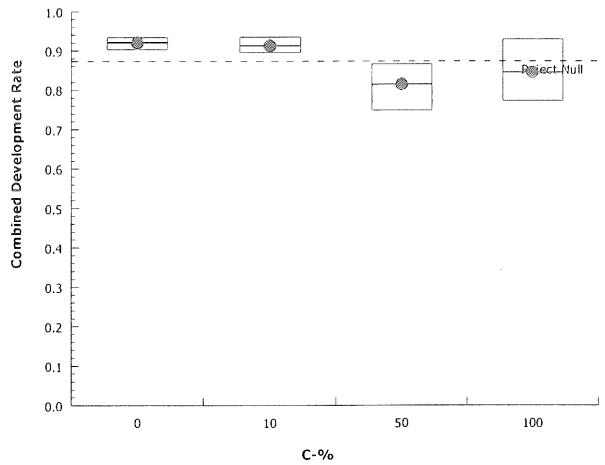
Combined Development Rate Summary

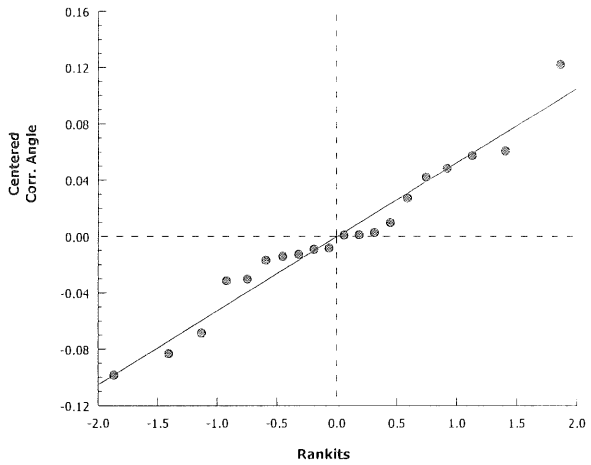
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9209	0.9061	0.9356	0.9227	0.9034	0.9353	0.005311	1.29%	0.0%
10		5	0.913	0.8946	0.9313	0.914	0.8957	0.9357	0.006611	1.62%	0.86%
50		5	0.8152	0.7591	0.8713	0.8098	0.7485	0.8614	0.0202	5.54%	11.47%
100		5	0.845	0.7669	0.9231	0.8405	0.773	0.9257	0.02814	7.45%	8.24%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.286	1.259	1.313	1.289	1.255	1.314	0.009774	1.7%	0.0%
10		5	1.272	1.239	1.306	1.273	1.242	1.314	0.01203	2.12%	1.1%
50		5	1.129	1.057	1.2	1.12	1.045	1.189	0.02581	5.11%	12.26%
100		5	1.173	1.06	1.285	1.16	1.074	1.295	0.04047	7.72%	8.84%

Graphics





Appendix Table D-6. Analysis of *Macoma nasuta* Survival

Sediment Characterization for YTI Terminal

Test initiation: July 12, 2013

Analysis of Variance (ANOVA)					
Dependent variable:	Percent *Macoma nasuta* Survival				
Source	SS	df	MS	F	P
Site	0.002740	3	0.0009133	0.2606	0.8527
Residual	0.05608	16	0.003505		

Appendix Table D-7. Analysis of *Nereis virens* Survival

Sediment Characterization for YTI Terminal

Test initiation: July 12, 2013

Analysis of Variance (ANOVA)					
Dependent variable:	Percent *Nereis virens* Survival				
Source	SS	df	MS	F	P
Site	0.02800	3	0.009333	1.244	0.3265
Residual	0.1200	16	0.0075		

Appendix E
Chain of Custody Documentation

Client: AMEC

Log-in Nos.: 13-3100 - 13-3101

Project: POLA YTI Terminal

Test Type(s): Eoh austorius, Neanthes Sed. Mussel/Mysid/Menidia Elutriate

Test IDs: 1306-5074 to 5079

Sample ID	Collection Date & Time	Receipt Date & Time	Receipt Temp. (°C)	No. Containers	Container Type	Approx. Total Volume Received (L)	Sample Description	Tech Initials
YTI Comp A	6/12/13 0900	6/11/13 1700	4.0	5	bag	~100	Sediment	BG
YTI Comp B	6/12/13 1500	6/11/13 1700	4.0	5	bag	~100	Sediment	BG
LA2 -Reference	6/2/13 1430	6/4/13 1930	1.1	4	bag	~40	↓	AC

Samples Shipped Via: N/A

COC Present? (Y) N

Sieving Required? (Y) N Screen Size: 500µm

Lab Control Sediment: Eoh Home Sail Bay SIO Sand

Sub-samples for additional chemistry:

Collect Porewater Tech Initials: AC

Other _____ Tech Initials: _____

Other _____ Tech Initials: _____

Other _____ Tech Initials: _____

Test Organism:	Eohaustorius	Bivalve	mysid	Menidia	Neanthes
Supplier:	NW Aquatics	Taylor Shellfish	ABS	Aquatic Ind.	ATS
Receipt Date:	6/7/13	7/10/13	7/11/13	7/10/13	7/9/13
Condition:	Good	Good	Good	Good	Good

Comments: _____

QC Check: BG 7/2/13

Final Review: BC 7-18-13

Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120
Phone 858.587.7333
Fax 858.587.3961

Chain of Custody

Date 6/4/13 Page 1 of 1

Sample Collection By: AMEC Environment & Infrastructure

Report to:		Invoice To:	
Company	AMEC E&I	Company	SAME
Address	9210 Sky Pk Ct Ste 200	Address	
City/State/Zip	San Diego, CA 92123	City/State/Zip	
Contact	Barry Snyder/Tyler Huff	Contact	
Phone	(858) 300-4300	Phone	
Email	Barry.Snyder@amec.com	Email	Tyler.Huff@amec.com

	SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS	ANALYSES REQUIRED (Bf / Sf / Bo)	Receipt Temperature (°C)
1	Reference LA-2	6/2/13	1430	sed	bag	4	for use w/ Benthos 1631 kit & YTI Container Terminal tox SBP tests	X X	1.1
2									
3									
4									
5									
6									
7									
8									
9									
10									

PROJECT INFORMATION		SAMPLE RECEIPT	
Client:	POLA	Total No. of Containers	4
PO No.:	10151019291/30	Received Good Condition?	✓
Shipped Via:	Courier	Matches Test Schedule?	✓

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY (CLIENT)	RECEIVED BY (COURIER)
(Signature) Kimberly Gabbi (Time) 1655	(Signature) (Time) 16:55
(Printed Name) Kimberly Gabbi (Date) 6/4/13	(Printed Name) Aaron Hill (Date) 6/4
(Company) AMEC	(Company) Messenger Express
RELINQUISHED BY (COURIER)	**RECEIVED BY (LABORATORY)**
(Signature) (Time) 19:30	(Signature) Adrienne Cibor (Time) 19:30
(Printed Name) Aaron Hill (Date) 6/4	(Printed Name) Adrienne Cibor (Date) 6/4/13
(Company) Messenger-Express	(Company) Nautilus

Additional costs maybe required for sample disposal or storage.
Payment Net 30 unless otherwise contracted.

DISTRIBUTION: WHITE - Nautilus Environmental, COLOR - Originator

Nautilus Environmental

4340 Vandever Ave.
San Diego, CA 92120
Phone 858.587.7333
Fax 858.587.3961

Chain of Custody

Date 06/11/2013 Page 1 of 1

Sample Collection By:

Report to:		Invoice To:	
Company	AMEC Environment & Infrastructure	Company	Same as "Report to" at left
Address	9210 Sky Park Ct. Ste 200	Address	
City/State/Zip	San Diego, CA 92123	City/State/Zip	
Contact	Barry Snyder/Tyler Huff	Contact	
Phone	(858) 300-4300	Phone	
Email	barry.snyder@amec.com and	Email	tyler.huff@amec.com

	SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	COMMENTS	SP	SPP	BP	Receipt Temperature (°C)
1	YTI Comp A	6/11/2013	900	sediment	5 gallon bag	6	YTI Terminal Sediment Composite	X			
2	YTI Comp B	6/11/2013	1500	sediment	5 gallon bag	6	YTI Terminal Sediment Composite	X			
3											
4							Please start SP amphipod testing				
5							for EOH, hold remainder of sample				
6							pending chemistry results.				
7											
8											
9											
10											

ANALYSES REQUIRED

PROJECT INFORMATION		SAMPLE RECEIPT	
Client:	AMEC/POLA	Total No. of Containers	
PO No.:	1015101929	Received Good Condition?	
Shipped Via:	hand-delivered	Matches Test Schedule?	

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY (CLIENT)	RELINQUISHED BY (COURIER)
(Signature) KVA (Time) 6/11/13 1700	(Signature) (Time)
(Printed Name) (Date)	(Printed Name) (Date)
(Company)	(Company)

RECEIVED BY (COURIER)	RECEIVED BY (LABORATORY)
(Signature) (Time)	(Signature) Adrienne Cibor (Time) 1700
(Printed Name) (Date)	(Printed Name) Adrienne Cibor (Date) 6/11/13
(Company)	(Company) Nautilus

Additional costs may be required for sample disposal or storage. Payment net 30 unless otherwise contracted.

DISTRIBUTION: WHITE - Nautilus Environmental, COLOR - Originator

APPENDIX E

BIOACCUMULATION TISSUE STATISTICS AND CHEMISTRY

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Appendix Table E-1. Summary of Lipid and Solid Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure

Macoma nasuta

		Analyte (%)	
	RL	**0.1**	**0.1**
	Replicate	Lipids	Solids
Reference	9C	0.6	15.4
	12C	0.28	13.7
	4C	0.71	12.8
	6C	0.65	14.8
	10C	0.62	14.5
	Mean	**0.57**	**14.24**
	Std. Dev.	0.17	1.01
Composite A	7C	0.44	13.7
	5C	0.5	13.8
	11C	0.55	14
	14C	0.5	15
	13C	0.53	13.7
	Mean	**0.50**	**14.04**
	Std. Dev.	0.04	0.55
	p-value[b]	0.20	0.35
Composite B	8C	0.55	15.9
	2C	0.6	14.3
	1C	0.57	14.3
	3C	0.61	14.1
	15C	0.47	14
	Mean	**0.56**	**14.52**
	Std. Dev.	0.06	0.78
	p-value[b]	0.44	0.32

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

Appendix Table E-2. Summary of Lipid and Solid Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure

Nereis virens

		Analyte (%)	
	RL	**0.1**	**0.1**
	Replicate	Lipids	Solids
Reference	9W	1.4	16.4
	12W	1.1	16.2
	4W	1.5	17.6
	6W	1.2	15.3
	10W	1.4	15.4
	Mean	**1.32**	**16.18**
	Std. Dev.	0.16	0.93
Composite A	7W	1.3	19.5
	5W	1.4	16.3
	11W	1.5	16.9
	14W	1.4	17.1
	13W	1.3	16.7
	Mean	**1.38**	**17.30**
	Std. Dev.	0.08	1.26
	p-value[b]	0.24	0.075
Composite B	8W	1.5	17.1
	2W	1.8	17.1
	1W	1.6	16.2
	3W	1.6	17.1
	15W	1.8	16.9
	Mean	**1.66**	**16.88**
	Std. Dev.	0.13	0.39
	p-value[b]	0.0036	0.079

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

Appendix Table E-3. Summary of Trace Metal Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure *Macoma nasuta*

		Trace Metal (mg/kg wet weight)									
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
	RL	**0.10**	**0.10**	**0.020**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**1.0**
Site	**FDA[a]**	**86**	**4.0**	**13**	**-**	**1.7**	**1.0***	**80**	**-**	**-**	**-**
Reference	9C	2.65	ND	0.173	1.5	0.161	ND	0.377	0.289	ND	12.4
	12C	2.15	ND	0.158	1.49	0.146	ND	0.334	0.228	ND	9.62
	4C	2.21	ND	0.163	1.39	0.138	ND	0.376	0.264	ND	11.4
	6C	2.5	ND	0.223	1.37	0.144	ND	0.41	0.262	ND	11.7
	10C	2.6	ND	0.201	1.62	0.172	ND	0.398	0.276	ND	11.6
	Mean	**2.42**	**NA**	**0.184**	**1.47**	**0.152**	**NA**	**0.38**	**0.26**	**NA**	**11.34**
	Std. Dev.	0.23	NA	0.03	0.10	0.01	NA	0.03	0.02	NA	1.03
Composite A	7C	2.54	ND	0.181	1.66	0.284	ND	0.305	0.226	ND	12.6
	5C	2.39	ND	0.227	1.78	0.313	ND	0.35	0.192	ND	12.8
	11C	2.26	ND	0.194	1.51	0.306	ND	0.287	0.226	ND	11.5
	14C	2.8	ND	0.185	1.73	0.293	ND	0.388	0.202	ND	12.3
	13C	2.51	ND	0.242	1.76	0.36	ND	0.372	0.252	ND	12.3
	Mean	**2.50**	**NA**	**0.21**	**1.69**	**0.311**	**NA**	**0.34**	**0.22**	**NA**	**12.30**
	Std. Dev.	0.20	NA	0.03	0.11	0.03	NA	0.04	0.02	NA	0.49
	p-value[b]	0.29	NA	0.12	0.006	0.000002	NA	0.07	0.01	NA	0.05
Composite B	8C	2.34	ND	0.27	1.73	0.288	ND	0.403	0.317	ND	11.2
	2C	2.48	ND	0.392	2.09	0.462	ND	0.527	0.312	ND	12.5
	1C	3.21	ND	1.06	2.19	0.439	ND	0.914	0.326	ND	14.1
	3C	2.68	ND	0.417	1.95	0.357	ND	0.443	0.236	ND	13.2
	15C	2.39	ND	0.268	1.81	0.343	ND	0.339	0.217	ND	12
	Mean	**2.62**	**NA**	**0.481**	**1.95**	**0.378**	**NA**	**0.53**	**0.28**	**NA**	**12.60**
	Std. Dev.	0.35	NA	0.33	0.19	0.07	NA	0.23	0.05	NA	1.11
	p-value[b]	0.16	NA	0.040	0.0005	0.00006	NA	0.10	0.25	NA	0.05

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

*FDA action limits for methyl mercury (wet weight)

RL = reporting limit

ND = not detected

NA = not applicable

Appendix Table E-4. Summary of Trace Metal Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure
Nereis virens

		Trace Metal (mg/kg wet weight)									
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
	RL	**0.10**	**0.10**	**0.020**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**1.0**
Site	**FDA[a]**	**86**	**4.0**	**13**	**-**	**1.7**	**1.0***	**80**	**-**	**-**	**-**
Reference	9W	2.23	ND	0.132	1.29	ND	ND	0.293	0.187	ND	16.1
	12W	2.17	ND	0.23	1.25	ND	ND	0.266	0.266	ND	35.4
	4W	2.32	ND	0.171	1.3	ND	ND	0.256	0.32	ND	25.2
	6W	2.4	ND	0.186	1.31	ND	ND	0.32	0.304	ND	24.7
	10W	2.02	ND	0.0938	1.24	ND	ND	0.243	0.285	ND	14.2
	Mean	**2.23**	**NA**	**0.163**	**1.28**	**NA**	**NA**	**0.28**	**0.27**	**NA**	**23.12**
	Std. Dev.	0.15	NA	0.05	0.03	NA	NA	0.03	0.05	NA	8.46
Composite A	7W	1.9	ND	0.128	1.51	ND	ND	0.228	0.239	ND	15.4
	5W	2.03	ND	0.243	1.38	ND	ND	0.242	0.295	ND	25.8
	11W	2.05	ND	0.297	1.42	ND	ND	0.305	0.221	ND	11.5
	14W	2.17	ND	0.106	1.31	ND	ND	0.207	0.229	ND	18.9
	13W	2.31	ND	0.157	1.33	ND	ND	0.25	0.258	ND	10.9
	Mean	**2.09**	**NA**	**0.19**	**1.39**	**NA**	**NA**	**0.25**	**0.25**	**NA**	**16.50**
	Std. Dev.	0.15	NA	0.08	0.08	NA	NA	0.04	0.03	NA	6.12
	p-value[b]	0.10	NA	0.30	0.010	NA	NA	0.10	0.20	NA	0.10
Composite B	8W	2.39	ND	0.199	1.65	ND	ND	0.315	0.252	ND	30.6
	2W	2.55	ND	0.35	1.73	ND	ND	0.307	0.375	ND	12.6
	1W	2.58	ND	1.08	1.81	ND	ND	0.855	0.338	ND	30.6
	3W	2.26	ND	0.441	1.57	ND	ND	0.366	0.295	ND	18.8
	15W	2.13	ND	0.12	1.6	ND	ND	0.196	0.207	ND	21.2
	Mean	**2.38**	**NA**	**0.44**	**1.67**	**NA**	**NA**	**0.41**	**0.29**	**NA**	**22.76**
	Std. Dev.	0.19	NA	0.38	0.10	NA	NA	0.26	0.07	NA	7.81
	p-value[b]	0.09	NA	0.07	0.00001	NA	NA	0.14	0.30	NA	0.47

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

*FDA action limits for methyl mercury (wet weight)

RL = reporting limit

ND = not detected

NA = not applicable

Appendix Table E-5. Summary of PAH Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal

Macoma nasuta

			Reference							Composite A								Composite B							
Analyte (µg/kg wet weight)	**RL**	**FDA[a]**	**9C**	**12C**	**4C**	**6C**	**10C**	**Mean**	**Std. Dev.**	**7C**	**5C**	**11C**	**14C**	**13C**	**Mean**	**Std. Dev.**	**p-value[b]**	**8C**	**2C**	**1C**	**3C**	**15C**	**Mean**	**Std. Dev.**	**p-value[b]**
Acenaphthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	24	ND	ND	ND	ND	**24.0**	NA	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Acenaphthylene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Anthracene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	14	ND	12	**13.0**	1	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (a) Anthracene	10	--	ND	ND	ND	ND	ND	**NA**	NA	13	12	20	14	18	**15.4**	3	< 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (a) Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	33	29	48	36	44	**38.0**	8	< 0.05	23	27	30	21	21	**24.4**	4	< 0.05
Benzo (b) Fluoranthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	46	41	67	50	62	**53.2**	11	< 0.05	35	42	46	35	33	**38.2**	6	< 0.05
Benzo (e) Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	31	28	46	34	42	**36.2**	8	< 0.05	22	26	30	22	21	**24.2**	4	< 0.05
Benzo (g,h,i) Perylene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (k) Fluoranthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	34	27	51	38	45	**39.0**	9	< 0.05	26	29	33	26	25	**27.8**	3	< 0.05
Biphenyl	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Chrysene	10	--	ND	ND	ND	ND	ND	**NA**	NA	21	18	33	23	28	**24.6**	6	< 0.05	ND	10	12	ND	ND	**11.0**	1	> 0.05
Dibenz (a,h) Anthracene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2,6-Dimethylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Fluoranthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	70	63	120	83	110	**89.2**	25	< 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Fluorene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Indeno (1,2,3-c,d) Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
1-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
1-Methylphenanthrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Naphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Perylene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	13	10	12	**11.7**	2	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Phenanthrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	200	180	310	230	310	**246.0**	61	< 0.05	15	19	17	15	14	**16.0**	2	< 0.05
1,6,7-Trimethylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Dibenzothiophene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Total PAHs	10	--	ND	ND	ND	ND	ND	**NA**	NA	472	398	722	518	683	**559**	139	< 0.05	121	153	168	119	114	**135**	24	< 0.05

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

Italicized values indicate the analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.

ND = not detected

NA = not applicable

Appendix Table E-6. Summary of PAH Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal

Nereis virens

			Reference							Composite A								Composite B							
Analyte (µg/kg wet weight)	**RL**	**FDA[a]**	**9W**	**12W**	**4W**	**6W**	**10W**	**Mean**	**Std. Dev.**	**7W**	**5W**	**11W**	**14W**	**13W**	**Mean**	**Std. Dev.**	**p-value[b]**	**8W**	**2W**	**1W**	**3W**	**15W**	**Mean**	**Std. Dev.**	**p-value[b]**
Acenaphthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	12	ND	11	ND	ND	**11.5**	0.71	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Acenaphthylene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Anthracene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	10	**10.0**	NA	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (a) Anthracene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (a) Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (b) Fluoranthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	13	ND	10	**11.5**	2.12	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (e) Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	10	15	12	13	**12.5**	2.08	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (g,h,i) Perylene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Benzo (k) Fluoranthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	12	ND	11	**11.5**	0.71	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Biphenyl	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Chrysene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	14	11	12	**12.3**	1.53	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Dibenz (a,h) Anthracene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2,6-Dimethylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	10	**10.0**	NA	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Fluoranthene	10	--	ND	ND	ND	ND	ND	**NA**	NA	19	38	69	46	48	**44.0**	18.07	< 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
Fluorene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Indeno (1,2,3-c,d) Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
1-Methylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
1-Methylphenanthrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Naphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	11	ND	ND	ND	ND	**11.0**	NA	> 0.05
Perylene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Phenanthrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Pyrene	10	--	ND	ND	ND	ND	ND	**NA**	NA	38	77	140	95	88	**87.6**	36.65	< 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
1,6,7-Trimethylnaphthalene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Dibenzothiophene	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Total PAHs	10	--	ND	ND	ND	ND	ND	**NA**	NA	69	125	274	164	202	**166.8**	77.54	< 0.05	11	ND	ND	ND	ND	**11.0**	NA	> 0.05

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

Italicized values indicate the analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.

ND = not detected

NA = not applicable

Appendix Table E-7. Summary of PCB Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal

Macoma nasuta

			Reference							Composite A								Composite B							
Analyte (µg/kg wet weight)	**RL**	**FDA[a]**	**9C**	**12C**	**4C**	**6C**	**10C**	**Mean**	**Std. Dev.**	**7C**	**5C**	**11C**	**14C**	**13C**	**Mean**	**Std. Dev.**	**p-value[b]**	**8C**	**2C**	**1C**	**3C**	**15C**	**Mean**	**Std. Dev.**	**p-value[b]**
PCB003	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB008	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB018	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB028	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.54	ND	0.62	ND	ND	**0.58**	0.06	NA	ND	ND	0.51	ND	ND	**0.51**	NA	NA
PCB031	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	0.62	ND	0.64	**0.63**	0.01	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB033	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB037	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB044	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB049	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1	0.88	1.3	1.1	1	**1.06**	0.16	NA	0.83	0.86	1.1	0.64	0.73	**0.83**	0.2	NA
PCB052	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.68	0.76	0.89	0.77	1	**0.82**	0.13	NA	0.64	0.63	0.8	0.53	0.56	**0.63**	0.1	NA
PCB056	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB060	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB066	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.63	0.63	0.9	0.66	0.86	**0.74**	0.13	NA	0.64	0.62	0.82	0.58	0.59	**0.65**	0.1	NA
PCB070	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.71	0.66	0.76	0.67	0.8	**0.72**	0.06	NA	0.54	0.59	0.75	0.52	ND	**0.60**	0.1	NA
PCB074	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB077	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB081	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB087	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	0.52	ND	ND	**0.52**	NA	NA	ND	ND	0.56	ND	ND	**0.56**	NA	NA
PCB095	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.65	0.76	0.84	0.71	0.86	**0.76**	0.09	NA	0.79	0.98	1.2	0.8	0.88	**0.93**	0.2	NA
PCB097	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	0.64	ND	ND	**0.64**	NA	NA	0.52	0.61	0.73	ND	ND	**0.62**	0.1	NA
PCB099	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	0.67	0.69	0.84	0.5	0.6	**0.66**	0.1	NA
PCB101	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1	0.93	1.2	1.1	1.3	**1.11**	0.15	NA	1.5	1.4	1.7	1.1	1.3	**1.40**	0.2	NA
PCB105	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.58	ND	ND	0.51	0.51	**0.53**	0.04	NA	ND	0.56	0.58	ND	ND	**0.57**	0.0	NA
PCB110	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1	0.99	1.5	1.1	1.4	**1.20**	0.24	NA	1.5	1.4	1.7	1.1	1.3	**1.40**	0.2	NA
PCB114	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB118	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.92	0.76	1	0.84	1	**0.90**	0.10	NA	1.2	1.3	1.6	1	1.1	**1.24**	0.2	NA
PCB119	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB123	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB126	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB128	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	0.57	0.51	ND	**0.54**	0.0	NA
PCB132	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB138/158	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	1.4	1.4	2	1.4	1.3	**1.50**	0.3	NA
PCB141	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB149	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.57	0.51	0.77	0.68	0.73	**0.65**	0.11	NA	1	1.2	1.5	1	0.99	**1.14**	0.2	NA
PCB151	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	0.54	0.53	0.68	0.54	ND	**0.57**	0.1	NA
PCB153	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.94	0.89	1.2	0.93	1.1	**1.01**	0.13	NA	1.7	1.8	2.4	1.5	1.6	**1.80**	0.4	NA
PCB156	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB157	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB167	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB168	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB169	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB170	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB174	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB177	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB180	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	0.56	0.68	0.53	ND	**0.59**	0.1	NA
PCB183	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB184	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB187	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB189	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB194	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB195	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB200	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB201	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB203	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB206	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB209	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Total PCB Congeners	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	9.22	7.77	12.76	9.07	11.20	**10.00**	1.76	< 0.05	13.47	15.13	20.72	12.25	10.95	**14.50**	3.40	< 0.05

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable

Appendix Table E-8. Summary of PCB Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal

Nereis virens

			Reference							Composite A								Composite B							
Analyte (µg/kg wet weight)	**RL**	**FDA[a]**	**9C**	**12C**	**4C**	**6C**	**10C**	**Mean**	**Std. Dev.**	**7C**	**5C**	**11C**	**14C**	**13C**	**Mean**	**Std. Dev.**	**p-value[b]**	**8C**	**2C**	**1C**	**3C**	**15C**	**Mean**	**Std. Dev.**	**p-value[b]**
PCB003	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB008	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB018	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	0.69	ND	**0.69**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB028	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	0.57	0.62	0.64	**0.61**	0.04	NA	ND	0.52	ND	ND	ND	**0.52**	NA	NA
PCB031	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB033	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB037	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.51	ND	0.75	0.56	ND	**0.61**	0.13	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB044	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.53	ND	0.63	0.55	ND	**0.57**	0.05	NA	ND	0.55	ND	ND	ND	**0.55**	NA	NA
PCB049	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	0.57	ND	ND	**0.57**	NA	NA	ND	0.73	0.51	ND	0.65	**0.63**	0.11	NA
PCB052	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1.8	1.5	2.1	1.7	1.6	**1.74**	0.23	NA	1.1	1.3	0.89	0.66	1.4	**1.07**	0.30	NA
PCB056	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB060	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.66	ND	0.69	0.62	ND	**0.66**	0.04	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB066	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.73	0.62	0.79	0.77	0.72	**0.73**	0.07	NA	0.5	0.87	0.58	0.58	0.63	**0.63**	0.14	NA
PCB070	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB074	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB077	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB081	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB087	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB095	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1.5	1.2	1.3	1.4	1.2	**1.32**	0.13	NA	1.2	1.7	1.3	1.2	1.6	**1.40**	0.23	NA
PCB097	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.57	ND	0.53	ND	ND	**0.55**	0.03	NA	ND	0.56	ND	ND	0.69	**0.63**	0.09	NA
PCB099	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.67	ND	0.71	0.69	0.64	**0.68**	0.03	NA	0.7	0.88	0.62	0.6	1.2	**0.80**	0.25	NA
PCB101	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1.8	1.3	2.1	1.8	1.5	**1.70**	0.31	NA	1.7	2.1	1.5	1.5	3.8	**2.12**	0.97	NA
PCB105	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.53	ND	0.57	0.56	0.58	**0.56**	0.02	NA	ND	0.67	0.53	ND	0.85	**0.68**	0.16	NA
PCB110	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1.6	0.95	1.7	1.7	1.2	**1.43**	0.34	NA	1.2	1.3	1.1	0.95	1.5	**1.21**	0.21	NA
PCB114	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB118	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1	0.88	0.82	0.87	0.78	**0.87**	0.08	NA	0.81	1.5	0.94	0.87	1.2	**1.06**	0.29	NA
PCB119	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB123	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB126	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB128	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB132	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB138/158	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	1.7	1.3	1.3	1.3	1.2	**1.36**	0.19	NA	1.6	2.4	1.6	1.6	2.2	**1.88**	0.39	NA
PCB141	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB149	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	1	0.85	0.91	1	0.91	**0.93**	0.07	NA	1	1.8	1.2	1.1	1.7	**1.36**	0.36	NA
PCB151	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	0.51	ND	**0.51**	NA	NA	0.55	0.54	0.64	0.57	0.72	**0.60**	0.08	NA
PCB153	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	2.2	1.7	1.9	1.9	1.7	**1.88**	0.20	NA	2.3	2.9	2.2	2.1	5.5	**3.00**	1.43	NA
PCB156	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB157	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB167	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB168	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB169	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB170	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	0.54	ND	ND	ND	**0.54**	NA	NA
PCB174	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB177	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB180	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.68	0.55	ND	ND	ND	**0.62**	0.09	NA	0.62	1.2	0.75	0.61	0.67	**0.77**	0.25	NA
PCB183	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB184	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB187	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	0.72	0.51	0.59	0.58	0.52	**0.58**	0.08	NA	0.66	1	0.65	0.66	1.1	**0.81**	0.22	NA
PCB189	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB194	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB195	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB200	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB201	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB203	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB206	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
PCB209	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Total PCB Congeners	0.5	--	ND	ND	ND	ND	ND	**NA**	NA	18.20	11.36	18.53	17.82	13.19	**15.82**	2.96	< 0.05	13.94	23.06	15.01	13.00	25.41	**18.08**	5.12	< 0.05

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable

Appendix Table E-9. Summary of Pesticide Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal

Macoma nasuta

			Reference							Composite A								Composite B							
Analyte (µg/kg wet weight)	**RL**	**FDA[a]**	**9C**	**12C**	**4C**	**6C**	**10C**	**Mean**	**Std. Dev.**	**7C**	**5C**	**11C**	**14C**	**13C**	**Mean**	**Std. Dev.**	**p-value[b]**	**8C**	**2C**	**1C**	**3C**	**15C**	**Mean**	**Std. Dev.**	**p-value[b]**
2,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2,4'-DDE	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
4,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	1.1	ND	1.5	ND	ND	**1.30**	0.28	> 0.05	ND	ND	ND	ND	ND	**NA**	NA	NA
4,4'-DDE	1.0	5000	8.9	4.3	10	9.8	12	**9**	3	6	5.5	7.3	6.5	7.1	**6.48**	0.75	0.047	11	11	12	10	11	**11.00**	0.71	0.08
4,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Aldrin	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Alpha Chlordane	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Alpha-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Beta-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Delta-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Dieldrin	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endosulfan I	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endosulfan II	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endosulfan Sulfate	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endrin	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endrin Aldehyde	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endrin Ketone	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Gamma Chlordane	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Gamma-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Heptachlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Heptachlor Epoxide	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Methoxychlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Chlordane	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Cis-nonachlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Toxaphene	25	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Trans-nonachlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Oxychlordane	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable

Appendix Table E-10. Summary of Pesticide Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - YTI Terminal

Nereis virens

			Reference							Composite A								Composite B							
Analyte (µg/kg wet weight)	**RL**	**FDA[a]**	**9W**	**12W**	**4W**	**6W**	**10W**	**Mean**	**Std. Dev.**	**7W**	**5W**	**11W**	**14W**	**13W**	**Mean**	**Std. Dev.**	**p-value[b]**	**8W**	**2W**	**1W**	**3W**	**15W**	**Mean**	**Std. Dev.**	**p-value[b]**
2,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2,4'-DDE	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
2,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
4,4'-DDD	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
4,4'-DDE	1.0	5000	1.7	ND	1.7	1.2	1.9	**1.63**	0.30	3.2	2.7	3.6	3	2.7	**3.04**	0.38	0.00010	2.7	4.7	3.8	3	3.4	**3.52**	0.78	0.0004
4,4'-DDT	1.0	5000	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	4.7	ND	ND	ND	**4.70**	NA	NA
Aldrin	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Alpha Chlordane	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Alpha-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Beta-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Delta-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Dieldrin	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endosulfan I	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endosulfan II	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endosulfan Sulfate	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endrin	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endrin Aldehyde	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Endrin Ketone	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Gamma Chlordane	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Gamma-BHC	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Heptachlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Heptachlor Epoxide	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Methoxychlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Chlordane	10	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Cis-nonachlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Toxaphene	25	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA
Trans-nonachlor	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	1	ND	ND	ND	ND	**1.00**	NA	> 0.05	1.2	ND	ND	ND	ND	**1.20**	NA	> 0.05
Oxychlordane	1.0	--	ND	ND	ND	ND	ND	**NA**	NA	ND	ND	ND	ND	ND	**NA**	NA	NA	ND	ND	ND	ND	ND	**NA**	NA	NA

[a] FDA action limits are reported in wet weight.

[b] One-tailed unpaired t-tests were performed

RL = reporting limit

ND = not detected

NA = not applicable

Calscience Environmental Laboratories, Inc.

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WORK ORDER NUMBER: 13-08-0936

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Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: Berths 212-224 YTI Terminal

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 08/29/2013 by:
Danielle Gonsman
Project Manager

ResultLink

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 13-08-0936
Project ID: Berths 212-224 YTI Terminal

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the tissue samples.

Sample Condition on Receipt

Thirty tissue samples were received for this project on August 13, 2013. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.4°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

Sample Preparation

The tissue samples were thawed and homogenized using a stainless steel blending device. The homogenization unit was thoroughly cleaned between the tissue samples. Samples were composited according the client's instructions listed on the COC.

After extractions, the tissue extracts were subjected to appropriate clean-up procedures. The samples were then analyzed in accordance with the instructions listed on the Chain of Custody for the following methods:

Total Solids by SM 2540B
Percent Lipids by MeCl2 Ext (NOAA 1993a)
Trace Metals by EPA 6020/7471
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs by EPA 8270C SIM

Data Summary

Holding times

All holding times were met.

Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing.

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Reporting Limits

The Method Detection Limits were met.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits with the following exception.

The Acenaphthene recovery was outside of standard control limits. However, the recovery was within the ME limits, therefore the results are released with no further action.

Matrix Spikes

Matrix spiking was performed at the required frequencies for the tissues on project and non-project samples. All matrix spike parameters outside the acceptable control limits were noted below.

For Metals by EPA 6020, in one QC batch, the Zinc MSD recovery was above the control limits. In the second QC batch, the Copper and Silver MS/MSDs were outside the control limits and the Zinc sample concentration was over four times the spike level so the recovery could not be determined. Since all LCS/LCSD recoveries were acceptable, the data is released.

For Mercury by EPA 7471A, the recoveries in one MS/MSD pair was low outside of acceptance limits. The other MS/MSD pair was within acceptance limits and the LCS/LCSD recoveries were within acceptance limits.

Several of the Chlorinated Pesticides (by EPA 8081A) matrix spike and/or matrix spike duplicate recoveries were outside of acceptance limits. Since the LCS/LCSD recoveries were acceptable, the data is released.

Surrogates

Surrogate recoveries for all applicable tests and samples were within acceptable control limits.

Acronyms

LCS - Laboratory Control Sample
PDS - Post Digestion Spike
MS/MSD- Matrix Spike/Matrix Spike Duplicate
ME-Marginal Exceedance
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-08-0936 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 08/13/13. They were assigned to Work Order 13-08-0936.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client: AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Work Order: 13-08-0936
Project Name: Berths 212-224 YTI Terminal
PO Number:
Date/Time Received: 08/13/13 18:50
Number of Containers: 30

Attn: Barry Snyder

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
1C	13-08-0936-1	08/10/13 15:00	1	Tissue
2C	13-08-0936-2	08/10/13 15:00	1	Tissue
3C	13-08-0936-3	08/10/13 15:00	1	Tissue
4C	13-08-0936-4	08/10/13 15:00	1	Tissue
5C	13-08-0936-5	08/10/13 15:00	1	Tissue
6C	13-08-0936-6	08/10/13 15:00	1	Tissue
7C	13-08-0936-7	08/10/13 15:00	1	Tissue
8C	13-08-0936-8	08/10/13 15:00	1	Tissue
9C	13-08-0936-9	08/10/13 15:00	1	Tissue
10C	13-08-0936-10	08/10/13 15:00	1	Tissue
11C	13-08-0936-11	08/10/13 15:00	1	Tissue
12C	13-08-0936-12	08/10/13 15:00	1	Tissue
13C	13-08-0936-13	08/10/13 15:00	1	Tissue
14C	13-08-0936-14	08/10/13 15:00	1	Tissue
15C	13-08-0936-15	08/10/13 15:00	1	Tissue
1W	13-08-0936-16	08/10/13 13:00	1	Tissue
2W	13-08-0936-17	08/10/13 13:00	1	Tissue
3W	13-08-0936-18	08/10/13 13:00	1	Tissue
4W	13-08-0936-19	08/10/13 13:00	1	Tissue
5W	13-08-0936-20	08/10/13 13:00	1	Tissue
6W	13-08-0936-21	08/10/13 13:00	1	Tissue
7W	13-08-0936-22	08/10/13 13:00	1	Tissue
8W	13-08-0936-23	08/10/13 13:00	1	Tissue
9W	13-08-0936-24	08/10/13 13:00	1	Tissue
10W	13-08-0936-25	08/10/13 13:00	1	Tissue
11W	13-08-0936-26	08/10/13 13:00	1	Tissue
12W	13-08-0936-27	08/10/13 13:00	1	Tissue
13W	13-08-0936-28	08/10/13 13:00	1	Tissue
14W	13-08-0936-29	08/10/13 13:00	1	Tissue
15W	13-08-0936-30	08/10/13 13:00	1	Tissue

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	14.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	14.8	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	13.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	15.9	0.100	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	13.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	13.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	15.0	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.2	0.100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.6	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.3	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	15.3	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	19.5	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.4	0.100	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
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
11W	**13-08-0936-26-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.9	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.2	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.9	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-2306**	**N/A**	**Soil**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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	**099-05-019-2307**	**N/A**	**Soil**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	ND	0.100	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.57	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.60	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.61	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.71	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.50	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.65	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.44	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.55	0.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.60	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.62	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.55	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.28	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.53	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.50	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.47	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.6	0.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.8	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.6	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.5	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.4	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.2	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.3	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.5	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.4	0.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.4	0.10	1			
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.5	0.10	1			
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.1	0.10	1			
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.3	0.10	1			
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.4	0.10	1			
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.8	0.10	1			
Method Blank	**099-14-104-36**	**N/A**	**Soil**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		ND	0.10	1			
Method Blank	**099-14-104-37**	**N/A**	**Soil**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		ND	0.10	1			

