PORT OF OAKLAND

May 5, 2016

**RECEIVED**
*By Alameda County Environmental Health 3:37 pm, May 06, 2016*

Mr. Keith Nowell
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6540

**Subject:** **ACEH SCP Case File RO470**
**Amendment to Post-Construction Field Investigation Report**
Former APL Terminal, Port of Oakland
Berths 60-63 Redevelopment Project
1395 Middle Harbor Road, Oakland, CA

Dear Mr. Nowell:

Attached please find the Amendment to the *Post-Construction Field Investigation Report, Former APL Terminal, Port of Oakland, California* (Report) dated August 7, 2015. The Report was prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. on behalf of the Port of Oakland (Port) and presented the results of the first phase (Phase I) of a soil and groundwater investigation at the former American Presidents Line (APL) Terminal at Berths 60–63 at 1395 Middle Harbor Road, Port of Oakland, Oakland, California.

This Amendment has been prepared to present an updated evaluation of chemical analytical data collected during the Phase I investigation with respect to recent updates to San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs).

I declare under penalty of perjury, that the information contained in the attached document is true and correct to the best of my knowledge.

Sincerely yours,

John Prall, PG
Port Associate Environmental Scientist
Port Environmental Programs & Planning Division

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone: (510) 627-1100 ■ Facsimile: (510) 627-1826 ■ Web Page: www.portofoakland.com

# Amendment to Post-Construction Field Investigation Report

Phase I Investigation
Former APL Terminal, Port of Oakland
Oakland, California

*Prepared for:*

**Port of Oakland**
Oakland, California

*Prepared by:*

**Amec Foster Wheeler Environment & Infrastructure, Inc.**
180 Grand Avenue, Suite 1100
Oakland, California 94612

May 2016

Project No. 8616181290

**AMENDMENT TO POST-CONSTRUCTION FIELD INVESTIGATION REPORT**
Phase I Investigation
Former APL Terminal, Port of Oakland
Oakland, California

May 2016
Project 8616181290

This report was prepared by the staff of Amec Foster Wheeler under the supervision of the Engineer whose seal and signature appear hereon.

The findings, recommendations, specifications, or professional opinions are presented within the limits described by the client, in accordance with generally accepted professional engineering and geologic practice. No warranty is expressed or implied.


David S. Nanstad
David Nanstad, REPA, PE
Senior Engineer

Mary Jo Heassler
Mary Jo Heassler
Associate Geologist

Kenn Conner
Kenn Conner, PE, PMP
San Francisco / Oakland Office Manager

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# POST-CONSTRUCTION FIELD INVESTIGATION REPORT
# PHASE I INVESTIGATION
# FORMER APL TERMINAL, PORT OF OAKLAND
Oakland, California

## 1.0 INTRODUCTION

On behalf of the Port of Oakland (the Port), Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), has prepared this Amendment to the *Post-Construction Field Investigation Report, Former APL Terminal, Port of Oakland, California* (Report; Amec Foster Wheeler, 2015) dated August 7, 2015. The Report presented results of the first phase (Phase I) of a soil and groundwater investigation at the former American Presidents Line (APL) Terminal at Berths 60–63 at 1395 Middle Harbor Road, Port of Oakland, Oakland, California (the Site). Figure 1 of the Report illustrates the Site location.

This Amendment has been prepared to present an updated evaluation of chemical analytical data collected during the Phase I investigation with respect to recent updates to San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs, California Environmental Protection Agency [Cal/EPA] SFBRWQCB, 2016a).

## 2.0 UPDATE TO ENVIRONMENTAL SCREENING LEVELS

The ESLs used to evaluate data in the August 2016 Report were published by the SFBRWQCB in 2013. These ESLs were updated on February 22, 2016 by the SFBRWQCB and published on the SFBRWQCB website http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml. The ESLs for both soil and groundwater are presented on look-up tables that include screening levels for chemicals based on potential environmental concerns for specific scenarios; e.g., depth within the soil profile, potential receptors, and use of groundwater as a source of drinking water. Screening levels are further explained in the *User's Guide: Derivation and Application of Environmental Screening Levels*, *Interim Final* prepared by the SFBRWQCB dated February 2016 (Cal/EPA SFBRWQCB, 2016b).