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:44**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	3.21	0.100	1	
Cadmium	ND	0.100	1	
Chromium	1.06	0.0200	1	
Copper	2.19	0.100	1	
Lead	0.439	0.100	1	
Nickel	0.914	0.100	1	
Selenium	0.326	0.100	1	
Silver	ND	0.100	1	
Zinc	14.1	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:47**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.48	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.392	0.0200	1	
Copper	2.09	0.100	1	
Lead	0.462	0.100	1	
Nickel	0.527	0.100	1	
Selenium	0.312	0.100	1	
Silver	ND	0.100	1	
Zinc	12.5	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:50**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.68	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.417	0.0200	1	
Copper	1.95	0.100	1	
Lead	0.357	0.100	1	
Nickel	0.443	0.100	1	
Selenium	0.236	0.100	1	
Silver	ND	0.100	1	
Zinc	13.2	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:53**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.21	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.163	0.0200	1	
Copper	1.39	0.100	1	
Lead	0.138	0.100	1	
Nickel	0.376	0.100	1	
Selenium	0.264	0.100	1	
Silver	ND	0.100	1	
Zinc	11.4	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:56**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.39	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.227	0.0200	1	
Copper	1.78	0.100	1	
Lead	0.313	0.100	1	
Nickel	0.350	0.100	1	
Selenium	0.192	0.100	1	
Silver	ND	0.100	1	
Zinc	12.8	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:59**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.50	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.223	0.0200	1	
Copper	1.37	0.100	1	
Lead	0.144	0.100	1	
Nickel	0.410	0.100	1	
Selenium	0.262	0.100	1	
Silver	ND	0.100	1	
Zinc	11.7	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:02**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.54	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.181	0.0200	1	
Copper	1.66	0.100	1	
Lead	0.284	0.100	1	
Nickel	0.305	0.100	1	
Selenium	0.226	0.100	1	
Silver	ND	0.100	1	
Zinc	12.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:05**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.34	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.270	0.0200	1	
Copper	1.73	0.100	1	
Lead	0.288	0.100	1	
Nickel	0.403	0.100	1	
Selenium	0.317	0.100	1	
Silver	ND	0.100	1	
Zinc	11.2	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:08**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.65	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.173	0.0200	1	
Copper	1.50	0.100	1	
Lead	0.161	0.100	1	
Nickel	0.377	0.100	1	
Selenium	0.289	0.100	1	
Silver	ND	0.100	1	
Zinc	12.4	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:11**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.60	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.201	0.0200	1	
Copper	1.62	0.100	1	
Lead	0.172	0.100	1	
Nickel	0.398	0.100	1	
Selenium	0.276	0.100	1	
Silver	ND	0.100	1	
Zinc	11.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:20**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.26	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.194	0.0200	1	
Copper	1.51	0.100	1	
Lead	0.306	0.100	1	
Nickel	0.287	0.100	1	
Selenium	0.226	0.100	1	
Silver	ND	0.100	1	
Zinc	11.5	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:23**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.15	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.158	0.0200	1	
Copper	1.49	0.100	1	
Lead	0.146	0.100	1	
Nickel	0.334	0.100	1	
Selenium	0.228	0.100	1	
Silver	ND	0.100	1	
Zinc	9.62	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:26**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.51	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.242	0.0200	1	
Copper	1.76	0.100	1	
Lead	0.360	0.100	1	
Nickel	0.372	0.100	1	
Selenium	0.252	0.100	1	
Silver	ND	0.100	1	
Zinc	12.3	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:29**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.80	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.185	0.0200	1	
Copper	1.73	0.100	1	
Lead	0.293	0.100	1	
Nickel	0.388	0.100	1	
Selenium	0.202	0.100	1	
Silver	ND	0.100	1	
Zinc	12.3	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:32**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.39	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.268	0.0200	1	
Copper	1.81	0.100	1	
Lead	0.343	0.100	1	
Nickel	0.339	0.100	1	
Selenium	0.217	0.100	1	
Silver	ND	0.100	1	
Zinc	12.0	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:35**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.58	0.100	1	
Cadmium	ND	0.100	1	
Chromium	1.08	0.0200	1	
Copper	1.81	0.100	1	
Lead	ND	0.100	1	
Nickel	0.855	0.100	1	
Selenium	0.338	0.100	1	
Silver	ND	0.100	1	
Zinc	30.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:38**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.55	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.350	0.0200	1	
Copper	1.73	0.100	1	
Lead	ND	0.100	1	
Nickel	0.307	0.100	1	
Selenium	0.375	0.100	1	
Silver	ND	0.100	1	
Zinc	12.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:41**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.26	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.441	0.0200	1	
Copper	1.57	0.100	1	
Lead	ND	0.100	1	
Nickel	0.366	0.100	1	
Selenium	0.295	0.100	1	
Silver	ND	0.100	1	
Zinc	18.8	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:44**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.32	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.171	0.0200	1	
Copper	1.30	0.100	1	
Lead	ND	0.100	1	
Nickel	0.256	0.100	1	
Selenium	0.320	0.100	1	
Silver	ND	0.100	1	
Zinc	25.2	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:47**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.03	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.243	0.0200	1	
Copper	1.38	0.100	1	
Lead	ND	0.100	1	
Nickel	0.242	0.100	1	
Selenium	0.295	0.100	1	
Silver	ND	0.100	1	
Zinc	25.8	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:10**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.40	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.186	0.0200	1	
Copper	1.31	0.100	1	
Lead	ND	0.100	1	
Nickel	0.320	0.100	1	
Selenium	0.304	0.100	1	
Silver	ND	0.100	1	
Zinc	24.7	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:13**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	1.90	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.128	0.0200	1	
Copper	1.51	0.100	1	
Lead	ND	0.100	1	
Nickel	0.228	0.100	1	
Selenium	0.239	0.100	1	
Silver	ND	0.100	1	
Zinc	15.4	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:16**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.39	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.199	0.0200	1	
Copper	1.65	0.100	1	
Lead	ND	0.100	1	
Nickel	0.315	0.100	1	
Selenium	0.252	0.100	1	
Silver	ND	0.100	1	
Zinc	30.6	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:19**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.23	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.132	0.0200	1	
Copper	1.29	0.100	1	
Lead	ND	0.100	1	
Nickel	0.293	0.100	1	
Selenium	0.187	0.100	1	
Silver	ND	0.100	1	
Zinc	16.1	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:22**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.02	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.0938	0.0200	1	
Copper	1.24	0.100	1	
Lead	ND	0.100	1	
Nickel	0.243	0.100	1	
Selenium	0.285	0.100	1	
Silver	ND	0.100	1	
Zinc	14.2	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:25**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.05	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.297	0.0200	1	
Copper	1.42	0.100	1	
Lead	ND	0.100	1	
Nickel	0.305	0.100	1	
Selenium	0.221	0.100	1	
Silver	ND	0.100	1	
Zinc	11.5	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:28**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.17	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.230	0.0200	1	
Copper	1.25	0.100	1	
Lead	ND	0.100	1	
Nickel	0.266	0.100	1	
Selenium	0.266	0.100	1	
Silver	ND	0.100	1	
Zinc	35.4	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:31**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.31	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.157	0.0200	1	
Copper	1.33	0.100	1	
Lead	ND	0.100	1	
Nickel	0.250	0.100	1	
Selenium	0.258	0.100	1	
Silver	ND	0.100	1	
Zinc	10.9	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:34**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.17	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.106	0.0200	1	
Copper	1.31	0.100	1	
Lead	ND	0.100	1	
Nickel	0.207	0.100	1	
Selenium	0.229	0.100	1	
Silver	ND	0.100	1	
Zinc	18.9	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:37**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	2.13	0.100	1	
Cadmium	ND	0.100	1	
Chromium	0.120	0.0200	1	
Copper	1.60	0.100	1	
Lead	ND	0.100	1	
Nickel	0.196	0.100	1	
Selenium	0.207	0.100	1	
Silver	ND	0.100	1	
Zinc	21.2	1.00	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-258-20**	**N/A**	**Soil**	**ICP/MS 03**	**08/15/13**	**08/16/13 19:59**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-258-21**	**N/A**	**Soil**	**ICP/MS 03**	**08/15/13**	**08/16/13 19:18**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:28**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:35**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:37**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:39**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:41**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:43**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:46**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:52**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:55**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:57**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:59**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:01**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:03**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:06**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:08**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:10**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:12**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:19**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:22**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:24**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:26**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:32**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:35**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:37**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:39**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:46**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:48**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:50**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:53**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:55**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-46**	**N/A**	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:51**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-47**	**N/A**	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:49**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:09**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	89	50-135	
Dibutylchlorendate	79	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 21:25**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	12	5.0	2.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchlorendate	79	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:23**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	
Dibutylchlorendate	81	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 21:39**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	11	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchlorendate	86	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:38**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	
Dibutylchlorendate	80	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 21:53**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	10	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	107	50-135	
Dibutylchlorendate	92	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:52**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	88	50-135	
Dibutylchlorendate	77	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:08**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	10	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	98	50-135	
Dibutylchlorendate	85	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:06**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	5.5	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	82	50-135	
Dibutylchlorendate	82	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:21**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	
Dibutylchlorendate	83	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:22**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	9.8	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	93	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:35**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	1.1	1.0	0.5	
4,4'-DDE	6.0	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	117	50-135	
Dibutylchlorendate	81	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:49**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	84	50-135	
Dibutylchlorendate	78	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:36**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	11	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	86	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 16:04**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	91	50-135	
Dibutylchlorendate	88	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:51**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	8.9	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	97	50-135	
Dibutylchlorendate	97	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 16:18**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchlorendate	88	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 23:05**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	12	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	101	50-135	
Dibutylchlorendate	99	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 19:27**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	1.5	1.0	0.5	
4,4'-DDE	7.3	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	93	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 19:41**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	4.3	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	82	50-135	
Dibutylchlorendate	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 10:57**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	7.1	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchlorendate	70	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:11**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	6.5	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	75	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:26**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	74	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 18:25**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	11	2.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchlorendate	74	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:40**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.8	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	88	50-135	
Dibutylchlorendate	89	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:54**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	4.7	1.0	0.5	
4,4'-DDT	4.7	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	88	50-135	
Dibutylchlorendate	77	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:08**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.0	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	87	50-135	
Dibutylchlorendate	91	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:23**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchlorendate	80	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:37**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	2.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	
Dibutylchlorendate	71	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:51**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.2	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	89	50-135	
Dibutylchlorendate	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:06**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.2	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	1.0	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	103	50-135	
Dibutylchlorendate	90	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:20**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	2.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	1.2	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	108	50-135	
Dibutylchlorendate	98	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:34**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	99	50-135	
Dibutylchlorendate	97	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:48**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	1.9	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	85	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:03**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.6	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	97	50-135	
Dibutylchlorendate	83	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:17**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	
Dibutylchlorendate	67	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:31**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	2.7	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	63	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:45**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.0	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	93	50-135	
Dibutylchlorendate	75	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 15:00**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	3.4	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	
Dibutylchlorendate	56	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-294-22**	**N/A**	**Soil**	**GC 51**	**08/16/13**	**08/23/13 13:55**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	105	50-135	
Dibutylchlorendate	102	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-294-23**	**N/A**	**Soil**	**GC 51**	**08/16/13**	**08/24/13 10:43**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	121	50-135	
Dibutylchlorendate	105	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 13:27**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	30	10	1	
Benzo (b) Fluoranthene	46	10	1	
Benzo (e) Pyrene	30	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	33	10	1	
Biphenyl	ND	10	1	
Chrysene	12	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	17	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	110	14-146	
Nitrobenzene-d5	97	18-162	
p-Terphenyl-d14	138	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 13:53**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	27	10	1	
Benzo (b) Fluoranthene	42	10	1	
Benzo (e) Pyrene	26	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	29	10	1	
Biphenyl	ND	10	1	
Chrysene	10	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	19	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	100	14-146	
Nitrobenzene-d5	88	18-162	
p-Terphenyl-d14	118	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 14:20**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	21	10	1	
Benzo (b) Fluoranthene	35	10	1	
Benzo (e) Pyrene	22	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	26	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	15	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	99	14-146	
Nitrobenzene-d5	105	18-162	
p-Terphenyl-d14	116	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 14:46**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	96	14-146	
Nitrobenzene-d5	97	18-162	
p-Terphenyl-d14	114	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 15:12**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	12	10	1	
Benzo (a) Pyrene	29	10	1	
Benzo (b) Fluoranthene	41	10	1	
Benzo (e) Pyrene	28	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	27	10	1	
Biphenyl	ND	10	1	
Chrysene	18	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	63	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	180	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	81	18-162	
p-Terphenyl-d14	107	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 15:39**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	111	14-146	
Nitrobenzene-d5	103	18-162	
p-Terphenyl-d14	128	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 18:09**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	24	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	13	10	1	
Benzo (a) Pyrene	33	10	1	
Benzo (b) Fluoranthene	46	10	1	
Benzo (e) Pyrene	31	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	34	10	1	
Biphenyl	ND	10	1	
Chrysene	21	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	70	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	200	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	102	14-146	
Nitrobenzene-d5	96	18-162	
p-Terphenyl-d14	125	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 18:35**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	23	10	1	
Benzo (b) Fluoranthene	35	10	1	
Benzo (e) Pyrene	22	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	26	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	15	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	95	14-146	
Nitrobenzene-d5	86	18-162	
p-Terphenyl-d14	115	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 19:02**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	103	14-146	
Nitrobenzene-d5	119	18-162	
p-Terphenyl-d14	115	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 19:28**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	106	14-146	
Nitrobenzene-d5	114	18-162	
p-Terphenyl-d14	120	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 19:54**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	14	10	1	
Benzo (a) Anthracene	20	10	1	
Benzo (a) Pyrene	48	10	1	
Benzo (b) Fluoranthene	67	10	1	
Benzo (e) Pyrene	46	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	51	10	1	
Biphenyl	ND	10	1	
Chrysene	33	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	120	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	13	10	1	
Phenanthrene	ND	10	1	
Pyrene	310	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	122	14-146	
Nitrobenzene-d5	120	18-162	
p-Terphenyl-d14	143	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 20:21**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	96	14-146	
Nitrobenzene-d5	80	18-162	
p-Terphenyl-d14	112	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 20:47**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	12	10	1	
Benzo (a) Anthracene	18	10	1	
Benzo (a) Pyrene	44	10	1	
Benzo (b) Fluoranthene	62	10	1	
Benzo (e) Pyrene	42	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	45	10	1	
Biphenyl	ND	10	1	
Chrysene	28	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	110	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	12	10	1	
Phenanthrene	ND	10	1	
Pyrene	310	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	117	14-146	
Nitrobenzene-d5	112	18-162	
p-Terphenyl-d14	136	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 21:13**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	14	10	1	
Benzo (a) Pyrene	36	10	1	
Benzo (b) Fluoranthene	50	10	1	
Benzo (e) Pyrene	34	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	38	10	1	
Biphenyl	ND	10	1	
Chrysene	23	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	83	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	10	10	1	
Phenanthrene	ND	10	1	
Pyrene	230	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	111	14-146	
Nitrobenzene-d5	109	18-162	
p-Terphenyl-d14	127	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 21:40**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	21	10	1	
Benzo (b) Fluoranthene	33	10	1	
Benzo (e) Pyrene	21	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	25	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	14	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	102	14-146	
Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	119	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 22:06**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	98	14-146	
Nitrobenzene-d5	81	18-162	
p-Terphenyl-d14	112	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 22:32**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	70	18-162	
p-Terphenyl-d14	105	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 22:59**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	116	14-146	
Nitrobenzene-d5	105	18-162	
p-Terphenyl-d14	132	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 23:25**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	110	14-146	
Nitrobenzene-d5	79	18-162	
p-Terphenyl-d14	124	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 23:51**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	10	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	38	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	77	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	72	18-162	
p-Terphenyl-d14	103	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 00:18**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	104	14-146	
Nitrobenzene-d5	76	18-162	
p-Terphenyl-d14	117	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 00:44**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	12	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	19	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	38	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	101	14-146	
Nitrobenzene-d5	70	18-162	
p-Terphenyl-d14	113	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 01:10**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	11	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	136	14-146	
Nitrobenzene-d5	101	18-162	
p-Terphenyl-d14	147	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 01:36**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	107	14-146	
Nitrobenzene-d5	78	18-162	
p-Terphenyl-d14	120	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 02:03**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	126	14-146	
Nitrobenzene-d5	101	18-162	
p-Terphenyl-d14	141	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 02:29**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	11	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	13	10	1	
Benzo (e) Pyrene	15	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	12	10	1	
Biphenyl	ND	10	1	
Chrysene	14	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	69	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	140	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	84	18-162	
p-Terphenyl-d14	122	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 02:55**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	91	14-146	
Nitrobenzene-d5	77	18-162	
p-Terphenyl-d14	103	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 03:21**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	10	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	10	10	1	
Benzo (e) Pyrene	13	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	11	10	1	
Biphenyl	ND	10	1	
Chrysene	12	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	10	10	1	
Fluoranthene	48	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	88	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	88	18-162	
p-Terphenyl-d14	130	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 03:48**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	12	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	11	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	46	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	95	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	126	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 04:14**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	103	14-146	
Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	117	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-943-5**	**N/A**	**Soil**	**GC/MS AAA**	**08/16/13**	**08/23/13 11:15**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	108	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	128	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-943-6**	**N/A**	**Soil**	**GC/MS AAA**	**08/16/13**	**08/23/13 16:05**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	84	18-162	
p-Terphenyl-d14	106	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 14:18**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.51	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.1	0.50	1	
PCB052	0.80	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.82	0.50	1	
PCB070	0.75	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	0.56	0.50	1	
PCB095	1.2	0.50	1	
PCB097	0.73	0.50	1	
PCB099	0.84	0.50	1	
PCB101	1.7	0.50	1	
PCB105	0.58	0.50	1	
PCB110	1.7	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.6	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	0.57	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	2.0	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.5	0.50	1	
PCB151	0.68	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	2.4	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.68	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	100	14-146	
p-Terphenyl-d14	117	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 14:48**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.86	0.50	1	
PCB052	0.63	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.62	0.50	1	
PCB070	0.59	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.98	0.50	1	
PCB097	0.61	0.50	1	
PCB099	0.69	0.50	1	
PCB101	1.4	0.50	1	
PCB105	0.56	0.50	1	
PCB110	1.4	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.3	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.2	0.50	1	
PCB151	0.53	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.8	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.56	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	14-146	
p-Terphenyl-d14	98	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 15:18**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.64	0.50	1	
PCB052	0.53	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.58	0.50	1	
PCB070	0.52	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.80	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.50	0.50	1	
PCB101	1.1	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.1	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	0.51	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.54	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.5	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.53	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	14-146	
p-Terphenyl-d14	103	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 15:48**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	84	14-146	
p-Terphenyl-d14	111	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 16:17**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.88	0.50	1	
PCB052	0.76	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.63	0.50	1	
PCB070	0.66	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.76	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	0.93	0.50	1	
PCB105	ND	0.50	1	
PCB110	0.99	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.76	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.51	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	0.89	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	14-146	
p-Terphenyl-d14	99	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 16:47**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	69	14-146	
p-Terphenyl-d14	92	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 17:18**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.54	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.0	0.50	1	
PCB052	0.68	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.63	0.50	1	
PCB070	0.71	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.65	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.0	0.50	1	
PCB105	0.58	0.50	1	
PCB110	1.0	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.92	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.57	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	0.94	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	78	14-146	
p-Terphenyl-d14	114	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 17:48**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.83	0.50	1	
PCB052	0.64	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.64	0.50	1	
PCB070	0.54	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.79	0.50	1	
PCB097	0.52	0.50	1	
PCB099	0.67	0.50	1	
PCB101	1.5	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.5	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.2	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.54	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.7	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	74	14-146	
p-Terphenyl-d14	109	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 18:17**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	79	14-146	
p-Terphenyl-d14	105	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 18:48**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	75	14-146	
p-Terphenyl-d14	103	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 19:17**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.62	0.50	1	
PCB031	0.62	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.3	0.50	1	
PCB052	0.89	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.90	0.50	1	
PCB070	0.76	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	0.52	0.50	1	
PCB095	0.84	0.50	1	
PCB097	0.64	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.2	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.5	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.77	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.2	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	73	14-146	
p-Terphenyl-d14	106	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 19:46**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	64	14-146	
p-Terphenyl-d14	87	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 20:14**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	0.64	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.0	0.50	1	
PCB052	1.0	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.86	0.50	1	
PCB070	0.80	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.86	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.3	0.50	1	
PCB105	0.51	0.50	1	
PCB110	1.4	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.73	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.1	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	74	14-146	
p-Terphenyl-d14	107	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 20:43**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	1.1	0.50	1	
PCB052	0.77	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.66	0.50	1	
PCB070	0.67	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.71	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.1	0.50	1	
PCB105	0.51	0.50	1	
PCB110	1.1	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.84	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.68	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	0.93	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	72	14-146	
p-Terphenyl-d14	105	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 21:12**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.73	0.50	1	
PCB052	0.56	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.59	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	0.88	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.60	0.50	1	
PCB101	1.3	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.3	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.1	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.99	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.6	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	70	14-146	
p-Terphenyl-d14	102	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 02:51**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.51	0.50	1	
PCB052	0.89	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.58	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.3	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.62	0.50	1	
PCB101	1.5	0.50	1	
PCB105	0.53	0.50	1	
PCB110	1.1	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.94	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.6	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.2	0.50	1	
PCB151	0.64	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	2.2	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.75	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.65	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	55	14-146	
p-Terphenyl-d14	86	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/26/13 16:43**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.52	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	0.55	0.50	1	
PCB049	0.73	0.50	1	
PCB052	1.3	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.87	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.7	0.50	1	
PCB097	0.56	0.50	1	
PCB099	0.88	0.50	1	
PCB101	2.1	0.50	1	
PCB105	0.67	0.50	1	
PCB110	1.3	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.5	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	2.4	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.8	0.50	1	
PCB151	0.54	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	2.9	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	0.54	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	1.2	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	1.0	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	76	14-146	
p-Terphenyl-d14	88	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 03:47**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	0.66	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.58	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.60	0.50	1	
PCB101	1.5	0.50	1	
PCB105	ND	0.50	1	
PCB110	0.95	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.87	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.6	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.1	0.50	1	
PCB151	0.57	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	2.1	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.61	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.66	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	64	14-146	
p-Terphenyl-d14	102	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 04:15**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	67	14-146	
p-Terphenyl-d14	103	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 04:42**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.5	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.62	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	1.3	0.50	1	
PCB105	ND	0.50	1	
PCB110	0.95	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.88	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.85	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.7	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.55	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.51	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	60	14-146	
p-Terphenyl-d14	90	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 05:10**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	65	14-146	
p-Terphenyl-d14	95	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 05:38**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	0.51	0.50	1	
PCB044	0.53	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.8	0.50	1	
PCB056	ND	0.50	1	
PCB060	0.66	0.50	1	
PCB066	0.73	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.5	0.50	1	
PCB097	0.57	0.50	1	
PCB099	0.67	0.50	1	
PCB101	1.8	0.50	1	
PCB105	0.53	0.50	1	
PCB110	1.6	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.0	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.7	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	2.2	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.68	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.72	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	72	14-146	
p-Terphenyl-d14	109	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 06:05**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.1	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.50	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.70	0.50	1	
PCB101	1.7	0.50	1	
PCB105	ND	0.50	1	
PCB110	1.2	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.81	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.6	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.55	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	2.3	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.62	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.66	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	68	14-146	
p-Terphenyl-d14	101	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 06:34**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	61	14-146	
p-Terphenyl-d14	91	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 07:01**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	63	14-146	
p-Terphenyl-d14	90	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 07:29**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.57	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	0.75	0.50	1	
PCB044	0.63	0.50	1	
PCB049	0.57	0.50	1	
PCB052	2.1	0.50	1	
PCB056	ND	0.50	1	
PCB060	0.69	0.50	1	
PCB066	0.79	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.3	0.50	1	
PCB097	0.53	0.50	1	
PCB099	0.71	0.50	1	
PCB101	2.1	0.50	1	
PCB105	0.57	0.50	1	
PCB110	1.7	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.82	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.91	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.9	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.59	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	61	14-146	
p-Terphenyl-d14	91	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/26/13 14:10**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	72	14-146	
p-Terphenyl-d14	99	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 08:25**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	0.64	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.6	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.72	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.2	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.64	0.50	1	
PCB101	1.5	0.50	1	
PCB105	0.58	0.50	1	
PCB110	1.2	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.78	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.2	1.0	1	
PCB141	ND	0.50	1	
PCB149	0.91	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.7	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.52	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	60	14-146	
p-Terphenyl-d14	84	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 08:52**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	0.69	0.50	1	
PCB028	0.62	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	0.56	0.50	1	
PCB044	0.55	0.50	1	
PCB049	ND	0.50	1	
PCB052	1.7	0.50	1	
PCB056	ND	0.50	1	
PCB060	0.62	0.50	1	
PCB066	0.77	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.4	0.50	1	
PCB097	ND	0.50	1	
PCB099	0.69	0.50	1	
PCB101	1.8	0.50	1	
PCB105	0.56	0.50	1	
PCB110	1.7	0.50	1	
PCB114	ND	0.50	1	
PCB118	0.87	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	1.3	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.0	0.50	1	
PCB151	0.51	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	1.9	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	0.58	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	73	14-146	
p-Terphenyl-d14	102	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 09:20**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	0.65	0.50	1	
PCB052	1.4	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	0.63	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	1.6	0.50	1	
PCB097	0.69	0.50	1	
PCB099	1.2	0.50	1	
PCB101	3.8	0.50	1	
PCB105	0.85	0.50	1	
PCB110	1.5	0.50	1	
PCB114	ND	0.50	1	
PCB118	1.2	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	2.2	1.0	1	
PCB141	ND	0.50	1	
PCB149	1.7	0.50	1	
PCB151	0.72	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	5.5	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	0.67	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	1.1	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	64	14-146	
p-Terphenyl-d14	90	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-318-35**	**N/A**	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 13:49**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	93	14-146	
p-Terphenyl-d14	102	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-318-36**	**N/A**	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 23:35**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	83	14-146	
p-Terphenyl-d14	117	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
1C	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:08**	**130815S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.207	12.50	16.17	104	16.36	105	80-120	1	0-20	
Cadmium	ND	12.50	13.83	111	13.20	106	80-120	5	0-20	
Chromium	1.059	12.50	14.79	110	13.61	100	80-120	8	0-20	
Copper	2.189	12.50	15.04	103	15.60	107	80-120	4	0-20	
Lead	0.4390	12.50	13.72	106	13.48	104	80-120	2	0-20	
Nickel	0.9137	12.50	14.61	110	13.49	101	80-120	8	0-20	
Selenium	0.3260	12.50	14.61	114	13.46	105	80-120	8	0-20	
Silver	ND	6.250	6.810	109	6.703	107	80-120	2	0-20	
Zinc	14.08	12.50	27.45	107	29.40	123	80-120	7	0-20	3

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-08-0763-6	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/20/13 13:18**	**130815S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	36.17	12.50	49.47	106	46.88	86	80-120	5	0-20	
Cadmium	5.945	12.50	19.18	106	17.52	93	80-120	9	0-20	
Chromium	0.5405	12.50	13.27	102	12.71	97	80-120	4	0-20	
Copper	46.61	12.50	57.94	91	54.80	66	80-120	6	0-20	3
Lead	0.1250	12.50	13.44	106	12.34	98	80-120	9	0-20	
Nickel	1.428	12.50	14.69	106	14.07	101	80-120	4	0-20	
Selenium	0.7356	12.50	14.36	109	14.11	107	80-120	2	0-20	
Silver	2.163	6.250	9.815	122	8.306	98	80-120	17	0-20	3
Zinc	157.3	12.50	165.8	4X	154.2	4X	80-120	4X	0-20	Q

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
1C	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:30**	**130815S05**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3196	64	0.1800	36	76-136	56	0-16	3,4

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Berths 212-224 YTI Terminal			Page 4 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
6W	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:28**	**130815S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3870	77	0.4000	80	76-136	3	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12C	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 15:14**	**130816S05**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	ND	5.000	4.722	94	4.821	96	50-135	2	0-25	
4,4'-DDE	4.323	5.000	10.86	131	11.02	134	50-135	2	0-25	
4,4'-DDT	ND	5.000	4.250	85	4.311	86	50-135	1	0-25	
Aldrin	ND	5.000	3.791	76	3.864	77	50-135	2	0-25	
Alpha Chlordane	ND	5.000	3.939	79	4.013	80	50-135	2	0-25	
Alpha-BHC	ND	5.000	3.815	76	3.909	78	50-135	2	0-25	
Beta-BHC	ND	5.000	4.226	85	4.393	88	50-135	4	0-25	
Delta-BHC	ND	5.000	4.243	85	4.326	87	50-135	2	0-25	
Dieldrin	ND	5.000	4.117	82	4.184	84	50-135	2	0-25	
Endosulfan I	ND	5.000	4.111	82	4.202	84	50-135	2	0-25	
Endosulfan II	ND	5.000	1.888	38	1.910	38	50-135	1	0-25	3
Endosulfan Sulfate	ND	5.000	1.191	24	1.207	24	50-135	1	0-25	3
Endrin	ND	5.000	4.030	81	4.073	81	50-135	1	0-25	
Endrin Aldehyde	ND	5.000	0.09250	2	0.07030	1	50-135	27	0-25	3,4
Endrin Ketone	ND	5.000	1.239	25	1.282	26	50-135	3	0-25	3
Gamma Chlordane	ND	5.000	3.643	73	3.633	73	50-135	0	0-25	
Gamma-BHC	ND	5.000	3.779	76	3.848	77	50-135	2	0-25	
Heptachlor	ND	5.000	3.912	78	3.957	79	50-135	1	0-25	
Heptachlor Epoxide	ND	5.000	4.320	86	4.406	88	50-135	2	0-25	
Methoxychlor	ND	5.000	3.329	67	3.404	68	50-135	2	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
7C	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 20:47**	**130816S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	24.22	100.0	90.36	66	92.61	68	40-160	2	0-20	
Acenaphthylene	ND	100.0	89.52	90	91.35	91	40-160	2	0-20	
Anthracene	ND	100.0	81.37	81	82.32	82	40-160	1	0-20	
Benzo (a) Anthracene	13.02	100.0	103.9	91	104.4	91	40-160	0	0-20	
Benzo (a) Pyrene	33.30	100.0	124.2	91	125.6	92	40-160	1	0-20	
Benzo (b) Fluoranthene	46.22	100.0	139.7	93	127.5	81	40-160	9	0-20	
Benzo (g,h,i) Perylene	ND	100.0	81.35	81	84.64	85	40-160	4	0-20	
Benzo (k) Fluoranthene	34.45	100.0	112.5	78	114.0	80	40-160	1	0-20	
Chrysene	21.20	100.0	102.2	81	101.6	80	40-160	1	0-20	
Dibenz (a,h) Anthracene	ND	100.0	90.76	91	92.85	93	40-160	2	0-20	
Fluoranthene	70.28	100.0	163.9	94	153.9	84	40-160	6	0-20	
Fluorene	ND	100.0	95.20	95	95.53	96	40-160	0	0-20	
Indeno (1,2,3-c,d) Pyrene	ND	100.0	109.3	109	111.1	111	40-160	2	0-20	
2-Methylnaphthalene	ND	100.0	97.15	97	98.38	98	40-160	1	0-20	
1-Methylnaphthalene	ND	100.0	88.22	88	96.03	96	40-160	8	0-20	
Naphthalene	ND	100.0	87.99	88	90.13	90	40-160	2	0-20	
Phenanthrene	ND	100.0	89.77	90	98.07	98	40-160	9	0-20	
Pyrene	201.5	100.0	304.7	103	275.4	74	40-160	10	0-46	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
4C	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 01:27**	**130816S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	50.00	44.79	90	44.26	89	50-150	1	0-30	
PCB018	ND	50.00	43.27	87	43.85	88	50-150	1	0-30	
PCB028	ND	50.00	43.77	88	43.90	88	50-150	0	0-30	
PCB044	ND	50.00	44.94	90	45.44	91	50-150	1	0-30	
PCB052	ND	50.00	40.74	81	41.14	82	50-150	1	0-30	
PCB066	ND	50.00	46.97	94	47.20	94	50-150	0	0-30	
PCB077	ND	50.00	45.51	91	45.95	92	50-150	1	0-30	
PCB101	ND	50.00	44.56	89	44.93	90	50-150	1	0-30	
PCB105	ND	50.00	44.75	90	44.92	90	50-150	0	0-30	
PCB118	ND	50.00	47.40	95	47.12	94	50-150	1	0-30	
PCB126	ND	50.00	43.51	87	43.83	88	50-150	1	0-30	
PCB128	ND	50.00	49.13	98	49.17	98	50-150	0	0-30	
PCB153	ND	50.00	44.28	89	44.49	89	50-150	0	0-30	
PCB170	ND	50.00	37.05	74	36.74	73	50-150	1	0-30	
PCB180	ND	50.00	43.91	88	43.67	87	50-150	1	0-30	
PCB187	ND	50.00	42.95	86	43.29	87	50-150	1	0-30	
PCB195	ND	50.00	44.34	89	43.37	87	50-150	2	0-30	
PCB206	ND	50.00	39.26	79	38.91	78	50-150	1	0-30	
PCB209	ND	50.00	44.41	89	43.36	87	50-150	2	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
1C	**Tissue**	**ICP/MS 03**	**08/15/13 00:00**	**08/16/13 20:14**	**130815S01**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	3.207	12.50	15.76	100	75-125	
Cadmium	ND	12.50	13.02	104	75-125	
Chromium	1.059	12.50	14.02	104	75-125	
Copper	2.189	12.50	14.85	101	75-125	
Lead	0.4390	12.50	13.35	103	75-125	
Nickel	0.9137	12.50	14.19	106	75-125	
Selenium	0.3260	12.50	13.45	105	75-125	
Silver	ND	6.250	5.745	92	75-125	
Zinc	14.08	12.50	27.26	105	75-125	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-08-0763-6	**Tissue**	**ICP/MS 03**	**08/15/13 00:00**	**08/19/13 14:24**	**130815S02**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	36.17	12.50	45.75	77	75-125	
Cadmium	5.945	12.50	18.25	98	75-125	
Chromium	0.5405	12.50	13.49	104	75-125	
Copper	46.61	12.50	55.17	68	75-125	5
Lead	0.1250	12.50	13.02	103	75-125	
Nickel	1.428	12.50	15.11	109	75-125	
Selenium	0.7356	12.50	13.77	104	75-125	
Silver	2.163	6.250	7.465	85	75-125	
Zinc	157.3	12.50	137.5	4X	75-125	Q

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Berths 212-224 YTI Terminal			Page 3 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
1C	**Tissue**	**Mercury**	**08/15/13 00:00**	**08/20/13 13:39**	**130815S05**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.4606	92	0.4326	87	75-125	6	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: Berths 212-224 YTI Terminal			Page 1 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
1C	**Tissue**	**N/A**	**08/17/13 00:00**	**08/17/13 16:45**	**D0817TSD3**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	14.30	15.50	8	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: Berths 212-224 YTI Terminal			Page 2 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
6W	**Tissue**	**N/A**	**08/17/13 00:00**	**08/17/13 16:45**	**D0817TSD4**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	15.30	14.30	7	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	MeCl2 Ext. (NOAA 1993a)
Project: Berths 212-224 YTI Terminal			Page 3 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
4C	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
% Lipids	0.7100	0.7300	3	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	MeCl2 Ext. (NOAA 1993a)
Project: Berths 212-224 YTI Terminal			Page 4 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13W	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822D02**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
% Lipids	1.340	1.300	3	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-258-20	**Soil**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:05**	**130815L01T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	11.95	96	12.32	99	80-120	3	0-20	
Cadmium	12.50	12.54	100	12.41	99	80-120	1	0-20	
Chromium	12.50	12.40	99	12.54	100	80-120	1	0-20	
Copper	12.50	12.54	100	13.37	107	80-120	6	0-20	
Lead	12.50	12.32	99	12.55	100	80-120	2	0-20	
Nickel	12.50	12.60	101	13.26	106	80-120	5	0-20	
Selenium	12.50	11.84	95	12.23	98	80-120	3	0-20	
Silver	6.250	5.612	90	5.777	92	80-120	3	0-20	
Zinc	12.50	13.18	105	13.41	107	80-120	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-258-21	**Soil**	**ICP/MS 03**	**08/15/13**	**08/19/13 20:46**	**130815L02T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.95	104	12.85	103	80-120	1	0-20	
Cadmium	12.50	12.77	102	12.48	100	80-120	2	0-20	
Chromium	12.50	13.44	108	12.53	100	80-120	7	0-20	
Copper	12.50	13.06	104	13.83	111	80-120	6	0-20	
Lead	12.50	13.19	106	12.65	101	80-120	4	0-20	
Nickel	12.50	13.72	110	13.52	108	80-120	1	0-20	
Selenium	12.50	13.48	108	12.07	97	80-120	11	0-20	
Silver	6.250	5.528	88	5.637	90	80-120	2	0-20	
Zinc	12.50	12.87	103	14.19	114	80-120	10	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-46	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:53**	**130815L05T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.9197	110	0.8176	98	82-124	12	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Berths 212-224 YTI Terminal			Page 4 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-47	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:56**	**130815L06T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.9270	111	0.7970	95	82-124	15	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-294-22	**Soil**	**GC 51**	**08/16/13**	**08/24/13 17:28**	**130816F05**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	4.391	88	4.396	88	50-135	36-149	0	0-25	
4,4'-DDE	5.000	4.522	90	4.544	91	50-135	36-149	0	0-25	
4,4'-DDT	5.000	4.422	88	4.451	89	50-135	36-149	1	0-25	
Aldrin	5.000	4.273	85	4.319	86	50-135	36-149	1	0-25	
Alpha Chlordane	5.000	4.316	86	4.345	87	50-135	36-149	1	0-25	
Alpha-BHC	5.000	4.086	82	4.188	84	50-135	36-149	2	0-25	
Beta-BHC	5.000	3.975	80	4.119	82	50-135	36-149	4	0-25	
Delta-BHC	5.000	4.175	84	4.228	85	50-135	36-149	1	0-25	
Dieldrin	5.000	4.418	88	4.450	89	50-135	36-149	1	0-25	
Endosulfan I	5.000	4.396	88	4.423	88	50-135	36-149	1	0-25	
Endosulfan II	5.000	4.404	88	4.393	88	50-135	36-149	0	0-25	
Endosulfan Sulfate	5.000	4.282	86	4.266	85	50-135	36-149	0	0-25	
Endrin	5.000	4.383	88	4.454	89	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	4.575	91	4.565	91	50-135	36-149	0	0-25	
Endrin Ketone	5.000	4.631	93	4.613	92	50-135	36-149	0	0-25	
Gamma Chlordane	5.000	4.189	84	4.208	84	50-135	36-149	0	0-25	
Gamma-BHC	5.000	4.220	84	4.240	85	50-135	36-149	0	0-25	
Heptachlor	5.000	4.308	86	4.373	87	50-135	36-149	2	0-25	
Heptachlor Epoxide	5.000	4.323	86	4.356	87	50-135	36-149	1	0-25	
Methoxychlor	5.000	4.712	94	4.704	94	50-135	36-149	0	0-25	

Total number of LCS compounds: 20
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-294-23	**Soil**	**GC 51**	**08/16/13**	**08/24/13 17:56**	**130816F06**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	5.680	114	5.585	112	50-135	36-149	2	0-25	
4,4'-DDE	5.000	5.753	115	5.652	113	50-135	36-149	2	0-25	
4,4'-DDT	5.000	5.756	115	5.665	113	50-135	36-149	2	0-25	
Aldrin	5.000	5.520	110	5.438	109	50-135	36-149	2	0-25	
Alpha Chlordane	5.000	5.497	110	5.414	108	50-135	36-149	2	0-25	
Alpha-BHC	5.000	5.240	105	5.169	103	50-135	36-149	1	0-25	
Beta-BHC	5.000	5.236	105	5.186	104	50-135	36-149	1	0-25	
Delta-BHC	5.000	5.338	107	5.283	106	50-135	36-149	1	0-25	
Dieldrin	5.000	5.688	114	5.600	112	50-135	36-149	2	0-25	
Endosulfan I	5.000	5.621	112	5.535	111	50-135	36-149	2	0-25	
Endosulfan II	5.000	5.609	112	5.509	110	50-135	36-149	2	0-25	
Endosulfan Sulfate	5.000	5.553	111	5.474	109	50-135	36-149	1	0-25	
Endrin	5.000	5.631	113	5.547	111	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	5.903	118	5.816	116	50-135	36-149	1	0-25	
Endrin Ketone	5.000	6.083	122	6.002	120	50-135	36-149	1	0-25	
Gamma Chlordane	5.000	5.416	108	5.252	105	50-135	36-149	3	0-25	
Gamma-BHC	5.000	5.398	108	5.314	106	50-135	36-149	2	0-25	
Heptachlor	5.000	5.588	112	5.516	110	50-135	36-149	1	0-25	
Heptachlor Epoxide	5.000	5.530	111	5.451	109	50-135	36-149	1	0-25	
Methoxychlor	5.000	6.164	123	6.075	121	50-135	36-149	1	0-25	

Total number of LCS compounds: 20
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

Return to Contents

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-943-5	**Soil**	**GC/MS AAA**	**08/16/13**	**08/23/13 16:06**	**130816L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	117.6	118	115.9	116	48-108	38-118	1	0-11	ME
Acenaphthylene	100.0	92.32	92	89.31	89	40-160	20-180	3	0-20	
Anthracene	100.0	94.03	94	87.86	88	40-160	20-180	7	0-20	
Benzo (a) Anthracene	100.0	119.0	119	118.1	118	40-160	20-180	1	0-20	
Benzo (a) Pyrene	100.0	82.80	83	82.15	82	40-160	20-180	1	0-20	
Benzo (b) Fluoranthene	100.0	126.9	127	127.0	127	40-160	20-180	0	0-20	
Benzo (g,h,i) Perylene	100.0	108.2	108	106.9	107	40-160	20-180	1	0-20	
Benzo (k) Fluoranthene	100.0	137.1	137	135.9	136	40-160	20-180	1	0-20	
Chrysene	100.0	125.5	125	126.6	127	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	122.9	123	123.7	124	40-160	20-180	1	0-20	
Fluoranthene	100.0	132.3	132	124.2	124	40-160	20-180	6	0-20	
Fluorene	100.0	129.7	130	126.2	126	40-160	20-180	3	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	154.2	154	149.8	150	40-160	20-180	3	0-20	
2-Methylnaphthalene	100.0	131.8	132	134.2	134	40-160	20-180	2	0-20	
1-Methylnaphthalene	100.0	123.5	124	134.4	134	40-160	20-180	8	0-20	
Naphthalene	100.0	119.2	119	124.3	124	40-160	20-180	4	0-20	
Phenanthrene	100.0	128.0	128	119.2	119	40-160	20-180	7	0-20	
Pyrene	100.0	121.6	122	123.7	124	40-160	20-180	2	0-16	

Total number of LCS compounds: 18
Total number of ME compounds: 1
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-943-6	**Soil**	**GC/MS AAA**	**08/16/13**	**08/26/13 13:12**	**130816L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	107.1	107	104.3	104	48-108	38-118	3	0-11	
Acenaphthylene	100.0	81.02	81	80.37	80	40-160	20-180	1	0-20	
Anthracene	100.0	75.37	75	73.43	73	40-160	20-180	3	0-20	
Benzo (a) Anthracene	100.0	104.2	104	101.6	102	40-160	20-180	3	0-20	
Benzo (a) Pyrene	100.0	72.43	72	69.39	69	40-160	20-180	4	0-20	
Benzo (b) Fluoranthene	100.0	115.0	115	106.6	107	40-160	20-180	8	0-20	
Benzo (g,h,i) Perylene	100.0	96.98	97	91.54	92	40-160	20-180	6	0-20	
Benzo (k) Fluoranthene	100.0	121.4	121	113.6	114	40-160	20-180	7	0-20	
Chrysene	100.0	107.9	108	106.3	106	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	111.9	112	106.6	107	40-160	20-180	5	0-20	
Fluoranthene	100.0	109.8	110	106.4	106	40-160	20-180	3	0-20	
Fluorene	100.0	113.0	113	105.9	106	40-160	20-180	6	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	138.1	138	127.0	127	40-160	20-180	8	0-20	
2-Methylnaphthalene	100.0	118.7	119	117.2	117	40-160	20-180	1	0-20	
1-Methylnaphthalene	100.0	117.7	118	111.0	111	40-160	20-180	6	0-20	
Naphthalene	100.0	107.0	107	105.6	106	40-160	20-180	1	0-20	
Phenanthrene	100.0	107.8	108	98.35	98	40-160	20-180	9	0-20	
Pyrene	100.0	104.6	105	105.4	105	40-160	20-180	1	0-16	

Total number of LCS compounds: 18
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-318-35	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 21:41**	**130816F03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	34.39	69	32.58	65	50-150	33-167	5	0-30	
PCB018	50.00	32.76	66	31.15	62	50-150	33-167	5	0-30	
PCB028	50.00	33.54	67	32.09	64	50-150	33-167	4	0-30	
PCB044	50.00	34.24	68	32.94	66	50-150	33-167	4	0-30	
PCB052	50.00	31.66	63	30.58	61	50-150	33-167	3	0-30	
PCB066	50.00	35.70	71	34.71	69	50-150	33-167	3	0-30	
PCB077	50.00	35.60	71	34.82	70	50-150	33-167	2	0-30	
PCB101	50.00	33.94	68	33.17	66	50-150	33-167	2	0-30	
PCB105	50.00	33.02	66	32.57	65	50-150	33-167	1	0-30	
PCB118	50.00	35.33	71	34.82	70	50-150	33-167	1	0-30	
PCB126	50.00	31.94	64	32.12	64	50-150	33-167	1	0-30	
PCB128	50.00	28.88	58	28.39	57	50-150	33-167	2	0-30	
PCB153	50.00	33.17	66	32.71	65	50-150	33-167	1	0-30	
PCB170	50.00	27.61	55	26.54	53	50-150	33-167	4	0-30	
PCB180	50.00	31.36	63	31.11	62	50-150	33-167	1	0-30	
PCB187	50.00	32.64	65	32.36	65	50-150	33-167	1	0-30	
PCB195	50.00	32.75	66	31.17	62	50-150	33-167	5	0-30	
PCB206	50.00	28.77	58	27.91	56	50-150	33-167	3	0-30	
PCB209	50.00	31.23	62	30.39	61	50-150	33-167	3	0-30	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-318-36	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 22:38**	**130816F04**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	53.95	108	55.66	111	50-150	33-167	3	0-30	
PCB018	50.00	51.60	103	52.79	106	50-150	33-167	2	0-30	
PCB028	50.00	52.61	105	54.20	108	50-150	33-167	3	0-30	
PCB044	50.00	53.92	108	54.68	109	50-150	33-167	1	0-30	
PCB052	50.00	49.98	100	50.99	102	50-150	33-167	2	0-30	
PCB066	50.00	57.17	114	58.29	117	50-150	33-167	2	0-30	
PCB077	50.00	57.27	115	58.49	117	50-150	33-167	2	0-30	
PCB101	50.00	54.42	109	54.88	110	50-150	33-167	1	0-30	
PCB105	50.00	54.24	108	54.95	110	50-150	33-167	1	0-30	
PCB118	50.00	57.48	115	58.81	118	50-150	33-167	2	0-30	
PCB126	50.00	52.97	106	53.55	107	50-150	33-167	1	0-30	
PCB128	50.00	47.95	96	48.69	97	50-150	33-167	2	0-30	
PCB153	50.00	54.36	109	55.18	110	50-150	33-167	1	0-30	
PCB170	50.00	44.45	89	45.12	90	50-150	33-167	2	0-30	
PCB180	50.00	53.20	106	54.64	109	50-150	33-167	3	0-30	
PCB187	50.00	53.92	108	55.17	110	50-150	33-167	2	0-30	
PCB195	50.00	52.32	105	52.86	106	50-150	33-167	1	0-30	
PCB206	50.00	47.19	94	48.21	96	50-150	33-167	2	0-30	
PCB209	50.00	50.82	102	52.54	105	50-150	33-167	3	0-30	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-08-0936 Page 1 of 1

Qualifiers	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 08/12/13

LABORATORY CLIENT: AMEC
ADDRESS: 9210 Sky Park Ct # 200
CITY: San Diego, CA 92123
TEL: (858) 300-4322 | E-Mail: tyler.huff@amec.com | E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: Berths 212-224 YTI Terminal
P.O. NO.: 1015101929
PROJECT CONTACT: Barry Snyder, Tyler Huff
QUOTE NO.:
SAMPLER(S): (SIGNATURE)
LAB USE ONLY: 13-08-0936

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS
Danielle Gonsman is PM; see attached sheet for addional information.
Report results in wet and dry weight.
Keep frozen. Only count/open cooler at Calscience Sample Receiving.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
1	1C	POLA - YTI Terminal	8/1/13	1500	Tissue	1		X	X	X	X	X	X
2	2C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
3	3C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
4	4C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
5	5C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
6	6C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
7	7C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
8	8C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
9	9C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
10	10C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X

Relinquished by: (Signature) Adrienne Ciber 8/13/13 1435	Received by: (Signature)	Date: 08/13/13	Time: 1435
Relinquished by: (Signature)	Received by: (Signature)	Date: 8/13/13	Time: 1850
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 08/12/13

LABORATORY CLIENT: **AMEC**
ADDRESS: **9210 Sky Park Ct # 200**
CITY: **San Diego, CA 92123**
TEL: **(858) 300-4322** | E-Mail: tyler.huff@amec.com | E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: **Berths 212-224 YTI Terminal**
PROJECT CONTACT: **Barry Snyder, Tyler Huff**
SAMPLER(S): (SIGNATURE)
P.O. NO.: **1015101929**
QUOTE NO.:
LAB USE ONLY: 08-0936

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS
Danielle Gonsman is PM; see attached sheet for addional information.
Report results in wet and dry weight.
Keep frozen. Only count/open cooler at Calscience Sample Receiving.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
11	11C	POLA - YTI Terminal	8/10/13	1500	Tissue	1		X	X	X	X	X	X
12	12C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
13	13C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
14	14C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
15	15C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
16	1W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
17	2W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
18	3W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
19	4W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
20	5W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Adrienne Ciber 8/13/13 1435		08/13/13	1435
Relinquished by: (Signature)	Received by: (Signature)	Date: 8/13/13	Time: 1850
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 08/12/13

PAGE: 3 OF 3

LABORATORY CLIENT: **AMEC**

ADDRESS: **9210 Sky Park Ct # 200**

CITY: **San Diego, CA 92123**

TEL: **(858) 300-4322** | E-Mail: tyler.huff@amec.com | E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: **Berths 212-224 YTI Terminal**

P.O. NO.: **1015101929**

PROJECT CONTACT: **Barry Snyder, Tyler Huff**

QUOTE NO.:

SAMPLER(S): (SIGNATURE)

LAB USE ONLY: 08-0936

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM; see attached sheet for addional information.
Report results in wet and dry weight.
Keep frozen. Only count/open cooler at Calscience Sample Receiving.

Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
21	6W	POLA - YTI Terminal	8/10/13	1300	Tissue	1		X	X	X	X	X	X
22	7W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
23	8W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
24	9W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
25	10W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
26	11W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
27	12W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
28	13W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
29	14W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
30	15W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X

Relinquished by: (Signature) Adrienne Cioci 8/13/13 1435	Received by: (Signature)	Date: 08/13/13	Time: 1435
Relinquished by: (Signature)	Received by: (Signature)	Date: 8/13/13	Time: 1850
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Table 4-2.
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits[a, b]	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M[c]	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M[c]	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D[c]	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a[i]	N/A	N/A	0.1 %
TRPH	418.1M[d]	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B[d]	N/A	5.0 mg/kg	N/A
PAHs[e]	8270C SIM/ GC/TQ[d]	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM[d]	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS[j]	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM[d]	N/A	10 µg/kg	N/A
Organotins	Rice/Krone[h]	3.0 ng/L	3.0 µg/kg	N/A

Notes:

[a] Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc.

[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.

[d] USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.

[e] Includes 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-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

[g] PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

[i] NOAA 1993

[j] Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lamba, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin}, Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)
µg/L - micrograms per liter
mg/kg - milligrams per kilogram (parts per million)
mg/L - milligrams per liter
ng/L - nanograms per liter
N/A - not applicable

PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SM - Standard Methods
SOP - standard operating procedure
TPH - total petroleum hydrocarbons
TRPH - total recoverable petroleum hydrocarbons

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-08-0936

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC DATE: 08/13/13

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Initial: KD

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: KD

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: YS

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	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑ KD 8/13/13	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Tissue

~~Solid:~~ ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ Z

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐1PBna ☐500PB ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ Labeled/Checked by: YS

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: TN

Preservative: h: HCL n: HNO_3 na_2:$Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 u: Ultra-pure znna: $ZnAc_2$+NaOH f: Filtered Scanned by: TN

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Calscience Environmental Laboratories, Inc.

Supplemental Report 1

CALSCIENCE

WORK ORDER NUMBER: 13-08-0936

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: Berths 212-224 YTI Terminal

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 08/29/2013 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-08-0936

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 13-08-0936
Project ID: Berths 212-224 YTI Terminal

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the tissue samples.

Sample Condition on Receipt

Thirty tissue samples were received for this project on August 13, 2013. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.4°C. All samples were logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers and then stored in refrigeration units pending chemistry.

COC discrepancies (if any) were noted in the Sample Anomaly Form.

Sample Preparation

The tissue samples were thawed and homogenized using a stainless steel blending device. The homogenization unit was thoroughly cleaned between the tissue samples. Samples were composited according the client's instructions listed on the COC.

After extractions, the tissue extracts were subjected to appropriate clean-up procedures. The samples were then analyzed in accordance with the instructions listed on the Chain of Custody for the following methods:

Total Solids by SM 2540B
Percent Lipids by MeCl2 Ext (NOAA 1993a)
Trace Metals by EPA 6020/7471
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs by EPA 8270C SIM

Data Summary

Holding times

All holding times were met.

Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing.

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Calscience Environmental Laboratories, Inc.

Reporting Limits

The Method Detection Limits were met.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each applicable test. All parameters were within established control limits with the following exception.

The Acenaphthene recovery was outside of standard control limits. However, the recovery was within the ME limits, therefore the results are released with no further action.

Matrix Spikes

Matrix spiking was performed at the required frequencies for the tissues on project and non-project samples. All matrix spike parameters outside the acceptable control limits were noted below.

For Metals by EPA 6020, in one QC batch, the Zinc MSD recovery was above the control limits. In the second QC batch, the Copper and Silver MS/MSDs were outside the control limits and the Zinc sample concentration was over four times the spike level so the recovery could not be determined. Since all LCS/LCSD recoveries were acceptable, the data is released.

For Mercury by EPA 7471A, the recoveries in one MS/MSD pair was low outside of acceptance limits. The other MS/MSD pair was within acceptance limits and the LCS/LCSD recoveries were within acceptance limits.

Several of the Chlorinated Pesticides (by EPA 8081A) matrix spike and/or matrix spike duplicate recoveries were outside of acceptance limits. Since the LCS/LCSD recoveries were acceptable, the data is released.

Surrogates

Surrogate recoveries for all applicable tests and samples were within acceptable control limits.

Acronyms

LCS - Laboratory Control Sample
PDS - Post Digestion Spike
MS/MSD- Matrix Spike/Matrix Spike Duplicate
ME-Marginal Exceedance
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-08-0936 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 08/13/13. They were assigned to Work Order 13-08-0936.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client: AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Work Order: 13-08-0936
Project Name: Berths 212-224 YTI Terminal
PO Number:
Date/Time Received: 08/13/13 18:50
Number of Containers: 30

Attn: Barry Snyder

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
1C	13-08-0936-1	08/10/13 15:00	1	Tissue
2C	13-08-0936-2	08/10/13 15:00	1	Tissue
3C	13-08-0936-3	08/10/13 15:00	1	Tissue
4C	13-08-0936-4	08/10/13 15:00	1	Tissue
5C	13-08-0936-5	08/10/13 15:00	1	Tissue
6C	13-08-0936-6	08/10/13 15:00	1	Tissue
7C	13-08-0936-7	08/10/13 15:00	1	Tissue
8C	13-08-0936-8	08/10/13 15:00	1	Tissue
9C	13-08-0936-9	08/10/13 15:00	1	Tissue
10C	13-08-0936-10	08/10/13 15:00	1	Tissue
11C	13-08-0936-11	08/10/13 15:00	1	Tissue
12C	13-08-0936-12	08/10/13 15:00	1	Tissue
13C	13-08-0936-13	08/10/13 15:00	1	Tissue
14C	13-08-0936-14	08/10/13 15:00	1	Tissue
15C	13-08-0936-15	08/10/13 15:00	1	Tissue
1W	13-08-0936-16	08/10/13 13:00	1	Tissue
2W	13-08-0936-17	08/10/13 13:00	1	Tissue
3W	13-08-0936-18	08/10/13 13:00	1	Tissue
4W	13-08-0936-19	08/10/13 13:00	1	Tissue
5W	13-08-0936-20	08/10/13 13:00	1	Tissue
6W	13-08-0936-21	08/10/13 13:00	1	Tissue
7W	13-08-0936-22	08/10/13 13:00	1	Tissue
8W	13-08-0936-23	08/10/13 13:00	1	Tissue
9W	13-08-0936-24	08/10/13 13:00	1	Tissue
10W	13-08-0936-25	08/10/13 13:00	1	Tissue
11W	13-08-0936-26	08/10/13 13:00	1	Tissue
12W	13-08-0936-27	08/10/13 13:00	1	Tissue
13W	13-08-0936-28	08/10/13 13:00	1	Tissue
14W	13-08-0936-29	08/10/13 13:00	1	Tissue
15W	13-08-0936-30	08/10/13 13:00	1	Tissue

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		14.3	0.100	1			
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		14.3	0.100	1			
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		14.1	0.100	1			
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		12.8	0.100	1			
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		13.8	0.100	1			
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		14.8	0.100	1			
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		13.7	0.100	1			
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**
Parameter		Result	RL	DF	Qualifiers		
Solids, Total		15.9	0.100	1			

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	13.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	13.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	15.0	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.2	0.100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.6	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.3	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	15.3	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	19.5	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.4	0.100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
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
11W	**13-08-0936-26-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.9	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.2	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.7	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	17.1	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-A**	**08/10/13 13:00**	**Tissue**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	16.9	0.100	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-2306**	**N/A**	**Soil**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB3**

Parameter	Result	RL	DF	Qualifiers
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	**099-05-019-2307**	**N/A**	**Soil**	**N/A**	**08/17/13**	**08/17/13 16:45**	**D0817TSB4**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	ND	0.100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.57	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.60	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.61	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.71	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.50	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.65	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.44	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.55	0.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.60	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.62	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.55	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.28	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.53	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.50	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	0.47	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.6	0.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.8	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.6	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.5	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.4	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.2	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.3	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.5	0.10	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**

Parameter	Result	RL	DF	Qualifiers
% Lipids	1.4	0.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.4	0.10	1			
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.5	0.10	1			
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.1	0.10	1			
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.3	0.10	1			
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.4	0.10	1			
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		1.8	0.10	1			
Method Blank	**099-14-104-36**	**N/A**	**Soil**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B01**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		ND	0.10	1			
Method Blank	**099-14-104-37**	**N/A**	**Soil**	**N/A**	**N/A**	**08/22/13 12:00**	**130822B02**
Parameter		Result	RL	DF	Qualifiers		
% Lipids		ND	0.10	1			

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:44**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	22.4	0.699	1	
Cadmium	ND	0.699	1	
Chromium	7.41	0.140	1	
Copper	15.3	0.699	1	
Lead	3.07	0.699	1	
Nickel	6.39	0.699	1	
Selenium	2.28	0.699	1	
Silver	ND	0.699	1	
Zinc	98.5	6.99	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:47**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.3	0.699	1	
Cadmium	ND	0.699	1	
Chromium	2.74	0.140	1	
Copper	14.6	0.699	1	
Lead	3.23	0.699	1	
Nickel	3.69	0.699	1	
Selenium	2.18	0.699	1	
Silver	ND	0.699	1	
Zinc	87.2	6.99	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:50**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	19.0	0.709	1	
Cadmium	ND	0.709	1	
Chromium	2.96	0.142	1	
Copper	13.8	0.709	1	
Lead	2.53	0.709	1	
Nickel	3.14	0.709	1	
Selenium	1.68	0.709	1	
Silver	ND	0.709	1	
Zinc	93.7	7.09	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:53**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.2	0.781	1	
Cadmium	ND	0.781	1	
Chromium	1.27	0.156	1	
Copper	10.9	0.781	1	
Lead	1.07	0.781	1	
Nickel	2.94	0.781	1	
Selenium	2.06	0.781	1	
Silver	ND	0.781	1	
Zinc	89.3	7.81	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:56**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.3	0.725	1	
Cadmium	ND	0.725	1	
Chromium	1.64	0.145	1	
Copper	12.9	0.725	1	
Lead	2.27	0.725	1	
Nickel	2.54	0.725	1	
Selenium	1.39	0.725	1	
Silver	ND	0.725	1	
Zinc	92.4	7.25	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:59**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	16.9	0.676	1	
Cadmium	ND	0.676	1	
Chromium	1.51	0.135	1	
Copper	9.24	0.676	1	
Lead	0.970	0.676	1	
Nickel	2.77	0.676	1	
Selenium	1.77	0.676	1	
Silver	ND	0.676	1	
Zinc	78.9	6.76	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:02**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	18.6	0.730	1	
Cadmium	ND	0.730	1	
Chromium	1.32	0.146	1	
Copper	12.1	0.730	1	
Lead	2.07	0.730	1	
Nickel	2.23	0.730	1	
Selenium	1.65	0.730	1	
Silver	ND	0.730	1	
Zinc	91.8	7.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:05**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	14.7	0.629	1	
Cadmium	ND	0.629	1	
Chromium	1.70	0.126	1	
Copper	10.9	0.629	1	
Lead	1.81	0.629	1	
Nickel	2.54	0.629	1	
Selenium	1.99	0.629	1	
Silver	ND	0.629	1	
Zinc	70.7	6.29	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:08**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.2	0.649	1	
Cadmium	ND	0.649	1	
Chromium	1.12	0.130	1	
Copper	9.76	0.649	1	
Lead	1.04	0.649	1	
Nickel	2.45	0.649	1	
Selenium	1.88	0.649	1	
Silver	ND	0.649	1	
Zinc	80.3	6.49	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:11**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.9	0.690	1	
Cadmium	ND	0.690	1	
Chromium	1.38	0.138	1	
Copper	11.2	0.690	1	
Lead	1.19	0.690	1	
Nickel	2.75	0.690	1	
Selenium	1.90	0.690	1	
Silver	ND	0.690	1	
Zinc	80.3	6.90	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:20**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	16.1	0.714	1	
Cadmium	ND	0.714	1	
Chromium	1.38	0.143	1	
Copper	10.8	0.714	1	
Lead	2.19	0.714	1	
Nickel	2.05	0.714	1	
Selenium	1.61	0.714	1	
Silver	ND	0.714	1	
Zinc	82.2	7.14	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:23**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	15.7	0.730	1	
Cadmium	ND	0.730	1	
Chromium	1.15	0.146	1	
Copper	10.9	0.730	1	
Lead	1.06	0.730	1	
Nickel	2.44	0.730	1	
Selenium	1.66	0.730	1	
Silver	ND	0.730	1	
Zinc	70.2	7.30	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:26**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	18.3	0.730	1	
Cadmium	ND	0.730	1	
Chromium	1.77	0.146	1	
Copper	12.8	0.730	1	
Lead	2.63	0.730	1	
Nickel	2.72	0.730	1	
Selenium	1.84	0.730	1	
Silver	ND	0.730	1	
Zinc	89.9	7.30	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:29**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	18.7	0.667	1	
Cadmium	ND	0.667	1	
Chromium	1.23	0.133	1	
Copper	11.5	0.667	1	
Lead	1.95	0.667	1	
Nickel	2.59	0.667	1	
Selenium	1.35	0.667	1	
Silver	ND	0.667	1	
Zinc	81.9	6.67	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:32**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	17.1	0.714	1	
Cadmium	ND	0.714	1	
Chromium	1.92	0.143	1	
Copper	12.9	0.714	1	
Lead	2.45	0.714	1	
Nickel	2.42	0.714	1	
Selenium	1.55	0.714	1	
Silver	ND	0.714	1	
Zinc	85.9	7.14	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:35**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	16.0	0.617	1	
Cadmium	ND	0.617	1	
Chromium	6.65	0.123	1	
Copper	11.2	0.617	1	
Lead	ND	0.617	1	
Nickel	5.28	0.617	1	
Selenium	2.09	0.617	1	
Silver	ND	0.617	1	
Zinc	189	6.17	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:38**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	14.9	0.585	1	
Cadmium	ND	0.585	1	
Chromium	2.05	0.117	1	
Copper	10.1	0.585	1	
Lead	ND	0.585	1	
Nickel	1.79	0.585	1	
Selenium	2.19	0.585	1	
Silver	ND	0.585	1	
Zinc	73.8	5.85	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:41**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.2	0.585	1	
Cadmium	ND	0.585	1	
Chromium	2.58	0.117	1	
Copper	9.19	0.585	1	
Lead	ND	0.585	1	
Nickel	2.14	0.585	1	
Selenium	1.72	0.585	1	
Silver	ND	0.585	1	
Zinc	110	5.85	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:44**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.2	0.568	1	
Cadmium	ND	0.568	1	
Chromium	0.970	0.114	1	
Copper	7.39	0.568	1	
Lead	ND	0.568	1	
Nickel	1.45	0.568	1	
Selenium	1.82	0.568	1	
Silver	ND	0.568	1	
Zinc	143	5.68	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 21:47**	**130815L01T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.5	0.613	1	
Cadmium	ND	0.613	1	
Chromium	1.49	0.123	1	
Copper	8.45	0.613	1	
Lead	ND	0.613	1	
Nickel	1.48	0.613	1	
Selenium	1.81	0.613	1	
Silver	ND	0.613	1	
Zinc	159	6.13	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:10**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	15.7	0.654	1	
Cadmium	ND	0.654	1	
Chromium	1.22	0.131	1	
Copper	8.59	0.654	1	
Lead	ND	0.654	1	
Nickel	2.09	0.654	1	
Selenium	1.98	0.654	1	
Silver	ND	0.654	1	
Zinc	162	6.54	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:13**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	9.74	0.513	1	
Cadmium	ND	0.513	1	
Chromium	0.659	0.103	1	
Copper	7.74	0.513	1	
Lead	ND	0.513	1	
Nickel	1.17	0.513	1	
Selenium	1.23	0.513	1	
Silver	ND	0.513	1	
Zinc	78.8	5.13	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:16**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	14.0	0.585	1	
Cadmium	ND	0.585	1	
Chromium	1.16	0.117	1	
Copper	9.63	0.585	1	
Lead	ND	0.585	1	
Nickel	1.84	0.585	1	
Selenium	1.47	0.585	1	
Silver	ND	0.585	1	
Zinc	179	5.85	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:19**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.6	0.610	1	
Cadmium	ND	0.610	1	
Chromium	0.806	0.122	1	
Copper	7.89	0.610	1	
Lead	ND	0.610	1	
Nickel	1.79	0.610	1	
Selenium	1.14	0.610	1	
Silver	ND	0.610	1	
Zinc	97.9	6.10	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:22**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.1	0.649	1	
Cadmium	ND	0.649	1	
Chromium	0.609	0.130	1	
Copper	8.05	0.649	1	
Lead	ND	0.649	1	
Nickel	1.58	0.649	1	
Selenium	1.85	0.649	1	
Silver	ND	0.649	1	
Zinc	92.3	6.49	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:25**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.1	0.592	1	
Cadmium	ND	0.592	1	
Chromium	1.76	0.118	1	
Copper	8.41	0.592	1	
Lead	ND	0.592	1	
Nickel	1.80	0.592	1	
Selenium	1.31	0.592	1	
Silver	ND	0.592	1	
Zinc	67.8	5.92	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:28**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.4	0.617	1	
Cadmium	ND	0.617	1	
Chromium	1.42	0.123	1	
Copper	7.75	0.617	1	
Lead	ND	0.617	1	
Nickel	1.64	0.617	1	
Selenium	1.64	0.617	1	
Silver	ND	0.617	1	
Zinc	219	6.17	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:31**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	13.8	0.599	1	
Cadmium	ND	0.599	1	
Chromium	0.939	0.120	1	
Copper	7.98	0.599	1	
Lead	ND	0.599	1	
Nickel	1.50	0.599	1	
Selenium	1.54	0.599	1	
Silver	ND	0.599	1	
Zinc	65.0	5.99	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:34**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.7	0.585	1	
Cadmium	ND	0.585	1	
Chromium	0.620	0.117	1	
Copper	7.67	0.585	1	
Lead	ND	0.585	1	
Nickel	1.21	0.585	1	
Selenium	1.34	0.585	1	
Silver	ND	0.585	1	
Zinc	111	5.85	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 22:37**	**130815L02T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Arsenic	12.6	0.592	1	
Cadmium	ND	0.592	1	
Chromium	0.713	0.118	1	
Copper	9.44	0.592	1	
Lead	ND	0.592	1	
Nickel	1.16	0.592	1	
Selenium	1.22	0.592	1	
Silver	ND	0.592	1	
Zinc	125	5.92	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-258-20**	**N/A**	**Soil**	**ICP/MS 03**	**08/15/13**	**08/16/13 19:59**	**130815L01T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-258-21**	**N/A**	**Soil**	**ICP/MS 03**	**08/15/13**	**08/16/13 19:18**	**130815L02T**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1	
Cadmium	ND	0.100	1	
Chromium	ND	0.0200	1	
Copper	ND	0.100	1	
Lead	ND	0.100	1	
Nickel	ND	0.100	1	
Selenium	ND	0.100	1	
Silver	ND	0.100	1	
Zinc	ND	1.00	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:28**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0670	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:35**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0670	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:37**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0679	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:39**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0748	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:41**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0694	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:43**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0647	0.599	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:46**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0699	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:52**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0603	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:55**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0622	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:57**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0661	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:59**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0684	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:01**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0699	0.599	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:03**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0699	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:06**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0639	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:08**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0684	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:10**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0591	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:12**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:19**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:22**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0544	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:24**	**130815L05T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0588	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:26**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0626	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:32**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0491	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:35**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:37**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0584	0.599	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:39**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0622	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:46**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0567	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:48**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0591	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:50**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0574	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:53**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0560	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:55**	**130815L06T**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0567	0.599	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-46**	**N/A**	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:51**	**130815L05T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-409-47**	**N/A**	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:49**	**130815L06T**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00958	0.599	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:09**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.0	0.5	
2,4'-DDE	ND	7.0	0.5	
2,4'-DDT	ND	7.0	0.5	
4,4'-DDD	ND	7.0	0.5	
4,4'-DDT	ND	7.0	0.5	
Aldrin	ND	7.0	0.5	
Alpha Chlordane	ND	7.0	0.5	
Alpha-BHC	ND	7.0	0.5	
Beta-BHC	ND	7.0	0.5	
Delta-BHC	ND	7.0	0.5	
Dieldrin	ND	7.0	0.5	
Endosulfan I	ND	7.0	0.5	
Endosulfan II	ND	7.0	0.5	
Endosulfan Sulfate	ND	7.0	0.5	
Endrin	ND	7.0	0.5	
Endrin Aldehyde	ND	7.0	0.5	
Endrin Ketone	ND	7.0	0.5	
Gamma Chlordane	ND	7.0	0.5	
Gamma-BHC	ND	7.0	0.5	
Heptachlor	ND	7.0	0.5	
Heptachlor Epoxide	ND	7.0	0.5	
Methoxychlor	ND	7.0	0.5	
Chlordane	ND	70	0.5	
Cis-nonachlor	ND	7.0	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	7.0	0.5	
Oxychlordane	ND	7.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	89	50-135	
Dibutylchlorendate	79	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 21:25**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	86	35	2.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchlorendate	79	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:23**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.0	0.5	
2,4'-DDE	ND	7.0	0.5	
2,4'-DDT	ND	7.0	0.5	
4,4'-DDD	ND	7.0	0.5	
4,4'-DDT	ND	7.0	0.5	
Aldrin	ND	7.0	0.5	
Alpha Chlordane	ND	7.0	0.5	
Alpha-BHC	ND	7.0	0.5	
Beta-BHC	ND	7.0	0.5	
Delta-BHC	ND	7.0	0.5	
Dieldrin	ND	7.0	0.5	
Endosulfan I	ND	7.0	0.5	
Endosulfan II	ND	7.0	0.5	
Endosulfan Sulfate	ND	7.0	0.5	
Endrin	ND	7.0	0.5	
Endrin Aldehyde	ND	7.0	0.5	
Endrin Ketone	ND	7.0	0.5	
Gamma Chlordane	ND	7.0	0.5	
Gamma-BHC	ND	7.0	0.5	
Heptachlor	ND	7.0	0.5	
Heptachlor Epoxide	ND	7.0	0.5	
Methoxychlor	ND	7.0	0.5	
Chlordane	ND	70	0.5	
Cis-nonachlor	ND	7.0	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	7.0	0.5	
Oxychlordane	ND	7.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	
Dibutylchlorendate	81	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 21:39**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	78	14	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchlorendate	86	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:38**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.1	0.5	
2,4'-DDE	ND	7.1	0.5	
2,4'-DDT	ND	7.1	0.5	
4,4'-DDD	ND	7.1	0.5	
4,4'-DDT	ND	7.1	0.5	
Aldrin	ND	7.1	0.5	
Alpha Chlordane	ND	7.1	0.5	
Alpha-BHC	ND	7.1	0.5	
Beta-BHC	ND	7.1	0.5	
Delta-BHC	ND	7.1	0.5	
Dieldrin	ND	7.1	0.5	
Endosulfan I	ND	7.1	0.5	
Endosulfan II	ND	7.1	0.5	
Endosulfan Sulfate	ND	7.1	0.5	
Endrin	ND	7.1	0.5	
Endrin Aldehyde	ND	7.1	0.5	
Endrin Ketone	ND	7.1	0.5	
Gamma Chlordane	ND	7.1	0.5	
Gamma-BHC	ND	7.1	0.5	
Heptachlor	ND	7.1	0.5	
Heptachlor Epoxide	ND	7.1	0.5	
Methoxychlor	ND	7.1	0.5	
Chlordane	ND	71	0.5	
Cis-nonachlor	ND	7.1	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.1	0.5	
Oxychlordane	ND	7.1	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	
Dibutylchlorendate	80	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 21:53**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	71	14	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	107	50-135	
Dibutylchlorendate	92	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 14:52**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.8	0.5	
2,4'-DDE	ND	7.8	0.5	
2,4'-DDT	ND	7.8	0.5	
4,4'-DDD	ND	7.8	0.5	
4,4'-DDT	ND	7.8	0.5	
Aldrin	ND	7.8	0.5	
Alpha Chlordane	ND	7.8	0.5	
Alpha-BHC	ND	7.8	0.5	
Beta-BHC	ND	7.8	0.5	
Delta-BHC	ND	7.8	0.5	
Dieldrin	ND	7.8	0.5	
Endosulfan I	ND	7.8	0.5	
Endosulfan II	ND	7.8	0.5	
Endosulfan Sulfate	ND	7.8	0.5	
Endrin	ND	7.8	0.5	
Endrin Aldehyde	ND	7.8	0.5	
Endrin Ketone	ND	7.8	0.5	
Gamma Chlordane	ND	7.8	0.5	
Gamma-BHC	ND	7.8	0.5	
Heptachlor	ND	7.8	0.5	
Heptachlor Epoxide	ND	7.8	0.5	
Methoxychlor	ND	7.8	0.5	
Chlordane	ND	78	0.5	
Cis-nonachlor	ND	7.8	0.5	
Toxaphene	ND	200	0.5	
Trans-nonachlor	ND	7.8	0.5	
Oxychlordane	ND	7.8	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	88	50-135	
Dibutylchlorendate	77	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:08**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	78	16	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	98	50-135	
Dibutylchlorendate	85	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:06**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.2	0.5	
2,4'-DDE	ND	7.2	0.5	
2,4'-DDT	ND	7.2	0.5	
4,4'-DDD	ND	7.2	0.5	
4,4'-DDE	40	7.2	0.5	
4,4'-DDT	ND	7.2	0.5	
Aldrin	ND	7.2	0.5	
Alpha Chlordane	ND	7.2	0.5	
Alpha-BHC	ND	7.2	0.5	
Beta-BHC	ND	7.2	0.5	
Delta-BHC	ND	7.2	0.5	
Dieldrin	ND	7.2	0.5	
Endosulfan I	ND	7.2	0.5	
Endosulfan II	ND	7.2	0.5	
Endosulfan Sulfate	ND	7.2	0.5	
Endrin	ND	7.2	0.5	
Endrin Aldehyde	ND	7.2	0.5	
Endrin Ketone	ND	7.2	0.5	
Gamma Chlordane	ND	7.2	0.5	
Gamma-BHC	ND	7.2	0.5	
Heptachlor	ND	7.2	0.5	
Heptachlor Epoxide	ND	7.2	0.5	
Methoxychlor	ND	7.2	0.5	
Chlordane	ND	72	0.5	
Cis-nonachlor	ND	7.2	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.2	0.5	
Oxychlordane	ND	7.2	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	82	50-135	
Dibutylchlorendate	82	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:21**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.8	0.5	
2,4'-DDE	ND	6.8	0.5	
2,4'-DDT	ND	6.8	0.5	
4,4'-DDD	ND	6.8	0.5	
4,4'-DDT	ND	6.8	0.5	
Aldrin	ND	6.8	0.5	
Alpha Chlordane	ND	6.8	0.5	
Alpha-BHC	ND	6.8	0.5	
Beta-BHC	ND	6.8	0.5	
Delta-BHC	ND	6.8	0.5	
Dieldrin	ND	6.8	0.5	
Endosulfan I	ND	6.8	0.5	
Endosulfan II	ND	6.8	0.5	
Endosulfan Sulfate	ND	6.8	0.5	
Endrin	ND	6.8	0.5	
Endrin Aldehyde	ND	6.8	0.5	
Endrin Ketone	ND	6.8	0.5	
Gamma Chlordane	ND	6.8	0.5	
Gamma-BHC	ND	6.8	0.5	
Heptachlor	ND	6.8	0.5	
Heptachlor Epoxide	ND	6.8	0.5	
Methoxychlor	ND	6.8	0.5	
Chlordane	ND	68	0.5	
Cis-nonachlor	ND	6.8	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	6.8	0.5	
Oxychlordane	ND	6.8	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	
Dibutylchlorendate	83	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:22**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	66	14	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	93	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:35**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.3	0.5	
2,4'-DDE	ND	7.3	0.5	
2,4'-DDT	ND	7.3	0.5	
4,4'-DDD	8.3	7.3	0.5	
4,4'-DDE	44	7.3	0.5	
4,4'-DDT	ND	7.3	0.5	
Aldrin	ND	7.3	0.5	
Alpha Chlordane	ND	7.3	0.5	
Alpha-BHC	ND	7.3	0.5	
Beta-BHC	ND	7.3	0.5	
Delta-BHC	ND	7.3	0.5	
Dieldrin	ND	7.3	0.5	
Endosulfan I	ND	7.3	0.5	
Endosulfan II	ND	7.3	0.5	
Endosulfan Sulfate	ND	7.3	0.5	
Endrin	ND	7.3	0.5	
Endrin Aldehyde	ND	7.3	0.5	
Endrin Ketone	ND	7.3	0.5	
Gamma Chlordane	ND	7.3	0.5	
Gamma-BHC	ND	7.3	0.5	
Heptachlor	ND	7.3	0.5	
Heptachlor Epoxide	ND	7.3	0.5	
Methoxychlor	ND	7.3	0.5	
Chlordane	ND	73	0.5	
Cis-nonachlor	ND	7.3	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.3	0.5	
Oxychlordane	ND	7.3	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	117	50-135	
Dibutylchlorendate	81	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 15:49**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.3	0.5	
2,4'-DDE	ND	6.3	0.5	
2,4'-DDT	ND	6.3	0.5	
4,4'-DDD	ND	6.3	0.5	
4,4'-DDT	ND	6.3	0.5	
Aldrin	ND	6.3	0.5	
Alpha Chlordane	ND	6.3	0.5	
Alpha-BHC	ND	6.3	0.5	
Beta-BHC	ND	6.3	0.5	
Delta-BHC	ND	6.3	0.5	
Dieldrin	ND	6.3	0.5	
Endosulfan I	ND	6.3	0.5	
Endosulfan II	ND	6.3	0.5	
Endosulfan Sulfate	ND	6.3	0.5	
Endrin	ND	6.3	0.5	
Endrin Aldehyde	ND	6.3	0.5	
Endrin Ketone	ND	6.3	0.5	
Gamma Chlordane	ND	6.3	0.5	
Gamma-BHC	ND	6.3	0.5	
Heptachlor	ND	6.3	0.5	
Heptachlor Epoxide	ND	6.3	0.5	
Methoxychlor	ND	6.3	0.5	
Chlordane	ND	63	0.5	
Cis-nonachlor	ND	6.3	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.3	0.5	
Oxychlordane	ND	6.3	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	84	50-135	
Dibutylchlorendate	78	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:36**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	66	13	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	86	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 16:04**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.5	0.5	
2,4'-DDE	ND	6.5	0.5	
2,4'-DDT	ND	6.5	0.5	
4,4'-DDD	ND	6.5	0.5	
4,4'-DDT	ND	6.5	0.5	
Aldrin	ND	6.5	0.5	
Alpha Chlordane	ND	6.5	0.5	
Alpha-BHC	ND	6.5	0.5	
Beta-BHC	ND	6.5	0.5	
Delta-BHC	ND	6.5	0.5	
Dieldrin	ND	6.5	0.5	
Endosulfan I	ND	6.5	0.5	
Endosulfan II	ND	6.5	0.5	
Endosulfan Sulfate	ND	6.5	0.5	
Endrin	ND	6.5	0.5	
Endrin Aldehyde	ND	6.5	0.5	
Endrin Ketone	ND	6.5	0.5	
Gamma Chlordane	ND	6.5	0.5	
Gamma-BHC	ND	6.5	0.5	
Heptachlor	ND	6.5	0.5	
Heptachlor Epoxide	ND	6.5	0.5	
Methoxychlor	ND	6.5	0.5	
Chlordane	ND	65	0.5	
Cis-nonachlor	ND	6.5	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.5	0.5	
Oxychlordane	ND	6.5	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	91	50-135	
Dibutylchlorendate	88	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 22:51**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	58	13	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	97	50-135	
Dibutylchlorendate	97	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 16:18**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.9	0.5	
2,4'-DDE	ND	6.9	0.5	
2,4'-DDT	ND	6.9	0.5	
4,4'-DDD	ND	6.9	0.5	
4,4'-DDT	ND	6.9	0.5	
Aldrin	ND	6.9	0.5	
Alpha Chlordane	ND	6.9	0.5	
Alpha-BHC	ND	6.9	0.5	
Beta-BHC	ND	6.9	0.5	
Delta-BHC	ND	6.9	0.5	
Dieldrin	ND	6.9	0.5	
Endosulfan I	ND	6.9	0.5	
Endosulfan II	ND	6.9	0.5	
Endosulfan Sulfate	ND	6.9	0.5	
Endrin	ND	6.9	0.5	
Endrin Aldehyde	ND	6.9	0.5	
Endrin Ketone	ND	6.9	0.5	
Gamma Chlordane	ND	6.9	0.5	
Gamma-BHC	ND	6.9	0.5	
Heptachlor	ND	6.9	0.5	
Heptachlor Epoxide	ND	6.9	0.5	
Methoxychlor	ND	6.9	0.5	
Chlordane	ND	69	0.5	
Cis-nonachlor	ND	6.9	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	6.9	0.5	
Oxychlordane	ND	6.9	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchlorendate	88	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 23:05**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	86	14	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	101	50-135	
Dibutylchlorendate	99	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 19:27**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.1	0.5	
2,4'-DDE	ND	7.1	0.5	
2,4'-DDT	ND	7.1	0.5	
4,4'-DDD	11	7.1	0.5	
4,4'-DDE	52	7.1	0.5	
4,4'-DDT	ND	7.1	0.5	
Aldrin	ND	7.1	0.5	
Alpha Chlordane	ND	7.1	0.5	
Alpha-BHC	ND	7.1	0.5	
Beta-BHC	ND	7.1	0.5	
Delta-BHC	ND	7.1	0.5	
Dieldrin	ND	7.1	0.5	
Endosulfan I	ND	7.1	0.5	
Endosulfan II	ND	7.1	0.5	
Endosulfan Sulfate	ND	7.1	0.5	
Endrin	ND	7.1	0.5	
Endrin Aldehyde	ND	7.1	0.5	
Endrin Ketone	ND	7.1	0.5	
Gamma Chlordane	ND	7.1	0.5	
Gamma-BHC	ND	7.1	0.5	
Heptachlor	ND	7.1	0.5	
Heptachlor Epoxide	ND	7.1	0.5	
Methoxychlor	ND	7.1	0.5	
Chlordane	ND	71	0.5	
Cis-nonachlor	ND	7.1	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.1	0.5	
Oxychlordane	ND	7.1	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	93	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/23/13 19:41**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.3	0.5	
2,4'-DDE	ND	7.3	0.5	
2,4'-DDT	ND	7.3	0.5	
4,4'-DDD	ND	7.3	0.5	
4,4'-DDE	32	7.3	0.5	
4,4'-DDT	ND	7.3	0.5	
Aldrin	ND	7.3	0.5	
Alpha Chlordane	ND	7.3	0.5	
Alpha-BHC	ND	7.3	0.5	
Beta-BHC	ND	7.3	0.5	
Delta-BHC	ND	7.3	0.5	
Dieldrin	ND	7.3	0.5	
Endosulfan I	ND	7.3	0.5	
Endosulfan II	ND	7.3	0.5	
Endosulfan Sulfate	ND	7.3	0.5	
Endrin	ND	7.3	0.5	
Endrin Aldehyde	ND	7.3	0.5	
Endrin Ketone	ND	7.3	0.5	
Gamma Chlordane	ND	7.3	0.5	
Gamma-BHC	ND	7.3	0.5	
Heptachlor	ND	7.3	0.5	
Heptachlor Epoxide	ND	7.3	0.5	
Methoxychlor	ND	7.3	0.5	
Chlordane	ND	73	0.5	
Cis-nonachlor	ND	7.3	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.3	0.5	
Oxychlordane	ND	7.3	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	82	50-135	
Dibutylchlorendate	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 10:57**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.3	0.5	
2,4'-DDE	ND	7.3	0.5	
2,4'-DDT	ND	7.3	0.5	
4,4'-DDD	ND	7.3	0.5	
4,4'-DDE	52	7.3	0.5	
4,4'-DDT	ND	7.3	0.5	
Aldrin	ND	7.3	0.5	
Alpha Chlordane	ND	7.3	0.5	
Alpha-BHC	ND	7.3	0.5	
Beta-BHC	ND	7.3	0.5	
Delta-BHC	ND	7.3	0.5	
Dieldrin	ND	7.3	0.5	
Endosulfan I	ND	7.3	0.5	
Endosulfan II	ND	7.3	0.5	
Endosulfan Sulfate	ND	7.3	0.5	
Endrin	ND	7.3	0.5	
Endrin Aldehyde	ND	7.3	0.5	
Endrin Ketone	ND	7.3	0.5	
Gamma Chlordane	ND	7.3	0.5	
Gamma-BHC	ND	7.3	0.5	
Heptachlor	ND	7.3	0.5	
Heptachlor Epoxide	ND	7.3	0.5	
Methoxychlor	ND	7.3	0.5	
Chlordane	ND	73	0.5	
Cis-nonachlor	ND	7.3	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.3	0.5	
Oxychlordane	ND	7.3	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	
Dibutylchlorendate	70	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:11**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.7	0.5	
2,4'-DDE	ND	6.7	0.5	
2,4'-DDT	ND	6.7	0.5	
4,4'-DDD	ND	6.7	0.5	
4,4'-DDE	44	6.7	0.5	
4,4'-DDT	ND	6.7	0.5	
Aldrin	ND	6.7	0.5	
Alpha Chlordane	ND	6.7	0.5	
Alpha-BHC	ND	6.7	0.5	
Beta-BHC	ND	6.7	0.5	
Delta-BHC	ND	6.7	0.5	
Dieldrin	ND	6.7	0.5	
Endosulfan I	ND	6.7	0.5	
Endosulfan II	ND	6.7	0.5	
Endosulfan Sulfate	ND	6.7	0.5	
Endrin	ND	6.7	0.5	
Endrin Aldehyde	ND	6.7	0.5	
Endrin Ketone	ND	6.7	0.5	
Gamma Chlordane	ND	6.7	0.5	
Gamma-BHC	ND	6.7	0.5	
Heptachlor	ND	6.7	0.5	
Heptachlor Epoxide	ND	6.7	0.5	
Methoxychlor	ND	6.7	0.5	
Chlordane	ND	67	0.5	
Cis-nonachlor	ND	6.7	0.5	
Toxaphene	ND	170	0.5	
Trans-nonachlor	ND	6.7	0.5	
Oxychlordane	ND	6.7	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	75	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:26**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	7.1	0.5	
2,4'-DDE	ND	7.1	0.5	
2,4'-DDT	ND	7.1	0.5	
4,4'-DDD	ND	7.1	0.5	
4,4'-DDT	ND	7.1	0.5	
Aldrin	ND	7.1	0.5	
Alpha Chlordane	ND	7.1	0.5	
Alpha-BHC	ND	7.1	0.5	
Beta-BHC	ND	7.1	0.5	
Delta-BHC	ND	7.1	0.5	
Dieldrin	ND	7.1	0.5	
Endosulfan I	ND	7.1	0.5	
Endosulfan II	ND	7.1	0.5	
Endosulfan Sulfate	ND	7.1	0.5	
Endrin	ND	7.1	0.5	
Endrin Aldehyde	ND	7.1	0.5	
Endrin Ketone	ND	7.1	0.5	
Gamma Chlordane	ND	7.1	0.5	
Gamma-BHC	ND	7.1	0.5	
Heptachlor	ND	7.1	0.5	
Heptachlor Epoxide	ND	7.1	0.5	
Methoxychlor	ND	7.1	0.5	
Chlordane	ND	71	0.5	
Cis-nonachlor	ND	7.1	0.5	
Toxaphene	ND	180	0.5	
Trans-nonachlor	ND	7.1	0.5	
Oxychlordane	ND	7.1	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	74	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 18:25**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	75	14	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchlorendate	74	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:40**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.2	0.5	
2,4'-DDE	ND	6.2	0.5	
2,4'-DDT	ND	6.2	0.5	
4,4'-DDD	ND	6.2	0.5	
4,4'-DDE	24	6.2	0.5	
4,4'-DDT	ND	6.2	0.5	
Aldrin	ND	6.2	0.5	
Alpha Chlordane	ND	6.2	0.5	
Alpha-BHC	ND	6.2	0.5	
Beta-BHC	ND	6.2	0.5	
Delta-BHC	ND	6.2	0.5	
Dieldrin	ND	6.2	0.5	
Endosulfan I	ND	6.2	0.5	
Endosulfan II	ND	6.2	0.5	
Endosulfan Sulfate	ND	6.2	0.5	
Endrin	ND	6.2	0.5	
Endrin Aldehyde	ND	6.2	0.5	
Endrin Ketone	ND	6.2	0.5	
Gamma Chlordane	ND	6.2	0.5	
Gamma-BHC	ND	6.2	0.5	
Heptachlor	ND	6.2	0.5	
Heptachlor Epoxide	ND	6.2	0.5	
Methoxychlor	ND	6.2	0.5	
Chlordane	ND	62	0.5	
Cis-nonachlor	ND	6.2	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.2	0.5	
Oxychlordane	ND	6.2	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	88	50-135	
Dibutylchlorendate	89	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 11:54**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	27	5.8	0.5	
4,4'-DDT	28	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.8	0.5	
Oxychlordane	ND	5.8	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	88	50-135	
Dibutylchlorendate	77	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:08**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	17	5.8	0.5	
4,4'-DDT	ND	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.8	0.5	
Oxychlordane	ND	5.8	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	87	50-135	
Dibutylchlorendate	91	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:23**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.7	0.5	
2,4'-DDE	ND	5.7	0.5	
2,4'-DDT	ND	5.7	0.5	
4,4'-DDD	ND	5.7	0.5	
4,4'-DDE	9.9	5.7	0.5	
4,4'-DDT	ND	5.7	0.5	
Aldrin	ND	5.7	0.5	
Alpha Chlordane	ND	5.7	0.5	
Alpha-BHC	ND	5.7	0.5	
Beta-BHC	ND	5.7	0.5	
Delta-BHC	ND	5.7	0.5	
Dieldrin	ND	5.7	0.5	
Endosulfan I	ND	5.7	0.5	
Endosulfan II	ND	5.7	0.5	
Endosulfan Sulfate	ND	5.7	0.5	
Endrin	ND	5.7	0.5	
Endrin Aldehyde	ND	5.7	0.5	
Endrin Ketone	ND	5.7	0.5	
Gamma Chlordane	ND	5.7	0.5	
Gamma-BHC	ND	5.7	0.5	
Heptachlor	ND	5.7	0.5	
Heptachlor Epoxide	ND	5.7	0.5	
Methoxychlor	ND	5.7	0.5	
Chlordane	ND	57	0.5	
Cis-nonachlor	ND	5.7	0.5	
Toxaphene	ND	140	0.5	
Trans-nonachlor	ND	5.7	0.5	
Oxychlordane	ND	5.7	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	
Dibutylchlorendate	80	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:37**	**130816F05**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.1	0.5	
2,4'-DDE	ND	6.1	0.5	
2,4'-DDT	ND	6.1	0.5	
4,4'-DDD	ND	6.1	0.5	
4,4'-DDE	16	6.1	0.5	
4,4'-DDT	ND	6.1	0.5	
Aldrin	ND	6.1	0.5	
Alpha Chlordane	ND	6.1	0.5	
Alpha-BHC	ND	6.1	0.5	
Beta-BHC	ND	6.1	0.5	
Delta-BHC	ND	6.1	0.5	
Dieldrin	ND	6.1	0.5	
Endosulfan I	ND	6.1	0.5	
Endosulfan II	ND	6.1	0.5	
Endosulfan Sulfate	ND	6.1	0.5	
Endrin	ND	6.1	0.5	
Endrin Aldehyde	ND	6.1	0.5	
Endrin Ketone	ND	6.1	0.5	
Gamma Chlordane	ND	6.1	0.5	
Gamma-BHC	ND	6.1	0.5	
Heptachlor	ND	6.1	0.5	
Heptachlor Epoxide	ND	6.1	0.5	
Methoxychlor	ND	6.1	0.5	
Chlordane	ND	61	0.5	
Cis-nonachlor	ND	6.1	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.1	0.5	
Oxychlordane	ND	6.1	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	
Dibutylchlorendate	71	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 12:51**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.5	0.5	
2,4'-DDE	ND	6.5	0.5	
2,4'-DDT	ND	6.5	0.5	
4,4'-DDD	ND	6.5	0.5	
4,4'-DDE	7.6	6.5	0.5	
4,4'-DDT	ND	6.5	0.5	
Aldrin	ND	6.5	0.5	
Alpha Chlordane	ND	6.5	0.5	
Alpha-BHC	ND	6.5	0.5	
Beta-BHC	ND	6.5	0.5	
Delta-BHC	ND	6.5	0.5	
Dieldrin	ND	6.5	0.5	
Endosulfan I	ND	6.5	0.5	
Endosulfan II	ND	6.5	0.5	
Endosulfan Sulfate	ND	6.5	0.5	
Endrin	ND	6.5	0.5	
Endrin Aldehyde	ND	6.5	0.5	
Endrin Ketone	ND	6.5	0.5	
Gamma Chlordane	ND	6.5	0.5	
Gamma-BHC	ND	6.5	0.5	
Heptachlor	ND	6.5	0.5	
Heptachlor Epoxide	ND	6.5	0.5	
Methoxychlor	ND	6.5	0.5	
Chlordane	ND	65	0.5	
Cis-nonachlor	ND	6.5	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.5	0.5	
Oxychlordane	ND	6.5	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	89	50-135	
Dibutylchlorendate	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:06**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.1	0.5	
2,4'-DDE	ND	5.1	0.5	
2,4'-DDT	ND	5.1	0.5	
4,4'-DDD	ND	5.1	0.5	
4,4'-DDE	16	5.1	0.5	
4,4'-DDT	ND	5.1	0.5	
Aldrin	ND	5.1	0.5	
Alpha Chlordane	ND	5.1	0.5	
Alpha-BHC	ND	5.1	0.5	
Beta-BHC	ND	5.1	0.5	
Delta-BHC	ND	5.1	0.5	
Dieldrin	ND	5.1	0.5	
Endosulfan I	ND	5.1	0.5	
Endosulfan II	ND	5.1	0.5	
Endosulfan Sulfate	ND	5.1	0.5	
Endrin	ND	5.1	0.5	
Endrin Aldehyde	ND	5.1	0.5	
Endrin Ketone	ND	5.1	0.5	
Gamma Chlordane	ND	5.1	0.5	
Gamma-BHC	ND	5.1	0.5	
Heptachlor	ND	5.1	0.5	
Heptachlor Epoxide	ND	5.1	0.5	
Methoxychlor	ND	5.1	0.5	
Chlordane	ND	51	0.5	
Cis-nonachlor	ND	5.1	0.5	
Toxaphene	ND	130	0.5	
Trans-nonachlor	5.2	5.1	0.5	
Oxychlordane	ND	5.1	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	103	50-135	
Dibutylchlorendate	90	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:20**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	16	5.8	0.5	
4,4'-DDT	ND	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	6.8	5.8	0.5	
Oxychlordane	ND	5.8	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	108	50-135	
Dibutylchlorendate	98	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:34**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.1	0.5	
2,4'-DDE	ND	6.1	0.5	
2,4'-DDT	ND	6.1	0.5	
4,4'-DDD	ND	6.1	0.5	
4,4'-DDE	10	6.1	0.5	
4,4'-DDT	ND	6.1	0.5	
Aldrin	ND	6.1	0.5	
Alpha Chlordane	ND	6.1	0.5	
Alpha-BHC	ND	6.1	0.5	
Beta-BHC	ND	6.1	0.5	
Delta-BHC	ND	6.1	0.5	
Dieldrin	ND	6.1	0.5	
Endosulfan I	ND	6.1	0.5	
Endosulfan II	ND	6.1	0.5	
Endosulfan Sulfate	ND	6.1	0.5	
Endrin	ND	6.1	0.5	
Endrin Aldehyde	ND	6.1	0.5	
Endrin Ketone	ND	6.1	0.5	
Gamma Chlordane	ND	6.1	0.5	
Gamma-BHC	ND	6.1	0.5	
Heptachlor	ND	6.1	0.5	
Heptachlor Epoxide	ND	6.1	0.5	
Methoxychlor	ND	6.1	0.5	
Chlordane	ND	61	0.5	
Cis-nonachlor	ND	6.1	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.1	0.5	
Oxychlordane	ND	6.1	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	99	50-135	
Dibutylchlorendate	97	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 13:48**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.5	0.5	
2,4'-DDE	ND	6.5	0.5	
2,4'-DDT	ND	6.5	0.5	
4,4'-DDD	ND	6.5	0.5	
4,4'-DDE	12	6.5	0.5	
4,4'-DDT	ND	6.5	0.5	
Aldrin	ND	6.5	0.5	
Alpha Chlordane	ND	6.5	0.5	
Alpha-BHC	ND	6.5	0.5	
Beta-BHC	ND	6.5	0.5	
Delta-BHC	ND	6.5	0.5	
Dieldrin	ND	6.5	0.5	
Endosulfan I	ND	6.5	0.5	
Endosulfan II	ND	6.5	0.5	
Endosulfan Sulfate	ND	6.5	0.5	
Endrin	ND	6.5	0.5	
Endrin Aldehyde	ND	6.5	0.5	
Endrin Ketone	ND	6.5	0.5	
Gamma Chlordane	ND	6.5	0.5	
Gamma-BHC	ND	6.5	0.5	
Heptachlor	ND	6.5	0.5	
Heptachlor Epoxide	ND	6.5	0.5	
Methoxychlor	ND	6.5	0.5	
Chlordane	ND	65	0.5	
Cis-nonachlor	ND	6.5	0.5	
Toxaphene	ND	160	0.5	
Trans-nonachlor	ND	6.5	0.5	
Oxychlordane	ND	6.5	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	85	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