Based on our understanding of site conditions, planned land use, and potential receptors, the lowest of applicable updated soil ESLs presented on *Table S-1 - Direct Exposure Human Health Risk Levels (Com/Ind: Shallow Soil Exposure)* and *Table S-2 - Leaching to Groundwater (Nondrinking water)* were used to evaluate Site soil data. ESLs used to evaluate Site groundwater data were based on the lowest of the ESLs in the following tables: *Ecological Habitat Goal Levels (Table W-2), Vapor Intrusion of a Commercial Industrial Receptor (Table*

*W-3), Gross Contamination Levels (Table W-4),* and *Odor Nuisance Levels for Non-Drinking Water (Table W-5)* .

## 3.0 FINDINGS

The following sections present a revised assessment (discussed in Subsection 5.3 of the Report) of whether the extent of chemicals of potential concern (COPCs) in soil and groundwater at Case Areas 002, 004, 005, 009, and 010 and the Former Building E-221 Area have been effectively characterized with respect to updated ESLs. Figure 2 of the Report illustrates the six investigation area locations.

### 3.1 ANALYTICAL RESULTS

Tables 1 and 2 summarize results for detected chemicals in soil and groundwater samples, respectively, and compare the analytical results to each analyte's updated ESL (Cal/EPA SFRWQCB, 2016a). Tables 1 and 2 also include the previous ESLs (Cal/EPA SFRWQCB, 2013) for comparison.

#### 3.1.1 Case Area 002

To further characterize previously identified contamination at Case Area 002, four soil borings (APLB-1, APLB-2, APLB-3, and APLB-4) were drilled and sampled around the location of previously collected sample P1A-007-E5 (Figures 1A and 1B). Three soil samples were collected from each boring at depths ranging from 2 to 8.4 feet below ground surface (bgs). The soil samples were analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) using U.S. Environmental Protection Agency (EPA) Methods 8260B and 8270C, respectively. Groundwater samples were collected from temporary wells installed in the borings. The groundwater samples were analyzed for VOCs and SVOCs using EPA Methods 8260B and 8270C, respectively. The following provides an assessment of soil and groundwater analytical results for samples collected from the four borings with respect to updated ESLs.

##### *3.1.1.1 Soil*

Comparison of analytical results to updated ESLs indicates that concentrations of VOCs and SVOCs in soil samples from borings APLB-1 and APLB-2 did not exceed ESLs but that VOC and SVOC concentrations in soil samples collected from borings APLB-3 and APLB-4 exceeded ESLs. Comparison to updated ESLs did not change the specific COPCs or the numbers, locations, or depths of soil samples containing COPCs at concentrations exceeding previous ESLs. The difference between the detected COPC concentrations and the updated ESLs are the same order of magnitude as compared to previous ESLs.

The following VOCs and SVOCs were detected at the indicated maximum concentrations in soil samples collected from Case Area 002:

Boring APLB-3 (at 5 and 8 feet bgs), located approximately 8 feet south of sample P1A-007-E5:

- 1,2,4-trichlorobenzene at 7,200,000 micrograms per kilogram (µg/kg) in APLB-3(5)
- 1,2-dichlorobenzene at 62,000 µg/kg in APLB-3(5)
- 1,3-dichlorobenzene at 240,000 µg/kg in APLB-3(8)
- 1,4-dichlorobenzene at 650,000 µg/kg in APLB-3(8)
- chlorobenzene at 97,000 µg/kg in APLB-3(8)

Boring APLB-4 (at 7 feet bgs), located approximately 17 feet west of sample P1A-007-E5:

- 1,2,4-trichlorobenzene at 120,000 µg/kg in APLB-4(7)
- 1,3-dichlorobenzene at 98,000 µg/kg in APLB-4(7)
- 1,4-dichlorobenzene at 130,000 µg/kg in APLB-4(7)
- chlorobenzene at 100,000 µg/kg in APLB-4(7)

Based on results of this investigation, VOCs and SVOCs are present in soil at concentrations exceeding ESLs at borings APLB-3 and APLB-4 between depths of 2 and 8 feet bgs (just above the water table). The areal extent of VOC- and SVOC-impacted soil at Case Area 002 has been characterized to the north and east of sample P1A-007-E5 but not to the south and southwest.

#### *3.1.1.2 Groundwater*

Comparison of analytical results to updated ESLs indicates that concentrations of SVOCs in groundwater samples from borings APLB-1, APLB-2, and APLB-4 did not exceed ESLs and that at least one VOC was detected at a concentration greater than the ESL in groundwater samples collected from each boring. The locations where COPCs were detected at concentrations in groundwater exceeding current ESLs did not change from the Report evaluation comparing results to previous ESLs. There was one additional COPC (benzene) detected above the ESL at APLB-1. The magnitude of the difference between the detected COPC concentrations and updated ESLs were similar to the comparison to previous ESLs, except for benzene. At APLB-3, the detected benzene concentration is an order of magnitude higher than the updated ESL.