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9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:03**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.9	0.5	
2,4'-DDE	ND	5.9	0.5	
2,4'-DDT	ND	5.9	0.5	
4,4'-DDD	ND	5.9	0.5	
4,4'-DDE	22	5.9	0.5	
4,4'-DDT	ND	5.9	0.5	
Aldrin	ND	5.9	0.5	
Alpha Chlordane	ND	5.9	0.5	
Alpha-BHC	ND	5.9	0.5	
Beta-BHC	ND	5.9	0.5	
Delta-BHC	ND	5.9	0.5	
Dieldrin	ND	5.9	0.5	
Endosulfan I	ND	5.9	0.5	
Endosulfan II	ND	5.9	0.5	
Endosulfan Sulfate	ND	5.9	0.5	
Endrin	ND	5.9	0.5	
Endrin Aldehyde	ND	5.9	0.5	
Endrin Ketone	ND	5.9	0.5	
Gamma Chlordane	ND	5.9	0.5	
Gamma-BHC	ND	5.9	0.5	
Heptachlor	ND	5.9	0.5	
Heptachlor Epoxide	ND	5.9	0.5	
Methoxychlor	ND	5.9	0.5	
Chlordane	ND	59	0.5	
Cis-nonachlor	ND	5.9	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.9	0.5	
Oxychlordane	ND	5.9	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	97	50-135	
Dibutylchlorendate	83	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:17**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.2	0.5	
2,4'-DDE	ND	6.2	0.5	
2,4'-DDT	ND	6.2	0.5	
4,4'-DDD	ND	6.2	0.5	
4,4'-DDE	ND	6.2	0.5	
4,4'-DDT	ND	6.2	0.5	
Aldrin	ND	6.2	0.5	
Alpha Chlordane	ND	6.2	0.5	
Alpha-BHC	ND	6.2	0.5	
Beta-BHC	ND	6.2	0.5	
Delta-BHC	ND	6.2	0.5	
Dieldrin	ND	6.2	0.5	
Endosulfan I	ND	6.2	0.5	
Endosulfan II	ND	6.2	0.5	
Endosulfan Sulfate	ND	6.2	0.5	
Endrin	ND	6.2	0.5	
Endrin Aldehyde	ND	6.2	0.5	
Endrin Ketone	ND	6.2	0.5	
Gamma Chlordane	ND	6.2	0.5	
Gamma-BHC	ND	6.2	0.5	
Heptachlor	ND	6.2	0.5	
Heptachlor Epoxide	ND	6.2	0.5	
Methoxychlor	ND	6.2	0.5	
Chlordane	ND	62	0.5	
Cis-nonachlor	ND	6.2	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.2	0.5	
Oxychlordane	ND	6.2	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	
Dibutylchlorendate	67	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:31**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	6.0	0.5	
2,4'-DDE	ND	6.0	0.5	
2,4'-DDT	ND	6.0	0.5	
4,4'-DDD	ND	6.0	0.5	
4,4'-DDE	16	6.0	0.5	
4,4'-DDT	ND	6.0	0.5	
Aldrin	ND	6.0	0.5	
Alpha Chlordane	ND	6.0	0.5	
Alpha-BHC	ND	6.0	0.5	
Beta-BHC	ND	6.0	0.5	
Delta-BHC	ND	6.0	0.5	
Dieldrin	ND	6.0	0.5	
Endosulfan I	ND	6.0	0.5	
Endosulfan II	ND	6.0	0.5	
Endosulfan Sulfate	ND	6.0	0.5	
Endrin	ND	6.0	0.5	
Endrin Aldehyde	ND	6.0	0.5	
Endrin Ketone	ND	6.0	0.5	
Gamma Chlordane	ND	6.0	0.5	
Gamma-BHC	ND	6.0	0.5	
Heptachlor	ND	6.0	0.5	
Heptachlor Epoxide	ND	6.0	0.5	
Methoxychlor	ND	6.0	0.5	
Chlordane	ND	60	0.5	
Cis-nonachlor	ND	6.0	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	6.0	0.5	
Oxychlordane	ND	6.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	94	50-135	
Dibutylchlorendate	63	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 14:45**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.8	0.5	
2,4'-DDE	ND	5.8	0.5	
2,4'-DDT	ND	5.8	0.5	
4,4'-DDD	ND	5.8	0.5	
4,4'-DDE	18	5.8	0.5	
4,4'-DDT	ND	5.8	0.5	
Aldrin	ND	5.8	0.5	
Alpha Chlordane	ND	5.8	0.5	
Alpha-BHC	ND	5.8	0.5	
Beta-BHC	ND	5.8	0.5	
Delta-BHC	ND	5.8	0.5	
Dieldrin	ND	5.8	0.5	
Endosulfan I	ND	5.8	0.5	
Endosulfan II	ND	5.8	0.5	
Endosulfan Sulfate	ND	5.8	0.5	
Endrin	ND	5.8	0.5	
Endrin Aldehyde	ND	5.8	0.5	
Endrin Ketone	ND	5.8	0.5	
Gamma Chlordane	ND	5.8	0.5	
Gamma-BHC	ND	5.8	0.5	
Heptachlor	ND	5.8	0.5	
Heptachlor Epoxide	ND	5.8	0.5	
Methoxychlor	ND	5.8	0.5	
Chlordane	ND	58	0.5	
Cis-nonachlor	ND	5.8	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.8	0.5	
Oxychlordane	ND	5.8	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	93	50-135	
Dibutylchlorendate	75	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 15:00**	**130816F06**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	5.9	0.5	
2,4'-DDE	ND	5.9	0.5	
2,4'-DDT	ND	5.9	0.5	
4,4'-DDD	ND	5.9	0.5	
4,4'-DDE	20	5.9	0.5	
4,4'-DDT	ND	5.9	0.5	
Aldrin	ND	5.9	0.5	
Alpha Chlordane	ND	5.9	0.5	
Alpha-BHC	ND	5.9	0.5	
Beta-BHC	ND	5.9	0.5	
Delta-BHC	ND	5.9	0.5	
Dieldrin	ND	5.9	0.5	
Endosulfan I	ND	5.9	0.5	
Endosulfan II	ND	5.9	0.5	
Endosulfan Sulfate	ND	5.9	0.5	
Endrin	ND	5.9	0.5	
Endrin Aldehyde	ND	5.9	0.5	
Endrin Ketone	ND	5.9	0.5	
Gamma Chlordane	ND	5.9	0.5	
Gamma-BHC	ND	5.9	0.5	
Heptachlor	ND	5.9	0.5	
Heptachlor Epoxide	ND	5.9	0.5	
Methoxychlor	ND	5.9	0.5	
Chlordane	ND	59	0.5	
Cis-nonachlor	ND	5.9	0.5	
Toxaphene	ND	150	0.5	
Trans-nonachlor	ND	5.9	0.5	
Oxychlordane	ND	5.9	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	
Dibutylchlorendate	56	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-294-22**	**N/A**	**Soil**	**GC 51**	**08/16/13**	**08/23/13 13:55**	**130816F05**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	105	50-135	
Dibutylchlorendate	102	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-294-23**	**N/A**	**Soil**	**GC 51**	**08/16/13**	**08/24/13 10:43**	**130816F06**

Parameter	Result	RL	DF	Qualifiers
2,4'-DDD	ND	1.0	0.5	
2,4'-DDE	ND	1.0	0.5	
2,4'-DDT	ND	1.0	0.5	
4,4'-DDD	ND	1.0	0.5	
4,4'-DDE	ND	1.0	0.5	
4,4'-DDT	ND	1.0	0.5	
Aldrin	ND	1.0	0.5	
Alpha Chlordane	ND	1.0	0.5	
Alpha-BHC	ND	1.0	0.5	
Beta-BHC	ND	1.0	0.5	
Delta-BHC	ND	1.0	0.5	
Dieldrin	ND	1.0	0.5	
Endosulfan I	ND	1.0	0.5	
Endosulfan II	ND	1.0	0.5	
Endosulfan Sulfate	ND	1.0	0.5	
Endrin	ND	1.0	0.5	
Endrin Aldehyde	ND	1.0	0.5	
Endrin Ketone	ND	1.0	0.5	
Gamma Chlordane	ND	1.0	0.5	
Gamma-BHC	ND	1.0	0.5	
Heptachlor	ND	1.0	0.5	
Heptachlor Epoxide	ND	1.0	0.5	
Methoxychlor	ND	1.0	0.5	
Chlordane	ND	10	0.5	
Cis-nonachlor	ND	1.0	0.5	
Toxaphene	ND	25	0.5	
Trans-nonachlor	ND	1.0	0.5	
Oxychlordane	ND	1.0	0.5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	121	50-135	
Dibutylchlorendate	105	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 13:27**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	70	1	
Acenaphthylene	ND	70	1	
Anthracene	ND	70	1	
Benzo (a) Anthracene	ND	70	1	
Benzo (a) Pyrene	210	70	1	
Benzo (b) Fluoranthene	320	70	1	
Benzo (e) Pyrene	210	70	1	
Benzo (g,h,i) Perylene	ND	70	1	
Benzo (k) Fluoranthene	230	70	1	
Biphenyl	ND	70	1	
Chrysene	87	70	1	
Dibenz (a,h) Anthracene	ND	70	1	
2,6-Dimethylnaphthalene	ND	70	1	
Fluoranthene	ND	70	1	
Fluorene	ND	70	1	
Indeno (1,2,3-c,d) Pyrene	ND	70	1	
2-Methylnaphthalene	ND	70	1	
1-Methylnaphthalene	ND	70	1	
1-Methylphenanthrene	ND	70	1	
Naphthalene	ND	70	1	
Perylene	ND	70	1	
Phenanthrene	ND	70	1	
Pyrene	120	70	1	
1,6,7-Trimethylnaphthalene	ND	70	1	
Dibenzothiophene	ND	70	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	110	14-146	
Nitrobenzene-d5	97	18-162	
p-Terphenyl-d14	138	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 13:53**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	70	1	
Acenaphthylene	ND	70	1	
Anthracene	ND	70	1	
Benzo (a) Anthracene	ND	70	1	
Benzo (a) Pyrene	190	70	1	
Benzo (b) Fluoranthene	300	70	1	
Benzo (e) Pyrene	180	70	1	
Benzo (g,h,i) Perylene	ND	70	1	
Benzo (k) Fluoranthene	200	70	1	
Biphenyl	ND	70	1	
Chrysene	73	70	1	
Dibenz (a,h) Anthracene	ND	70	1	
2,6-Dimethylnaphthalene	ND	70	1	
Fluoranthene	ND	70	1	
Fluorene	ND	70	1	
Indeno (1,2,3-c,d) Pyrene	ND	70	1	
2-Methylnaphthalene	ND	70	1	
1-Methylnaphthalene	ND	70	1	
1-Methylphenanthrene	ND	70	1	
Naphthalene	ND	70	1	
Perylene	ND	70	1	
Phenanthrene	ND	70	1	
Pyrene	130	70	1	
1,6,7-Trimethylnaphthalene	ND	70	1	
Dibenzothiophene	ND	70	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	100	14-146	
Nitrobenzene-d5	88	18-162	
p-Terphenyl-d14	118	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 14:20**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	71	1	
Acenaphthylene	ND	71	1	
Anthracene	ND	71	1	
Benzo (a) Anthracene	ND	71	1	
Benzo (a) Pyrene	150	71	1	
Benzo (b) Fluoranthene	250	71	1	
Benzo (e) Pyrene	160	71	1	
Benzo (g,h,i) Perylene	ND	71	1	
Benzo (k) Fluoranthene	180	71	1	
Biphenyl	ND	71	1	
Chrysene	ND	71	1	
Dibenz (a,h) Anthracene	ND	71	1	
2,6-Dimethylnaphthalene	ND	71	1	
Fluoranthene	ND	71	1	
Fluorene	ND	71	1	
Indeno (1,2,3-c,d) Pyrene	ND	71	1	
2-Methylnaphthalene	ND	71	1	
1-Methylnaphthalene	ND	71	1	
1-Methylphenanthrene	ND	71	1	
Naphthalene	ND	71	1	
Perylene	ND	71	1	
Phenanthrene	ND	71	1	
Pyrene	110	71	1	
1,6,7-Trimethylnaphthalene	ND	71	1	
Dibenzothiophene	ND	71	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	99	14-146	
Nitrobenzene-d5	105	18-162	
p-Terphenyl-d14	116	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 14:46**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	78	1	
Acenaphthylene	ND	78	1	
Anthracene	ND	78	1	
Benzo (a) Anthracene	ND	78	1	
Benzo (a) Pyrene	ND	78	1	
Benzo (b) Fluoranthene	ND	78	1	
Benzo (e) Pyrene	ND	78	1	
Benzo (g,h,i) Perylene	ND	78	1	
Benzo (k) Fluoranthene	ND	78	1	
Biphenyl	ND	78	1	
Chrysene	ND	78	1	
Dibenz (a,h) Anthracene	ND	78	1	
2,6-Dimethylnaphthalene	ND	78	1	
Fluoranthene	ND	78	1	
Fluorene	ND	78	1	
Indeno (1,2,3-c,d) Pyrene	ND	78	1	
2-Methylnaphthalene	ND	78	1	
1-Methylnaphthalene	ND	78	1	
1-Methylphenanthrene	ND	78	1	
Naphthalene	ND	78	1	
Perylene	ND	78	1	
Phenanthrene	ND	78	1	
Pyrene	ND	78	1	
1,6,7-Trimethylnaphthalene	ND	78	1	
Dibenzothiophene	ND	78	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	96	14-146	
Nitrobenzene-d5	97	18-162	
p-Terphenyl-d14	114	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 15:12**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	72	1	
Acenaphthylene	ND	72	1	
Anthracene	ND	72	1	
Benzo (a) Anthracene	89	72	1	
Benzo (a) Pyrene	210	72	1	
Benzo (b) Fluoranthene	300	72	1	
Benzo (e) Pyrene	200	72	1	
Benzo (g,h,i) Perylene	ND	72	1	
Benzo (k) Fluoranthene	200	72	1	
Biphenyl	ND	72	1	
Chrysene	130	72	1	
Dibenz (a,h) Anthracene	ND	72	1	
2,6-Dimethylnaphthalene	ND	72	1	
Fluoranthene	460	72	1	
Fluorene	ND	72	1	
Indeno (1,2,3-c,d) Pyrene	ND	72	1	
2-Methylnaphthalene	ND	72	1	
1-Methylnaphthalene	ND	72	1	
1-Methylphenanthrene	ND	72	1	
Naphthalene	ND	72	1	
Perylene	ND	72	1	
Phenanthrene	ND	72	1	
Pyrene	1300	72	1	
1,6,7-Trimethylnaphthalene	ND	72	1	
Dibenzothiophene	ND	72	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	81	18-162	
p-Terphenyl-d14	107	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 15:39**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	68	1	
Acenaphthylene	ND	68	1	
Anthracene	ND	68	1	
Benzo (a) Anthracene	ND	68	1	
Benzo (a) Pyrene	ND	68	1	
Benzo (b) Fluoranthene	ND	68	1	
Benzo (e) Pyrene	ND	68	1	
Benzo (g,h,i) Perylene	ND	68	1	
Benzo (k) Fluoranthene	ND	68	1	
Biphenyl	ND	68	1	
Chrysene	ND	68	1	
Dibenz (a,h) Anthracene	ND	68	1	
2,6-Dimethylnaphthalene	ND	68	1	
Fluoranthene	ND	68	1	
Fluorene	ND	68	1	
Indeno (1,2,3-c,d) Pyrene	ND	68	1	
2-Methylnaphthalene	ND	68	1	
1-Methylnaphthalene	ND	68	1	
1-Methylphenanthrene	ND	68	1	
Naphthalene	ND	68	1	
Perylene	ND	68	1	
Phenanthrene	ND	68	1	
Pyrene	ND	68	1	
1,6,7-Trimethylnaphthalene	ND	68	1	
Dibenzothiophene	ND	68	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	111	14-146	
Nitrobenzene-d5	103	18-162	
p-Terphenyl-d14	128	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 18:09**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	180	73	1	
Acenaphthylene	ND	73	1	
Anthracene	ND	73	1	
Benzo (a) Anthracene	95	73	1	
Benzo (a) Pyrene	240	73	1	
Benzo (b) Fluoranthene	340	73	1	
Benzo (e) Pyrene	230	73	1	
Benzo (g,h,i) Perylene	ND	73	1	
Benzo (k) Fluoranthene	250	73	1	
Biphenyl	ND	73	1	
Chrysene	150	73	1	
Dibenz (a,h) Anthracene	ND	73	1	
2,6-Dimethylnaphthalene	ND	73	1	
Fluoranthene	510	73	1	
Fluorene	ND	73	1	
Indeno (1,2,3-c,d) Pyrene	ND	73	1	
2-Methylnaphthalene	ND	73	1	
1-Methylnaphthalene	ND	73	1	
1-Methylphenanthrene	ND	73	1	
Naphthalene	ND	73	1	
Perylene	ND	73	1	
Phenanthrene	ND	73	1	
Pyrene	1500	73	1	
1,6,7-Trimethylnaphthalene	ND	73	1	
Dibenzothiophene	ND	73	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	102	14-146	
Nitrobenzene-d5	96	18-162	
p-Terphenyl-d14	125	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 18:35**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	63	1	
Acenaphthylene	ND	63	1	
Anthracene	ND	63	1	
Benzo (a) Anthracene	ND	63	1	
Benzo (a) Pyrene	140	63	1	
Benzo (b) Fluoranthene	220	63	1	
Benzo (e) Pyrene	140	63	1	
Benzo (g,h,i) Perylene	ND	63	1	
Benzo (k) Fluoranthene	160	63	1	
Biphenyl	ND	63	1	
Chrysene	ND	63	1	
Dibenz (a,h) Anthracene	ND	63	1	
2,6-Dimethylnaphthalene	ND	63	1	
Fluoranthene	ND	63	1	
Fluorene	ND	63	1	
Indeno (1,2,3-c,d) Pyrene	ND	63	1	
2-Methylnaphthalene	ND	63	1	
1-Methylnaphthalene	ND	63	1	
1-Methylphenanthrene	ND	63	1	
Naphthalene	ND	63	1	
Perylene	ND	63	1	
Phenanthrene	ND	63	1	
Pyrene	95	63	1	
1,6,7-Trimethylnaphthalene	ND	63	1	
Dibenzothiophene	ND	63	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	95	14-146	
Nitrobenzene-d5	86	18-162	
p-Terphenyl-d14	115	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 19:02**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	65	1	
Acenaphthylene	ND	65	1	
Anthracene	ND	65	1	
Benzo (a) Anthracene	ND	65	1	
Benzo (a) Pyrene	ND	65	1	
Benzo (b) Fluoranthene	ND	65	1	
Benzo (e) Pyrene	ND	65	1	
Benzo (g,h,i) Perylene	ND	65	1	
Benzo (k) Fluoranthene	ND	65	1	
Biphenyl	ND	65	1	
Chrysene	ND	65	1	
Dibenz (a,h) Anthracene	ND	65	1	
2,6-Dimethylnaphthalene	ND	65	1	
Fluoranthene	ND	65	1	
Fluorene	ND	65	1	
Indeno (1,2,3-c,d) Pyrene	ND	65	1	
2-Methylnaphthalene	ND	65	1	
1-Methylnaphthalene	ND	65	1	
1-Methylphenanthrene	ND	65	1	
Naphthalene	ND	65	1	
Perylene	ND	65	1	
Phenanthrene	ND	65	1	
Pyrene	ND	65	1	
1,6,7-Trimethylnaphthalene	ND	65	1	
Dibenzothiophene	ND	65	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	103	14-146	
Nitrobenzene-d5	119	18-162	
p-Terphenyl-d14	115	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 19:28**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	69	1	
Acenaphthylene	ND	69	1	
Anthracene	ND	69	1	
Benzo (a) Anthracene	ND	69	1	
Benzo (a) Pyrene	ND	69	1	
Benzo (b) Fluoranthene	ND	69	1	
Benzo (e) Pyrene	ND	69	1	
Benzo (g,h,i) Perylene	ND	69	1	
Benzo (k) Fluoranthene	ND	69	1	
Biphenyl	ND	69	1	
Chrysene	ND	69	1	
Dibenz (a,h) Anthracene	ND	69	1	
2,6-Dimethylnaphthalene	ND	69	1	
Fluoranthene	ND	69	1	
Fluorene	ND	69	1	
Indeno (1,2,3-c,d) Pyrene	ND	69	1	
2-Methylnaphthalene	ND	69	1	
1-Methylnaphthalene	ND	69	1	
1-Methylphenanthrene	ND	69	1	
Naphthalene	ND	69	1	
Perylene	ND	69	1	
Phenanthrene	ND	69	1	
Pyrene	ND	69	1	
1,6,7-Trimethylnaphthalene	ND	69	1	
Dibenzothiophene	ND	69	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	106	14-146	
Nitrobenzene-d5	114	18-162	
p-Terphenyl-d14	120	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 19:54**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	71	1	
Acenaphthylene	ND	71	1	
Anthracene	100	71	1	
Benzo (a) Anthracene	150	71	1	
Benzo (a) Pyrene	350	71	1	
Benzo (b) Fluoranthene	480	71	1	
Benzo (e) Pyrene	330	71	1	
Benzo (g,h,i) Perylene	ND	71	1	
Benzo (k) Fluoranthene	360	71	1	
Biphenyl	ND	71	1	
Chrysene	240	71	1	
Dibenz (a,h) Anthracene	ND	71	1	
2,6-Dimethylnaphthalene	ND	71	1	
Fluoranthene	830	71	1	
Fluorene	ND	71	1	
Indeno (1,2,3-c,d) Pyrene	ND	71	1	
2-Methylnaphthalene	ND	71	1	
1-Methylnaphthalene	ND	71	1	
1-Methylphenanthrene	ND	71	1	
Naphthalene	ND	71	1	
Perylene	94	71	1	
Phenanthrene	ND	71	1	
Pyrene	2200	71	1	
1,6,7-Trimethylnaphthalene	ND	71	1	
Dibenzothiophene	ND	71	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	122	14-146	
Nitrobenzene-d5	120	18-162	
p-Terphenyl-d14	143	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 20:21**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	73	1	
Acenaphthylene	ND	73	1	
Anthracene	ND	73	1	
Benzo (a) Anthracene	ND	73	1	
Benzo (a) Pyrene	ND	73	1	
Benzo (b) Fluoranthene	ND	73	1	
Benzo (e) Pyrene	ND	73	1	
Benzo (g,h,i) Perylene	ND	73	1	
Benzo (k) Fluoranthene	ND	73	1	
Biphenyl	ND	73	1	
Chrysene	ND	73	1	
Dibenz (a,h) Anthracene	ND	73	1	
2,6-Dimethylnaphthalene	ND	73	1	
Fluoranthene	ND	73	1	
Fluorene	ND	73	1	
Indeno (1,2,3-c,d) Pyrene	ND	73	1	
2-Methylnaphthalene	ND	73	1	
1-Methylnaphthalene	ND	73	1	
1-Methylphenanthrene	ND	73	1	
Naphthalene	ND	73	1	
Perylene	ND	73	1	
Phenanthrene	ND	73	1	
Pyrene	ND	73	1	
1,6,7-Trimethylnaphthalene	ND	73	1	
Dibenzothiophene	ND	73	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	96	14-146	
Nitrobenzene-d5	80	18-162	
p-Terphenyl-d14	112	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 20:47**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	73	1	
Acenaphthylene	ND	73	1	
Anthracene	88	73	1	
Benzo (a) Anthracene	130	73	1	
Benzo (a) Pyrene	320	73	1	
Benzo (b) Fluoranthene	450	73	1	
Benzo (e) Pyrene	310	73	1	
Benzo (g,h,i) Perylene	ND	73	1	
Benzo (k) Fluoranthene	330	73	1	
Biphenyl	ND	73	1	
Chrysene	200	73	1	
Dibenz (a,h) Anthracene	ND	73	1	
2,6-Dimethylnaphthalene	ND	73	1	
Fluoranthene	790	73	1	
Fluorene	ND	73	1	
Indeno (1,2,3-c,d) Pyrene	ND	73	1	
2-Methylnaphthalene	ND	73	1	
1-Methylnaphthalene	ND	73	1	
1-Methylphenanthrene	ND	73	1	
Naphthalene	ND	73	1	
Perylene	90	73	1	
Phenanthrene	ND	73	1	
Pyrene	2200	73	1	
1,6,7-Trimethylnaphthalene	ND	73	1	
Dibenzothiophene	ND	73	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	117	14-146	
Nitrobenzene-d5	112	18-162	
p-Terphenyl-d14	136	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 21:13**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	67	1	
Acenaphthylene	ND	67	1	
Anthracene	ND	67	1	
Benzo (a) Anthracene	93	67	1	
Benzo (a) Pyrene	240	67	1	
Benzo (b) Fluoranthene	340	67	1	
Benzo (e) Pyrene	230	67	1	
Benzo (g,h,i) Perylene	ND	67	1	
Benzo (k) Fluoranthene	250	67	1	
Biphenyl	ND	67	1	
Chrysene	150	67	1	
Dibenz (a,h) Anthracene	ND	67	1	
2,6-Dimethylnaphthalene	ND	67	1	
Fluoranthene	550	67	1	
Fluorene	ND	67	1	
Indeno (1,2,3-c,d) Pyrene	ND	67	1	
2-Methylnaphthalene	ND	67	1	
1-Methylnaphthalene	ND	67	1	
1-Methylphenanthrene	ND	67	1	
Naphthalene	ND	67	1	
Perylene	69	67	1	
Phenanthrene	ND	67	1	
Pyrene	1500	67	1	
1,6,7-Trimethylnaphthalene	ND	67	1	
Dibenzothiophene	ND	67	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	111	14-146	
Nitrobenzene-d5	109	18-162	
p-Terphenyl-d14	127	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 21:40**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	71	1	
Acenaphthylene	ND	71	1	
Anthracene	ND	71	1	
Benzo (a) Anthracene	ND	71	1	
Benzo (a) Pyrene	150	71	1	
Benzo (b) Fluoranthene	230	71	1	
Benzo (e) Pyrene	150	71	1	
Benzo (g,h,i) Perylene	ND	71	1	
Benzo (k) Fluoranthene	180	71	1	
Biphenyl	ND	71	1	
Chrysene	ND	71	1	
Dibenz (a,h) Anthracene	ND	71	1	
2,6-Dimethylnaphthalene	ND	71	1	
Fluoranthene	ND	71	1	
Fluorene	ND	71	1	
Indeno (1,2,3-c,d) Pyrene	ND	71	1	
2-Methylnaphthalene	ND	71	1	
1-Methylnaphthalene	ND	71	1	
1-Methylphenanthrene	ND	71	1	
Naphthalene	ND	71	1	
Perylene	ND	71	1	
Phenanthrene	ND	71	1	
Pyrene	98	71	1	
1,6,7-Trimethylnaphthalene	ND	71	1	
Dibenzothiophene	ND	71	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	102	14-146	
Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	119	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 22:06**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	62	1	
Acenaphthylene	ND	62	1	
Anthracene	ND	62	1	
Benzo (a) Anthracene	ND	62	1	
Benzo (a) Pyrene	ND	62	1	
Benzo (b) Fluoranthene	ND	62	1	
Benzo (e) Pyrene	ND	62	1	
Benzo (g,h,i) Perylene	ND	62	1	
Benzo (k) Fluoranthene	ND	62	1	
Biphenyl	ND	62	1	
Chrysene	ND	62	1	
Dibenz (a,h) Anthracene	ND	62	1	
2,6-Dimethylnaphthalene	ND	62	1	
Fluoranthene	ND	62	1	
Fluorene	ND	62	1	
Indeno (1,2,3-c,d) Pyrene	ND	62	1	
2-Methylnaphthalene	ND	62	1	
1-Methylnaphthalene	ND	62	1	
1-Methylphenanthrene	ND	62	1	
Naphthalene	ND	62	1	
Perylene	ND	62	1	
Phenanthrene	ND	62	1	
Pyrene	ND	62	1	
1,6,7-Trimethylnaphthalene	ND	62	1	
Dibenzothiophene	ND	62	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	98	14-146	
Nitrobenzene-d5	81	18-162	
p-Terphenyl-d14	112	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 22:32**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	ND	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	ND	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	ND	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	ND	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	ND	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	70	18-162	
p-Terphenyl-d14	105	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 22:59**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	ND	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	ND	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	ND	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	ND	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	ND	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	116	14-146	
Nitrobenzene-d5	105	18-162	
p-Terphenyl-d14	132	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 23:25**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	57	1	
Acenaphthylene	ND	57	1	
Anthracene	ND	57	1	
Benzo (a) Anthracene	ND	57	1	
Benzo (a) Pyrene	ND	57	1	
Benzo (b) Fluoranthene	ND	57	1	
Benzo (e) Pyrene	ND	57	1	
Benzo (g,h,i) Perylene	ND	57	1	
Benzo (k) Fluoranthene	ND	57	1	
Biphenyl	ND	57	1	
Chrysene	ND	57	1	
Dibenz (a,h) Anthracene	ND	57	1	
2,6-Dimethylnaphthalene	ND	57	1	
Fluoranthene	ND	57	1	
Fluorene	ND	57	1	
Indeno (1,2,3-c,d) Pyrene	ND	57	1	
2-Methylnaphthalene	ND	57	1	
1-Methylnaphthalene	ND	57	1	
1-Methylphenanthrene	ND	57	1	
Naphthalene	ND	57	1	
Perylene	ND	57	1	
Phenanthrene	ND	57	1	
Pyrene	ND	57	1	
1,6,7-Trimethylnaphthalene	ND	57	1	
Dibenzothiophene	ND	57	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	110	14-146	
Nitrobenzene-d5	79	18-162	
p-Terphenyl-d14	124	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 23:51**	**130816L01**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	61	1	
Acenaphthylene	ND	61	1	
Anthracene	ND	61	1	
Benzo (a) Anthracene	ND	61	1	
Benzo (a) Pyrene	ND	61	1	
Benzo (b) Fluoranthene	ND	61	1	
Benzo (e) Pyrene	62	61	1	
Benzo (g,h,i) Perylene	ND	61	1	
Benzo (k) Fluoranthene	ND	61	1	
Biphenyl	ND	61	1	
Chrysene	ND	61	1	
Dibenz (a,h) Anthracene	ND	61	1	
2,6-Dimethylnaphthalene	ND	61	1	
Fluoranthene	230	61	1	
Fluorene	ND	61	1	
Indeno (1,2,3-c,d) Pyrene	ND	61	1	
2-Methylnaphthalene	ND	61	1	
1-Methylnaphthalene	ND	61	1	
1-Methylphenanthrene	ND	61	1	
Naphthalene	ND	61	1	
Perylene	ND	61	1	
Phenanthrene	ND	61	1	
Pyrene	470	61	1	
1,6,7-Trimethylnaphthalene	ND	61	1	
Dibenzothiophene	ND	61	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	72	18-162	
p-Terphenyl-d14	103	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 00:18**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	65	1	
Acenaphthylene	ND	65	1	
Anthracene	ND	65	1	
Benzo (a) Anthracene	ND	65	1	
Benzo (a) Pyrene	ND	65	1	
Benzo (b) Fluoranthene	ND	65	1	
Benzo (e) Pyrene	ND	65	1	
Benzo (g,h,i) Perylene	ND	65	1	
Benzo (k) Fluoranthene	ND	65	1	
Biphenyl	ND	65	1	
Chrysene	ND	65	1	
Dibenz (a,h) Anthracene	ND	65	1	
2,6-Dimethylnaphthalene	ND	65	1	
Fluoranthene	ND	65	1	
Fluorene	ND	65	1	
Indeno (1,2,3-c,d) Pyrene	ND	65	1	
2-Methylnaphthalene	ND	65	1	
1-Methylnaphthalene	ND	65	1	
1-Methylphenanthrene	ND	65	1	
Naphthalene	ND	65	1	
Perylene	ND	65	1	
Phenanthrene	ND	65	1	
Pyrene	ND	65	1	
1,6,7-Trimethylnaphthalene	ND	65	1	
Dibenzothiophene	ND	65	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	104	14-146	
Nitrobenzene-d5	76	18-162	
p-Terphenyl-d14	117	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 00:44**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	59	51	1	
Acenaphthylene	ND	51	1	
Anthracene	ND	51	1	
Benzo (a) Anthracene	ND	51	1	
Benzo (a) Pyrene	ND	51	1	
Benzo (b) Fluoranthene	ND	51	1	
Benzo (e) Pyrene	ND	51	1	
Benzo (g,h,i) Perylene	ND	51	1	
Benzo (k) Fluoranthene	ND	51	1	
Biphenyl	ND	51	1	
Chrysene	ND	51	1	
Dibenz (a,h) Anthracene	ND	51	1	
2,6-Dimethylnaphthalene	ND	51	1	
Fluoranthene	98	51	1	
Fluorene	ND	51	1	
Indeno (1,2,3-c,d) Pyrene	ND	51	1	
2-Methylnaphthalene	ND	51	1	
1-Methylnaphthalene	ND	51	1	
1-Methylphenanthrene	ND	51	1	
Naphthalene	ND	51	1	
Perylene	ND	51	1	
Phenanthrene	ND	51	1	
Pyrene	190	51	1	
1,6,7-Trimethylnaphthalene	ND	51	1	
Dibenzothiophene	ND	51	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	101	14-146	
Nitrobenzene-d5	70	18-162	
p-Terphenyl-d14	113	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 01:10**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	ND	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	ND	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	ND	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	65	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	ND	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	136	14-146	
Nitrobenzene-d5	101	18-162	
p-Terphenyl-d14	147	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 01:36**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	61	1	
Acenaphthylene	ND	61	1	
Anthracene	ND	61	1	
Benzo (a) Anthracene	ND	61	1	
Benzo (a) Pyrene	ND	61	1	
Benzo (b) Fluoranthene	ND	61	1	
Benzo (e) Pyrene	ND	61	1	
Benzo (g,h,i) Perylene	ND	61	1	
Benzo (k) Fluoranthene	ND	61	1	
Biphenyl	ND	61	1	
Chrysene	ND	61	1	
Dibenz (a,h) Anthracene	ND	61	1	
2,6-Dimethylnaphthalene	ND	61	1	
Fluoranthene	ND	61	1	
Fluorene	ND	61	1	
Indeno (1,2,3-c,d) Pyrene	ND	61	1	
2-Methylnaphthalene	ND	61	1	
1-Methylnaphthalene	ND	61	1	
1-Methylphenanthrene	ND	61	1	
Naphthalene	ND	61	1	
Perylene	ND	61	1	
Phenanthrene	ND	61	1	
Pyrene	ND	61	1	
1,6,7-Trimethylnaphthalene	ND	61	1	
Dibenzothiophene	ND	61	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	107	14-146	
Nitrobenzene-d5	78	18-162	
p-Terphenyl-d14	120	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 02:03**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	65	1	
Acenaphthylene	ND	65	1	
Anthracene	ND	65	1	
Benzo (a) Anthracene	ND	65	1	
Benzo (a) Pyrene	ND	65	1	
Benzo (b) Fluoranthene	ND	65	1	
Benzo (e) Pyrene	ND	65	1	
Benzo (g,h,i) Perylene	ND	65	1	
Benzo (k) Fluoranthene	ND	65	1	
Biphenyl	ND	65	1	
Chrysene	ND	65	1	
Dibenz (a,h) Anthracene	ND	65	1	
2,6-Dimethylnaphthalene	ND	65	1	
Fluoranthene	ND	65	1	
Fluorene	ND	65	1	
Indeno (1,2,3-c,d) Pyrene	ND	65	1	
2-Methylnaphthalene	ND	65	1	
1-Methylnaphthalene	ND	65	1	
1-Methylphenanthrene	ND	65	1	
Naphthalene	ND	65	1	
Perylene	ND	65	1	
Phenanthrene	ND	65	1	
Pyrene	ND	65	1	
1,6,7-Trimethylnaphthalene	ND	65	1	
Dibenzothiophene	ND	65	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	126	14-146	
Nitrobenzene-d5	101	18-162	
p-Terphenyl-d14	141	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 02:29**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	68	59	1	
Acenaphthylene	ND	59	1	
Anthracene	ND	59	1	
Benzo (a) Anthracene	ND	59	1	
Benzo (a) Pyrene	ND	59	1	
Benzo (b) Fluoranthene	80	59	1	
Benzo (e) Pyrene	89	59	1	
Benzo (g,h,i) Perylene	ND	59	1	
Benzo (k) Fluoranthene	69	59	1	
Biphenyl	ND	59	1	
Chrysene	86	59	1	
Dibenz (a,h) Anthracene	ND	59	1	
2,6-Dimethylnaphthalene	ND	59	1	
Fluoranthene	410	59	1	
Fluorene	ND	59	1	
Indeno (1,2,3-c,d) Pyrene	ND	59	1	
2-Methylnaphthalene	ND	59	1	
1-Methylnaphthalene	ND	59	1	
1-Methylphenanthrene	ND	59	1	
Naphthalene	ND	59	1	
Perylene	ND	59	1	
Phenanthrene	ND	59	1	
Pyrene	850	59	1	
1,6,7-Trimethylnaphthalene	ND	59	1	
Dibenzothiophene	ND	59	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	84	18-162	
p-Terphenyl-d14	122	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 02:55**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	62	1	
Acenaphthylene	ND	62	1	
Anthracene	ND	62	1	
Benzo (a) Anthracene	ND	62	1	
Benzo (a) Pyrene	ND	62	1	
Benzo (b) Fluoranthene	ND	62	1	
Benzo (e) Pyrene	ND	62	1	
Benzo (g,h,i) Perylene	ND	62	1	
Benzo (k) Fluoranthene	ND	62	1	
Biphenyl	ND	62	1	
Chrysene	ND	62	1	
Dibenz (a,h) Anthracene	ND	62	1	
2,6-Dimethylnaphthalene	ND	62	1	
Fluoranthene	ND	62	1	
Fluorene	ND	62	1	
Indeno (1,2,3-c,d) Pyrene	ND	62	1	
2-Methylnaphthalene	ND	62	1	
1-Methylnaphthalene	ND	62	1	
1-Methylphenanthrene	ND	62	1	
Naphthalene	ND	62	1	
Perylene	ND	62	1	
Phenanthrene	ND	62	1	
Pyrene	ND	62	1	
1,6,7-Trimethylnaphthalene	ND	62	1	
Dibenzothiophene	ND	62	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	91	14-146	
Nitrobenzene-d5	77	18-162	
p-Terphenyl-d14	103	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 03:21**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	60	1	
Acenaphthylene	ND	60	1	
Anthracene	62	60	1	
Benzo (a) Anthracene	ND	60	1	
Benzo (a) Pyrene	ND	60	1	
Benzo (b) Fluoranthene	62	60	1	
Benzo (e) Pyrene	77	60	1	
Benzo (g,h,i) Perylene	ND	60	1	
Benzo (k) Fluoranthene	66	60	1	
Biphenyl	ND	60	1	
Chrysene	69	60	1	
Dibenz (a,h) Anthracene	ND	60	1	
2,6-Dimethylnaphthalene	60	60	1	
Fluoranthene	290	60	1	
Fluorene	ND	60	1	
Indeno (1,2,3-c,d) Pyrene	ND	60	1	
2-Methylnaphthalene	ND	60	1	
1-Methylnaphthalene	ND	60	1	
1-Methylphenanthrene	ND	60	1	
Naphthalene	ND	60	1	
Perylene	ND	60	1	
Phenanthrene	ND	60	1	
Pyrene	530	60	1	
1,6,7-Trimethylnaphthalene	ND	60	1	
Dibenzothiophene	ND	60	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	88	18-162	
p-Terphenyl-d14	130	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 03:48**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	58	1	
Acenaphthylene	ND	58	1	
Anthracene	ND	58	1	
Benzo (a) Anthracene	ND	58	1	
Benzo (a) Pyrene	ND	58	1	
Benzo (b) Fluoranthene	ND	58	1	
Benzo (e) Pyrene	71	58	1	
Benzo (g,h,i) Perylene	ND	58	1	
Benzo (k) Fluoranthene	ND	58	1	
Biphenyl	ND	58	1	
Chrysene	64	58	1	
Dibenz (a,h) Anthracene	ND	58	1	
2,6-Dimethylnaphthalene	ND	58	1	
Fluoranthene	270	58	1	
Fluorene	ND	58	1	
Indeno (1,2,3-c,d) Pyrene	ND	58	1	
2-Methylnaphthalene	ND	58	1	
1-Methylnaphthalene	ND	58	1	
1-Methylphenanthrene	ND	58	1	
Naphthalene	ND	58	1	
Perylene	ND	58	1	
Phenanthrene	ND	58	1	
Pyrene	560	58	1	
1,6,7-Trimethylnaphthalene	ND	58	1	
Dibenzothiophene	ND	58	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	113	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	126	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/24/13 04:14**	**130816L02**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	59	1	
Acenaphthylene	ND	59	1	
Anthracene	ND	59	1	
Benzo (a) Anthracene	ND	59	1	
Benzo (a) Pyrene	ND	59	1	
Benzo (b) Fluoranthene	ND	59	1	
Benzo (e) Pyrene	ND	59	1	
Benzo (g,h,i) Perylene	ND	59	1	
Benzo (k) Fluoranthene	ND	59	1	
Biphenyl	ND	59	1	
Chrysene	ND	59	1	
Dibenz (a,h) Anthracene	ND	59	1	
2,6-Dimethylnaphthalene	ND	59	1	
Fluoranthene	ND	59	1	
Fluorene	ND	59	1	
Indeno (1,2,3-c,d) Pyrene	ND	59	1	
2-Methylnaphthalene	ND	59	1	
1-Methylnaphthalene	ND	59	1	
1-Methylphenanthrene	ND	59	1	
Naphthalene	ND	59	1	
Perylene	ND	59	1	
Phenanthrene	ND	59	1	
Pyrene	ND	59	1	
1,6,7-Trimethylnaphthalene	ND	59	1	
Dibenzothiophene	ND	59	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	103	14-146	
Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	117	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-943-5**	**N/A**	**Soil**	**GC/MS AAA**	**08/16/13**	**08/23/13 11:15**	**130816L01**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	108	14-146	
Nitrobenzene-d5	102	18-162	
p-Terphenyl-d14	128	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-943-6**	**N/A**	**Soil**	**GC/MS AAA**	**08/16/13**	**08/23/13 16:05**	**130816L02**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	10	1	
Acenaphthylene	ND	10	1	
Anthracene	ND	10	1	
Benzo (a) Anthracene	ND	10	1	
Benzo (a) Pyrene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1	
Benzo (e) Pyrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1	
Biphenyl	ND	10	1	
Chrysene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1	
2,6-Dimethylnaphthalene	ND	10	1	
Fluoranthene	ND	10	1	
Fluorene	ND	10	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1	
2-Methylnaphthalene	ND	10	1	
1-Methylnaphthalene	ND	10	1	
1-Methylphenanthrene	ND	10	1	
Naphthalene	ND	10	1	
Perylene	ND	10	1	
Phenanthrene	ND	10	1	
Pyrene	ND	10	1	
1,6,7-Trimethylnaphthalene	ND	10	1	
Dibenzothiophene	ND	10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	94	14-146	
Nitrobenzene-d5	84	18-162	
p-Terphenyl-d14	106	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1C	**13-08-0936-1-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 14:18**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.5	1	
PCB008	ND	3.5	1	
PCB018	ND	3.5	1	
PCB028	3.6	3.5	1	
PCB031	ND	3.5	1	
PCB033	ND	3.5	1	
PCB037	ND	3.5	1	
PCB044	ND	3.5	1	
PCB049	7.5	3.5	1	
PCB052	5.6	3.5	1	
PCB056	ND	3.5	1	
PCB060	ND	3.5	1	
PCB066	5.7	3.5	1	
PCB070	5.3	3.5	1	
PCB074	ND	3.5	1	
PCB077	ND	3.5	1	
PCB081	ND	3.5	1	
PCB087	3.9	3.5	1	
PCB095	8.4	3.5	1	
PCB097	5.1	3.5	1	
PCB099	5.9	3.5	1	
PCB101	12	3.5	1	
PCB105	4.1	3.5	1	
PCB110	12	3.5	1	
PCB114	ND	3.5	1	
PCB118	11	3.5	1	
PCB119	ND	3.5	1	
PCB123	ND	3.5	1	
PCB126	ND	3.5	1	
PCB128	4.0	3.5	1	
PCB132	ND	3.5	1	
PCB138/158	14	7.0	1	
PCB141	ND	3.5	1	
PCB149	10	3.5	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	4.8	3.5	1	
PCB153	17	3.5	1	
PCB156	ND	3.5	1	
PCB157	ND	3.5	1	
PCB167	ND	3.5	1	
PCB168	ND	3.5	1	
PCB169	ND	3.5	1	
PCB170	ND	3.5	1	
PCB174	ND	3.5	1	
PCB177	ND	3.5	1	
PCB180	4.8	3.5	1	
PCB183	ND	3.5	1	
PCB184	ND	3.5	1	
PCB187	ND	3.5	1	
PCB189	ND	3.5	1	
PCB194	ND	3.5	1	
PCB195	ND	3.5	1	
PCB200	ND	3.5	1	
PCB201	ND	3.5	1	
PCB203	ND	3.5	1	
PCB206	ND	3.5	1	
PCB209	ND	3.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	100	14-146	
p-Terphenyl-d14	117	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2C	**13-08-0936-2-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 14:48**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.5	1	
PCB008	ND	3.5	1	
PCB018	ND	3.5	1	
PCB028	ND	3.5	1	
PCB031	ND	3.5	1	
PCB033	ND	3.5	1	
PCB037	ND	3.5	1	
PCB044	ND	3.5	1	
PCB049	6.0	3.5	1	
PCB052	4.4	3.5	1	
PCB056	ND	3.5	1	
PCB060	ND	3.5	1	
PCB066	4.3	3.5	1	
PCB070	4.1	3.5	1	
PCB074	ND	3.5	1	
PCB077	ND	3.5	1	
PCB081	ND	3.5	1	
PCB087	ND	3.5	1	
PCB095	6.8	3.5	1	
PCB097	4.2	3.5	1	
PCB099	4.8	3.5	1	
PCB101	9.8	3.5	1	
PCB105	3.9	3.5	1	
PCB110	10	3.5	1	
PCB114	ND	3.5	1	
PCB118	8.7	3.5	1	
PCB119	ND	3.5	1	
PCB123	ND	3.5	1	
PCB126	ND	3.5	1	
PCB128	ND	3.5	1	
PCB132	ND	3.5	1	
PCB138/158	10	7.0	1	
PCB141	ND	3.5	1	
PCB149	8.1	3.5	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.7	3.5	1	
PCB153	13	3.5	1	
PCB156	ND	3.5	1	
PCB157	ND	3.5	1	
PCB167	ND	3.5	1	
PCB168	ND	3.5	1	
PCB169	ND	3.5	1	
PCB170	ND	3.5	1	
PCB174	ND	3.5	1	
PCB177	ND	3.5	1	
PCB180	3.9	3.5	1	
PCB183	ND	3.5	1	
PCB184	ND	3.5	1	
PCB187	ND	3.5	1	
PCB189	ND	3.5	1	
PCB194	ND	3.5	1	
PCB195	ND	3.5	1	
PCB200	ND	3.5	1	
PCB201	ND	3.5	1	
PCB203	ND	3.5	1	
PCB206	ND	3.5	1	
PCB209	ND	3.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	14-146	
p-Terphenyl-d14	98	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3C	**13-08-0936-3-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 15:18**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.5	1	
PCB008	ND	3.5	1	
PCB018	ND	3.5	1	
PCB028	ND	3.5	1	
PCB031	ND	3.5	1	
PCB033	ND	3.5	1	
PCB037	ND	3.5	1	
PCB044	ND	3.5	1	
PCB049	4.5	3.5	1	
PCB052	3.7	3.5	1	
PCB056	ND	3.5	1	
PCB060	ND	3.5	1	
PCB066	4.1	3.5	1	
PCB070	3.7	3.5	1	
PCB074	ND	3.5	1	
PCB077	ND	3.5	1	
PCB081	ND	3.5	1	
PCB087	ND	3.5	1	
PCB095	5.7	3.5	1	
PCB097	ND	3.5	1	
PCB099	3.6	3.5	1	
PCB101	8.0	3.5	1	
PCB105	ND	3.5	1	
PCB110	8.1	3.5	1	
PCB114	ND	3.5	1	
PCB118	7.4	3.5	1	
PCB119	ND	3.5	1	
PCB123	ND	3.5	1	
PCB126	ND	3.5	1	
PCB128	3.6	3.5	1	
PCB132	ND	3.5	1	
PCB138/158	9.8	7.1	1	
PCB141	ND	3.5	1	
PCB149	7.1	3.5	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.8	3.5	1	
PCB153	11	3.5	1	
PCB156	ND	3.5	1	
PCB157	ND	3.5	1	
PCB167	ND	3.5	1	
PCB168	ND	3.5	1	
PCB169	ND	3.5	1	
PCB170	ND	3.5	1	
PCB174	ND	3.5	1	
PCB177	ND	3.5	1	
PCB180	3.8	3.5	1	
PCB183	ND	3.5	1	
PCB184	ND	3.5	1	
PCB187	ND	3.5	1	
PCB189	ND	3.5	1	
PCB194	ND	3.5	1	
PCB195	ND	3.5	1	
PCB200	ND	3.5	1	
PCB201	ND	3.5	1	
PCB203	ND	3.5	1	
PCB206	ND	3.5	1	
PCB209	ND	3.5	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	14-146	
p-Terphenyl-d14	103	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4C	**13-08-0936-4-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 15:48**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.9	1	
PCB008	ND	3.9	1	
PCB018	ND	3.9	1	
PCB028	ND	3.9	1	
PCB031	ND	3.9	1	
PCB033	ND	3.9	1	
PCB037	ND	3.9	1	
PCB044	ND	3.9	1	
PCB049	ND	3.9	1	
PCB052	ND	3.9	1	
PCB056	ND	3.9	1	
PCB060	ND	3.9	1	
PCB066	ND	3.9	1	
PCB070	ND	3.9	1	
PCB074	ND	3.9	1	
PCB077	ND	3.9	1	
PCB081	ND	3.9	1	
PCB087	ND	3.9	1	
PCB095	ND	3.9	1	
PCB097	ND	3.9	1	
PCB099	ND	3.9	1	
PCB101	ND	3.9	1	
PCB105	ND	3.9	1	
PCB110	ND	3.9	1	
PCB114	ND	3.9	1	
PCB118	ND	3.9	1	
PCB119	ND	3.9	1	
PCB123	ND	3.9	1	
PCB126	ND	3.9	1	
PCB128	ND	3.9	1	
PCB132	ND	3.9	1	
PCB138/158	ND	7.8	1	
PCB141	ND	3.9	1	
PCB149	ND	3.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.9	1	
PCB153	ND	3.9	1	
PCB156	ND	3.9	1	
PCB157	ND	3.9	1	
PCB167	ND	3.9	1	
PCB168	ND	3.9	1	
PCB169	ND	3.9	1	
PCB170	ND	3.9	1	
PCB174	ND	3.9	1	
PCB177	ND	3.9	1	
PCB180	ND	3.9	1	
PCB183	ND	3.9	1	
PCB184	ND	3.9	1	
PCB187	ND	3.9	1	
PCB189	ND	3.9	1	
PCB194	ND	3.9	1	
PCB195	ND	3.9	1	
PCB200	ND	3.9	1	
PCB201	ND	3.9	1	
PCB203	ND	3.9	1	
PCB206	ND	3.9	1	
PCB209	ND	3.9	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	84	14-146	
p-Terphenyl-d14	111	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5C	**13-08-0936-5-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 16:17**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	6.4	3.6	1	
PCB052	5.5	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	4.6	3.6	1	
PCB070	4.8	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	5.5	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	6.8	3.6	1	
PCB105	ND	3.6	1	
PCB110	7.2	3.6	1	
PCB114	ND	3.6	1	
PCB118	5.5	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.2	1	
PCB141	ND	3.6	1	
PCB149	3.7	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.6	1	
PCB153	6.5	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	14-146	
p-Terphenyl-d14	99	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6C	**13-08-0936-6-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 16:47**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.4	1	
PCB008	ND	3.4	1	
PCB018	ND	3.4	1	
PCB028	ND	3.4	1	
PCB031	ND	3.4	1	
PCB033	ND	3.4	1	
PCB037	ND	3.4	1	
PCB044	ND	3.4	1	
PCB049	ND	3.4	1	
PCB052	ND	3.4	1	
PCB056	ND	3.4	1	
PCB060	ND	3.4	1	
PCB066	ND	3.4	1	
PCB070	ND	3.4	1	
PCB074	ND	3.4	1	
PCB077	ND	3.4	1	
PCB081	ND	3.4	1	
PCB087	ND	3.4	1	
PCB095	ND	3.4	1	
PCB097	ND	3.4	1	
PCB099	ND	3.4	1	
PCB101	ND	3.4	1	
PCB105	ND	3.4	1	
PCB110	ND	3.4	1	
PCB114	ND	3.4	1	
PCB118	ND	3.4	1	
PCB119	ND	3.4	1	
PCB123	ND	3.4	1	
PCB126	ND	3.4	1	
PCB128	ND	3.4	1	
PCB132	ND	3.4	1	
PCB138/158	ND	6.8	1	
PCB141	ND	3.4	1	
PCB149	ND	3.4	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.4	1	
PCB153	ND	3.4	1	
PCB156	ND	3.4	1	
PCB157	ND	3.4	1	
PCB167	ND	3.4	1	
PCB168	ND	3.4	1	
PCB169	ND	3.4	1	
PCB170	ND	3.4	1	
PCB174	ND	3.4	1	
PCB177	ND	3.4	1	
PCB180	ND	3.4	1	
PCB183	ND	3.4	1	
PCB184	ND	3.4	1	
PCB187	ND	3.4	1	
PCB189	ND	3.4	1	
PCB194	ND	3.4	1	
PCB195	ND	3.4	1	
PCB200	ND	3.4	1	
PCB201	ND	3.4	1	
PCB203	ND	3.4	1	
PCB206	ND	3.4	1	
PCB209	ND	3.4	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	69	14-146	
p-Terphenyl-d14	92	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7C	**13-08-0936-7-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 17:18**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	4.0	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	7.5	3.6	1	
PCB052	4.9	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	4.6	3.6	1	
PCB070	5.2	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	4.7	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	7.4	3.6	1	
PCB105	4.2	3.6	1	
PCB110	7.6	3.6	1	
PCB114	ND	3.6	1	
PCB118	6.7	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.3	1	
PCB141	ND	3.6	1	
PCB149	4.2	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.6	1	
PCB153	6.9	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	78	14-146	
p-Terphenyl-d14	114	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8C	**13-08-0936-8-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 17:48**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	5.2	3.1	1	
PCB052	4.0	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	4.0	3.1	1	
PCB070	3.4	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	5.0	3.1	1	
PCB097	3.3	3.1	1	
PCB099	4.2	3.1	1	
PCB101	9.2	3.1	1	
PCB105	ND	3.1	1	
PCB110	9.5	3.1	1	
PCB114	ND	3.1	1	
PCB118	7.6	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	8.7	6.3	1	
PCB141	ND	3.1	1	
PCB149	6.3	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.4	3.1	1	
PCB153	11	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	ND	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	ND	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	74	14-146	
p-Terphenyl-d14	109	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9C	**13-08-0936-9-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 18:17**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.2	1	
PCB008	ND	3.2	1	
PCB018	ND	3.2	1	
PCB028	ND	3.2	1	
PCB031	ND	3.2	1	
PCB033	ND	3.2	1	
PCB037	ND	3.2	1	
PCB044	ND	3.2	1	
PCB049	ND	3.2	1	
PCB052	ND	3.2	1	
PCB056	ND	3.2	1	
PCB060	ND	3.2	1	
PCB066	ND	3.2	1	
PCB070	ND	3.2	1	
PCB074	ND	3.2	1	
PCB077	ND	3.2	1	
PCB081	ND	3.2	1	
PCB087	ND	3.2	1	
PCB095	ND	3.2	1	
PCB097	ND	3.2	1	
PCB099	ND	3.2	1	
PCB101	ND	3.2	1	
PCB105	ND	3.2	1	
PCB110	ND	3.2	1	
PCB114	ND	3.2	1	
PCB118	ND	3.2	1	
PCB119	ND	3.2	1	
PCB123	ND	3.2	1	
PCB126	ND	3.2	1	
PCB128	ND	3.2	1	
PCB132	ND	3.2	1	
PCB138/158	ND	6.5	1	
PCB141	ND	3.2	1	
PCB149	ND	3.2	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.2	1	
PCB153	ND	3.2	1	
PCB156	ND	3.2	1	
PCB157	ND	3.2	1	
PCB167	ND	3.2	1	
PCB168	ND	3.2	1	
PCB169	ND	3.2	1	
PCB170	ND	3.2	1	
PCB174	ND	3.2	1	
PCB177	ND	3.2	1	
PCB180	ND	3.2	1	
PCB183	ND	3.2	1	
PCB184	ND	3.2	1	
PCB187	ND	3.2	1	
PCB189	ND	3.2	1	
PCB194	ND	3.2	1	
PCB195	ND	3.2	1	
PCB200	ND	3.2	1	
PCB201	ND	3.2	1	
PCB203	ND	3.2	1	
PCB206	ND	3.2	1	
PCB209	ND	3.2	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	79	14-146	
p-Terphenyl-d14	105	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10C	**13-08-0936-10-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 18:48**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.4	1	
PCB008	ND	3.4	1	
PCB018	ND	3.4	1	
PCB028	ND	3.4	1	
PCB031	ND	3.4	1	
PCB033	ND	3.4	1	
PCB037	ND	3.4	1	
PCB044	ND	3.4	1	
PCB049	ND	3.4	1	
PCB052	ND	3.4	1	
PCB056	ND	3.4	1	
PCB060	ND	3.4	1	
PCB066	ND	3.4	1	
PCB070	ND	3.4	1	
PCB074	ND	3.4	1	
PCB077	ND	3.4	1	
PCB081	ND	3.4	1	
PCB087	ND	3.4	1	
PCB095	ND	3.4	1	
PCB097	ND	3.4	1	
PCB099	ND	3.4	1	
PCB101	ND	3.4	1	
PCB105	ND	3.4	1	
PCB110	ND	3.4	1	
PCB114	ND	3.4	1	
PCB118	ND	3.4	1	
PCB119	ND	3.4	1	
PCB123	ND	3.4	1	
PCB126	ND	3.4	1	
PCB128	ND	3.4	1	
PCB132	ND	3.4	1	
PCB138/158	ND	6.9	1	
PCB141	ND	3.4	1	
PCB149	ND	3.4	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.4	1	
PCB153	ND	3.4	1	
PCB156	ND	3.4	1	
PCB157	ND	3.4	1	
PCB167	ND	3.4	1	
PCB168	ND	3.4	1	
PCB169	ND	3.4	1	
PCB170	ND	3.4	1	
PCB174	ND	3.4	1	
PCB177	ND	3.4	1	
PCB180	ND	3.4	1	
PCB183	ND	3.4	1	
PCB184	ND	3.4	1	
PCB187	ND	3.4	1	
PCB189	ND	3.4	1	
PCB194	ND	3.4	1	
PCB195	ND	3.4	1	
PCB200	ND	3.4	1	
PCB201	ND	3.4	1	
PCB203	ND	3.4	1	
PCB206	ND	3.4	1	
PCB209	ND	3.4	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	75	14-146	
p-Terphenyl-d14	103	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11C	**13-08-0936-11-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 19:17**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	4.4	3.6	1	
PCB031	4.5	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	9.5	3.6	1	
PCB052	6.3	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	6.4	3.6	1	
PCB070	5.4	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	3.7	3.6	1	
PCB095	6.0	3.6	1	
PCB097	4.6	3.6	1	
PCB099	ND	3.6	1	
PCB101	8.9	3.6	1	
PCB105	ND	3.6	1	
PCB110	11	3.6	1	
PCB114	ND	3.6	1	
PCB118	7.4	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.1	1	
PCB141	ND	3.6	1	
PCB149	5.5	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.6	1	
PCB153	8.2	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	73	14-146	
p-Terphenyl-d14	106	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12C	**13-08-0936-12-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 19:46**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	ND	3.6	1	
PCB052	ND	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	ND	3.6	1	
PCB070	ND	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	ND	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	ND	3.6	1	
PCB105	ND	3.6	1	
PCB110	ND	3.6	1	
PCB114	ND	3.6	1	
PCB118	ND	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.3	1	
PCB141	ND	3.6	1	
PCB149	ND	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.6	1	
PCB153	ND	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	64	14-146	
p-Terphenyl-d14	87	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13C	**13-08-0936-13-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 20:14**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	4.7	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	7.5	3.6	1	
PCB052	7.4	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	6.3	3.6	1	
PCB070	5.8	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	6.3	3.6	1	
PCB097	ND	3.6	1	
PCB099	ND	3.6	1	
PCB101	9.2	3.6	1	
PCB105	3.7	3.6	1	
PCB110	10	3.6	1	
PCB114	ND	3.6	1	
PCB118	7.5	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	ND	7.3	1	
PCB141	ND	3.6	1	
PCB149	5.3	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.6	1	
PCB153	7.9	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	74	14-146	
p-Terphenyl-d14	107	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14C	**13-08-0936-14-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 20:43**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.3	1	
PCB008	ND	3.3	1	
PCB018	ND	3.3	1	
PCB028	ND	3.3	1	
PCB031	ND	3.3	1	
PCB033	ND	3.3	1	
PCB037	ND	3.3	1	
PCB044	ND	3.3	1	
PCB049	7.0	3.3	1	
PCB052	5.1	3.3	1	
PCB056	ND	3.3	1	
PCB060	ND	3.3	1	
PCB066	4.4	3.3	1	
PCB070	4.5	3.3	1	
PCB074	ND	3.3	1	
PCB077	ND	3.3	1	
PCB081	ND	3.3	1	
PCB087	ND	3.3	1	
PCB095	4.8	3.3	1	
PCB097	ND	3.3	1	
PCB099	ND	3.3	1	
PCB101	7.2	3.3	1	
PCB105	3.4	3.3	1	
PCB110	7.1	3.3	1	
PCB114	ND	3.3	1	
PCB118	5.6	3.3	1	
PCB119	ND	3.3	1	
PCB123	ND	3.3	1	
PCB126	ND	3.3	1	
PCB128	ND	3.3	1	
PCB132	ND	3.3	1	
PCB138/158	ND	6.7	1	
PCB141	ND	3.3	1	
PCB149	4.6	3.3	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.3	1	
PCB153	6.2	3.3	1	
PCB156	ND	3.3	1	
PCB157	ND	3.3	1	
PCB167	ND	3.3	1	
PCB168	ND	3.3	1	
PCB169	ND	3.3	1	
PCB170	ND	3.3	1	
PCB174	ND	3.3	1	
PCB177	ND	3.3	1	
PCB180	ND	3.3	1	
PCB183	ND	3.3	1	
PCB184	ND	3.3	1	
PCB187	ND	3.3	1	
PCB189	ND	3.3	1	
PCB194	ND	3.3	1	
PCB195	ND	3.3	1	
PCB200	ND	3.3	1	
PCB201	ND	3.3	1	
PCB203	ND	3.3	1	
PCB206	ND	3.3	1	
PCB209	ND	3.3	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	72	14-146	
p-Terphenyl-d14	105	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15C	**13-08-0936-15-B**	**08/10/13 15:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/23/13 21:12**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.6	1	
PCB008	ND	3.6	1	
PCB018	ND	3.6	1	
PCB028	ND	3.6	1	
PCB031	ND	3.6	1	
PCB033	ND	3.6	1	
PCB037	ND	3.6	1	
PCB044	ND	3.6	1	
PCB049	5.2	3.6	1	
PCB052	4.0	3.6	1	
PCB056	ND	3.6	1	
PCB060	ND	3.6	1	
PCB066	4.2	3.6	1	
PCB070	ND	3.6	1	
PCB074	ND	3.6	1	
PCB077	ND	3.6	1	
PCB081	ND	3.6	1	
PCB087	ND	3.6	1	
PCB095	6.3	3.6	1	
PCB097	ND	3.6	1	
PCB099	4.3	3.6	1	
PCB101	9.0	3.6	1	
PCB105	ND	3.6	1	
PCB110	9.2	3.6	1	
PCB114	ND	3.6	1	
PCB118	7.6	3.6	1	
PCB119	ND	3.6	1	
PCB123	ND	3.6	1	
PCB126	ND	3.6	1	
PCB128	ND	3.6	1	
PCB132	ND	3.6	1	
PCB138/158	9.6	7.1	1	
PCB141	ND	3.6	1	
PCB149	7.1	3.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.6	1	
PCB153	11	3.6	1	
PCB156	ND	3.6	1	
PCB157	ND	3.6	1	
PCB167	ND	3.6	1	
PCB168	ND	3.6	1	
PCB169	ND	3.6	1	
PCB170	ND	3.6	1	
PCB174	ND	3.6	1	
PCB177	ND	3.6	1	
PCB180	ND	3.6	1	
PCB183	ND	3.6	1	
PCB184	ND	3.6	1	
PCB187	ND	3.6	1	
PCB189	ND	3.6	1	
PCB194	ND	3.6	1	
PCB195	ND	3.6	1	
PCB200	ND	3.6	1	
PCB201	ND	3.6	1	
PCB203	ND	3.6	1	
PCB206	ND	3.6	1	
PCB209	ND	3.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	70	14-146	
p-Terphenyl-d14	102	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1W	**13-08-0936-16-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 02:51**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	3.1	3.1	1	
PCB052	5.5	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	3.6	3.1	1	
PCB070	ND	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	7.8	3.1	1	
PCB097	ND	3.1	1	
PCB099	3.8	3.1	1	
PCB101	9.0	3.1	1	
PCB105	3.3	3.1	1	
PCB110	6.7	3.1	1	
PCB114	ND	3.1	1	
PCB118	5.8	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	10	6.2	1	
PCB141	ND	3.1	1	
PCB149	7.6	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	4.0	3.1	1	
PCB153	13	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	4.6	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	4.0	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	55	14-146	
p-Terphenyl-d14	86	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
2W	**13-08-0936-17-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/26/13 16:43**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	ND	2.9	1	
PCB028	3.0	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	ND	2.9	1	
PCB044	3.2	2.9	1	
PCB049	4.3	2.9	1	
PCB052	7.6	2.9	1	
PCB056	ND	2.9	1	
PCB060	ND	2.9	1	
PCB066	5.1	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	10	2.9	1	
PCB097	3.2	2.9	1	
PCB099	5.1	2.9	1	
PCB101	12	2.9	1	
PCB105	3.9	2.9	1	
PCB110	7.4	2.9	1	
PCB114	ND	2.9	1	
PCB118	8.7	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	14	5.8	1	
PCB141	ND	2.9	1	
PCB149	10	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.2	2.9	1	
PCB153	17	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	3.2	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	6.8	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	5.9	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	76	14-146	
p-Terphenyl-d14	88	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
3W	**13-08-0936-18-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 03:47**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	ND	2.9	1	
PCB028	ND	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	ND	2.9	1	
PCB044	ND	2.9	1	
PCB049	ND	2.9	1	
PCB052	3.8	2.9	1	
PCB056	ND	2.9	1	
PCB060	ND	2.9	1	
PCB066	3.4	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	6.8	2.9	1	
PCB097	ND	2.9	1	
PCB099	3.5	2.9	1	
PCB101	8.5	2.9	1	
PCB105	ND	2.9	1	
PCB110	5.5	2.9	1	
PCB114	ND	2.9	1	
PCB118	5.1	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	9.4	5.8	1	
PCB141	ND	2.9	1	
PCB149	6.6	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.4	2.9	1	
PCB153	12	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	ND	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	3.5	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	3.9	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	64	14-146	
p-Terphenyl-d14	102	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
4W	**13-08-0936-19-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 04:15**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.8	1	
PCB008	ND	2.8	1	
PCB018	ND	2.8	1	
PCB028	ND	2.8	1	
PCB031	ND	2.8	1	
PCB033	ND	2.8	1	
PCB037	ND	2.8	1	
PCB044	ND	2.8	1	
PCB049	ND	2.8	1	
PCB052	ND	2.8	1	
PCB056	ND	2.8	1	
PCB060	ND	2.8	1	
PCB066	ND	2.8	1	
PCB070	ND	2.8	1	
PCB074	ND	2.8	1	
PCB077	ND	2.8	1	
PCB081	ND	2.8	1	
PCB087	ND	2.8	1	
PCB095	ND	2.8	1	
PCB097	ND	2.8	1	
PCB099	ND	2.8	1	
PCB101	ND	2.8	1	
PCB105	ND	2.8	1	
PCB110	ND	2.8	1	
PCB114	ND	2.8	1	
PCB118	ND	2.8	1	
PCB119	ND	2.8	1	
PCB123	ND	2.8	1	
PCB126	ND	2.8	1	
PCB128	ND	2.8	1	
PCB132	ND	2.8	1	
PCB138/158	ND	5.7	1	
PCB141	ND	2.8	1	
PCB149	ND	2.8	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	2.8	1	
PCB153	ND	2.8	1	
PCB156	ND	2.8	1	
PCB157	ND	2.8	1	
PCB167	ND	2.8	1	
PCB168	ND	2.8	1	
PCB169	ND	2.8	1	
PCB170	ND	2.8	1	
PCB174	ND	2.8	1	
PCB177	ND	2.8	1	
PCB180	ND	2.8	1	
PCB183	ND	2.8	1	
PCB184	ND	2.8	1	
PCB187	ND	2.8	1	
PCB189	ND	2.8	1	
PCB194	ND	2.8	1	
PCB195	ND	2.8	1	
PCB200	ND	2.8	1	
PCB201	ND	2.8	1	
PCB203	ND	2.8	1	
PCB206	ND	2.8	1	
PCB209	ND	2.8	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	67	14-146	
p-Terphenyl-d14	103	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
5W	**13-08-0936-20-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 04:42**	**130816F03**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	ND	3.1	1	
PCB052	9.2	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	3.8	3.1	1	
PCB070	ND	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	7.5	3.1	1	
PCB097	ND	3.1	1	
PCB099	ND	3.1	1	
PCB101	8.0	3.1	1	
PCB105	ND	3.1	1	
PCB110	5.8	3.1	1	
PCB114	ND	3.1	1	
PCB118	5.4	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	7.8	6.1	1	
PCB141	ND	3.1	1	
PCB149	5.2	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.1	1	
PCB153	10	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	3.4	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	3.1	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	60	14-146	
p-Terphenyl-d14	90	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
6W	**13-08-0936-21-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 05:10**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.3	1	
PCB008	ND	3.3	1	
PCB018	ND	3.3	1	
PCB028	ND	3.3	1	
PCB031	ND	3.3	1	
PCB033	ND	3.3	1	
PCB037	ND	3.3	1	
PCB044	ND	3.3	1	
PCB049	ND	3.3	1	
PCB052	ND	3.3	1	
PCB056	ND	3.3	1	
PCB060	ND	3.3	1	
PCB066	ND	3.3	1	
PCB070	ND	3.3	1	
PCB074	ND	3.3	1	
PCB077	ND	3.3	1	
PCB081	ND	3.3	1	
PCB087	ND	3.3	1	
PCB095	ND	3.3	1	
PCB097	ND	3.3	1	
PCB099	ND	3.3	1	
PCB101	ND	3.3	1	
PCB105	ND	3.3	1	
PCB110	ND	3.3	1	
PCB114	ND	3.3	1	
PCB118	ND	3.3	1	
PCB119	ND	3.3	1	
PCB123	ND	3.3	1	
PCB126	ND	3.3	1	
PCB128	ND	3.3	1	
PCB132	ND	3.3	1	
PCB138/158	ND	6.5	1	
PCB141	ND	3.3	1	
PCB149	ND	3.3	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.3	1	
PCB153	ND	3.3	1	
PCB156	ND	3.3	1	
PCB157	ND	3.3	1	
PCB167	ND	3.3	1	
PCB168	ND	3.3	1	
PCB169	ND	3.3	1	
PCB170	ND	3.3	1	
PCB174	ND	3.3	1	
PCB177	ND	3.3	1	
PCB180	ND	3.3	1	
PCB183	ND	3.3	1	
PCB184	ND	3.3	1	
PCB187	ND	3.3	1	
PCB189	ND	3.3	1	
PCB194	ND	3.3	1	
PCB195	ND	3.3	1	
PCB200	ND	3.3	1	
PCB201	ND	3.3	1	
PCB203	ND	3.3	1	
PCB206	ND	3.3	1	
PCB209	ND	3.3	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	65	14-146	
p-Terphenyl-d14	95	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
7W	**13-08-0936-22-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 05:38**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.6	1	
PCB008	ND	2.6	1	
PCB018	ND	2.6	1	
PCB028	ND	2.6	1	
PCB031	ND	2.6	1	
PCB033	ND	2.6	1	
PCB037	2.6	2.6	1	
PCB044	2.7	2.6	1	
PCB049	ND	2.6	1	
PCB052	9.3	2.6	1	
PCB056	ND	2.6	1	
PCB060	3.4	2.6	1	
PCB066	3.8	2.6	1	
PCB070	ND	2.6	1	
PCB074	ND	2.6	1	
PCB077	ND	2.6	1	
PCB081	ND	2.6	1	
PCB087	ND	2.6	1	
PCB095	7.7	2.6	1	
PCB097	2.9	2.6	1	
PCB099	3.4	2.6	1	
PCB101	9.0	2.6	1	
PCB105	2.7	2.6	1	
PCB110	8.0	2.6	1	
PCB114	ND	2.6	1	
PCB118	5.1	2.6	1	
PCB119	ND	2.6	1	
PCB123	ND	2.6	1	
PCB126	ND	2.6	1	
PCB128	ND	2.6	1	
PCB132	ND	2.6	1	
PCB138/158	8.6	5.1	1	
PCB141	ND	2.6	1	
PCB149	5.2	2.6	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	2.6	1	
PCB153	11	2.6	1	
PCB156	ND	2.6	1	
PCB157	ND	2.6	1	
PCB167	ND	2.6	1	
PCB168	ND	2.6	1	
PCB169	ND	2.6	1	
PCB170	ND	2.6	1	
PCB174	ND	2.6	1	
PCB177	ND	2.6	1	
PCB180	3.5	2.6	1	
PCB183	ND	2.6	1	
PCB184	ND	2.6	1	
PCB187	3.7	2.6	1	
PCB189	ND	2.6	1	
PCB194	ND	2.6	1	
PCB195	ND	2.6	1	
PCB200	ND	2.6	1	
PCB201	ND	2.6	1	
PCB203	ND	2.6	1	
PCB206	ND	2.6	1	
PCB209	ND	2.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	72	14-146	
p-Terphenyl-d14	109	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
8W	**13-08-0936-23-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 06:05**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	ND	2.9	1	
PCB028	ND	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	ND	2.9	1	
PCB044	ND	2.9	1	
PCB049	ND	2.9	1	
PCB052	6.5	2.9	1	
PCB056	ND	2.9	1	
PCB060	ND	2.9	1	
PCB066	3.0	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	6.8	2.9	1	
PCB097	ND	2.9	1	
PCB099	4.1	2.9	1	
PCB101	10	2.9	1	
PCB105	ND	2.9	1	
PCB110	6.9	2.9	1	
PCB114	ND	2.9	1	
PCB118	4.8	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	9.4	5.8	1	
PCB141	ND	2.9	1	
PCB149	6.1	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.2	2.9	1	
PCB153	13	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	ND	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	3.6	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	3.8	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	68	14-146	
p-Terphenyl-d14	101	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
9W	**13-08-0936-24-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 06:34**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	ND	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	ND	3.0	1	
PCB044	ND	3.0	1	
PCB049	ND	3.0	1	
PCB052	ND	3.0	1	
PCB056	ND	3.0	1	
PCB060	ND	3.0	1	
PCB066	ND	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	ND	3.0	1	
PCB097	ND	3.0	1	
PCB099	ND	3.0	1	
PCB101	ND	3.0	1	
PCB105	ND	3.0	1	
PCB110	ND	3.0	1	
PCB114	ND	3.0	1	
PCB118	ND	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	ND	6.1	1	
PCB141	ND	3.0	1	
PCB149	ND	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.0	1	
PCB153	ND	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	ND	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	ND	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	61	14-146	
p-Terphenyl-d14	91	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
10W	**13-08-0936-25-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 07:01**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.2	1	
PCB008	ND	3.2	1	
PCB018	ND	3.2	1	
PCB028	ND	3.2	1	
PCB031	ND	3.2	1	
PCB033	ND	3.2	1	
PCB037	ND	3.2	1	
PCB044	ND	3.2	1	
PCB049	ND	3.2	1	
PCB052	ND	3.2	1	
PCB056	ND	3.2	1	
PCB060	ND	3.2	1	
PCB066	ND	3.2	1	
PCB070	ND	3.2	1	
PCB074	ND	3.2	1	
PCB077	ND	3.2	1	
PCB081	ND	3.2	1	
PCB087	ND	3.2	1	
PCB095	ND	3.2	1	
PCB097	ND	3.2	1	
PCB099	ND	3.2	1	
PCB101	ND	3.2	1	
PCB105	ND	3.2	1	
PCB110	ND	3.2	1	
PCB114	ND	3.2	1	
PCB118	ND	3.2	1	
PCB119	ND	3.2	1	
PCB123	ND	3.2	1	
PCB126	ND	3.2	1	
PCB128	ND	3.2	1	
PCB132	ND	3.2	1	
PCB138/158	ND	6.5	1	
PCB141	ND	3.2	1	
PCB149	ND	3.2	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.2	1	
PCB153	ND	3.2	1	
PCB156	ND	3.2	1	
PCB157	ND	3.2	1	
PCB167	ND	3.2	1	
PCB168	ND	3.2	1	
PCB169	ND	3.2	1	
PCB170	ND	3.2	1	
PCB174	ND	3.2	1	
PCB177	ND	3.2	1	
PCB180	ND	3.2	1	
PCB183	ND	3.2	1	
PCB184	ND	3.2	1	
PCB187	ND	3.2	1	
PCB189	ND	3.2	1	
PCB194	ND	3.2	1	
PCB195	ND	3.2	1	
PCB200	ND	3.2	1	
PCB201	ND	3.2	1	
PCB203	ND	3.2	1	
PCB206	ND	3.2	1	
PCB209	ND	3.2	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	63	14-146	
p-Terphenyl-d14	90	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11W	**13-08-0936-26-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 07:29**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	3.4	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	4.4	3.0	1	
PCB044	3.7	3.0	1	
PCB049	3.3	3.0	1	
PCB052	13	3.0	1	
PCB056	ND	3.0	1	
PCB060	4.1	3.0	1	
PCB066	4.7	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	7.8	3.0	1	
PCB097	3.1	3.0	1	
PCB099	4.2	3.0	1	
PCB101	12	3.0	1	
PCB105	3.4	3.0	1	
PCB110	9.9	3.0	1	
PCB114	ND	3.0	1	
PCB118	4.8	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	7.9	5.9	1	
PCB141	ND	3.0	1	
PCB149	5.4	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.0	1	
PCB153	11	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	ND	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	3.5	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	61	14-146	
p-Terphenyl-d14	91	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
12W	**13-08-0936-27-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/26/13 14:10**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.1	1	
PCB008	ND	3.1	1	
PCB018	ND	3.1	1	
PCB028	ND	3.1	1	
PCB031	ND	3.1	1	
PCB033	ND	3.1	1	
PCB037	ND	3.1	1	
PCB044	ND	3.1	1	
PCB049	ND	3.1	1	
PCB052	ND	3.1	1	
PCB056	ND	3.1	1	
PCB060	ND	3.1	1	
PCB066	ND	3.1	1	
PCB070	ND	3.1	1	
PCB074	ND	3.1	1	
PCB077	ND	3.1	1	
PCB081	ND	3.1	1	
PCB087	ND	3.1	1	
PCB095	ND	3.1	1	
PCB097	ND	3.1	1	
PCB099	ND	3.1	1	
PCB101	ND	3.1	1	
PCB105	ND	3.1	1	
PCB110	ND	3.1	1	
PCB114	ND	3.1	1	
PCB118	ND	3.1	1	
PCB119	ND	3.1	1	
PCB123	ND	3.1	1	
PCB126	ND	3.1	1	
PCB128	ND	3.1	1	
PCB132	ND	3.1	1	
PCB138/158	ND	6.2	1	
PCB141	ND	3.1	1	
PCB149	ND	3.1	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.1	1	
PCB153	ND	3.1	1	
PCB156	ND	3.1	1	
PCB157	ND	3.1	1	
PCB167	ND	3.1	1	
PCB168	ND	3.1	1	
PCB169	ND	3.1	1	
PCB170	ND	3.1	1	
PCB174	ND	3.1	1	
PCB177	ND	3.1	1	
PCB180	ND	3.1	1	
PCB183	ND	3.1	1	
PCB184	ND	3.1	1	
PCB187	ND	3.1	1	
PCB189	ND	3.1	1	
PCB194	ND	3.1	1	
PCB195	ND	3.1	1	
PCB200	ND	3.1	1	
PCB201	ND	3.1	1	
PCB203	ND	3.1	1	
PCB206	ND	3.1	1	
PCB209	ND	3.1	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	72	14-146	
p-Terphenyl-d14	99	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
13W	**13-08-0936-28-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 08:25**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	3.8	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	ND	3.0	1	
PCB044	ND	3.0	1	
PCB049	ND	3.0	1	
PCB052	9.6	3.0	1	
PCB056	ND	3.0	1	
PCB060	ND	3.0	1	
PCB066	4.3	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	7.4	3.0	1	
PCB097	ND	3.0	1	
PCB099	3.8	3.0	1	
PCB101	9.0	3.0	1	
PCB105	3.5	3.0	1	
PCB110	7.2	3.0	1	
PCB114	ND	3.0	1	
PCB118	4.7	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	7.0	6.0	1	
PCB141	ND	3.0	1	
PCB149	5.4	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	ND	3.0	1	
PCB153	10	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	ND	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	3.1	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	60	14-146	
p-Terphenyl-d14	84	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
14W	**13-08-0936-29-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 08:52**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	2.9	1	
PCB008	ND	2.9	1	
PCB018	4.0	2.9	1	
PCB028	3.6	2.9	1	
PCB031	ND	2.9	1	
PCB033	ND	2.9	1	
PCB037	3.3	2.9	1	
PCB044	3.2	2.9	1	
PCB049	ND	2.9	1	
PCB052	9.7	2.9	1	
PCB056	ND	2.9	1	
PCB060	3.7	2.9	1	
PCB066	4.5	2.9	1	
PCB070	ND	2.9	1	
PCB074	ND	2.9	1	
PCB077	ND	2.9	1	
PCB081	ND	2.9	1	
PCB087	ND	2.9	1	
PCB095	8.3	2.9	1	
PCB097	ND	2.9	1	
PCB099	4.0	2.9	1	
PCB101	10	2.9	1	
PCB105	3.3	2.9	1	
PCB110	9.7	2.9	1	
PCB114	ND	2.9	1	
PCB118	5.1	2.9	1	
PCB119	ND	2.9	1	
PCB123	ND	2.9	1	
PCB126	ND	2.9	1	
PCB128	ND	2.9	1	
PCB132	ND	2.9	1	
PCB138/158	7.8	5.8	1	
PCB141	ND	2.9	1	
PCB149	5.9	2.9	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	3.0	2.9	1	
PCB153	11	2.9	1	
PCB156	ND	2.9	1	
PCB157	ND	2.9	1	
PCB167	ND	2.9	1	
PCB168	ND	2.9	1	
PCB169	ND	2.9	1	
PCB170	ND	2.9	1	
PCB174	ND	2.9	1	
PCB177	ND	2.9	1	
PCB180	ND	2.9	1	
PCB183	ND	2.9	1	
PCB184	ND	2.9	1	
PCB187	3.4	2.9	1	
PCB189	ND	2.9	1	
PCB194	ND	2.9	1	
PCB195	ND	2.9	1	
PCB200	ND	2.9	1	
PCB201	ND	2.9	1	
PCB203	ND	2.9	1	
PCB206	ND	2.9	1	
PCB209	ND	2.9	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	73	14-146	
p-Terphenyl-d14	102	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
15W	**13-08-0936-30-B**	**08/10/13 13:00**	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 09:20**	**130816F04**

Comment(s): - Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	3.0	1	
PCB008	ND	3.0	1	
PCB018	ND	3.0	1	
PCB028	ND	3.0	1	
PCB031	ND	3.0	1	
PCB033	ND	3.0	1	
PCB037	ND	3.0	1	
PCB044	ND	3.0	1	
PCB049	3.9	3.0	1	
PCB052	8.1	3.0	1	
PCB056	ND	3.0	1	
PCB060	ND	3.0	1	
PCB066	3.7	3.0	1	
PCB070	ND	3.0	1	
PCB074	ND	3.0	1	
PCB077	ND	3.0	1	
PCB081	ND	3.0	1	
PCB087	ND	3.0	1	
PCB095	9.2	3.0	1	
PCB097	4.1	3.0	1	
PCB099	7.2	3.0	1	
PCB101	22	3.0	1	
PCB105	5.0	3.0	1	
PCB110	8.8	3.0	1	
PCB114	ND	3.0	1	
PCB118	7.0	3.0	1	
PCB119	ND	3.0	1	
PCB123	ND	3.0	1	
PCB126	ND	3.0	1	
PCB128	ND	3.0	1	
PCB132	ND	3.0	1	
PCB138/158	13	5.9	1	
PCB141	ND	3.0	1	
PCB149	9.9	3.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB151	4.3	3.0	1	
PCB153	33	3.0	1	
PCB156	ND	3.0	1	
PCB157	ND	3.0	1	
PCB167	ND	3.0	1	
PCB168	ND	3.0	1	
PCB169	ND	3.0	1	
PCB170	ND	3.0	1	
PCB174	ND	3.0	1	
PCB177	ND	3.0	1	
PCB180	4.0	3.0	1	
PCB183	ND	3.0	1	
PCB184	ND	3.0	1	
PCB187	6.2	3.0	1	
PCB189	ND	3.0	1	
PCB194	ND	3.0	1	
PCB195	ND	3.0	1	
PCB200	ND	3.0	1	
PCB201	ND	3.0	1	
PCB203	ND	3.0	1	
PCB206	ND	3.0	1	
PCB209	ND	3.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	64	14-146	
p-Terphenyl-d14	90	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-318-35**	**N/A**	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 13:49**	**130816F03**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	93	14-146	
p-Terphenyl-d14	102	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-318-36**	**N/A**	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 23:35**	**130816F04**

Parameter	Result	RL	DF	Qualifiers
PCB003	ND	0.50	1	
PCB008	ND	0.50	1	
PCB018	ND	0.50	1	
PCB028	ND	0.50	1	
PCB031	ND	0.50	1	
PCB033	ND	0.50	1	
PCB037	ND	0.50	1	
PCB044	ND	0.50	1	
PCB049	ND	0.50	1	
PCB052	ND	0.50	1	
PCB056	ND	0.50	1	
PCB060	ND	0.50	1	
PCB066	ND	0.50	1	
PCB070	ND	0.50	1	
PCB074	ND	0.50	1	
PCB077	ND	0.50	1	
PCB081	ND	0.50	1	
PCB087	ND	0.50	1	
PCB095	ND	0.50	1	
PCB097	ND	0.50	1	
PCB099	ND	0.50	1	
PCB101	ND	0.50	1	
PCB105	ND	0.50	1	
PCB110	ND	0.50	1	
PCB114	ND	0.50	1	
PCB118	ND	0.50	1	
PCB119	ND	0.50	1	
PCB123	ND	0.50	1	
PCB126	ND	0.50	1	
PCB128	ND	0.50	1	
PCB132	ND	0.50	1	
PCB138/158	ND	1.0	1	
PCB141	ND	0.50	1	
PCB149	ND	0.50	1	
PCB151	ND	0.50	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Return to Contents

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Berths 212-224 YTI Terminal

Parameter	Result	RL	DF	Qualifiers
PCB153	ND	0.50	1	
PCB156	ND	0.50	1	
PCB157	ND	0.50	1	
PCB167	ND	0.50	1	
PCB168	ND	0.50	1	
PCB169	ND	0.50	1	
PCB170	ND	0.50	1	
PCB174	ND	0.50	1	
PCB177	ND	0.50	1	
PCB180	ND	0.50	1	
PCB183	ND	0.50	1	
PCB184	ND	0.50	1	
PCB187	ND	0.50	1	
PCB189	ND	0.50	1	
PCB194	ND	0.50	1	
PCB195	ND	0.50	1	
PCB200	ND	0.50	1	
PCB201	ND	0.50	1	
PCB203	ND	0.50	1	
PCB206	ND	0.50	1	
PCB209	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	83	14-146	
p-Terphenyl-d14	117	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
1C	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:08**	**130815S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.207	12.50	16.17	104	16.36	105	80-120	1	0-20	
Cadmium	ND	12.50	13.83	111	13.20	106	80-120	5	0-20	
Chromium	1.059	12.50	14.79	110	13.61	100	80-120	8	0-20	
Copper	2.189	12.50	15.04	103	15.60	107	80-120	4	0-20	
Lead	0.4390	12.50	13.72	106	13.48	104	80-120	2	0-20	
Nickel	0.9137	12.50	14.61	110	13.49	101	80-120	8	0-20	
Selenium	0.3260	12.50	14.61	114	13.46	105	80-120	8	0-20	
Silver	ND	6.250	6.810	109	6.703	107	80-120	2	0-20	
Zinc	14.08	12.50	27.45	107	29.40	123	80-120	7	0-20	3

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-08-0763-6	**Tissue**	**ICP/MS 03**	**08/15/13**	**08/20/13 13:18**	**130815S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	36.17	12.50	49.47	106	46.88	86	80-120	5	0-20	
Cadmium	5.945	12.50	19.18	106	17.52	93	80-120	9	0-20	
Chromium	0.5405	12.50	13.27	102	12.71	97	80-120	4	0-20	
Copper	46.61	12.50	57.94	91	54.80	66	80-120	6	0-20	3
Lead	0.1250	12.50	13.44	106	12.34	98	80-120	9	0-20	
Nickel	1.428	12.50	14.69	106	14.07	101	80-120	4	0-20	
Selenium	0.7356	12.50	14.36	109	14.11	107	80-120	2	0-20	
Silver	2.163	6.250	9.815	122	8.306	98	80-120	17	0-20	3
Zinc	157.3	12.50	165.8	4X	154.2	4X	80-120	4X	0-20	Q

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Berths 212-224 YTI Terminal			Page 3 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
1C	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 17:30**	**130815S05**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3196	64	0.1800	36	76-136	56	0-16	3,4

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Berths 212-224 YTI Terminal			Page 4 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
6W	**Tissue**	**Mercury**	**08/15/13**	**08/19/13 18:28**	**130815S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3870	77	0.4000	80	76-136	3	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12C	**Tissue**	**GC 51**	**08/16/13**	**08/24/13 15:14**	**130816S05**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	ND	5.000	4.722	94	4.821	96	50-135	2	0-25	
4,4'-DDE	4.323	5.000	10.86	131	11.02	134	50-135	2	0-25	
4,4'-DDT	ND	5.000	4.250	85	4.311	86	50-135	1	0-25	
Aldrin	ND	5.000	3.791	76	3.864	77	50-135	2	0-25	
Alpha Chlordane	ND	5.000	3.939	79	4.013	80	50-135	2	0-25	
Alpha-BHC	ND	5.000	3.815	76	3.909	78	50-135	2	0-25	
Beta-BHC	ND	5.000	4.226	85	4.393	88	50-135	4	0-25	
Delta-BHC	ND	5.000	4.243	85	4.326	87	50-135	2	0-25	
Dieldrin	ND	5.000	4.117	82	4.184	84	50-135	2	0-25	
Endosulfan I	ND	5.000	4.111	82	4.202	84	50-135	2	0-25	
Endosulfan II	ND	5.000	1.888	38	1.910	38	50-135	1	0-25	3
Endosulfan Sulfate	ND	5.000	1.191	24	1.207	24	50-135	1	0-25	3
Endrin	ND	5.000	4.030	81	4.073	81	50-135	1	0-25	
Endrin Aldehyde	ND	5.000	0.09250	2	0.07030	1	50-135	27	0-25	3,4
Endrin Ketone	ND	5.000	1.239	25	1.282	26	50-135	3	0-25	3
Gamma Chlordane	ND	5.000	3.643	73	3.633	73	50-135	0	0-25	
Gamma-BHC	ND	5.000	3.779	76	3.848	77	50-135	2	0-25	
Heptachlor	ND	5.000	3.912	78	3.957	79	50-135	1	0-25	
Heptachlor Epoxide	ND	5.000	4.320	86	4.406	88	50-135	2	0-25	
Methoxychlor	ND	5.000	3.329	67	3.404	68	50-135	2	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
7C	**Tissue**	**GC/MS AAA**	**08/16/13**	**08/23/13 20:47**	**130816S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	24.22	100.0	90.36	66	92.61	68	40-160	2	0-20	
Acenaphthylene	ND	100.0	89.52	90	91.35	91	40-160	2	0-20	
Anthracene	ND	100.0	81.37	81	82.32	82	40-160	1	0-20	
Benzo (a) Anthracene	13.02	100.0	103.9	91	104.4	91	40-160	0	0-20	
Benzo (a) Pyrene	33.30	100.0	124.2	91	125.6	92	40-160	1	0-20	
Benzo (b) Fluoranthene	46.22	100.0	139.7	93	127.5	81	40-160	9	0-20	
Benzo (g,h,i) Perylene	ND	100.0	81.35	81	84.64	85	40-160	4	0-20	
Benzo (k) Fluoranthene	34.45	100.0	112.5	78	114.0	80	40-160	1	0-20	
Chrysene	21.20	100.0	102.2	81	101.6	80	40-160	1	0-20	
Dibenz (a,h) Anthracene	ND	100.0	90.76	91	92.85	93	40-160	2	0-20	
Fluoranthene	70.28	100.0	163.9	94	153.9	84	40-160	6	0-20	
Fluorene	ND	100.0	95.20	95	95.53	96	40-160	0	0-20	
Indeno (1,2,3-c,d) Pyrene	ND	100.0	109.3	109	111.1	111	40-160	2	0-20	
2-Methylnaphthalene	ND	100.0	97.15	97	98.38	98	40-160	1	0-20	
1-Methylnaphthalene	ND	100.0	88.22	88	96.03	96	40-160	8	0-20	
Naphthalene	ND	100.0	87.99	88	90.13	90	40-160	2	0-20	
Phenanthrene	ND	100.0	89.77	90	98.07	98	40-160	9	0-20	
Pyrene	201.5	100.0	304.7	103	275.4	74	40-160	10	0-46	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
4C	**Tissue**	**GC/MS HHH**	**08/16/13**	**08/24/13 01:27**	**130816S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	50.00	44.79	90	44.26	89	50-150	1	0-30	
PCB018	ND	50.00	43.27	87	43.85	88	50-150	1	0-30	
PCB028	ND	50.00	43.77	88	43.90	88	50-150	0	0-30	
PCB044	ND	50.00	44.94	90	45.44	91	50-150	1	0-30	
PCB052	ND	50.00	40.74	81	41.14	82	50-150	1	0-30	
PCB066	ND	50.00	46.97	94	47.20	94	50-150	0	0-30	
PCB077	ND	50.00	45.51	91	45.95	92	50-150	1	0-30	
PCB101	ND	50.00	44.56	89	44.93	90	50-150	1	0-30	
PCB105	ND	50.00	44.75	90	44.92	90	50-150	0	0-30	
PCB118	ND	50.00	47.40	95	47.12	94	50-150	1	0-30	
PCB126	ND	50.00	43.51	87	43.83	88	50-150	1	0-30	
PCB128	ND	50.00	49.13	98	49.17	98	50-150	0	0-30	
PCB153	ND	50.00	44.28	89	44.49	89	50-150	0	0-30	
PCB170	ND	50.00	37.05	74	36.74	73	50-150	1	0-30	
PCB180	ND	50.00	43.91	88	43.67	87	50-150	1	0-30	
PCB187	ND	50.00	42.95	86	43.29	87	50-150	1	0-30	
PCB195	ND	50.00	44.34	89	43.37	87	50-150	2	0-30	
PCB206	ND	50.00	39.26	79	38.91	78	50-150	1	0-30	
PCB209	ND	50.00	44.41	89	43.36	87	50-150	2	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
1C	**Tissue**	**ICP/MS 03**	**08/15/13 00:00**	**08/16/13 20:14**	**130815S01**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	3.207	12.50	15.76	100	75-125	
Cadmium	ND	12.50	13.02	104	75-125	
Chromium	1.059	12.50	14.02	104	75-125	
Copper	2.189	12.50	14.85	101	75-125	
Lead	0.4390	12.50	13.35	103	75-125	
Nickel	0.9137	12.50	14.19	106	75-125	
Selenium	0.3260	12.50	13.45	105	75-125	
Silver	ND	6.250	5.745	92	75-125	
Zinc	14.08	12.50	27.26	105	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-08-0763-6	**Tissue**	**ICP/MS 03**	**08/15/13 00:00**	**08/19/13 14:24**	**130815S02**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	36.17	12.50	45.75	77	75-125	
Cadmium	5.945	12.50	18.25	98	75-125	
Chromium	0.5405	12.50	13.49	104	75-125	
Copper	46.61	12.50	55.17	68	75-125	5
Lead	0.1250	12.50	13.02	103	75-125	
Nickel	1.428	12.50	15.11	109	75-125	
Selenium	0.7356	12.50	13.77	104	75-125	
Silver	2.163	6.250	7.465	85	75-125	
Zinc	157.3	12.50	137.5	4X	75-125	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
1C	**Tissue**	**Mercury**	**08/15/13 00:00**	**08/20/13 13:39**	**130815S05**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.4606	92	0.4326	87	75-125	6	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: Berths 212-224 YTI Terminal			Page 1 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
1C	**Tissue**	**N/A**	**08/17/13 00:00**	**08/17/13 16:45**	**D0817TSD3**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	14.30	15.50	8	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: Berths 212-224 YTI Terminal			Page 2 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
6W	**Tissue**	**N/A**	**08/17/13 00:00**	**08/17/13 16:45**	**D0817TSD4**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	15.30	14.30	7	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
4C	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
% Lipids	0.7100	0.7300	3	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	MeCl2 Ext. (NOAA 1993a)
Project: Berths 212-224 YTI Terminal			Page 4 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13W	**Tissue**	**N/A**	**N/A**	**08/22/13 12:00**	**130822D02**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
% Lipids	1.340	1.300	3	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-258-20	**Soil**	**ICP/MS 03**	**08/15/13**	**08/16/13 20:05**	**130815L01T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	11.95	96	12.32	99	80-120	3	0-20	
Cadmium	12.50	12.54	100	12.41	99	80-120	1	0-20	
Chromium	12.50	12.40	99	12.54	100	80-120	1	0-20	
Copper	12.50	12.54	100	13.37	107	80-120	6	0-20	
Lead	12.50	12.32	99	12.55	100	80-120	2	0-20	
Nickel	12.50	12.60	101	13.26	106	80-120	5	0-20	
Selenium	12.50	11.84	95	12.23	98	80-120	3	0-20	
Silver	6.250	5.612	90	5.777	92	80-120	3	0-20	
Zinc	12.50	13.18	105	13.41	107	80-120	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3050B
Method: EPA 6020