VOCs were detected above ESLs at the indicated maximum concentrations in groundwater samples collected from Case Area 002 as follows:

Boring APLB-1, located 13 feet north of sample P1A-007-E5:

- benzene at 110 micrograms per liter (µg/L) in APLB-1(GW)
- chlorobenzene at 1,200 µg/L in APLB-1(GW)

Boring APLB-2, located 15 feet east of sample P1A-007-E5:

- chlorobenzene at 200 µg/L in APLB-2(GW)

Boring APLB-3, located 17 feet south of sample P1A-007-E5:

- 1,2,4-trichlorobenzene at 490 µg/L in APLB-3(GW)
- 1,4-dichlorobenzene at 1,000 µg/L in APLB-3(GW)
- benzene at 280 µg/L in APLB-3(GW)
- chlorobenzene at 15,000 µg/L in APLB-3(GW)
- 1,2-dichlorobenzene at 34 µg/L in APLB-3(GW)
- 1,3-dichlorobenzene at 300 µg/L in APLB-3(GW)
- 1,4-dichlorobenzene at 970 µg/L in APLB-3(GW)
- 2-chlorophenol at 35 µg/L in APLB-3(GW)

Boring APLB-4, located 15 feet west of sample P1A-007-E5:

- chlorobenzene at 1,700 µg/L in APLB-4(GW)

Figure 1B shows analytical results for these COPCs. Based on results of this investigation, the areal extent of VOC-impacted groundwater at Case Area 002 has not been characterized with respect to updated ESLs. The areal extent of SVOC-impacted groundwater at Case Area 002 has been characterized with respect to updated ESLs to the north, west, and east but not to the south of sample P1A-007-E5.

### 3.1.2 Case Area 004

To further characterize previously identified contamination at Case Area 004, three soil borings (APLB-5, APLB-6, and APLB-7) were drilled and sampled around the location of previously collected sample P1A-004-N4 (Figures 2A and 2B). Three soil samples were collected from each boring at depths ranging from 2.5 to 6.5 feet bgs. The soil samples were analyzed for total petroleum hydrocarbons (TPH) as diesel (d) and TPH as motor oil (mo), VOCs, and SVOCs using EPA Methods 8015M, 8260B, and 8270C, respectively. Groundwater samples were collected from borings APLB-5 through APLB-7. Samples from APLB-5 and APLB-6 were analyzed for TPHd and TPHmo using EPA Method 8015M, VOCs using EPA Method 8260B, and SVOCs using EPA Method 8270C. Because of poor soil permeability and the consequent low volume of groundwater in boring APLB–7, there was only sufficient water to collect samples for VOC analysis using EPA Method 8260B from that boring.

The following provides an evaluation of soil and groundwater analytical results for samples collected from the three borings with respect to updated ESLs.

#### *3.1.2.1 Soil*

Comparison of analytical results to updated ESLs indicated that detected concentrations of VOCs and SVOCs did not exceed ESLs in samples collected from the Case Area 004 borings.

TPHd concentrations in soil exceeded the updated ESL in only one soil sample - Boring APLB-5(6) (detected at 2,700 milligrams per kilogram [mg/kg]). This represents a change from the previous evaluation where TPHd was also detected at concentrations exceeding the previous ESL in three samples collected from boring APLB-6.

Figure 2A shows the analytical results for this compound. Based on results of this investigation, the areal extent of TPHd contamination in soil at Case Area 004 has been characterized with respect to updated ESLs to the west and south of sample P1A-004-N5 but not to the north and east.

#### *3.1.2.2 Groundwater*

VOC and SVOC concentrations in groundwater samples collected from Case Area 004 borings did not exceed updated ESLs. TPHd and TPHmo concentrations in groundwater, however, exceeded the updated ESLs. The specific COPCs ESL exceedances, ESL exceedance locations, and the magnitude of the ESL exceedance were similar as when compared to previous ESLs.

TPHd and TPHmo were detected at concentrations exceeding ESLs at the indicated maximum concentrations in borings APLB-5 and APLB-6:

Boring APLB-5, located 16 feet north of sample P1A-004-N4:

- TPHd at 7,600 µg/L in APLB-5(GW)
- TPHmo at 2,100 µg/L in APLB-5(GW)

Boring APLB-6, located 16 feet west of sample P1A-004-N4:

- TPHd at 2,700 µg/L in APLB-6(GW)
- TPHmo at 1,500 µg/L in APLB-6(GW)

Figure 2B shows analytical results for these COPCs. Boring APLB-7 did not produce enough groundwater to collect samples for TPHd, TPHmo, and SVOC analyses; therefore, the presence and concentrations of these compounds in groundwater are not characterized south of P1A-004-N4.