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-258-21	**Soil**	**ICP/MS 03**	**08/15/13**	**08/19/13 20:46**	**130815L02T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.95	104	12.85	103	80-120	1	0-20	
Cadmium	12.50	12.77	102	12.48	100	80-120	2	0-20	
Chromium	12.50	13.44	108	12.53	100	80-120	7	0-20	
Copper	12.50	13.06	104	13.83	111	80-120	6	0-20	
Lead	12.50	13.19	106	12.65	101	80-120	4	0-20	
Nickel	12.50	13.72	110	13.52	108	80-120	1	0-20	
Selenium	12.50	13.48	108	12.07	97	80-120	11	0-20	
Silver	6.250	5.528	88	5.637	90	80-120	2	0-20	
Zinc	12.50	12.87	103	14.19	114	80-120	10	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 7471A Total
Method: EPA 7471A
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Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-46	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:53**	**130815L05T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.9197	110	0.8176	98	82-124	12	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure		Date Received:	08/13/13
9210 Sky Park Court, Suite 200		Work Order:	13-08-0936
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Berths 212-224 YTI Terminal			Page 4 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-409-47	**Soil**	**Mercury**	**08/15/13**	**08/15/13 15:56**	**130815L06T**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.9270	111	0.7970	95	82-124	15	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-294-22	**Soil**	**GC 51**	**08/16/13**	**08/24/13 17:28**	**130816F05**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	4.391	88	4.396	88	50-135	36-149	0	0-25	
4,4'-DDE	5.000	4.522	90	4.544	91	50-135	36-149	0	0-25	
4,4'-DDT	5.000	4.422	88	4.451	89	50-135	36-149	1	0-25	
Aldrin	5.000	4.273	85	4.319	86	50-135	36-149	1	0-25	
Alpha Chlordane	5.000	4.316	86	4.345	87	50-135	36-149	1	0-25	
Alpha-BHC	5.000	4.086	82	4.188	84	50-135	36-149	2	0-25	
Beta-BHC	5.000	3.975	80	4.119	82	50-135	36-149	4	0-25	
Delta-BHC	5.000	4.175	84	4.228	85	50-135	36-149	1	0-25	
Dieldrin	5.000	4.418	88	4.450	89	50-135	36-149	1	0-25	
Endosulfan I	5.000	4.396	88	4.423	88	50-135	36-149	1	0-25	
Endosulfan II	5.000	4.404	88	4.393	88	50-135	36-149	0	0-25	
Endosulfan Sulfate	5.000	4.282	86	4.266	85	50-135	36-149	0	0-25	
Endrin	5.000	4.383	88	4.454	89	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	4.575	91	4.565	91	50-135	36-149	0	0-25	
Endrin Ketone	5.000	4.631	93	4.613	92	50-135	36-149	0	0-25	
Gamma Chlordane	5.000	4.189	84	4.208	84	50-135	36-149	0	0-25	
Gamma-BHC	5.000	4.220	84	4.240	85	50-135	36-149	0	0-25	
Heptachlor	5.000	4.308	86	4.373	87	50-135	36-149	2	0-25	
Heptachlor Epoxide	5.000	4.323	86	4.356	87	50-135	36-149	1	0-25	
Methoxychlor	5.000	4.712	94	4.704	94	50-135	36-149	0	0-25	

Total number of LCS compounds: 20
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3545
Method: EPA 8081A

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-294-23	**Soil**	**GC 51**	**08/16/13**	**08/24/13 17:56**	**130816F06**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	5.680	114	5.585	112	50-135	36-149	2	0-25	
4,4'-DDE	5.000	5.753	115	5.652	113	50-135	36-149	2	0-25	
4,4'-DDT	5.000	5.756	115	5.665	113	50-135	36-149	2	0-25	
Aldrin	5.000	5.520	110	5.438	109	50-135	36-149	2	0-25	
Alpha Chlordane	5.000	5.497	110	5.414	108	50-135	36-149	2	0-25	
Alpha-BHC	5.000	5.240	105	5.169	103	50-135	36-149	1	0-25	
Beta-BHC	5.000	5.236	105	5.186	104	50-135	36-149	1	0-25	
Delta-BHC	5.000	5.338	107	5.283	106	50-135	36-149	1	0-25	
Dieldrin	5.000	5.688	114	5.600	112	50-135	36-149	2	0-25	
Endosulfan I	5.000	5.621	112	5.535	111	50-135	36-149	2	0-25	
Endosulfan II	5.000	5.609	112	5.509	110	50-135	36-149	2	0-25	
Endosulfan Sulfate	5.000	5.553	111	5.474	109	50-135	36-149	1	0-25	
Endrin	5.000	5.631	113	5.547	111	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	5.903	118	5.816	116	50-135	36-149	1	0-25	
Endrin Ketone	5.000	6.083	122	6.002	120	50-135	36-149	1	0-25	
Gamma Chlordane	5.000	5.416	108	5.252	105	50-135	36-149	3	0-25	
Gamma-BHC	5.000	5.398	108	5.314	106	50-135	36-149	2	0-25	
Heptachlor	5.000	5.588	112	5.516	110	50-135	36-149	1	0-25	
Heptachlor Epoxide	5.000	5.530	111	5.451	109	50-135	36-149	1	0-25	
Methoxychlor	5.000	6.164	123	6.075	121	50-135	36-149	1	0-25	

Total number of LCS compounds: 20
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-943-5	**Soil**	**GC/MS AAA**	**08/16/13**	**08/23/13 16:06**	**130816L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	117.6	118	115.9	116	48-108	38-118	1	0-11	ME
Acenaphthylene	100.0	92.32	92	89.31	89	40-160	20-180	3	0-20	
Anthracene	100.0	94.03	94	87.86	88	40-160	20-180	7	0-20	
Benzo (a) Anthracene	100.0	119.0	119	118.1	118	40-160	20-180	1	0-20	
Benzo (a) Pyrene	100.0	82.80	83	82.15	82	40-160	20-180	1	0-20	
Benzo (b) Fluoranthene	100.0	126.9	127	127.0	127	40-160	20-180	0	0-20	
Benzo (g,h,i) Perylene	100.0	108.2	108	106.9	107	40-160	20-180	1	0-20	
Benzo (k) Fluoranthene	100.0	137.1	137	135.9	136	40-160	20-180	1	0-20	
Chrysene	100.0	125.5	125	126.6	127	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	122.9	123	123.7	124	40-160	20-180	1	0-20	
Fluoranthene	100.0	132.3	132	124.2	124	40-160	20-180	6	0-20	
Fluorene	100.0	129.7	130	126.2	126	40-160	20-180	3	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	154.2	154	149.8	150	40-160	20-180	3	0-20	
2-Methylnaphthalene	100.0	131.8	132	134.2	134	40-160	20-180	2	0-20	
1-Methylnaphthalene	100.0	123.5	124	134.4	134	40-160	20-180	8	0-20	
Naphthalene	100.0	119.2	119	124.3	124	40-160	20-180	4	0-20	
Phenanthrene	100.0	128.0	128	119.2	119	40-160	20-180	7	0-20	
Pyrene	100.0	121.6	122	123.7	124	40-160	20-180	2	0-16	

Total number of LCS compounds: 18
Total number of ME compounds: 1
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: Berths 212-224 YTI Terminal

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-943-6	**Soil**	**GC/MS AAA**	**08/16/13**	**08/26/13 13:12**	**130816L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	107.1	107	104.3	104	48-108	38-118	3	0-11	
Acenaphthylene	100.0	81.02	81	80.37	80	40-160	20-180	1	0-20	
Anthracene	100.0	75.37	75	73.43	73	40-160	20-180	3	0-20	
Benzo (a) Anthracene	100.0	104.2	104	101.6	102	40-160	20-180	3	0-20	
Benzo (a) Pyrene	100.0	72.43	72	69.39	69	40-160	20-180	4	0-20	
Benzo (b) Fluoranthene	100.0	115.0	115	106.6	107	40-160	20-180	8	0-20	
Benzo (g,h,i) Perylene	100.0	96.98	97	91.54	92	40-160	20-180	6	0-20	
Benzo (k) Fluoranthene	100.0	121.4	121	113.6	114	40-160	20-180	7	0-20	
Chrysene	100.0	107.9	108	106.3	106	40-160	20-180	1	0-20	
Dibenz (a,h) Anthracene	100.0	111.9	112	106.6	107	40-160	20-180	5	0-20	
Fluoranthene	100.0	109.8	110	106.4	106	40-160	20-180	3	0-20	
Fluorene	100.0	113.0	113	105.9	106	40-160	20-180	6	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	138.1	138	127.0	127	40-160	20-180	8	0-20	
2-Methylnaphthalene	100.0	118.7	119	117.2	117	40-160	20-180	1	0-20	
1-Methylnaphthalene	100.0	117.7	118	111.0	111	40-160	20-180	6	0-20	
Naphthalene	100.0	107.0	107	105.6	106	40-160	20-180	1	0-20	
Phenanthrene	100.0	107.8	108	98.35	98	40-160	20-180	9	0-20	
Pyrene	100.0	104.6	105	105.4	105	40-160	20-180	1	0-16	

Total number of LCS compounds: 18
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-318-35	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 21:41**	**130816F03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	34.39	69	32.58	65	50-150	33-167	5	0-30	
PCB018	50.00	32.76	66	31.15	62	50-150	33-167	5	0-30	
PCB028	50.00	33.54	67	32.09	64	50-150	33-167	4	0-30	
PCB044	50.00	34.24	68	32.94	66	50-150	33-167	4	0-30	
PCB052	50.00	31.66	63	30.58	61	50-150	33-167	3	0-30	
PCB066	50.00	35.70	71	34.71	69	50-150	33-167	3	0-30	
PCB077	50.00	35.60	71	34.82	70	50-150	33-167	2	0-30	
PCB101	50.00	33.94	68	33.17	66	50-150	33-167	2	0-30	
PCB105	50.00	33.02	66	32.57	65	50-150	33-167	1	0-30	
PCB118	50.00	35.33	71	34.82	70	50-150	33-167	1	0-30	
PCB126	50.00	31.94	64	32.12	64	50-150	33-167	1	0-30	
PCB128	50.00	28.88	58	28.39	57	50-150	33-167	2	0-30	
PCB153	50.00	33.17	66	32.71	65	50-150	33-167	1	0-30	
PCB170	50.00	27.61	55	26.54	53	50-150	33-167	4	0-30	
PCB180	50.00	31.36	63	31.11	62	50-150	33-167	1	0-30	
PCB187	50.00	32.64	65	32.36	65	50-150	33-167	1	0-30	
PCB195	50.00	32.75	66	31.17	62	50-150	33-167	5	0-30	
PCB206	50.00	28.77	58	27.91	56	50-150	33-167	3	0-30	
PCB209	50.00	31.23	62	30.39	61	50-150	33-167	3	0-30	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 08/13/13
Work Order: 13-08-0936
Preparation: EPA 3540C
Method: EPA 8270C SIM PCB Congeners

Project: Berths 212-224 YTI Terminal

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-318-36	**Soil**	**GC/MS HHH**	**08/16/13**	**08/23/13 22:38**	**130816F04**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	50.00	53.95	108	55.66	111	50-150	33-167	3	0-30	
PCB018	50.00	51.60	103	52.79	106	50-150	33-167	2	0-30	
PCB028	50.00	52.61	105	54.20	108	50-150	33-167	3	0-30	
PCB044	50.00	53.92	108	54.68	109	50-150	33-167	1	0-30	
PCB052	50.00	49.98	100	50.99	102	50-150	33-167	2	0-30	
PCB066	50.00	57.17	114	58.29	117	50-150	33-167	2	0-30	
PCB077	50.00	57.27	115	58.49	117	50-150	33-167	2	0-30	
PCB101	50.00	54.42	109	54.88	110	50-150	33-167	1	0-30	
PCB105	50.00	54.24	108	54.95	110	50-150	33-167	1	0-30	
PCB118	50.00	57.48	115	58.81	118	50-150	33-167	2	0-30	
PCB126	50.00	52.97	106	53.55	107	50-150	33-167	1	0-30	
PCB128	50.00	47.95	96	48.69	97	50-150	33-167	2	0-30	
PCB153	50.00	54.36	109	55.18	110	50-150	33-167	1	0-30	
PCB170	50.00	44.45	89	45.12	90	50-150	33-167	2	0-30	
PCB180	50.00	53.20	106	54.64	109	50-150	33-167	3	0-30	
PCB187	50.00	53.92	108	55.17	110	50-150	33-167	2	0-30	
PCB195	50.00	52.32	105	52.86	106	50-150	33-167	1	0-30	
PCB206	50.00	47.19	94	48.21	96	50-150	33-167	2	0-30	
PCB209	50.00	50.82	102	52.54	105	50-150	33-167	3	0-30	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-08-0936 Page 1 of 1

Qualifiers	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 08/12/13

LABORATORY CLIENT: AMEC
ADDRESS: 9210 Sky Park Ct # 200
CITY: San Diego, CA 92123
TEL: (858) 300-4322 | E-Mail: tyler.huff@amec.com | E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: Berths 212-224 YTI Terminal
P.O. NO.: 1015101929
PROJECT CONTACT: Barry Snyder, Tyler Huff
QUOTE NO.:
SAMPLER(S): (SIGNATURE)
LAB USE ONLY: 13-08-0936

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS
Danielle Gonsman is PM; see attached sheet for addional information.
Report results in wet and dry weight.
Keep frozen. Only count/open cooler at Calscience Sample Receiving.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
1	1C	POLA - YTI Terminal	8/1/13	1500	Tissue	1		X	X	X	X	X	X
2	2C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
3	3C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
4	4C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
5	5C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
6	6C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
7	7C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
8	8C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
9	9C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
10	10C	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X

Relinquished by: (Signature) Adrienne Ciber 8/13/13 1435	Received by: (Signature)	Date: 08/13/13	Time: 1435
Relinquished by: (Signature)	Received by: (Signature)	Date: 8/13/13	Time: 1850
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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PROJECT CONTACT: **Barry Snyder, Tyler Huff**
SAMPLER(S): (SIGNATURE)
P.O. NO.: **1015101929**
QUOTE NO.:
LAB USE ONLY: 08-0936

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS
Danielle Gonsman is PM; see attached sheet for addional information.
Report results in wet and dry weight.
Keep frozen. Only count/open cooler at Calscience Sample Receiving.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
11	11C	POLA - YTI Terminal	8/10/13	1500	Tissue	1		X	X	X	X	X	X
12	12C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
13	13C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
14	14C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
15	15C	POLA - YTI Terminal		1500	Tissue	1		X	X	X	X	X	X
16	1W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
17	2W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
18	3W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
19	4W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X
20	5W	POLA - YTI Terminal		1300	Tissue	1		X	X	X	X	X	X

Relinquished by: (Signature) Adrienne Ciber 8/13/13 1435	Received by: (Signature)	Date: 08/13/13	Time: 1435
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DATE: 08/12/13

PAGE: 3 OF 3

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CLIENT PROJECT NAME / NUMBER: **Berths 212-224 YTI Terminal**

P.O. NO.: **1015101929**

PROJECT CONTACT: **Barry Snyder, Tyler Huff**

QUOTE NO.:

SAMPLER(S): (SIGNATURE)

LAB USE ONLY: 08-0936

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM; see attached sheet for addional information.
Report results in wet and dry weight.
Keep frozen. Only count/open cooler at Calscience Sample Receiving.

Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Metals	Total Lipids	PAHs	Chlorinated Pesticides	PCB Congeners
21	6W	POLA - YTI Terminal	8/10/13	1300	Tissue	1		X	X	X	X	X	X
22	7W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
23	8W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
24	9W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
25	10W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
26	11W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
27	12W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
28	13W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
29	14W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X
30	15W	POLA - YTI Terminal			Tissue	1		X	X	X	X	X	X

Relinquished by: (Signature) Adrienne Cioci 8/13/13 1435	Received by: (Signature)	Date: 08/13/13	Time: 1435
Relinquished by: (Signature)	Received by: (Signature)	Date: 8/13/13	Time: 1850
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Table 4-2.
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits[a, b]	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M[c]	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M[c]	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D[c]	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a[i]	N/A	N/A	0.1 %
TRPH	418.1M[d]	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B[d]	N/A	5.0 mg/kg	N/A
PAHs[e]	8270C SIM/ GC/TQ[d]	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM[d]	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS[j]	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM[d]	N/A	10 µg/kg	N/A
Organotins	Rice/Krone[h]	3.0 ng/L	3.0 µg/kg	N/A

Notes:

[a] Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc.

[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.

[d] USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.

[e] Includes 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-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

[g] PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

[i] NOAA 1993

[j] Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lamba, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin}, Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)
µg/L - micrograms per liter
mg/kg - milligrams per kilogram (parts per million)
mg/L - milligrams per liter
ng/L - nanograms per liter
N/A - not applicable

PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SM - Standard Methods
SOP - standard operating procedure
TPH - total petroleum hydrocarbons
TRPH - total recoverable petroleum hydrocarbons

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-08-0936

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 08/13/13

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Initial: KD

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: KD

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: YS

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	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑ KD 8/13/13	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Tissue

~~Solid:~~ ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ Z

Water: ☐VOA ☐VOAh ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** YS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** TN

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** TN

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APPENDIX F

NOVEMBER 2013 CSTF MEETING MINUTES

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Southern California Dredged Material Management Team (SC-DMMT)
November 20, 2013
Draft Meeting Notes

I. Participating Agencies /Attendees:

a. Cori Farrar (USACE – Regulatory)
b. Daniel Swenson (USACE – Regulatory)
c. Brianne McGuffie (USACE-Regulatory)
d. Antal Szijj† (USACE – Regulatory)
e. John Markham† (USACE – Regulatory)
f. Theresa Stevens (USACE – Regulatory)
g. Larry Smith (USACE – Planning)
h. Kirk Brus (USACE – Planning)
i. Kenneth Wong (USACE – Planning)
j. Blake Horita (USACE – Planning)
k. Jim Fields (USACE – Planning)
l. Jeffrey Devine (USACE – Geology Section)
m. Allan Ota† (USEPA Region 9)
n. Bill Paznokas† (CA-DFW)
o. Michael Lyons (RWQCB – Los Angeles)
p. Mark Adelson† (RWQCB – Santa Ana)
q. Jack Gregg† (CCC)
r. Larry Simone† (CCC)
s. Carol Roberts† (USFWS)
t. Loni Adams† (CDFW)
u. Matt Arms† (Port of Long Beach)
v. Kat Prickett (POLA)
w. Rachel McPherson (POLA)
x. Kathryn Curtis (POLA)
y. Carlos Quintana (POLA)
z. Ed Han (POLA)
aa. David Walsh (POLA)
bb. Barry Snyder (AMEC)
cc. Tyler Huff (AMEC)
dd. Janna Watanabe (POLB)
ee. James Vernon (POLB)
ff. Chris Miller (City of Newport Beach)
gg. Doug West (City of Newport Beach)
hh. Chris Osuch (Anchor QEA)
ii. Adam Gale (Anchor QEA)
jj. Susan Brodeur (County of Orange)
kk. Kim Garvey (Moffatt and Nichol)

† **participating via teleconference**.

II. Announcements: None.

III. Project Review and Determinations

a. NRG Intake Structure Demolition Project (Port of Long Beach, PM John Markham):

i. Corps (Regulatory) comments:

1. What is potential source of high mercury levels? The Port stated high mercury levels (and other contaminants) are observed most often in portions of the Port that have not been dredged in recent years and that have poorer tidal circulation such as dead-end slips.

ii. Corps (Planning) comments:

1. None.

iii. USFWS comments:

1. None.

iv. RWQCB comments:

1. None.

v. EPA comments:

1. Where in the cores was mercury identified? The Port stated there was little stratification of cores or pockets of differential material to suggest a possible concentration of mercury; rather, it was distributed through the cores;
2. Why was barium at such high levels (505 mg/kg in dry weight composite sample, and 422 ug/L in composite elutriate)? Similar to the mercury findings, the Port stated this is likely legacy (older) contamination, as this site has not been dredged for years. The adjacent Pier S site was used as an oil and gas processing facility from the 1930s to 2000, and between 1951 to 1969 was used for disposal of oil and gas drilling waste in shallow impounds, or "sumps." This adjacent land use may be responsible in part for the elevated mercury and barium levels.
3. No objections to this proposal.

vi. Cal DFW comments:

1. There is a large population of lobsters surrounding and within the intake, but given the dredge method (clamshell) the lobsters will likely vacate the area.
2. No objections to this proposal.

vii. Port of Long Beach comments:

1. Estimated volume is 3,500 cubic yards, to be removed using clamshell, temporarily stockpiled upon Pier S or other contained upland location in Port to dewater, and then transported to an upland landfill rather than to Middle Harbor fill areas as previously proposed. Intake structure would be demolished and removed in early 2014;
2. Test sediments contained some trace metals and total PCB congeners above ERL guidelines, and mercury above ERM guidelines (~1.5 x ERM) throughout all samples. In addition, the site water and effluent elutriate tests show very few detectable chemicals of potential concern, and show that the analytes that are above ERLs are not seen in significant quantities in the elutriate sample, indicating that the analytes are non-soluble.

b. Phase I of the POLB Maintenance Dredging Project (Port of Long Beach, PM: John Markham):

i. Corps (Regulatory) comments:

1. No objections to this proposal.

ii. Corps (Planning) comments:

1. None.

iii. USFWS comments:

1. None.

iv. RWQCB comments:

1. None.

v. EPA comments:

1. Were Z-layer samples taken at the Pier J Turning Basin site? If so, were these analyzed? The Port stated that Z-layer samples were collected from each station within the Pier J Turning Basin, but were not analyzed. The samples were archived should further investigation be necessary;
2. No objections to this proposal.

vi. Cal DFW comments:

1. No objections to this proposal.

vii. CCC comments:

1. No objections to this proposal.

c. **Regional General Permit 54 –** To Review Results of Sampling & Analysis (PM: Cori Farrar): Attended by Chris Miller, City of Newport; Doug West, Newport Harbor Commission; Chris Osuch, Adam Gale, Shelley Anghera†, Jack Malone†, Steve Capellino† of Anchor QEA (City of Newport Beach):

i. **Corps (Regulatory) comments:**

1. Sought clarification of dredging area and requested that figures clearly show delineate bulkhead to pierhead lines.
2. Suggested table a more in-depth discussion of z-layer for another call to address CDFW and other agencies' concerns.
3. Confirmed testing of grain size would occur at each project site to determine suitability for beach or ocean disposal.
4. Clarified that in the mapped "green" areas, the proposed RGP would restrict dredging to -7 ft MLLW with 1 ft overdredge; boat dock owners would need to apply for an standard individual permit if seek greater dredge depths.
5. Composite core at 4-12 shows elevated [Hg], applicant could do more testing and may find it is suitable for ocean disposal or not and would they dispose of it at a landfill? What about trying to get rid of hot spots of contamination?
6. Suitability for beach nourishment is pending grain size analysis for any given site, and further consideration is needed given exceedences of ERMs for [Hg] at COMP-5 and [DDE] at COMP-3: more testing or more restrictions would be required.
7. Composite samples allow for testing at lower cost and are faster than Tier III testing on individual cores; however, new areas that haven't been dredged before are showing exceedences in ERLs and ERMS; Corps and EPA may require further testing depending on results of Tier III analysis in order to determine suitability for beach nourishment.
8. Requested and received confirmed from EPA that the determination of sediment suitability for offshore disposal has been made and concur with proposed areas and procedures outlined in SAR.
9. Additional safeguards in the form of further testing at the site level in certain areas is likely the way to handle elevated concentrations and beach nourishment.
10. Mention of Public Notice and EFH coordination for regulatory SIP process.

ii. **Corps (Planning) comments:**

1. In response to CDFW comment 1, indicated the absence of burrowing shrimp in Newport Bay due to high silt content of sediments.

iii. USFWS comments:

1. None.

iv. RWQCB comments:

1. Want to ensure concentrations of metals at lower depths would be known to avoid new exposures of potential hot spots
2. Questioned z-layer analysis in areas with higher contaminant levels but received answer that those areas of concern were excluded

v. EPA comments:

1. Need to clarify that target dredge depth for areas where results indicated -8 MLLW to -12 MLLW had elevated levels of certain contaminants, ocean disposal would only be approved for dredging to -7 MLLW with overdepth of ≤ 1ft (would leave approx. 6" coverage) under proposed RGP54 unless further site-specific characterization and further determination of suitability.
2. Re: z-layer discussion, explained there is an evolving program in San Francisco Bay where NOAA through EFH consultation has focused on z-layer habitat as related to federally listed species; cautioned that z-layer suitability could arise as an emerging issue in SoCal, depending on location, species, and in cases with evidence of historical contamination of deeper layers of sediments that could be daylighted through dredging that haven't previously been exposed; this issue is one separate from the determination of sediment suitability for ocean disposal.
3. Sought confirmation that grain size is tested at the site level.
4. In reference to Corps-RG comment 5 and Other comment 4, clarified the key is that there is only 1 core in the area and if proposed to dredge deeper, higher resolution. sampling (areal and vertical samples) would be needed
5. Confirmed that in mapped "green" areas, sediments -8 ft MLLW (-7 ft MLLW and 1 ft overdredge) were characterized and are suitable for ocean disposal.
6. Beneficial reuse would need to consider human exposure thresholds.

vi. CDFW comments:

1. In referred to areas dredged to -8 MLLW (see EPA comment 1), concerned about potential exposure of organisms to elevated contaminants; asked if that would be covered by Regional Board; expressed concern about exposures of burrowing shrimp or other benthic organisms to contaminants since they can burrow 2 to 3 ft below the surface; concerned that organisms would be exposed to potentially contaminated surface and layers not normally exposed to. [CDFW will investigate further whether shrimp are present in the Bay.]
2. CDFW would look closely at any impacts to the beach through sand replenishment activities.

vii. CCC comments:

1. In mapped "green" areas, would prefer to exclude the area from the RGP or to restrict to -6 ft MLLW plus 1 ft overdredge.
2. Expressed concern about -7 ft MLLW plus 1 ft overdredge and wanted to follow-up internally with that depth due to z-layer discussion.

viii. Other (Anchor and City) comments:

1. Anchor Q.E.A: concerned about need to develop a remediation-type strategy for surface layer, i.e., z-layer left after dredging even if it relatively clean.
2. City: At private boat docks, it is not the City's responsibility to remove the sediments.
3. City: in reference to CCC comment 1, -7 ft MLLW plus 1 ft overdredge is an established program under RGP 54
4. City: in reference to Corps-RG comment/question 5, City doesn't know what any given marina or boat dock owner would do; they may choose to dredge to the RGP-allowed depth of -7 ft MLLW plus 1 ft overdredge.
5. Anchor: in ref. to Corps-RG comment 7, ERMs don't directly relate to human health for determining suitability for beach disposal. Contaminant patterns and distribution of contaminants and broader scale is role of compositing scheme for RGP; expected exceedance of [Hg] to be okay if $\leq$ 1.0 mg/kg threshold from EPA; grain size testing at site is used as smaller spatial scale to determine if site-specific sediments meet requirements for beach nourishment.
6. City will review RGP 54 and will propose procedures for accommodating uncertainty in sediment data as want to maximize ability to accommodate beach replenishment.

d. Sunset/Huntington Harbour Maintenance Dredging and Waterline Installation Project (County of Orange and City of Huntington Beach):

i. Corps (Regulatory) comments:

1. Re: EPA comment 2: SC-DMMT Draft SAP Guidelines specify that known sources of contaminants should be indicated on figures and considered in strategy
2. Re: CDFW comment 1: Please delineate all areas of concern on a figure and send it to everyone in this SC-DMMT session
3. The selection of the contaminants for Tier III will be made after results of bulk chemistry, etc. are provided to the Corps and EPA and other programs
4. Need to archive cores for chemistry composites in case additional testing of cores is required; composites are not always sufficient for making determinations for disposal options
5. If ERMs and ERLs or SQGs for human exposure are exceeded, need to do a more focused analysis; Tier III testing scheme will be based on results of Tier II analysis and volumes of material proposed for disposal
6. Re: Other Comment 3: the DMMT will look at where the sources are located to determine appropriateness of composite proposal

ii. Corps (Planning) comments:

1. Re: the waterline areas, if the proposal is to just sidecast the trench material and then return it to fill in trench, then testing may not be necessary.
2. Re: Regulatory comment 3: Preliminary results will be distributed to the SC-DMMT

iii. USFWS comments:

1. Following the meeting, Carol Roberts of the USFWS reviewed and commented on the SAP:

   a. For purposes of clarification, the composite samples that undergo chemical analysis should be representative of the individual cores from which they are derived, from the mudline down to the bottom of the overdredge depth. Adequate material should be collected from each individual site to provide for the collection of that composite sample as well as to archive enough material for subsequent physical and chemical analyses on an individual basis, as appropriate.

b. The Service supports analysis of polychlorinated biphenyls (PCBs) as both Arochlors and congeners (as currently called for in the SAP) because the results generated have independent utility important for assessing the material disposal options, particularly in regards to placing material on the SBNWR. Over the course of the many projects discussed on Wednesday, there was discussion suggesting only Arochlor analysis was required, but both are important in this instance.

c. As additional contaminants are evaluated, we have growing concern about the presence of polybrominated diphenyl ethers (PBDEs). Because analysis for these constituents would be helpful in making a determination of the appropriateness of placing materials on the SBNWR, they should be considered for inclusion in the list of chemicals for analysis.

d. Some of the Laboratory Reporting Limits are elevated relative to thresholds of concern for fish and wildlife. We ask that all estimated values below those reporting limits be provided in the results for our consideration, as the Method Detection Limits identified appear to address our concerns in this regard.

e. The SAP indicated that the results will be used to evaluate the biological importance of the potentially bioaccumulative contaminants. The Service has staff capable of assisting in making this determination for fish and wildlife, and we would appreciate receiving the results for review in this context.

f. To further enhance the ability to determine the appropriateness of placing dredged materials on the SBNWR, sampling and analysis of representative material from the receiving area would be appropriate (as is done for ocean disposal). Kirk Gilligan, Refuge Manager, can provide additional guidance on this aspect.

iv. RWQCB comments:

1. WDR may be required not just a 401 certification; target sampling to fulfill requirements of WDR.

v. EPA comments:

1. Not comfortable with composite strategy; need to separate Bolsa Channel and Marina area. Only if grain size and chemistry were similar and had same sediment source, would compositing be okay.
2. Inquired about land uses around entrance channel; SAP figures need to show locations of storm drains and fuel dock; need to understand the way sediments settle out. Please revise figure or and a new one to SAP.
3. Need to check in with SC-DMMT or at least Corps and EPA (copy CCC) for approval before compositing SH/BC and ST for Tier III analysis.
4. RE: Corps PD comment 1: confirmed that if just sidecasting with dredge, unless there is known contamination, testing is not necessary.

vi. CDFW comments:

1. Concerned about eelgrass and area next to refuge due to possible impacts to sensitive habitats; want to see avoidance f impacts to sensitive habitats if possible; noted that near Warner Bridge, there are remnant mudflats of concern and she will share via email.
2. RE: Corps PD comment 1 and EPA comment 4: the drainage area for the harbor is Wintersburg Channel and is urban with sources of contaminants, so DFW wants the trench sediments tested.

vii. CCC comments:

1. Concerned about boats and bottom paint contamination in marina.
2. Concerned for Tier II testing the compositing SH/BC-1 & 2 with SH/BC-3 & 4 because of potential sources of contaminants.

viii. Other comments:

1. Moffatt & Nichol RE: EPA comment 1: for 2001 project, in 1997/1998 the SAP was similar to what is being proposed and ultimately combined for Tier III.
2. Moffatt & Nichol RE: EPA comment 4: confirmed the plan is to trench within 100 ft swath and expect only 3 inches of material below -10 ft MLLW; acknowledge they may not need testing, but will test because want flexibility in disposal options for remaining dredged sediments.
3. Moffat & Nichol: will provide figure(s) with storm drain outlet information and a memo clarifying individual analysis and how they made the preliminary determination to lump SH/BC 1-4 together.

e. **Berths 212-224 Yusen Container Terminal Improvements Project (Port of Los Angeles, Theresa Stevens):** Summary-Approximately 27,000 cy of material [total] would be dredged. Approximately 21,000 cy of dredging at Area A would deepen Berths 214-216 to -53 feet MLLW, and approximately 6,000 cy of maintenance dredging at Area B would restore the depth at Berths 217-220 to -47 feet MLLW; Area A cores were about 9 feet long and Area B cores were about 4 feet long; an additional 2 feet of overdredge depth would occur in both dredging areas. Based on composited sediment test results showing some exceedence of ERLs and no exceedence of ERMs, low potential for bioaccumulation, the Port has suggested all the material is suitable for ocean disposal at LA-2.

   i. **Corps (Regulatory) comments:**
      1. Stevens-Could Area A sediments be handled separately so that top layer unsuitable material is disposed at the CDF and suitable clay material is disposed at LA-2?

   ii. **Corps (Planning) comments:**
      1. Smith-Chemical test data needs to be presented in the body of the SAPR, not in an appendix.

   iii. **USFWS comments:**
      1. None.

   iv. **RWQCB comments:**
      1. Lyons-Same comment as Stevens above regarding surface sediments. Board is not likely to approve of LA-2 disposal. Port asked if top layer of Area A were taken to CDF and clay in Area A was not contaminated, would the Board approve Area A and Area B disposal @ LA-2. Lyons-no for Area B due to ERL exceedence; if EPA issued a suitability determination, Board may still not allow LA-2 disposal; recommended retesting A and B sediments to be sure bottom layer is clean. Does EPA have no concerns about bioaccumulation evidence in clam and amphipod tests? Ports need to regroup and figure out Regional Sediment Management, and until this is done, Ports will be held to a higher standard.

   v. **EPA comments:**
      1. Ota-EPA disagrees that area A and B sediments have similar chemistry, and disagrees with the consultants' suitability determination for area A based on amphipod survivorship being approximately 20% less than area B, differences in pyrethroid and PCB levels; for OD Area B sediments are suitable, Area A sediments not suitable based

on composite results; recommend retesting upper and lower layers of Area A and manage the material separately; confirmatory testing-rerun Tier 2 chemistry, metals, PCBs, pyrethroids, PAHs.

vi. Other comments:

1. The material in Area A had approximately 2 feet of unconsolidated material on top of a clay deposit below. Amphipod test results for Area A may be a result of the species preference for larger grain size sediment (i.e., not clay). Port concerned about LA-2 no longer being available as a matter of policy, even though it has not officially been closed by EPA; and the inconsistency between Regional Boards.

f. Berth 24 Cabrillo Beach Boat Launch Ramp Maintenance Dredging Project (Port of Los Angeles, Theresa Stevens): Summary-based on test results showing the material is primarily silt and not compatible with Cabrillo beach sand, the Port proposes to dispose of the material in the Berths 243-245 Confined Disposal Facility (CDF).

i. Corps (Regulatory) comments:

1. Swenson-There is no "rule of thumb" policy on percentage of sand when beach nourishment is proposed, rather dredge and receiver sites must have compatible grain size distributions.
2. SAP approved during April 2013 DMMT but not beach compatible.

ii. Corps (Planning) comments:

1. Smith-Chemical test data needs to be presented in the body of the SAPR, not in an appendix.

iii. USFWS comments:

1. None.

iv. RWQCB comments:

1. Lyons-RWQCB needs eelgrass mitigation plan or something from NMFS as to Port approach in order to take the item to the Board.

v. EPA comments:

1. None.

vi. Cal DFW comments:

1. Adams: If eelgrass transplants are used for eelgrass mitigation, DFW approval letter is required.

vii. Other (POLA) comments:

1. In Table 3-1, Grain Size results, highlight Total Silt and Clay and Total Sand rows to avoid confusion on percentage totals.
2. In Tables 3-2 and 3-3, provide individual analytes, not just total chemicals (e.g., individual PCB congeners analyzed as well as Total PCBs)
3. CSTF approves of disposal of the sediment at the Berths 243-245 CDF.
4. POLA plans to bring final permit for to the Water Board in March 2014.
5. No agency objections.

g. Morro Bay Harbor Sampling Analysis Plan Report (Kirk Brus):
The SAPR Report and Suitability Determination w/Appendices were provided to the SC-DMMT for review and comment on Friday, November 15, 2013.

i. Corps (Regulatory) comments:

1. Dan Swenson communicated as a general comment, for the future, that the existing Morro Bay placement dredged material area Figure/Map in the Slide 2 Power Point, also identified as Figure 1 (Location of Morro Bay Harbor and Receiving Beaches), page 4, in the SAPR Report, be shown more clearly the location of the dredged material areas, by enlarging the Figure 1 placement dredged material areas, and/or using polygons to identify these areas, for example. The USACE concurred that Figure 1, page 4 of the SAPR Report, correctly identified the approximate location of the two, placement of dredged material areas, and that Figure 1, page 4 of the SAPR Report, would be enlarged to see more clearly the approximate location of the placement dredged material areas on the Figure 1.

   Postscript to November 20, 2013 SC-DMMT meeting:

   Figure 10 on page 25 of the SAPR report shows a Plan Sheet generated from the USACE LAD on the location of the Primary Placement Area Nearshore immediately off of Montana De Oro State Beach and the Alternate Placement Area in the surf zone along Morro Strand State Beach. The USACE will enlarge this Plan Sheet on Figure 10 to more

clearly show both Placement Dredged Material Areas from this Plan Sheet.

ii. Corps (Planning) comments:

1. Larry Smith (USACE-Planning) communicated that the Figures 2 thru 9 in the SAPR report show the vibracore sampling locations were difficult to read relative to the boundaries of the Composite Areas probably due to the bathymetry lines/layer. The USACE concurred and responded that it would provide Figures clearly showing the boundaries of all of the Composite Areas relative to the location of the vibracore sample locations.

iii. USFWS comments:

1. None.

iv. RWQCB comments:

1. Peter stated that the PowerPoint Slide 2, Morro Bay Placement Dredge Material Areas Figure, that the arrow identifying the nearshore area off of Montana De Oro State Beach was actually a rocky reef habitat area, and that the arrow need to be higher up to identify the nearshore area off of Montana De Oro State Beach. Kirk Brus (USACE LAD) responded that Figure 1 (Location of Morro Bay Harbor and Receiving Beaches), page 4, in the SAPR Report, correctly identified the approximate location of the two, placement of dredged material areas, the nearshore area off of Montana De Oro State Beach with the arrow higher up, and that the PowerPoint Slide 2 Figure had a problem with the resolution including the arrow approximating the location of the nearshore area off of Montana De Oro State. Kirk Brus also communicated that there are 2 placement of dredged material areas for Morro Bay, the nearshore placement dredged material area off of Montana De Oro State Beach is the primary, placement dredged material area, and that Morro Strand State Beach is the alternate. It was also communicated that depending on the type of dredge and what dredge areas have to be dredged annually in Morro Bay determines the placement dredged material area, and Kirk reminded everyone the dredging occurs annually in Morro Bay. Typically, when a hopper dredge is used in Morro Bay, material is placed in the nearshore off of Montana De Oro State Beach, and typically when a hydraulic dredge with a pipeline (to transport dredged material from a dredge area to its placement dredged material area, sometimes also referred

to as receiver beach, disposal area or discharge point) is used in Morro Bay, material is placed on Morro Strand State Beach.

2. Peter Von Langen communicated he remembered seeing a pipeline on Morro Strand State Beach during 2010. USACE concurred that a hydraulic dredge discharges material using a pipeline was used during a part of the 2010 dredging in Morro Bay, and typically almost all of the pipeline is placed on the dry part of the beach.

v. EPA comments:

1. Allan Ota (USEPA, Region 9) asked about a few of the vibracores test results listed in Table 10 (Vibracore Sample Location Gradation Test Results for Specific Sample Depth Intervals Collected Below Project Depth or Overdepth, Morro Bay Harbor 2013 Sediment Investigations), and communicated that vibracore location MBHVC13-20 (Classification: Lean Clay with Sand (CL): LL=39, PL=19) in Area E – Navy Channel and vibracore location MBHVC13-23 (Classification: Sandy Lean Clay with Sand (CL): LL=37, PL=18) in Area F-Morro Channel, appeared not to support the 2013 summary discussion on the Suitability Determination or the SAPR Report results discussion on the sediment grain size. Jeffrey Devine (USACE-Engineering) responded that these 2 vibracores test results are below the overdepth, and that Table 10 (and any other appropriate Table in the SAPR report and Appendices) would be updated/corrected to clearly identify the location of the gradation test results relatative to the vibracore sample location, and the Corps responded that these tables would be updated. Allan Ota acknowledged the response provided by Corps.

vi. Cal DFW comments:

1. Loni Adams (California DFW) asked where is the dredged material placed on Morro Strand State Beach and how often is Morro Strand State Beach is used as a placement dredged material area, as there had been an initial discussion prior about the surf zone. The USACE responded that the dredged material would be placed on the dry part of Morro Strand State Beach. Loni communicated that the pismo clams can exist in the surf zone, and she wanted to know the volume of sediment that is placed on Morro Strand State Beach. Kirk Brus cited Table 3, page 11, of the SAPR report, that the most recent and previous

years dredged placement on Morro Strand State Beach was in year (late) 2009 thru (early) 2010 with a dredged volume of 135,170 cubic yards (CY) using a hydraulic dredge with a pipeline, and in year (late) 2001 thru (early) 2002 with a dredged volume of 211,500 CY using a hydraulic dredge with a pipeline, and that once every 6 to 8 years Morro Strand State Beach is utilized as a placement dredged material area.

2. Loni Adams asked if CEQA document would also be part of the USACE 6 year NEPA Environmental Assessment (EA) for Morro Bay Harbor maintenance dredging. Kenneth Wong (USACE-Planning) responded that there would not be CEQA document accompanying the USACE 6 year NEPA EA. Loni stated that she wanted to make sure that her agency received the USACE 6 year NEPA EA for Morro Bay Harbor maintenance dredging for review and comment. Kirk Brus responded and asked for clarification who would be the California DFW reviewer of the USACE 6 year NEPA EA as it was Kirk's understanding that Eric Wilkens (California DFW) is the representative for the region that covers Morro Bay based on current and previous coordination. Loni Adams responded that Eric Wilkens is the California DFW who represents the area covered by Morro Bay, and that Eric was tied up during the November 20, 2013, SC-DMMT presentation and was not able to participate. Kirk Brus responded that he would continue to coordinate with Eric Wilkens including the distribution of the USACE 6 year NEPA EA for Morro bay Harbor maintenance dredging when it is ready for distribution.

   Postscript to November 20, 2013 SC-DMMT meeting:

   The USACE wants to make a correction about the statement and discussion on the placement dredged material area on Morro Strand State Beach during the November 20, 2013 SC-DMMT meeting. Upon further investigation, the Corps actually discharges dredged material in the surf zone along Morro Strand State Beach in past dredging events when Morro Strand State Beach is utilized, approximately once every 6 to 8 years.

vii. CCC comments: None.

h. Los Angeles River Estuary SAP (Ken Wong):

i. **Corps (Regulatory) comments:**
    1. D. Swenson: Submit draft SAP to Dan Swenson by 1st week of December for circulation. Make edits and finalize through email. Arrange for conference call as necessary. Finalize SAP by end of 2nd week in December.
    2. D. Swenson: break project maps into three components A, B, and C and improve bathmetry.

ii. **Corps (Planning) comments:**
    1. K. Wong: Provided pre draft SAP presentation. Failed toxicity w/ minimal ERL/ERM exceedences a historical problem with sediments.
    2. K. Wong: Response to EPA#1. Chem panel will include pyrethroids per DMMT meeting on July 26, 2013.
    3. J. Fields: Response to EPA#2: major storm drains upstream of project area (perhaps show larger vicinity maps with indicating large storm drains).
    4. L. Smith: Response to USFWS #2: Past sampling results show homogeneity throughout all samples within area B.
    5. L. Smith: drop Aroclors from chemistry panel.

iii. **USFWS comments:**
    1. C. Roberts: suggested breaking area B into two composites (1 from marina to bridge, 1 from bridge to downstream terminus of area B).

iv. **RWQCB comments:**
    1. None.

v. **EPA comments:**
    1. Ota: recommend adding pyrethroids to chemistry panel.
    2. Ota: Need to show storm drains. Area B may need samples and plot contamination.
    3. Ota: (Per Corps Regulatory # 1) will review draft SAP and provide input on sampling locations, compositing, etc.
    4. Concerned about composite testing, especially in area B.

vi. **Other comments:**
    1. None.

i. **North Energy Island Borrow Pit Cap Demonstration Project (Larry Smith):**

i. **Corps (Regulatory) comments:**
    1. None.

ii. Corps (Planning) comments:

1. Monitoring was conducted in October 2013 as part of the CSTF aquatic disposal/capping demonstration project. The demonstration project was constructed in 2001, so this year represents a 12-year monitoring event. The last previous monitoring event was in year 5 (2006). Lab work associated with the monitoring (sediment chemistry and benthic community analysis) is ongoing. Highlights from the field include a slight decrease in the cap thickness, a large increase in the new sediment layer on top of the cap, and an apparent reduction in benthic community both on the cap and in nearby unfilled borrow pit area relative to the adjacent bench. Monitoring reports will be distributed to the CSTF when available.

iii. USFWS comments:

1. None.

iv. RWQCB comments:

1. None.

v. EPA comments:

1. None.

vi. Other comments:

1. None.

IV. Other issues: none.

APPENDIX G

JANUARY 2014 CSTF MEETING MINUTES AND AMEC MEMORANDUM REPORT

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Southern California Dredged Material Management Team (SC-DMMT)
January 22, 2014
Draft Meeting Notes

I. Participating Agencies /Attendees:

a. *Theresa Stevens (USACE-Regulatory)*
b. *John Markham (USACE-Regulatory)*
c. *Daniel Swenson (USACE-Regulatory)*
d. *Robert Smith† (USACE-Regulatory)*
e. *Crystal Huerta (USACE-Regulatory)*
f. *Joe Ryan (USACE-ED)*
g. *Larry Smith (USACE-Planning)*
h. *Jeffrey Devein (USACE – Geotech.)*
i. *Jim Fields (USACE – PPMD)*
j. *Ken Wong (USACE-PPMD)*
k. *Kirk Brus (USACE-Planning)*
l. *Blake Horita (USACE-PPMD)*
m. *Allan Ota† (USEPA Region 9)*
n. *Bill Paznokas† (CA-DFW)*
o. *Michael Lyons† (RWQCB – Los Angeles)*
p. *Peter Von Langen (RWQCB-Central Coast)*
q. *Ken Kronschnabl (Contractor, Kennetics)*
r. *Rachel McPherson (POLA/YTI)*
s. *Kathryn Kurtis (POLA/YTI)*
t. *Barry Snyder (AMEC)*
u. *Laura Masterson (POLA)*
v. *Alan Monji† (RWQCB, San Diego)*
w. *Lock Dreizler†(Port of San Luis Harbor District)*
x. *Fred Steiner† (?)*
y. *Carol Roberts† (USFWS)*
z. *Jason Conder (POLA Everport)*
aa. *David Moore (POLA Everport)*
bb. *Melissa Grover (POLA Everport)*
cc. *Shelly Anghera (Anchor QEA)*
dd. *Chris Osuch (Anchor QEA)*
ee. *Tom Mathews (CAA Planning Inc)*
ff. *Paul Grdner (Newfields)*
gg. *Gerry Salas (USACE-Regulatory)*
hh. *Janna Watanabe (POLB)*

† **participating via teleconference**.

II. Announcements:

a. **Upcoming SC-DMMT meeting coordinator rotations:**
    i. Bonnie Rogers Feb-Mar,
    ii. Brianne McGuffie Apr-May,
    iii. Gerardo Salas Jun-Jul,
    iv. Steve Estes Aug-Sep.

b. **Please review the times for your project. If you think you need more or less time, please contact agenda POC ASAP.**
    i. Default time is 45 minutes.
    ii. Projects generally requiring less time: small number of samples, small dredging area, intended discharge/disposal is CDF or landfill, projects where sampling results resulted in no SQG exceedances.
    iii. Projects generally requiring more time: very large number of samples, very large dredging area(s), intended discharge/disposal is beach nourishment or offshore disposal site and many ERLS, any ERMs, or other SQGs are exceeded.
    iv. New agenda request format:
        1. Project name:
        2. Applicant:
        3. Project Type (Regulatory/Navigation):
        4. Meeting Type (DMMT/CSTF):
        5. Purpose/Topic (e.g., SAP, SAPR and/or suitability determination):
        6. Presentation (y/n):
        7. **Time requested: ___ minutes**

c. **Please use the following subject line for agenda requests:**
    i. "SC-DMMT AGENDA REQUEST: [project name]…"

III. Project Review and Determinations

a. **#1 Berths 212-224 Yusen Container Terminal Improvements Project (Theresa Stevens):** Summary by POLA: As a result of the EPA's and RWQCB's recommendation at the November 20, 2013 SC-CSTF/DMMT meeting, the clay, or "bottom" portion of Composite Area A was retested for PAHs, PCB Congeners, Chlorinated Pesticides, Metals and Pyrethroids. Barry Snyder of AMEC presented the results of the retest. The retested material was entirely free of all PCB Congeners, all Chlorinated Pesticides (including DDTs), and Pyrethroids above the reporting limit. Only one Pyrethroid (Permethrin-Cis/Trans) was detected, but it was reported as an estimated value (i.e. J-flagged) because it was detected below the reporting limit. It was noted by Mr. Snyder that the detection of this low level of Permethrin-Cis/Trans might be attributed to

lab contamination. Based on the low levels of metal and organic contaminants observed, the fact that only three ERL exceedances were observed (no ERM exceedances), and the low potential for bioaccumulation, confirms that the Composite Area A bottom layer is composed of native clay material. The Port recommended that the Composite Area A bottom layer and the all the Composite Area B material meets the suitability requirements for ocean disposal at LA-2. In addition, the Port recommended that the remaining upper unconsolidated material from Composite Area A (the top 2-foot layer) be placed in the Berth 243-245 Confined Disposal Facility (CDF).

i. Corps (Regulatory) comments:

1. Corps regulatory division staff (Swenson) concerned about inconsistent decision making between Regional Boards with respect to ocean disposal. Corps PM (Stevens) asked EPA if a future ocean disposal approval letter would be forthcoming if the material was deemed suitable for ocean disposal.
2. Corps asked why the Permethrin finding was erroneous and Barry said: It would be highly unlikely to detect pyrethroid pesticides in sediment and not also see DDT/DDE, since DDT/DDE are ubiquitous throughout the Port. DDT/DDE was in common use before synthetic pyrethroid pesticides were developed. DDE was even observed within the LA-2 reference sediments for this project. Based upon these observations, it is likely that the Permethrin observed at low levels in the Composite Area A clay layer is due to lab contamination.

ii. Corps (Planning) comments:

1. Larry asked if there was retesting of grain size analysis for the clay/bottom material? Barry replied there was not because 1) the material had been frozen (which affects the particle size characteristics of a sample) and 2) there was not sufficient material remaining following the chemical tests to conduct the grain size test. Barry indicated that there are very good pictures of the consistency of the clay material included in the appendix of the draft report.

iii. USFWS comments:

1. None.

iv. CDFW comments:

1. Asked when the EIR/EIS will be out and whether EPA would comment; Allan Ota affirmed he would comment.

v. **RWQCB comments:**
    1. Michael Lyons indicated the material was suitable for ocean disposal on technical grounds but reiterated that this would make no difference to the Regional Board. In response to the Corps concerns about the lack of consistency in decision making among different Regions, which usually get elevated by the Corps to the State Board, Michael indicated the State Board has no authority over appointed reps in the Region.

vi. **EPA comments:**
    1. EPA staff agreed that the stratified test results showed that some of the sediment was suitable for ocean disposal and agreed an approval letter may be forthcoming but this would be completed at the end of the Corps permit process.

vii. **Other comments:**
    1. The Port staff asked everyone to provide a suitability determination for the re-tested material and also reminded the group that the CSTF was formed to address "contaminated" sediments, not sediments that test clean. This fact seems to have been forgotten amid the political agendas of the RWQCB board members and Heal the Bay which have resulted in all dredged material being placed in the CDF recently rather than clean material being taken to LA-2.
    2. Dan Swensen suggested that the Port contact the Coastal Commission to get their input since they were unable to participate in this meeting.
    3. The EIR/S will be available for public review in April or May.

viii. Conclusions:
    1. All CSTF agencies present at the meeting concurred that the bottom portion of Area A and the entirety of Area B were suitable for LA-2 disposal. The Port confirmed that the top (approximately 2 feet) portion of Area A would be disposed of in the Berths 243-245 approved CDF.
    2. The Port subsequently contacted the Coastal Commission, who was not present at this CSTF meeting, and they concurred with the suitability determination made at the meeting via email (sent January 29, 2014 by Larry Simon).

b. #2 Berths 226-236 Everport Container Terminal Improvements Project (Theresa Stevens):

i. **Corps (Regulatory) comments:**
    1. Corps PM asked the group to provide comments today, and asked if a revised SAP (using strikeout/underline) could be reviewed via email in lieu of returning to next months' meeting.
    2. Corps suggested reaching out to CCC on project.

ii. **Corps (Planning) comments:**
    1. None

iii. **USFWS comments:**
    1. None

iv. **CDFW comments:**
    1. Agreed to email review of revised SAP.
    2. Bill-Regarding z-layer samples asked the Port to archive not only the z-layer composite samples but also the z-layer samples from individual core locations.
    3. David Moore pointed out that it was possible z-layer samples would not be collected at every location due to refusal.

v. **RWQCB comments:**
    1. Agreed to email review of revised SAP.

vi. **EPA comments:**
    1. Agreed to email review of revised SAP. Requested a change to the title of the report to reflect the berths that would be dredged rather than the entire terminal. Applicant also agreed to check on location of storm drains.
    2. Allen- the SAP is straightforward, although inclusion of the Berth 229 maintenance dredging area with the Berths 232-228 dredging was odd, but he understood that because the volume was so small it made sense to combine with one of the adjacent areas. He noted that the chemistry Table 4 needed to include selenium and silver, as well as pyrethroids.
    3. Dan Swenson will send ENVIRON the latest draft SAP guidelines that include the latest list of recommended analytes including the specific pyrethroids to evaluated.

vii. **Other comments:**
    1. Dan Swenson suggested that the Port contact the CCC to get their input on the SAP, since they were unable to participate in this meeting.

2. The Port will contact the CCC for their input, and make the following changes to the SAP: (1) include storm drain locations on a map and determine whether any of the proposed sampling locations needed to be shifted accordingly, (2) clarify in the SAP text that both individual and composite z-layer samples will be archived, (3) selenium, silver, and the appropriate pyrethroids will be added to the analyte list in the SAP. The Port will then submit a revised SAP (redlined to highlight the changes) for final agency review and concurrence via email.
3. The CCC subsequently concurred with the other agencies regarding the SAP comments (see attached email).

c. #3 Alamitos Bay Marine Basins 2 and 3 Maintenance Dredging (Brianne McGuffie):

i. Corps (Regulatory) comments:

1. Corps requested a copy of the tissue analyte list that Anchor QEA will be sending to EPA (slide 10 of presentation).
   Response: a copy will be provided to the Corps.

2. Corps permit does not specify how much material per basin, but just specifies a total amount of cubic yards for combined basins (i.e. Basins 1-7).

3. Are the proposed sampling locations the same as the 2007 sampling event?

   Response: some points overlap but not all of them. There are more sampling points currently proposed.

   Response: EPA will need to view the color-coded change in sedimentation map that Anchor QEA will be sending out before determining if sampling locations are sufficient.

ii. Corps (Planning) comments:

1. To EPA: do we really need the full Tier III testing again since the area was already fully tested in April 2007 and approved by EPA for LA-2 disposal in 2008?

   Response: if the bathymetry hasn't changed much it's possible to just do sediment chemistry analysis and based on those results decide whether further Tier III testing is appropriate.

iii. USFWS comments:

1. N/A

iv. CDFW comments:

1. N/A

v. RWQCB comments:

1. Ok with holding off on Tier III testing, however, cannot increase the dredge volumes of the basins (i.e. increasing Basin 2 from 89900 to 96000 cy). If you want to modify the permit it will be very difficult to get approval again to go to LA-2, as previous approval was granted very reluctantly.

   Response from QEA: The City will be notified that they cannot exceed the 89,900 cy for basin 2, as specified in their RWQCB permit.

2. Does the City plan on completing this work prior to the expiration of the RWQCB permit, which expires in October 2015? It would be wise to do so in order to ensure disposal LA-2.

vi. EPA comments:

1. Keep in mind that additional testing may still be required depending on the new chemistry results.
2. Is there a fuel dock or storm drains present?

   Response: There is a fuel dock between Basins 1 and 2; B2DU1-02 sampling point is the closest sampling point available. There is also a pump-out station on the fuel dock.

vii. Anchor QEA comments:

1. The color-coded map depicting changes in bathymetry will be emailed to the DMMT, along with an updated SAP with a revised Table 7 to include pyrethroids, and an explanation of the new plan to proceed with Tier II testing and reserve Tier III testing for later, if it ends up being required.

   Comment: The City of Long Beach concurs with the phased testing approach of Anchor QEA.

d. #4 City of Newport Beach and Irvine Company (Robert Smith):

i. Corps (Regulatory) comments:

1. Were there any culverts and if so, please show them.
2. Where is the grain size data and was there any grain size envelopes available?
3. Is there an upper silty sand layer in Area A near Area B that may be related to the Area B amphipod mortality?
4. Can the SAP be revised to discuss the compositing issues that were discussed.
5. Is the material going to nearshore or beach sites? If so the Corps would need to approve the nearshore or beach grain size and other data.

ii. Corps (Planning) comments:

1. None

iii. USFWS comments:

1. None

iv. CDFW comments:

1. None

v. RWQCB comments:

1. None

vi. EPA comments:

1. Suggested memo about additional testing and odor and Corps suggested revised SAPR.

vii. Other comments:

1. Note there are no ERM exceedances, but zero percent bioassay survival in Area B.
2. Note that material from Area A could go to LA-3 while material from Area B is not suitable for off-shore disposal.

e. #5 Port San Luis Maintenance Dredging and District Maintenance (Crystal Huerta):

i. Corps (Regulatory) comments:

1. Presented the Sediment Sampling and Analysis Report dated November 15, 2013.
2. No organo-pesticides or PAH's were detected in any of the samples. The samples were also free of sulfides. All samples are characterized as coarse to medium grained sand with fines ranging from 1.4-4.1% when six sites were tested in 2009 results were similar at all the six sites with the percentage of fines ranging from 0.1-5.4%.
3. The Corps has no objections to re-authorizing the permit.

4. Coastal Commission was not on the call therefore the Corps will check and make sure that they are satisfied with these SAP results.
5. (Dan Swenson) wanted to know the location of the grain size discussion and what the fate of the material is.

ii. Corps (Planning) comments:

1. No additional comments.

iii. USFWS comments:

1. No additional comments.

iv. CDFW comments:

1. (Bill Paznokas) Make sure the proposed project would avoid eelgrass. No additional comments.

v. RWQCB comments:

1. (Michael Lyons) Not concerned. No additional comments.

vi. EPA comments:

1. (Allen Ota) Communicated that 250,000 CY seemed excessive for an annual maximum. Expressed curiosity of the volume limits and the historical need of this annual maximum.
2. Did not have further concerns and feels that the sand is clean.

vii. Other comments:

1. (Lock Dreizler-Permittee)-In response to Dan Swenson's comments stated that there is no more build up than erosion and that the fate of the material stays within the crane with a versatile pump.
2. Applicant noted they have been in contact with CCC.

f. #6 Pier T, Pier S, Back Channel and Turning Basin SAP (John Markham):

i. Corps (Regulatory) comments:

1. Dredge Locations:
    a. Western Anchorage: Was the Western Anchorage site described in Middle Harbor presentation characterized previously? It is not described in the SAP under review. Response (Port): Recent report prepared by AMEC in 2012, SAP approved in (date TBD). Material seems to be suitable for CDF

disposal/re-use, but the results of the SAPR will be presented in a future DMMT/CSTF meeting

b. Pier T: Good to have a color contour for amount of cut. Response (Port): See figure 2. This distinction may not be very visible in this case due to steep slopes and amount of cut. Also see table 7 for locations for mudline elevations, which vary from -48.5 MLLW to -53 MLLW and average ~ -51.5 MLLW.
c. Pier S: All sediment cores within channel are in approximately same line, as opposed to (standard) randomized locations throughout dredge units. Response: for desired (longer) length of the cores (15-20 feet) and steepness of slopes, they had to remain at these locations.
d. Back Channel & Back Channel Turning Basin: Has the Port identified any major storm drains or discharge pipes? Response: Yes, but not on diagrams. No obvious locations to focus sampling sites. Port could revise or add a figure that represents the larger stormwater outfalls & discharge pipes (e.g., outfalls).

2. Disposal locations:
    a. Temporary Aquatic Storage: Why is bioaccumulation testing not proposed, as it will likely sit for months or years, and bioaccumulation testing itself only requires a 25-day period. Response: The CSTF/DMMT SAP Guidelines do not require this. However, this is a requirement of the new Regional Board permit for 5-year maintenance dredging. At Corps, Regional Board, and USEPA request, the Port will revise SAP to add bioaccumulation testing for temporary aquatic storage.
3. No objections to SAP, but revised SAP should be distributed to CSTF/DMMT prior to implementation.

ii. Corps (Planning) comments:

1. Dredge Locations:
    a. Pier S: Yellow area that represents side slopes, for example, south of PS-DU-01, side slope is in water, so why is there is no core in this location. Response: given the steepness of side slopes, coring of in-water slope is too difficult.
    b. Back Channel & Back Channel Turning Basin: Figure 8, BC-DU-02 contains no cores in water on

slope, which could be missing important data points (reiterated by EPA). Response: Port will revise sampling locations to add sampling of side slopes (which are to be excavated) for Back Channel and BC Turning Basin.

iii. USFWS comments:

1. No comments recorded.

iv. CDFW comments:

1. Disposal Locations:
    a. Temporary Aquatic Storage: Where are the proposed locations of Temporary Aquatic Storage areas, other than Western Anchorage? Response: Port will revise SAP accordingly.
    b. No objections to SAP.

v. RWQCB comments:

1. Disposal Locations:
    a. Temporary Aquatic Disposal Site: The new Regional Board permit for 5-year maintenance dredging requires bioaccumlation testing for these proposed disposal/storage sites. At Corps, Regional Board, and USEPA request, the Port will revise SAP to add bioaccumulation testing for temporary aquatic storage
    b. No objections to SAP, but revised SAP should be distributed to CSTF/DMMT prior to implementation.

vi. EPA comments:

1. Dredge Locations:
    a. Pier T: In Middle Harbor presentation, the dimensions of Slides 3 and 4 do not seem consistent, 1 of them seems inaccurate. Response: Port agrees, but it is likely due to differing scale of aerials.
    b. Pier T: Dredging proposed here is for “deepening”, and therefore is occurring predominantly in native material? Response: Yes, except where wharf/bulkhead was previously installed along Pier T face.
    c. Pier T: Figure 11 (testing flow chart for Pier T) is incorrect. If fail Phase II BP testing and Tissue chemistry, then must return to TTLC comparison or

Phase II EET and SET chemistry. Response: Port will revise accordingly.

d. Pier S: Did overlying fill layer located on slope or uplands come from a land source? Response: Yes, but the thickness, sediment quality, and soil profile are to be determined through testing.
e. Pier S: No objections to use of this excavated (upland) material within MH CDF area. Response: Comment noted.
f. Back Channel & BC Turning Basin: Comparing MH presentation & this SAP: Presentation (slide 7) indicates that MH East Basin Part 1 requires 2 million cy, whereas SAP speaks of 1 million cy needed. Which of these is correct? In addition, LA-2 has 1 million cy per year volume capacity (2005), therefore LA-3 would need to be proposed. Response: Port is over-sampling in order to have material available at these various disposal locations as needed, and thus their estimates may not be consistent. Latter comment noted.
g. Back Channel & BC Turning Basin: Figures 7 through 10: Revise sampling locations to add sampling within side slopes where dredging is proposed (blue hatched and gold hatched areas). Response: Port will revise accordingly, at request of Corps Planning and EPA.
h. Injection of deep soil cement occurs prior to dredging itself? In the water; i.e., in direct contact with marine environment? Response: Yes. Port will send description to CSTF/DMMT, including potential interaction with the marine environment.

2. No objections to SAP, but revised SAP should be distributed to CSTF/DMMT prior to implementation.

vii. POLA comments:

1. Middle Harbor fill project update (see presentation)
    a. MH Fill Sequence: Slip 1 → Pier E Extension → East Basin Part 1 → East Basin Part 2
    b. Slip 1 nearly complete, including surcharge/cap layer; material re-used from various sources, including Port and third parties.
    c. East Basin Part 1: Between 1-2,000,000 cy of fill material needed, including surcharge/cap
        i. Source of fill may come from Pier S, Back Channel & Back Channel Turning Basin,

Pier T and Pier T Entrance Channel, and Western Anchorage site = total 3.7 million cy available.

ii. See slide for East Basin Part 1 tentative fill plan.

d. East Basin Part 2: amount of fill material TBD

2. Pier T & Entrance Channel (see presentation)
    a. Dredging at this potential borrow site is planned along Berths T132-140 and the West Basin Approach Channel to a depth of -55 feet mean lower low water (MLLW), plus 2 feet of allowable overdepth. The proposed area to be dredged has been sectioned into 11 dredge units (DUs) for the purpose of sampling and analysis activities (see SAP Figure 2).
    b. The total volume of proposed dredged material is estimated to be 934,000 cy, consisting of 485,000 cy above design depth and 449,000 cy of allowable overdepth.
    c. The SAP also provides a summary of prior sediment investigations at Pier T, Pier S, and Back Channel & Back Channel Turning Basin.

3. Pier S
    a. The Pier S project includes widening the Cerritos Channel. The wharf area includes a long submerged slope where a portion has been topped with clean imported soil to allow access to the site during previous improvements activities. Investigations require land-based borings through fill soil to historically subaqueous sediments that were covered during development of Pier S. Dredging and/or excavation are planned at Pier S to a depth of -52 feet MLLW, plus 2 feet of allowable overdepth. The proposed area to be dredged and/or excavated has been sectioned into seven DUs for the purpose of sampling and analysis activities (Figure 3). Five DUs are located within Cerritos Channel and two DUs are located along the shoreline of Pier S. A typical cross section at Pier S is presented on Figure 4.
    b. The total volume of proposed dredged and/or excavated material is estimated to be 502,000 cy, consisting of 464,000 cy above project depth and 38,000 cy of allowable overdepth. Volume

estimates for landside DUs (PS-DU06 and PS-DU07) does not include the overlying fill soil that was previously placed at this location; this material will be beneficially reused at upland Port locations unless the CSTF/DMMT approves re-use at Middle Harbor.

4. Back Channel & BC Turning Basin:
    a. Dredging is planned within the Back Channel and Turning Basin to a depth of -52 feet MLLW, plus 2 feet of allowable overdepth. The proposed area to be dredged has been sectioned into four DUs.
    b. The total volume of proposed dredged material is estimated to be 178,000 cy, consisting of 151,000 cy above project depth and 27,000 cy of allowable overdepth.

g. #7 Morro Bay Harbor (Blake Horita and Kirk Brus):

i. Corps (Regulatory) comments:

1. None

ii. Corps (Planning) comments:

1. None

iii. USFWS comments:

1. None

iv. CDFW comments:

1. Though not directly related to the 2013 Morro Bay Harbor federal Final SAPR and Suitability Determination Report, and Appendices, Bill asked if the maintenance dredging has affects on the birds (e.g., western snowy plover) or vegetation (e. g., eelgrass) in Morro Bay. As the CDFW point of contact (POC) Eric Wilkins (CDFW) who covers the Morro Bay area was on the SC-DMMT monthly meeting by teleconference, Eric responded that the timing of the maintenance dredging (e.g., when the dredging occurs) determines which species (birds) or plants (eelgrass) could be affected, and Eric said he would have to research further on the species in the Morro Bay area. The Corps response about the CDFW discussion on species and the potential affect from Morro Bay Harbor federal maintenance dredging project would be discussed in the new 6 year Environmental Assessment (EA) for Morro Bay Harbor (federal) maintenance dredging project, and that

Eric Wilkins (CDFW) is on the mailing distribution for review of the new 6 year draft EA when the new 6 year EA is ready for dissemination.

2. Bill Paznokas communicated that he had no problems with the Final SAP, 2013 Morro Bay Harbor federal Final SAPR and Suitability Determination Report, and Appendices.

v. RWQCB comments:

1. Though not directly related to the 2013 SAPR and Suitability Report, Peter Von Langen (Central Coast Water Quality Control Board) said that when the previous placement dredged material was piped onto Morro Strand State Beach, the public complained about an odor.

   ***Post January 22, 2014 SC-DMMT monthly meeting:** The Corps response to Peter Von Langen's request, the Corps would work with the local sponsor, Morro Bay Harbor District, on putting up a sign, or sending out a notice to the public, that dredged material is being placed at Morro Strand State Beach through a pipeline.

vi. EPA comments:

1. Allan Ota (USEPA) was not able to participate in the phone call so he relayed his comments to Dan Swenson and Larry Smith. Allan's comments were on 2 separate cores,-20 and -23, in Table 10 of the 2013 Report. It should be noted these comments were previously provided during the November 20, 2013 SC-DMMT meeting.

   ***Post January 22, 2014 SC-DMMT monthly meeting:** As a followup from the January 22, 2014, SC-DMMT meeting Kirk Brus incorporation Allan Ota's comments into the 2013 Final SAPR and Suitability Report.

   The Corps incorporated Allan Ota's review comments on Table 10. Test results in Table 10 are below project depth overdepths (also referred to as advanced maintenance depths) that WILL NOT be dredged as part of the Corps dredging project. The new discussion about cores -20 and -23 in Table 10 is located under Section 5.0, Discussion, on page 63, in the 2013 Morro Bay Harbor (federal) Final SAPR and Suitability Determination Report.

   Table 9 was also updated (2013 Morro Bay Sieve Analysis Data above Project or Overdredge Depth For Each

Individual Cores) to show data and the project depth that WILL be dredged by the Corps dredging project. This updated discussion for Table 9 is located under Section 5.0, Discussion, on page 63, in the 2013 Final SAPR and Suitability Report.

vii. Other comments:

1. Kirk Brus discussed the previous November 20, 2013 review comments from the SC-DMMT on the 2013 Morro Bay Harbor (federal) Final SAPR and Suitability Determination Report and its Appendices, and provided Corps responses and an explanation how each comment had been resolved. As there were no new review comments, Kirk Brus asked to finalize the documents.

IV. Other issues:

a. Finalization of SPL SAP/SAPR guidelines including database submittal requirement:
    i. See documents regarding on-going effort to consolidate sediment testing data in a centralized database across multiple Corps districts (SAGA).
    ii. Final data schema expected in 1-2 months.
    iii. Website including mapping interface expected in approx. 9 months.
    iv. Would allow labs to submit their data and agencies to export data.
    v. Plan: finalize guidelines with requirement to submit data using SAGA templates until SAGA interface operational, then to submit directly through SAGA. Prior data submittals will be loaded at that time.
b. Demo requested, but not available at this time.
c. Question: how will it be funded? [query pending with SAGA staff].

Memo

To	**Port of Los Angeles**	AMEC File no	**1315102710**
From	**Tyler Huff, AMEC**	cc	
Tel	**(858) 300-4322**		
Fax	**(858) 300-4301**		
Date	**14 January 2014**		

Subject **Addendum Report of Action Directives from November 2013 CSTF meeting Berths 212-224 Yusen Container Terminal Improvements Project (Port of Los Angeles)**

Original Notes from Dan Swenson (Army Corps of Engineers)(ACOE)) at the November 22, 2013 CSTF (Contaminated Sediment Task Force) Meeting and Port of Los Angeles (POLA) response to comments:

1. **Berths 212-224 Yusen Container Terminal Improvements Project (Port of Los Angeles, Theresa Stevens):**

   Summary-Approximately 27,000 cubic yards [cy] of material [total] would be dredged. Approximately 21,000 cy of dredging at Area A would deepen Berths 214-216 to -53 feet MLLW, and approximately 6,000 cy of maintenance dredging at Area B would restore the depth at Berths 217-220 to -47 feet MLLW; Area A cores were about 9 feet long and Area B cores were about 4 feet long; an additional 2 feet of overdredge depth would occur in both dredging areas. Based on composited sediment test results showing some exceedence of ERLs and no exceedence of ERMs, low potential for bioaccumulation, the Port had originally suggested all the material is suitable for ocean disposal at LA-2. The CSTF participant comments are incorporated below.

   i. **Corps (Regulatory) comments:**

      Q: Stevens-Could Area A sediments be handled separately so that top layer unsuitable material is disposed at the CDF and suitable clay material is disposed at LA-2?

      A: Yes. The unconsolidated top 2 feet of Area A is now being proposed for placement at the Port's agency-approved Confined Disposal Facility (CDF), located at Berths 243–245. The remaining 'bottom' clay material below 2 feet elevation in the Area A dredge footprint is requested for approval for placement at the LA-2 Ocean Dredged Material Disposal Site (ODMDS). POLA Engineering considers this bottom clay sediment to be native material. The volume breakdown of this unconsolidated 'top' layer in Area A to the 'bottom' clay layer is approximately 25% upper layer to the 75% lower layer. This is approximately

AMEC Environment & Infrastructure, Inc.
9210 Sky Park Court, Suite 200
San Diego, California
Tel: (858) 300-4300
Fax: (858) 300-4301 www.amec.com

5,200 cubic yards of unconsolidated 'top' sediment to be placed within the Berths 243-245 CDF, and approximately 15,800 cubic yards of 'bottom' clay material to be placed at the LA-2 ODMDS. Chemistry results conducted on the 'bottom' clay material are presented later in the table at the end of this addendum report and are referred to as "Composite A – Bottom".

ii. Corps (Planning) comments:

Q: Smith-Complete chemical test data needs to be presented in the body of the SAPR, not in an appendix.

A: Please see the attached revised chemistry results table at the end of this addendum report which now contains the complete list of chemical analyses conducted on the Berths 212-224 sediment composite samples. Previously included in the SAPR's Appendix C as Table C-1, the table now replaces "Table 3-2 Sediment Chemistry Results Summary" in the body of the SAPR.

iii. USFWS comments:

Q: None.

A: None

iv. RWQCB comments:

Q: Lyons-Same comment as Stevens above regarding surface sediments. Board is not likely to approve of LA-2 disposal. Port asked if top layer of Area A were taken to CDF and clay in Area A was not contaminated, would the Board approve Area A and Area B disposal @ LA-2. Lyons-no for Area B due to ERL exceedence; if EPA issued a suitability determination, Board may still not allow LA-2 disposal; recommended retesting A and B sediments to be sure bottom layer is clean. Does EPA have no concerns about bioaccumulation evidence in clam and amphipod tests? Ports need to regroup and figure out Regional Sediment Management, and until this is done, Ports will be held to a higher standard.

A: The CSTF needs to address the question of suitability determination and the Port Of Los Angeles will follow up with the RWQCB regarding use of LA-2.

v. EPA comments:

Q: Ota-EPA disagrees that Area A and B sediments have similar chemistry, and disagrees with the consultants' suitability determination for Area A based on amphipod survivorship being approximately 20% less than Area B, differences in pyrethroid and PCB levels; for OD (Ocean Disposal) Area B sediments are suitable, Area A sediments not suitable based on

composite results; recommend retesting upper and lower layers of Area A and manage the material separately; confirmatory testing-rerun Tier 2 chemistry, metals, PCBs, pyrethroids, PAHs.

A: At EPA's recommendation, a new sediment composite was created for confirmatory testing using all of the available "bottom" sediment archives from individual cores in Area A. The original Area A composite sample was composed of both top and bottom sections. This new Area A "bottom" composite was tested for the EPA requested chemistry (i.e. PAHs, PCB Congeners, Chlorinated Pesticides, Metals, and Pyrethroids). The tested chemicals were found in considerably reduced levels when compared to the original Area A composite test results. The tested Area A "bottom" composite was entirely free of all PCB Congeners, all Chlorinated Pesticides (including all DDTs), and entirely free of Pyrethroids above the reporting limit. The only reported pyrethroid in the original Area A composite sample, Permethrin-Cis/Trans, was not detected above the reporting limit of 1.4 µg/kg in the Area A "bottom" composite. The metals tested were at a similar or reduced level when compared to the original Area A composite. Napthalene was the only PAH seen above its ERL threshold in this Area A "bottom" composite, but was not detected in any of the earlier tested sediments. A tabular comparison of chemicals levels in both the Composite A – Bottom and the previously tested sediments is located at the end of this addendum report.

Other comments:

Q: The material in Area A had approximately 2 feet of unconsolidated material on top of a clay deposit below. Amphipod test results for Area A may be a result of the species preference for larger grain size sediment (i.e., not clay). Port concerned about LA-2 no longer being available as a matter of policy, even though it has not officially been closed by EPA; and the inconsistency between Regional Boards.

A: Regarding Amphipod test results for Area A, and the species preference for larger grain size sediment (i.e. not clay) is a documented confounding factor related to the elevated fraction of clay in the sample. The amphipod *Eohaustorius estuarius* is native to sandy habitats and has been found to be negatively affected by samples with an elevated fraction of fine sediments, in particular clay. This was discussed at length in the SAPR. Since the November CSTF meeting, no additional Amphipod testing has been performed. The CSTF will give concurrence on the suitability determination and the Port of Los Angeles will coordinate with the RWQCB separately.

In conclusion, Port of Los Angeles Staff recommends that based on the low levels of chemicals observed in the confirmation testing results of the Area A “bottom” sediments, the CSTF approves the native material beneath the unconsolidated top layer in Area A for ocean disposal at the LA-2 ODMDS. The top two feet of sediment within the Area A footprint will be placed in the Berths 243-245 CDF. During the November 2013 CSTF meeting, general consensus was that the sediments within the Area B footprint were suitable for ocean disposal. Port of Los Angeles Staff requests confirmation of that disposal determination.

REVISED SEDIMENT CHEMISTRY TABULAR RESULTS

Port of Los Angeles
Addendum Report of Action Directives from
November 2013 CSTF meeting
Berths 212-224 Yusen Container Terminal Improvements Project
AMEC Project No. 1315102710
14 January 2014

Berths 212-224 YTI - Additional Sediment Chemistry Testing Summary

Draft Port of Los Angeles Maintenance Dredging Project - Berths 212-224 (YTI)									
Analytical Method	**Compound Name**	**Type**	**ERL**	**ERM**	**Units**	**Reference**	**Composite A - Bottom**	**Composite A**	**Composite B**
SM 2540 B (M)	Solids, Total	General Chemistry	·	·	%	71.1	73.5	72.9	66.4
EPA 9060A	Total Organic Carbon	General Chemistry	·	·	%	0.77	NT	0.71	0.87
SM 4500-NH3 B/C (M)	Total Ammonia	General Chemistry	·	·	mg/kg	3.2	NT	7.7	2.1
EPA 376.2M	Total Sulfides	General Chemistry	·	·	mg/kg	0.7	NT	41	3.3
EPA 376.2M	Soluble Sulfides	General Chemistry	·	·	mg/kg	ND < 0.1	NT	ND < 0.10	ND < 0.10
EPA 6020	Arsenic	Metals	**8.2**	**70**	mg/kg	2.86	6.35	**8.77**	**8.44**
EPA 6020	Cadmium	Metals	**1.2**	**9.6**	mg/kg	0.195	0.383	0.471	0.423
EPA 6020	Chromium	Metals	**81**	**370**	mg/kg	21.3	33.7	35.2	32.9
EPA 6020	Copper	Metals	**34**	**270**	mg/kg	10.4	**48.8**	**60.1**	**54.5**
EPA 6020	Lead	Metals	**46.7**	**218**	mg/kg	5.37	11.1	27.7	25.7
EPA 7471A	Mercury	Metals	**0.15**	**0.71**	mg/kg	ND < 0.0282	0.110	**0.217**	**0.171**
EPA 6020	Nickel	Metals	**20.9**	**51.6**	mg/kg	10.9	**28.5**	**27.3**	**22.4**
EPA 6020	Selenium	Metals	·	·	mg/kg	0.322	0.339	0.237	0.415
EPA 6020	Silver	Metals	**1.0**	**3.7**	mg/kg	0.176	0.112 J	0.183	0.219
EPA 6020	Zinc	Metals	**150**	**410**	mg/kg	46.5	85.8	112	112
EPA 8015B(M)	C6	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C7	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C8	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C9-C10	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C11-C12	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C13-C14	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C15-C16	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C17-C18	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C19-C20	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C21-C22	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C23-C24	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C25-C28	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C29-C32	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C33-C36	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C37-C40	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	11
EPA 8015B(M)	C41-C44	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	ND < 7.5
EPA 8015B(M)	C6-C44 TPH	TPH	·	·	mg/kg	ND <7	NT	ND < 6.9	24
EPA 418.1M	TRPH	TRPH	·	·	mg/kg	18	NT	65	38
EPA 8270C SIM	Naphthalene	PAH	**160**	**2100**	µg/kg	ND < 14	**410**	ND < 14	ND < 15
EPA 8270C SIM	Acenaphthylene	PAH	**44**	**640**	µg/kg	ND < 14	4 J	15	15
EPA 8270C SIM	Acenaphthene	PAH	**16**	**500**	µg/kg	ND < 14	11 J	ND < 14	ND < 15
EPA 8270C SIM	Fluorene	PAH	**19**	**540**	µg/kg	ND < 14	ND < 14	ND < 14	ND < 15
EPA 8270C SIM	Phenanthrene	PAH	**240**	**1500**	µg/kg	ND < 14	11 J	17	16
EPA 8270C SIM	Fluoranthene	PAH	**600**	**5100**	µg/kg	ND < 14	7.3 J	70	27
EPA 8270C SIM	Pyrene	PAH	**665**	**2600**	µg/kg	ND < 14	23	220	52
EPA 8270C SIM	Benzo (a) Anthracene	PAH	**261**	**1600**	µg/kg	ND < 14	4.3 J	27	26
EPA 8270C SIM	Chrysene	PAH	**384**	**2800**	µg/kg	ND < 14	3.7 J	48	46
EPA 8270C SIM	Benzo (k) Fluoranthene	PAH	·	·	µg/kg	ND < 14	7.6 J	82	100
EPA 8270C SIM	Benzo (b) Fluoranthene	PAH	·	·	µg/kg	ND < 14	8.8 J	100	130
EPA 8270C SIM	Benzo (a) Pyrene	PAH	**430**	**1600**	µg/kg	ND < 14	9.2 J	80	100
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	PAH	·	·	µg/kg	ND < 14	5.9 J	42	61
EPA 8270C SIM	Dibenzo (a,h) Anthracene	PAH	**63.4**	**260**	µg/kg	ND < 14	ND < 14	ND < 14	16
EPA 8270C SIM	Benzo (g,h,i) Perylene	PAH	·	·	µg/kg	ND < 14	5.8 J	48	68
	Total Detectable PAHs	PAH	**4022**	**44792**	µg/kg	ND	512	749	657
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	3.1
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	**2.0**	**20**	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	**2.2**	**27**	µg/kg	**2.6**	ND < 1.4	**3.1**	**12**
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	**1**	**7**	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Total Detectable DDTs	Chlorinated Pesticides	**1.58**	**46.1**	µg/kg	**2.6**	ND < 1.4	**3.1**	**15.1**
EPA 8081A	Aldrin	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Beta-BHC	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Chlordane	Chlorinated Pesticides	**0.5**	**6.0**	µg/kg	ND < 14	ND < 14	ND < 14	ND < 15
EPA 8081A	Delta-BHC	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Dieldrin	Chlorinated Pesticides	**0.02**	**8.0**	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan I	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan II	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Heptachlor epoxide	Chlorinated Pesticides	·	·	µg/kg	ND < 1.4	ND < 1.4	ND < 1.4	ND < 1.5
EPA 8081A	Toxaphene	Chlorinated Pesticides	·	·	µg/kg	ND < 28	ND < 27	ND < 27	ND < 30
EPA 8270C SIM PCB Congeners	PCB018	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	0.86
EPA 8270C SIM PCB Congeners	PCB028	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB037	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB044	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB049	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB052	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.4	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB066	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.85	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB070	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.82	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB074	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB077	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB081	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB087	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB099	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB101	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB105	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB110	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.9	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB114	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB118	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB119	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB123	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB126	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB128	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB138/158	PCB Congeners	·	·	µg/kg	ND < 1.4	ND < 1.4	3.2	ND < 1.5
EPA 8270C SIM PCB Congeners	PCB149	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	4.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB151	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.1	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB153	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	4.3	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB156	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB157	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.91	ND < 0.75

Draft

Port of Los Angeles
Addendum Report of Action Directives from
November 2013 CSTF meeting
Berths 212-224 Yusen Container Terminal Improvements Project
AMEC Project No. 1315102710
14 January 2014

Berths 212-224 YTI - Additional Sediment Chemistry Testing Summary

Draft Port of Los Angeles Maintenance Dredging Project - Berths 212-224 (YTI)									
Analytical Method	**Compound Name**	**Type**	**ERL**	**ERM**	**Units**	**Reference**	**Composite A - Bottom**	**Composite A**	**Composite B**
EPA 8270C SIM PCB Congeners	PCB167	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB168	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB169	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB170	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	1.8	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB177	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB180	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	3.2	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB183	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB187	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	2.0	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB189	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB194	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	0.78	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB201	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270C SIM PCB Congeners	PCB206	PCB Congeners	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
	Total Detectable PCBs	PCB Congeners	**22.7**	**180**	µg/kg	ND	ND	**38.44**	0.86
EPA 8270D (M)/TQ/EI	Allethrin (Bioallethrin)	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	0.41 J	0.22 J
EPA 8270D (M)/TQ/EI	Cyfluthrin-beta (Baythroid)	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cyalothrin-Lamba	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Cypermenthrin	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Deltamethrin (Decamethrin)	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	·	·	µg/kg	ND < 0.70	0.055 J	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fenpropathrin (Danitol)	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Permethrin - Cis/Trans	Pyrethroids	·	·	µg/kg	ND < 1.4	0.27 J	4.5	2.2
EPA 8270D (M)/TQ/EI	Sumithrin (Phenothrin)	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
EPA 8270D (M)/TQ/EI	Tralomethrin	Pyrethroids	·	·	µg/kg	ND < 0.70	ND < 0.68	ND < 0.69	ND < 0.75
Organotins By Krone et al.	Dibutyltin	Organotins	·	·	µg/kg	ND < 4.2	NT	0.72	14
Organotins By Krone et al.	Monobutyltin	Organotins	·	·	µg/kg	ND < 4.2	NT	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tetrabutyltin	Organotins	·	·	µg/kg	ND < 4.2	NT	ND < 4.1	ND < 4.5
Organotins By Krone et al.	Tributyltin	Organotins	·	·	µg/kg	ND < 4.2	NT	19	11
EPA 8270 SIM	2,4,5-Trichlorophenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4,6-Trichlorophenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dichlorophenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dimethylphenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2,4-Dinitrophenol	Phenols	·	·	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	2-Chlorophenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2-Methylphenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	2-Nitrophenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	3/4-Methylphenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	4,6-Dinitro-2-Methylphenol	Phenols	·	·	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	4-Chloro-3-Methylphenol	Phenols	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	4-Nitrophenol	Phenols	·	·	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	Pentachlorophenol	Phenols	·	·	µg/kg	ND < 700	NT	ND < 690	ND < 750
EPA 8270 SIM	Phenol	Phenols	·	·	µg/kg	33	NT	ND < 14	ND < 15
EPA 8270 SIM	Bis(2-Ethylhexyl) Phthalate	Phthalates	·	·	µg/kg	14	NT	170	270
EPA 8270 SIM	Butyl Benzyl Phthalate	Phthalates	·	·	µg/kg	ND < 14	NT	47	52
EPA 8270 SIM	Diethyl Phthalate	Phthalates	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15
EPA 8270 SIM	Dimethyl Phthalate	Phthalates	·	·	µg/kg	210	NT	ND < 14	ND < 15
EPA 8270 SIM	Di-n-Butyl Phthalate	Phthalates	·	·	µg/kg	ND < 14	NT	15	ND < 15
EPA 8270 SIM	Di-n-Octyl Phthalate	Phthalates	·	·	µg/kg	ND < 14	NT	ND < 14	ND < 15

Draft

Notes:
mg - milligram
kg - kilogram
J - concentrations greater than or equal to MDL but less than RL
ND - Non Detect
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total petroleum hydrocarbons
TRPH - Total recoverable petroleum hydrocarbons
ERL - Effects Range Low
ERM - Effects Range Median
NT - Not Tested
Results are presented in dry weight
Red Font indicates value higher than ERL
Red Underlined Font indicates value higher than ERM

COMPOSITE AREA A-BOTTOM
SEDIMENT CHEMISTRY LABORATORY REPORT

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-12-0007

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: POLA YTI Additional Testing

Attention: Tyler Huff
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 12/16/2013 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-12-0007

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 13-12-0007
Project Name: POLA YTI Additional Testing

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the marine sediment samples.

Sample Condition on Receipt

Two sediment samples were received for this project on June 3 and June 4, 2013. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures and kept frozen. The temperature of the samples upon receipt at the laboratory were 3.1 and 0.4°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored frozen pending chemistry testing in accordance with the Chain of Custody documents.

Tests Performed

Total Solids by SM 2540B
PAHs by EPA 8270C SIM
PCB Congeners by EPA 8270C SIM
Chlorinated Pesticides by EPA 8081A
Trace Metals by EPA 6020/7471A
Pyrethroids by EPA 8270D (M)/TQ/EI

Data Summary

The sample results and reporting limits were dry weight corrected.

At client request the sampled were thawed All sediment samples were homogenized prior to preparation and analysis.

Holding times

All holding times were met unless otherwise noted. The sediment samples were stored frozen (-20°C) upon receipt at the lab, prior to the EPA holding time expiration. Calscience follows standard industry practice and the Puget Sound protocol for holding times in sediment samples, which states holding time may be extended up to one year if kept frozen after collection. Therefore, the results have not been flagged as exceeding the EPA recommended holding time

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Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Reporting Limits

All Method Detection Limits were met. The results were evaluated to the MDL, and where applicable, "J" flags were reported.

Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing with the exception of a trace amount of Fenvalerate/Esfenvalerate in the Pyrethroid Method Blank. The data has been flagged with a "B".

Laboratory Control Samples

Laboratory Control Sample (LCS) analyses were performed at the required frequencies, and unless otherwise noted, all parameters were within the established control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis on project and non-project samples. All parameters for the matrix spikes were within the established control limits with the following exceptions.

For the Pyrethroids by EPA 8270D (M)/TQ/EI the Fluvalinate and lambda-Cyhalotrin MS/MSD recoveries were outside of established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS recoveries and RPDs were in control.

For the Pesticides by EPA 8081A the Endrin Aldehyde MS/MSD recoveries and Heptachlor MSD recovery and RPD were outside of established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS recoveries were in control.

For the PAHs by EPA 8270C SIM the Naphthalene MS/MSD recoveries were low outside of established control limits. Note that the sample contained Naphthalene at three times the spike level. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS recoveries were in control.

Surrogates

Surrogate recoveries for all applicable tests and samples were within the established control limits.

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Acronyms

LCS - Laboratory Control Sample
PDS/PDSD- Post Digestion Spike/Post Digestion Spike Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
ME-Marginal Exceedance
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-12-0007 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 12/02/13. They were assigned to Work Order 13-12-0007.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	AMEC Environment & Infrastructure 9210 Sky Park Court, Suite 200 San Diego, CA 92123-4302	Work Order:	13-12-0007
		Project Name:	POLA YTI Additional Testing
		PO Number:	
		Date/Time Received:	12/02/13 10:07
		Number of Containers:	3
Attn:	Tyler Huff		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
A2-B	13-12-0007-1	06/03/13 10:40	1	Sediment
A5-B	13-12-0007-2	06/04/13 08:19	1	Sediment
COMP (A2-B, A5-B)	13-12-0007-3	06/03/13 00:00	1	Sediment

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**N/A**	**12/03/13**	**12/03/13 21:00**	**D1203TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	73.5	0.100	1	

Method Blank	**099-05-019-2429**	**N/A**	**Solid**	**N/A**	**12/03/13**	**12/03/13 21:00**	**D1203TSB1**

Parameter	Result	RL	DF	Qualifiers
Solids, Total	ND	0.100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**GCTQ 1**	**12/04/13**	**12/05/13 20:26**	**131204L01**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.68	0.35	1	
Bifenthrin	ND	0.68	0.13	1	
Cyfluthrin	ND	0.68	0.12	1	
Cypermethrin	ND	0.68	0.094	1	
Deltamethrin/Tralomethrin	ND	0.68	0.28	1	
Fenpropathrin	ND	0.68	0.049	1	
Fenvalerate/Esfenvalerate	0.055	0.68	0.049	1	B,J
Fluvalinate	ND	0.68	0.078	1	
Permethrin (cis/trans)	0.27	1.4	0.15	1	J
Phenothrin	ND	0.68	0.093	1	
Resmethrin/Bioresmethrin	ND	0.68	0.13	1	
Tetramethrin	ND	0.68	0.052	1	
lambda-Cyhalothrin	ND	0.68	0.059	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	70	25-200	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-403-49**	**N/A**	**Sediment**	**GCTQ 1**	**12/04/13**	**12/05/13 19:50**	**131204L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.50	0.26	1	
Bifenthrin	ND	0.50	0.094	1	
Cyfluthrin	ND	0.50	0.085	1	
Cypermethrin	ND	0.50	0.069	1	
Deltamethrin/Tralomethrin	ND	0.50	0.21	1	
Fenpropathrin	ND	0.50	0.036	1	
Fenvalerate/Esfenvalerate	0.059	0.50	0.036	1	J
Fluvalinate	ND	0.50	0.057	1	
Permethrin (cis/trans)	ND	1.0	0.11	1	
Phenothrin	ND	0.50	0.069	1	
Resmethrin/Bioresmethrin	ND	0.50	0.092	1	
Tetramethrin	ND	0.50	0.038	1	
lambda-Cyhalothrin	ND	0.50	0.044	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
trans-Permethrin(C13)	79	25-200	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**ICP/MS 03**	**12/02/13**	**12/03/13 21:34**	**131202L03E**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	6.35	0.136	0.119	1	
Cadmium	0.383	0.136	0.0779	1	
Chromium	33.7	0.136	0.0844	1	
Copper	48.8	0.136	0.0570	1	
Lead	11.1	0.136	0.0897	1	
Nickel	28.5	0.136	0.0689	1	
Selenium	0.339	0.136	0.0994	1	
Silver	0.112	0.136	0.0426	1	J
Zinc	85.8	1.36	1.08	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-254-171**	**N/A**	**Solid**	**ICP/MS 03**	**12/02/13**	**12/03/13 21:24**	**131202L03E**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	ND	0.100	0.0873	1	
Cadmium	ND	0.100	0.0572	1	
Chromium	ND	0.100	0.0621	1	
Copper	ND	0.100	0.0419	1	
Lead	ND	0.100	0.0659	1	
Nickel	ND	0.100	0.0506	1	
Selenium	ND	0.100	0.0731	1	
Silver	ND	0.100	0.0313	1	
Zinc	ND	1.00	0.795	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**Mercury**	**12/02/13**	**12/03/13 12:35**	**131202L04E**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.110	0.0273	0.00800	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-434**	**N/A**	**Solid**	**Mercury**	**12/02/13**	**12/02/13 11:50**	**131202L04E**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.0200	0.00588	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**GC 51**	**12/03/13**	**12/07/13 12:17**	**131203L06**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	1.4	0.43	1	
Alpha-BHC	ND	1.4	0.44	1	
Beta-BHC	ND	1.4	0.36	1	
Delta-BHC	ND	1.4	0.35	1	
Gamma-BHC	ND	1.4	0.47	1	
Chlordane	ND	14	4.4	1	
Dieldrin	ND	1.4	0.45	1	
Trans-nonachlor	ND	1.4	0.39	1	
2,4'-DDD	ND	1.4	0.46	1	
2,4'-DDE	ND	1.4	0.42	1	
2,4'-DDT	ND	1.4	0.41	1	
4,4'-DDD	ND	1.4	0.43	1	
4,4'-DDE	ND	1.4	0.41	1	
4,4'-DDT	ND	1.4	0.46	1	
Endosulfan I	ND	1.4	0.36	1	
Endosulfan II	ND	1.4	0.38	1	
Endosulfan Sulfate	ND	1.4	0.46	1	
Endrin	ND	1.4	0.49	1	
Endrin Aldehyde	ND	1.4	0.33	1	
Endrin Ketone	ND	1.4	0.47	1	
Heptachlor	ND	1.4	0.44	1	
Heptachlor Epoxide	ND	1.4	0.48	1	
Methoxychlor	ND	1.4	0.44	1	
Toxaphene	ND	27	8.6	1	
Alpha Chlordane	ND	1.4	0.44	1	
Gamma Chlordane	ND	1.4	0.43	1	
Cis-nonachlor	ND	1.4	0.40	1	
Oxychlordane	ND	1.4	0.38	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	83	50-130	
Decachlorobiphenyl	83	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-239**	**N/A**	**Solid**	**GC 51**	**12/03/13**	**12/07/13 11:19**	**131203L06**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	1.0	0.31	1	
Alpha-BHC	ND	1.0	0.32	1	
Beta-BHC	ND	1.0	0.26	1	
Delta-BHC	ND	1.0	0.26	1	
Gamma-BHC	ND	1.0	0.35	1	
Chlordane	ND	10	3.3	1	
Dieldrin	ND	1.0	0.33	1	
Trans-nonachlor	ND	1.0	0.29	1	
2,4'-DDD	ND	1.0	0.34	1	
2,4'-DDE	ND	1.0	0.31	1	
2,4'-DDT	ND	1.0	0.30	1	
4,4'-DDD	ND	1.0	0.32	1	
4,4'-DDE	ND	1.0	0.30	1	
4,4'-DDT	ND	1.0	0.33	1	
Endosulfan I	ND	1.0	0.26	1	
Endosulfan II	ND	1.0	0.28	1	
Endosulfan Sulfate	ND	1.0	0.34	1	
Endrin	ND	1.0	0.36	1	
Endrin Aldehyde	ND	1.0	0.24	1	
Endrin Ketone	ND	1.0	0.35	1	
Heptachlor	ND	1.0	0.32	1	
Heptachlor Epoxide	ND	1.0	0.36	1	
Methoxychlor	ND	1.0	0.32	1	
Toxaphene	ND	20	6.3	1	
Alpha Chlordane	ND	1.0	0.32	1	
Gamma Chlordane	ND	1.0	0.32	1	
Cis-nonachlor	ND	1.0	0.29	1	
Oxychlordane	ND	1.0	0.28	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	112	50-130	
Decachlorobiphenyl	104	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**GC/MS AAA**	**12/05/13**	**12/06/13 14:30**	**131205L01**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acenaphthene	11	14	2.4	1	J
Acenaphthylene	4.0	14	2.1	1	J
Anthracene	3.4	14	1.1	1	J
Benzo (a) Anthracene	4.3	14	2.1	1	J
Benzo (a) Pyrene	9.2	14	1.4	1	J
Benzo (b) Fluoranthene	8.8	14	1.4	1	J
Benzo (e) Pyrene	ND	14	13	1	
Benzo (g,h,i) Perylene	5.8	14	1.3	1	J
Benzo (k) Fluoranthene	7.6	14	1.9	1	J
Biphenyl	ND	14	7.5	1	
Chrysene	3.7	14	1.6	1	J
Dibenz (a,h) Anthracene	ND	14	1.4	1	
2,6-Dimethylnaphthalene	ND	14	8.3	1	
Fluoranthene	7.3	14	1.3	1	J
Fluorene	ND	14	2.0	1	
Indeno (1,2,3-c,d) Pyrene	5.9	14	1.4	1	J
2-Methylnaphthalene	8.7	14	2.5	1	J
1-Methylnaphthalene	6.3	14	2.7	1	J
1-Methylphenanthrene	ND	14	9.0	1	
Naphthalene	410	14	4.1	1	
Perylene	19	14	13	1	
Phenanthrene	11	14	1.4	1	J
Pyrene	23	14	1.3	1	
1,6,7-Trimethylnaphthalene	ND	14	7.7	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	90	14-146	
Nitrobenzene-d5	101	18-162	
p-Terphenyl-d14	107	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-097-116**	**N/A**	**Solid**	**GC/MS AAA**	**12/05/13**	**12/06/13 11:23**	**131205L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acenaphthene	ND	10	1.8	1	
Acenaphthylene	ND	10	1.5	1	
Anthracene	ND	10	0.81	1	
Benzo (a) Anthracene	ND	10	1.6	1	
Benzo (a) Pyrene	ND	10	1.0	1	
Benzo (b) Fluoranthene	ND	10	1.0	1	
Benzo (e) Pyrene	ND	10	9.5	1	
Benzo (g,h,i) Perylene	ND	10	0.94	1	
Benzo (k) Fluoranthene	ND	10	1.4	1	
Biphenyl	ND	10	5.5	1	
Chrysene	ND	10	1.2	1	
Dibenz (a,h) Anthracene	ND	10	1.0	1	
2,6-Dimethylnaphthalene	ND	10	6.1	1	
Fluoranthene	ND	10	0.98	1	
Fluorene	ND	10	1.5	1	
Indeno (1,2,3-c,d) Pyrene	ND	10	1.1	1	
2-Methylnaphthalene	ND	10	1.8	1	
1-Methylnaphthalene	ND	10	2.0	1	
1-Methylphenanthrene	ND	10	6.6	1	
Naphthalene	ND	10	3.0	1	
Perylene	ND	10	9.8	1	
Phenanthrene	ND	10	1.0	1	
Pyrene	ND	10	0.99	1	
1,6,7-Trimethylnaphthalene	ND	10	5.6	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	87	14-146	
Nitrobenzene-d5	80	18-162	
p-Terphenyl-d14	103	34-148	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP (A2-B, A5-B)	**13-12-0007-3-A**	**06/03/13 00:00**	**Sediment**	**GC/MS HHH**	**12/08/13**	**12/11/13 13:12**	**131208L04**

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB003	ND	0.68	0.16	1	
PCB008	ND	0.68	0.12	1	
PCB018	ND	0.68	0.21	1	
PCB028	ND	0.68	0.14	1	
PCB031	ND	0.68	0.16	1	
PCB033	ND	0.68	0.15	1	
PCB037	ND	0.68	0.18	1	
PCB044	ND	0.68	0.18	1	
PCB049	ND	0.68	0.16	1	
PCB052	ND	0.68	0.13	1	
PCB056	ND	0.68	0.19	1	
PCB060	ND	0.68	0.14	1	
PCB066	ND	0.68	0.12	1	
PCB070	ND	0.68	0.11	1	
PCB074	ND	0.68	0.13	1	
PCB077	ND	0.68	0.13	1	
PCB081	ND	0.68	0.17	1	
PCB087	ND	0.68	0.14	1	
PCB095	ND	0.68	0.23	1	
PCB097	ND	0.68	0.19	1	
PCB099	ND	0.68	0.12	1	
PCB101	ND	0.68	0.11	1	
PCB105	ND	0.68	0.14	1	
PCB110	ND	0.68	0.14	1	
PCB114	ND	0.68	0.14	1	
PCB118	ND	0.68	0.18	1	
PCB119	ND	0.68	0.12	1	
PCB123	ND	0.68	0.12	1	
PCB126	ND	0.68	0.19	1	
PCB128	ND	0.68	0.14	1	
PCB132	ND	0.68	0.23	1	
PCB138/158	ND	1.4	0.28	1	
PCB141	ND	0.68	0.15	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA YTI Additional Testing

Parameter	Result	RL	MDL	DF	Qualifiers
PCB149	ND	0.68	0.12	1	
PCB151	ND	0.68	0.14	1	
PCB153	ND	0.68	0.14	1	
PCB156	ND	0.68	0.13	1	
PCB157	ND	0.68	0.13	1	
PCB167	ND	0.68	0.14	1	
PCB168	ND	0.68	0.12	1	
PCB169	ND	0.68	0.11	1	
PCB170	ND	0.68	0.13	1	
PCB174	ND	0.68	0.15	1	
PCB177	ND	0.68	0.17	1	
PCB180	ND	0.68	0.083	1	
PCB183	ND	0.68	0.15	1	
PCB184	ND	0.68	0.076	1	
PCB187	ND	0.68	0.14	1	
PCB189	ND	0.68	0.12	1	
PCB194	ND	0.68	0.13	1	
PCB195	ND	0.68	0.072	1	
PCB200	ND	0.68	0.13	1	
PCB201	ND	0.68	0.077	1	
PCB203	ND	0.68	0.15	1	
PCB206	ND	0.68	0.11	1	
PCB209	ND	0.68	0.15	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	68	50-125	
p-Terphenyl-d14	85	50-125	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA YTI Additional Testing

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-341-143**	**N/A**	**Solid**	**GC/MS HHH**	**12/08/13**	**12/11/13 11:47**	**131208L04**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB003	ND	0.50	0.12	1	
PCB008	ND	0.50	0.085	1	
PCB018	ND	0.50	0.16	1	
PCB028	ND	0.50	0.099	1	
PCB031	ND	0.50	0.12	1	
PCB033	ND	0.50	0.11	1	
PCB037	ND	0.50	0.13	1	
PCB044	ND	0.50	0.13	1	
PCB049	ND	0.50	0.12	1	
PCB052	ND	0.50	0.097	1	
PCB056	ND	0.50	0.14	1	
PCB060	ND	0.50	0.11	1	
PCB066	ND	0.50	0.091	1	
PCB070	ND	0.50	0.082	1	
PCB074	ND	0.50	0.094	1	
PCB077	ND	0.50	0.097	1	
PCB081	ND	0.50	0.12	1	
PCB087	ND	0.50	0.10	1	
PCB095	ND	0.50	0.17	1	
PCB097	ND	0.50	0.14	1	
PCB099	ND	0.50	0.085	1	
PCB101	ND	0.50	0.081	1	
PCB105	ND	0.50	0.10	1	
PCB110	ND	0.50	0.10	1	
PCB114	ND	0.50	0.10	1	
PCB118	ND	0.50	0.13	1	
PCB119	ND	0.50	0.087	1	
PCB123	ND	0.50	0.087	1	
PCB126	ND	0.50	0.14	1	
PCB128	ND	0.50	0.10	1	
PCB132	ND	0.50	0.17	1	
PCB138/158	ND	1.0	0.20	1	
PCB141	ND	0.50	0.11	1	
PCB149	ND	0.50	0.089	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLA YTI Additional Testing

Parameter	Result	RL	MDL	DF	Qualifiers
PCB151	ND	0.50	0.10	1	
PCB153	ND	0.50	0.10	1	
PCB156	ND	0.50	0.098	1	
PCB157	ND	0.50	0.096	1	
PCB167	ND	0.50	0.10	1	
PCB168	ND	0.50	0.086	1	
PCB169	ND	0.50	0.082	1	
PCB170	ND	0.50	0.093	1	
PCB174	ND	0.50	0.11	1	
PCB177	ND	0.50	0.12	1	
PCB180	ND	0.50	0.061	1	
PCB183	ND	0.50	0.11	1	
PCB184	ND	0.50	0.056	1	
PCB187	ND	0.50	0.10	1	
PCB189	ND	0.50	0.086	1	
PCB194	ND	0.50	0.096	1	
PCB195	ND	0.50	0.053	1	
PCB200	ND	0.50	0.093	1	
PCB201	ND	0.50	0.057	1	
PCB203	ND	0.50	0.11	1	
PCB206	ND	0.50	0.083	1	
PCB209	ND	0.50	0.11	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	52	50-125	
p-Terphenyl-d14	59	50-125	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP (A2-B, A5-B)	**Sediment**	**GCTQ 1**	**12/04/13**	**12/05/13 21:03**	**131204S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Allethrin	ND	5.000	1.890	38	2.143	43	25-200	13	0-30	
Bifenthrin	ND	5.000	3.016	60	3.530	71	25-200	16	0-30	
Cyfluthrin	ND	5.000	1.573	31	1.942	39	25-200	21	0-30	
Cypermethrin	ND	5.000	1.308	26	1.643	33	25-200	23	0-30	
Deltamethrin/Tralomethrin	ND	5.000	1.353	27	1.653	33	25-200	20	0-30	
Fenpropathrin	ND	5.000	2.131	43	2.648	53	25-200	22	0-30	
Fenvalerate/Esfenvalerate	ND	10.00	2.485	25	3.301	33	25-200	28	0-30	
Fluvalinate	ND	5.000	0.9103	18	1.073	21	20-200	16	0-30	3
Permethrin (cis/trans)	ND	5.000	3.513	70	4.053	81	25-200	14	0-30	
Phenothrin	ND	5.000	4.793	96	5.297	106	25-200	10	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.369	87	5.355	107	25-200	20	0-30	
Tetramethrin	ND	5.000	3.013	60	3.685	74	25-200	20	0-30	
lambda-Cyhalothrin	ND	5.000	1.185	24	1.350	27	25-200	13	0-30	3

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA YTI Additional Testing

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-12-0002-1	**Filter**	**ICP/MS 03**	**12/02/13**	**12/02/13 19:37**	**131202S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	ND	600.0	634.8	106	603.3	101	80-120	5	0-20	
Cadmium	ND	600.0	628.7	105	615.1	103	80-120	2	0-20	
Chromium	ND	600.0	620.1	103	612.5	102	80-120	1	0-20	
Copper	437.4	600.0	1126	115	1072	106	80-120	5	0-20	
Lead	56.37	600.0	661.2	101	637.7	97	80-120	4	0-20	
Nickel	ND	600.0	569.7	95	558.7	93	80-120	2	0-20	
Selenium	14.20	600.0	677.4	111	649.5	106	80-120	4	0-20	
Silver	ND	300.0	317.6	106	306.3	102	80-120	4	0-20	
Zinc	201.7	600.0	863.3	110	856.7	109	80-120	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 7471A Total
Method: EPA 7471A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-2207-1	**Solid**	**Mercury**	**12/02/13**	**12/02/13 17:43**	**131202S04**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.7802	93	0.7988	96	71-137	2	0-14	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8081A

Project: POLA YTI Additional Testing

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP (A2-B, A5-B)	**Sediment**	**GC 51**	**12/03/13**	**12/07/13 11:48**	**131203S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	4.427	89	3.865	77	50-135	14	0-25	
Alpha-BHC	ND	5.000	4.765	95	4.142	83	50-135	14	0-25	
Beta-BHC	ND	5.000	4.151	83	3.566	71	50-135	15	0-25	
Delta-BHC	ND	5.000	4.107	82	3.328	67	50-135	21	0-25	
Gamma-BHC	ND	5.000	4.682	94	4.058	81	50-135	14	0-25	
Dieldrin	ND	5.000	4.573	91	4.018	80	50-135	13	0-25	
4,4'-DDD	ND	5.000	4.780	96	4.194	84	50-135	13	0-25	
4,4'-DDE	ND	5.000	4.759	95	4.270	85	50-135	11	0-25	
4,4'-DDT	ND	5.000	4.509	90	3.981	80	50-135	12	0-25	
Endosulfan I	ND	5.000	4.165	83	3.445	69	50-135	19	0-25	
Endosulfan II	ND	5.000	3.784	76	3.211	64	50-135	16	0-25	
Endosulfan Sulfate	ND	5.000	4.288	86	3.645	73	50-135	16	0-25	
Endrin	ND	5.000	4.715	94	4.124	82	50-135	13	0-25	
Endrin Aldehyde	ND	5.000	0.1250	2	0.1132	2	50-135	10	0-25	3
Endrin Ketone	ND	5.000	4.614	92	3.889	78	50-135	17	0-25	
Heptachlor	ND	5.000	4.000	80	2.075	41	50-135	63	0-25	3,4
Heptachlor Epoxide	ND	5.000	4.408	88	3.834	77	50-135	14	0-25	
Methoxychlor	ND	5.000	4.516	90	3.767	75	50-135	18	0-25	
Alpha Chlordane	ND	5.000	4.594	92	4.021	80	50-135	13	0-25	
Gamma Chlordane	ND	5.000	4.466	89	4.005	80	50-135	11	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP (A2-B, A5-B)	**Sediment**	**GC/MS AAA**	**12/05/13**	**12/06/13 14:53**	**131205S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	ND	100.0	82.72	83	88.75	89	40-160	7	0-20	
Acenaphthylene	ND	100.0	81.00	81	86.52	87	40-160	7	0-20	
Anthracene	ND	100.0	75.38	75	79.70	80	40-160	6	0-20	
Benzo (a) Anthracene	ND	100.0	83.48	83	89.44	89	40-160	7	0-20	
Benzo (a) Pyrene	ND	100.0	85.79	86	90.76	91	40-160	6	0-20	
Benzo (b) Fluoranthene	ND	100.0	83.67	84	89.43	89	40-160	7	0-20	
Benzo (g,h,i) Perylene	ND	100.0	62.73	63	66.40	66	40-160	6	0-20	
Benzo (k) Fluoranthene	ND	100.0	77.12	77	82.37	82	40-160	7	0-20	
Chrysene	ND	100.0	77.30	77	82.49	82	40-160	6	0-20	
Dibenz (a,h) Anthracene	ND	100.0	64.66	65	68.52	69	40-160	6	0-20	
Fluoranthene	ND	100.0	79.17	79	83.57	84	40-160	5	0-20	
Fluorene	ND	100.0	81.01	81	86.28	86	40-160	6	0-20	
Indeno (1,2,3-c,d) Pyrene	ND	100.0	82.05	82	86.58	87	40-160	5	0-20	
2-Methylnaphthalene	ND	100.0	91.03	91	98.01	98	40-160	7	0-20	
1-Methylnaphthalene	ND	100.0	82.79	83	86.48	86	40-160	4	0-20	
Naphthalene	304.1	100.0	95.13	0	101.5	0	40-160	6	0-20	3
Phenanthrene	ND	100.0	81.90	82	87.05	87	40-160	6	0-20	
Pyrene	16.71	100.0	92.37	76	97.90	81	40-160	6	0-46	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP (A2-B, A5-B)	**Sediment**	**GC/MS HHH**	**12/08/13**	**12/11/13 13:49**	**131208S04**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB008	ND	25.00	25.41	102	26.44	106	50-125	4	0-30	
PCB018	ND	25.00	24.23	97	25.64	103	50-125	6	0-30	
PCB028	ND	25.00	25.30	101	26.23	105	50-125	4	0-30	
PCB044	ND	25.00	23.70	95	24.29	97	50-125	2	0-30	
PCB052	ND	25.00	23.58	94	25.35	101	50-125	7	0-30	
PCB066	ND	25.00	23.55	94	24.71	99	50-125	5	0-30	
PCB077	ND	25.00	24.11	96	25.27	101	50-125	5	0-30	
PCB101	ND	25.00	22.89	92	23.89	96	50-125	4	0-30	
PCB105	ND	25.00	22.44	90	23.36	93	50-125	4	0-30	
PCB118	ND	25.00	25.55	102	26.28	105	50-125	3	0-30	
PCB126	ND	25.00	22.57	90	23.48	94	50-125	4	0-30	
PCB128	ND	25.00	20.41	82	21.58	86	50-125	6	0-30	
PCB153	ND	25.00	21.51	86	22.56	90	50-125	5	0-30	
PCB170	ND	25.00	22.08	88	23.52	94	50-125	6	0-30	
PCB180	ND	25.00	21.96	88	23.43	94	50-125	7	0-30	
PCB187	ND	25.00	20.95	84	22.12	88	50-125	5	0-30	
PCB195	ND	25.00	24.45	98	25.83	103	50-125	5	0-30	
PCB206	ND	25.00	24.74	99	26.71	107	50-125	8	0-30	
PCB209	ND	25.00	26.23	105	27.94	112	50-125	6	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA YTI Additional Testing

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-12-0002-1	**Filter**	**ICP/MS 03**	**12/02/13 00:00**	**12/02/13 19:43**	**131202S03**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	ND	600.0	610.1	102	75-125	
Cadmium	ND	600.0	602.3	100	75-125	
Chromium	ND	600.0	629.4	105	75-125	
Copper	437.4	600.0	1065	105	75-125	
Lead	56.37	600.0	643.6	98	75-125	
Nickel	ND	600.0	588.6	98	75-125	
Selenium	14.20	600.0	618.1	101	75-125	
Silver	ND	300.0	255.1	85	75-125	
Zinc	201.7	600.0	852.0	108	75-125	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

AMEC Environment & Infrastructure		Date Received:	12/02/13
9210 Sky Park Court, Suite 200		Work Order:	13-12-0007
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B (M)
Project: POLA YTI Additional Testing			Page 1 of 1

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
13-12-0001-1	**Sediment**	**N/A**	**12/03/13 00:00**	**12/03/13 21:00**	**D1203TSD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total	45.00	45.60	1	0-10	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3540C
Method: EPA 8270D (M)/TQ/EI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-403-49	**Sediment**	**GCTQ 1**	**12/04/13**	**12/05/13 18:37**	**131204L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Allethrin	5.000	4.961	99	4.878	98	25-200	0-229	2	0-30	
Bifenthrin	5.000	5.058	101	4.677	94	25-200	0-229	8	0-30	
Cyfluthrin	5.000	3.131	63	2.940	59	25-200	0-229	6	0-30	
Cypermethrin	5.000	3.406	68	3.111	62	25-200	0-229	9	0-30	
Deltamethrin/Tralomethrin	5.000	3.299	66	3.280	66	25-200	0-229	1	0-30	
Fenpropathrin	5.000	4.295	86	3.799	76	25-200	0-229	12	0-30	
Fenvalerate/Esfenvalerate	10.00	5.923	59	5.364	54	25-200	0-229	10	0-30	
Fluvalinate	5.000	2.501	50	2.137	43	20-200	0-230	16	0-30	
Permethrin (cis/trans)	5.000	4.143	83	4.062	81	25-200	0-229	2	0-30	
Phenothrin	5.000	6.492	130	6.303	126	25-200	0-229	3	0-30	
Resmethrin/Bioresmethrin	5.000	5.336	107	5.357	107	25-200	0-229	0	0-30	
Tetramethrin	5.000	3.854	77	3.677	74	25-200	0-229	5	0-30	
lambda-Cyhalothrin	5.000	3.146	63	2.847	57	25-200	0-229	10	0-30	

Total number of LCS compounds: 13
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3050B
Method: EPA 6020

Project: POLA YTI Additional Testing

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-254-171	**Solid**	**ICP/MS 03**	**12/02/13**	**12/03/13 21:28**	**131202L03E**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	25.00	25.78	103	25.68	103	80-120	0	0-20	
Cadmium	25.00	26.38	106	25.80	103	80-120	2	0-20	
Chromium	25.00	27.30	109	26.87	107	80-120	2	0-20	
Copper	25.00	28.74	115	28.21	113	80-120	2	0-20	
Lead	25.00	25.12	100	25.03	100	80-120	0	0-20	
Nickel	25.00	25.99	104	25.83	103	80-120	1	0-20	
Selenium	25.00	25.73	103	24.63	99	80-120	4	0-20	
Silver	12.50	11.26	90	11.19	89	80-120	1	0-20	
Zinc	25.00	27.92	112	27.96	112	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 7471A Total
Method: EPA 7471A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-434	**Solid**	**Mercury**	**12/02/13**	**12/04/13 10:55**	**131202L04E**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.8143	98	0.8201	98	82-124	1	0-16	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8081A

Project: POLA YTI Additional Testing

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-239	**Solid**	**GC 51**	**12/03/13**	**12/07/13 11:34**	**131203L06**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Aldrin	5.000	4.165	83	4.053	81	50-135	36-149	3	0-25	
Alpha-BHC	5.000	4.449	89	4.005	80	50-135	36-149	11	0-25	
Beta-BHC	5.000	3.808	76	3.969	79	50-135	36-149	4	0-25	
Delta-BHC	5.000	4.168	83	4.003	80	50-135	36-149	4	0-25	
Gamma-BHC	5.000	4.405	88	4.091	82	50-135	36-149	7	0-25	
Dieldrin	5.000	4.228	85	4.164	83	50-135	36-149	2	0-25	
4,4'-DDD	5.000	4.403	88	4.344	87	50-135	36-149	1	0-25	
4,4'-DDE	5.000	4.344	87	4.261	85	50-135	36-149	2	0-25	
4,4'-DDT	5.000	4.247	85	4.125	83	50-135	36-149	3	0-25	
Endosulfan I	5.000	4.332	87	4.252	85	50-135	36-149	2	0-25	
Endosulfan II	5.000	4.302	86	4.199	84	50-135	36-149	2	0-25	
Endosulfan Sulfate	5.000	4.106	82	4.015	80	50-135	36-149	2	0-25	
Endrin	5.000	2.558	51	2.607	52	50-135	36-149	2	0-25	
Endrin Aldehyde	5.000	4.701	94	4.729	95	50-135	36-149	1	0-25	
Endrin Ketone	5.000	5.026	101	4.915	98	50-135	36-149	2	0-25	
Heptachlor	5.000	4.312	86	4.166	83	50-135	36-149	3	0-25	
Heptachlor Epoxide	5.000	3.918	78	3.926	79	50-135	36-149	0	0-25	
Methoxychlor	5.000	4.084	82	4.105	82	50-135	36-149	1	0-25	
Alpha Chlordane	5.000	4.216	84	4.130	83	50-135	36-149	2	0-25	
Gamma Chlordane	5.000	4.133	83	3.988	80	50-135	36-149	4	0-25	

Total number of LCS compounds: 20
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Project: POLA YTI Additional Testing

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-097-116	**Solid**	**GC/MS AAA**	**12/05/13**	**12/06/13 11:47**	**131205L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	100.0	80.08	80	76.62	77	48-108	38-118	4	0-11	
Acenaphthylene	100.0	76.94	77	70.25	70	40-160	20-180	9	0-20	
Anthracene	100.0	76.77	77	73.33	73	40-160	20-180	5	0-20	
Benzo (a) Anthracene	100.0	87.32	87	77.47	77	40-160	20-180	12	0-20	
Benzo (a) Pyrene	100.0	93.68	94	85.28	85	40-160	20-180	9	0-20	
Benzo (b) Fluoranthene	100.0	90.89	91	74.02	74	40-160	20-180	20	0-20	
Benzo (g,h,i) Perylene	100.0	75.40	75	61.43	61	40-160	20-180	20	0-20	
Benzo (k) Fluoranthene	100.0	102.3	102	87.51	88	40-160	20-180	16	0-20	
Chrysene	100.0	83.37	83	73.17	73	40-160	20-180	13	0-20	
Dibenz (a,h) Anthracene	100.0	85.85	86	71.61	72	40-160	20-180	18	0-20	
Fluoranthene	100.0	96.58	97	81.29	81	40-160	20-180	17	0-20	
Fluorene	100.0	94.30	94	81.63	82	40-160	20-180	14	0-20	
Indeno (1,2,3-c,d) Pyrene	100.0	100.4	100	86.51	87	40-160	20-180	15	0-20	
2-Methylnaphthalene	100.0	75.10	75	86.43	86	40-160	20-180	14	0-20	
1-Methylnaphthalene	100.0	84.30	84	82.55	83	40-160	20-180	2	0-20	
Naphthalene	100.0	73.66	74	75.02	75	40-160	20-180	2	0-20	
Phenanthrene	100.0	82.55	83	70.61	71	40-160	20-180	16	0-20	
Pyrene	100.0	85.49	85	74.53	75	40-160	20-180	14	0-16	

Total number of LCS compounds: 18
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 12/02/13
Work Order: 13-12-0007
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: POLA YTI Additional Testing

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-341-143	**Solid**	**GC/MS HHH**	**12/08/13**	**12/11/13 10:51**	**131208L04**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	25.00	18.44	74	20.01	80	50-125	38-138	8	0-30	
PCB018	25.00	17.68	71	19.89	80	50-125	38-138	12	0-30	
PCB028	25.00	17.58	70	19.93	80	50-125	38-138	13	0-30	
PCB044	25.00	17.72	71	19.92	80	50-125	38-138	12	0-30	
PCB052	25.00	16.80	67	19.10	76	50-125	38-138	13	0-30	
PCB066	25.00	17.61	70	19.80	79	50-125	38-138	12	0-30	
PCB077	25.00	17.96	72	20.70	83	50-125	38-138	14	0-30	
PCB101	25.00	17.35	69	19.69	79	50-125	38-138	13	0-30	
PCB105	25.00	17.15	69	19.15	77	50-125	38-138	11	0-30	
PCB118	25.00	19.22	77	21.49	86	50-125	38-138	11	0-30	
PCB126	25.00	17.14	69	19.05	76	50-125	38-138	11	0-30	
PCB128	25.00	16.45	66	18.32	73	50-125	38-138	11	0-30	
PCB153	25.00	16.72	67	18.80	75	50-125	38-138	12	0-30	
PCB170	25.00	16.13	65	18.32	73	50-125	38-138	13	0-30	
PCB180	25.00	17.15	69	19.09	76	50-125	38-138	11	0-30	
PCB187	25.00	16.54	66	18.45	74	50-125	38-138	11	0-30	
PCB195	25.00	17.27	69	19.63	79	50-125	38-138	13	0-30	
PCB206	25.00	17.07	68	19.22	77	50-125	38-138	12	0-30	
PCB209	25.00	17.85	71	19.97	80	50-125	38-138	11	0-30	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-12-0007 Page 1 of 1

Qualifiers	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Danielle Gonsman

From: Huff, Tyler [tyler.huff@amec.com]
Sent: Tuesday, November 26, 2013 5:36 PM
To: Danielle Gonsman
Cc: Snyder, Barry; Gobbi, Kimbrie
Subject: FW: POLA YTI Additional Testing information
Attachments: Nov13_Further_tests_POLA YTI_957175.pdf

Hi Danielle,

As we discussed on the phone today, we are going to go ahead and create a single composite to test from two of the frozen YTI archives. This is under CEL quote **957175** (attached):

NOTE: We discussed that because of the time to thaw / non 'rush' of this with the thanksgiving holiday, you may wish to wait until Monday 12/2 to pull from the freezer and get started

1. Pull from the freezer the following two 8oz jarred samples:

A2-B - This is on work order # 13-06-0079, Item # 8 (6/3/13 @ 1040).
A5-B - This is on work order # 13-06-0204, item # 3 (6/4/13 @ 0819).

2. While trying to take only what is 'needed' for total testing, create a composite from taking equal portions of A2-B and A5-B and homogenize and create a new test composite to test for:

PAHs (Please also report Total High PAH, Total Low PAH, and Total PAH) - EPA 8270C SIM
PCB Congeners (Please report Total PCBs) - EPA 8270C SIM PCB Congeners
Report Total DDTs (and all individual DDD/DDE/DDT 2,4'- and 4,4'- portions) - EPA 8081A
Pyrethroids - EPA 8270D (M)/TQ/EI
Metals - EPA 6020
Total Solids (to allow for Dry Weight reporting) – SM 2540 B

Standard Turnaround Time. Results in Dry Weight. J flag estimate any values between RL and MDL.

3. Please have the chemist try and only take what is needed (these are 8 oz jars) and retain any excess for any further additional testing if it comes to that.

4. Please let me know if there are any questions. Like we discussed, if it is easier to just wait till Monday 12/2 because of the holiday, that is fine. Thanks.

Tyler

From: McPherson, Rachel [mailto:RMcPherson@portla.org]
Sent: Tuesday, November 26, 2013 10:05 AM
To: Huff, Tyler
Cc: Curtis, Kathryn; Snyder, Barry
Subject: RE: POLA YTI Additional Testing information

Hi Tyler and Barry,

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As we discussed on the phone and as you outlined in this email, please go ahead and run the samples as a composite of the two remaining cores.

Thanks! Happy Thanksgiving and Hanukkah! (Thanksgivikkah)
Rachel

From: Huff, Tyler [mailto:tyler.huff@amec.com]
Sent: Monday, November 25, 2013 9:45 AM
To: McPherson, Rachel
Cc: Curtis, Kathryn; Snyder, Barry
Subject: POLA YTI Additional Testing information

Hi Rachel,

As requested, we have asked the Laboratory to prepare a quote to test the archives we have of the 'bottom' / clay-like portion from Composite A at YTI for the analytes that the CSTF requested. We have two samples archived of this 'bottom' clay material The samples are:

A2-B (3.4 – 7.5 feet) "clay with silt"
A5-B (1.8 to 7.8 feet) "clay with silt"

The testing will cost $1,034 / sample and we wish to test two (2) samples. We have budget left in the original project budget to cover this.

They will test for:

PAHs - EPA 8270C SIM
PCB Congeners - EPA 8270C SIM PCB Congeners
Total DDTs (and all individual DDD/DDE/DDT 2,4'- and 4,4'- portions) - EPA 8081A
Pyrethroids - EPA 8270D (M)/TQ/EI
Metals - EPA 6020
Total Solids (to allow for Dry Weight reporting) – SM 2540 B

Standard Turnaround Time. Results in Dry Weight. J flag estimate any values between RL and MDL.

Please let me know if you approve and if so, we will direct the lab to pull the samples from the freezer and start the analysis. There will be some delay with the thanksgiving shut-down but we could get the results to you soon / prepare an amendment / CSTF response by the next CSTF meeting.

Please let me know if you approve. Thank you!

Tyler

****

Tyler Huff, QSP
Marine Scientist
AMEC Environment & Infrastructure, 9210 Sky Park Ct. # 200, San Diego, CA 92123
(858) 300-4322 (office) // (858) 449-2334 (cell) // tyler.huff@amec.com
****

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/3/2013

PAGE: 1 OF 2

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Ct # 200

CITY: San Diego, CA 92123

TEL: 858-449-2334 | E-Mail: tyler.huff@amec.com | E-MAIL:

CLIENT PROJECT NAME / NUMBER: Berths 217-224 (YTI) Container Terminal

PROJECT CONTACT: Barry Snyder/Tyler Huff

SAMPLER(S): (SIGNATURE)

P.O. NO.: 1015101929

QUOTE NO.:

LAB USE ONLY: 13-06-0079

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☒ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM, A1, A2, A3, A4 are 1x16oz, 1x8oz. ~~Ref = 2x16oz~~ 1x8oz (A)
Green Book Testing, But tiered testing, AMEC will submit a Comp-A, & Comp B Jar on 6/11/13. 8oz
Please see attached Sheet for Analysis.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins	HOLD
	~~Composite Area A~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	~~Composite Area A-Z~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	~~Composite Area B~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	~~Composite Area B-Z~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	~~Reference~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	~~3~~		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1	A1	POLA	6/3/13	0855	Sediment	2																X
2	A2	POLA		1040																		X
3	A3	POLA		1212																		X
4	A4	POLA		1422																		X
5	A1-Z	POLA		0855		1																X

Relinquished by: (Signature) Tyler Huff (AMEC)	Received by: (Signature) CEL	Date: 06/03/13	Time: 17:00
Relinquished by: (Signature)	Received by: (Signature) CEL	Date: 06/03/13	Time: 1815
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

for Reference Jars (2x16oz, 1x8oz) test 2x16oz and Freeze/Archive 1x8oz. Refrigerate/Hold other Jars for Dow. Direction 1 to test/ vs. Archive Jars will come soon.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/3/2013

PAGE: 2 OF 3

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Ct # 200

CITY: San Diego, CA 92123

TEL: 858-449-2334 | E-Mail: tyler.huff@amec.com | E-MAIL:

CLIENT PROJECT NAME / NUMBER: Berths 217-224 (YTI) Container Terminal

PROJECT CONTACT: Barry Snyder/Tyler Huff

SAMPLER(S): (SIGNATURE)

P.O. NO.: 1015101929

QUOTE NO.:

LAB USE ONLY: 06-00079

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☒ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Danielle Gonsman is PM, A3-Z, A2-A, A2-B, A3-A are 8oz cahrs
Green Book Testing
Please see attached Sheet for Analysis.
Please report all applicable totals (i.e. PCBs, PAHs, etc.)

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids	Total Organic Carbon	Total Ammonia	Total and Dissolved Sulfides	Metals	TRPH	TPH	PAHs	Chlorinated Pesticides	PCB Congeners	Phenols	Pyrethroids	Phthalates	Organotins	HOLD				
	~~Composite Area A~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	~~1~~		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	~~Composite Area A-Z~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	~~1~~		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	~~Composite Area B~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	~~1~~		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	~~Composite Area B-Z~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	~~1~~		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
	~~Reference~~	~~Port of Los Angeles~~	~~6/ /13~~		~~sediment~~	~~1~~		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
6	A3-Z	POLA	6/3/13	1340		1																X				
7	A2-A	↓	↓	1040	↓	1																X				
8	A2-B			1040		1																X				
9	A3-A			1212		1																X				
1																										

Relinquished by: (Signature) Tyler Huff (AMEC)	Received by: (Signature) CEL	Date: 06/03/13	Time: 17-00
Relinquished by: (Signature)	Received by: (Signature) CEL	Date: 06/03/13	Time: 1815
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Table 4-2.
Chemical Analyses for Elutriate, Sediment and Tissue Samples

Analyte	Analysis Method	Elutriate Target Detection Limits[a, b]	Sediment Target Detection Limits[a, b]	Tissue Target Detection Limits[a, b]
Total Solids	160.3/SM 2540 B	N/A	0.1 %	0.100 %
Total Organic Carbon	9060	N/A	0.1 %	N/A
Total Ammonia	SM 4500-NH3 B/C (M)/350.2M[c]	N/A	0.2 mg/kg	N/A
Total Sulfides	376.2M[c]	N/A	0.5 mg/kg	N/A
Soluble Sulfides	SM 4500 S2 – D[c]	N/A	0.5 mg/kg	N/A
Arsenic	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Cadmium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Chromium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.02 mg/kg
Copper	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Lead	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Mercury	7471A[d]	0.0002 mg/L	0.02 mg/kg	0.02 mg/kg
Nickel	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Selenium	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Silver	6020/6010B[d]	0.001 mg/L	0.1 mg/kg	0.1 mg/kg
Zinc	6020/6010B[d]	0.005 mg/L	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA 1993a[i]	N/A	N/A	0.1 %
TRPH	418.1M[d]	N/A	10 mg/kg	N/A
TPH (C6-C44)	8015B(M)/8015B[d]	N/A	5.0 mg/kg	N/A
PAHs[e]	8270C SIM/ GC/TQ[d]	0.2 µg/L	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.1 µg/L	1.0 – 20 µg/kg	0.5 - 20 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.02 µg/L	0.5 µg/kg	0.5 µg/kg
Phenols	8270C SIM[d]	N/A	20 – 100 µg/kg	N/A
Pyrethroids	GC/MS/MS[j]	N/A	0.5 – 1.0 µg/kg	N/A
Phthalates	8270C SIM[d]	N/A	10 µg/kg	N/A
Organotins	Rice/Krone[h]	3.0 ng/L	3.0 µg/kg	N/A

Notes:

[a] Sediment minimum detection limits are on a wet-weight basis. Tissue minimum levels are on a wet-weight basis.

[b] Reporting limits provided by Calscience Environmental Laboratories, Inc.

[c] Standard Methods for the Examination of Water and Wastewater, 19th Edition American Public Health Association et al. 1995.

[d] USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.

[e] Includes 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-benzene hexachloride (BHC), β-BHC, γ-BHC (lindane), δ-BHC, chlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

[g] PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

[h] Rice, C.D. et al. 1987, or similar (e.g. Krone et al. 1989)

[i] NOAA 1993

[j] Allethrin (Bioallethrin), Bifenthrin, Cyfluthrin-beta (Baythroid), Cyhalothrin-Lamba, Cypermethrin, Deltamethrin (Decamethrin), Esfenvalerate, Fenpropathrin (Danitol), Fenvalerate (sanmarton), Fluvalinate, Permethrin (cis and trans), Resmethrin (Bioresmethrin), Resmethrin, Sumithrin (Phenothrin), Tetramethrin, and Tralomethrin

µg/kg - micrograms per kilogram (parts per billion)
µg/L - micrograms per liter
mg/kg - milligrams per kilogram (parts per million)
mg/L - milligrams per liter
ng/L - nanograms per liter
N/A - not applicable
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SM - Standard Methods
SOP - standard operating procedure
TPH - total petroleum hydrocarbons
TRPH - total recoverable petroleum hydrocarbons

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0079

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/03/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 3.3 °C - 0.2 °C (CF) = 3.1 °C ☑ 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: DEE

CUSTODY SEALS INTACT:

☐ Cooler	☐_____	☐ No (Not Intact)	☑ Not Present	☐ N/A	Initial: DEE
☐ Sample	☐_____	☐ No (Not Intact)	☑ Not Present		Initial: HH

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** HH

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** PS

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:**_____

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Calscience Environmental Laboratories, Inc.

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
Other CA office locations: Concord and San Luis Obispo
For courier service / sample drop off information,
contact sales@calscience.com or call us.

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY
13-06-0204

Date June 4, 2013
Page 1 of 1

LABORATORY CLIENT: AMEC Environment & Infrastructure
ADDRESS: 9210 Sky Park Ct Ste 200
CITY: San Diego STATE: CA ZIP: 92123
TEL: 858 3004800 E-MAIL: Barry.Snyder@amec.com

CLIENT PROJECT NAME / NUMBER: 1015101929
P.O. NO.:
PROJECT CONTACT: Barry Snyder, Tyler Huff
SAMPLER(S): (PRINT) KG ITH

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD

☐ COELT EDF | GLOBAL ID | LOG CODE

SPECIAL INSTRUCTIONS:
1x16 & 1x8oz jar per loc, if 2 containers noted.
AS has 1x16oz, 1x8oz
YT1 TERMINAL SAMPLES. 1x Ziploc
Do Not Freeze grainsize.
Danielle Gonsman is P.M.

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	☐ TPH(g) ☐ GRO	☐ TPH(d) ☐ DRO	TPH ☐ C6-C36 ☐ C6-C44	TPH ____	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☐ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6	HOLD
1	A5	6/4/13	0819	sed	3																	X
2	A5-A	6/4/13	0819	sed	1																	X
3	A5-B	6/4/13	0819	sed	1																	X
	~~A5~~	~~6/4/13~~	~~0819~~	~~sed~~	~~1~~					(grainsize. Do Not Freeze. 4°C only)												X

Relinquished by: (Signature) Kimberly Gobbi	Received by: (Signature/Affiliation)	Date: 6/04/13	Time: 1736
Relinquished by: (Signature)	Received by: (Signature/Affiliation) Greg L. UA	Date: 6/4/13	Time: 1920
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.

11/01/12 Revision

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-06-0204

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/04/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 0.6 °C - 0.2 °C (CF) = 0.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: AP

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: AP

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: D.Y

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☑16ozCGJ (1) ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑2 (1)

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 ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** DY

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** WSC

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** WSC

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