Based on the results discussed above, the areal extent of TPHd and TPHmo in groundwater to the north and west of P1A-004-N4 has not been characterized with respect to updated ESLs. SVOCs have not significantly impacted groundwater with respect to updated ESLs to the north and west of P1A-004-N4. VOCs have not significantly impacted groundwater to the north, west, and south of P1A-004-N4 with respect to ESLs. No borings were drilled to the east of

P1A-004-N4 due the presence of subsurface utilities. Therefore, the presence and concentrations of TPHd, TPHmo, VOCs, and SVOCs in groundwater are not characterized to the east of P1A-004-N4.

### 3.1.3 Case Area 005

To further characterize previously identified contamination at Case Area 005, four soil borings (APLB-8, APLB-9, APLB-10, and APLB-11) were drilled and sampled around the location of previously collected sample P1A-005-E4 (Figures 3A and 3B). Three soil samples were collected from each boring at depths ranging from 2 to 8.5 feet bgs. The soil samples were analyzed for TPHd, TPHmo, TPH as gasoline (g), VOCs, and SVOCs using EPA Methods 8015M (for TPH), 8260B, and 8270C, respectively. Three groundwater samples were collected from temporary well casings installed in the Case Area 005 soil borings. The groundwater samples were analyzed for TPHd, TPHmo, and TPHg using EPA Method 8015M, and VOCs and SVOCs using EPA Methods 8260B and 8270C, respectively. The following provides an evaluation of soil and groundwater analytical results for samples collected from the four borings with respect to updated ESLs.

#### *3.1.3.1 Soil*

Comparison of analytical results to updated ESLs indicates that TPHd and two SVOCs were detected at concentrations exceeding ESLs in a soil sample collected from APLB-8. This evaluation differed from comparison to previous ESLs where the detected concentration of TPHmo exceeded previous ESLs in soil sample APLB-8(5.5) and TPHd and TPHmo were detected at concentrations exceeding previous ESLs in soil sample APLB-11(2). Additionally, the detected concentration of fluorene in APLB-8(5.5) exceeds the updated ESL.

The following COPCs were detected at concentrations exceeding updated ESLs at the indicated depth and maximum concentrations:

Boring APLB-8 (at 5.5 feet bgs), located 18 feet north of sample P1A-005-E4:

- TPHd at 31,000 mg/kg in APLB-8(5.5)
- phenanthene at 22,000 µg/kg in APLB-8(5.5)
- fluorene at 9,500 µg/kg in APLB-8(5.5)

Figure 3A shows analytical results for these compounds. Based on results of this investigation and with respect to sample P1A-005-E4 location:

- TPHg has been characterized to the west, east, south and north
- TPHd, VOCs, and SVOCs have been characterized to the west, east, and south
- TPHmo, TPHg, and VOCs have been characterized to the north
- TPHd, TPHmo, and SVOCs remain uncharacterized to the north

#### *3.1.3.2 Groundwater*

Comparison of analytical results to updated ESLs indicates that concentrations of TPHmo, VOCs, and SVOCs did not exceed ESLs in samples collected from the four Case Area 005 borings. TPHd and TPHg were detected in one groundwater sample at concentrations exceeding ESLs. The specific COPCs ESL exceedances, ESL exceedance locations, and the magnitude of the ESL exceedance were similar as when compared to previous ESLs.

TPHd and TPHg were detected in one groundwater sample at concentrations exceeding updated ESLs at the indicated maximum concentrations:

Boring APLB-8, located 18 feet north of sample P1A-005-E4:

- TPHd at 8,400 µg/L in APLB-8(GW)
- TPHg at 9,100 µg/L in APLB-8(GW)

Figure 3B shows analytical results for these compounds. Based on results of this investigation, VOCs and SVOCs are not present in groundwater at concentrations exceeding updated ESLs and are considered characterized in this area. TPHg and TPHd have been detected in groundwater at one sampling location [APLB-8(GW)] to the north of P1A-005-E4 at concentrations exceeding ESLs. Based on results of this investigation, the areal extent of TPHg- and TPHd-impacted groundwater has been characterized to the south, west, and east of former sample P1A-005-E4 but not to the north.

### 3.1.4 Case Area 009

To further characterize previously identified contamination at Case Area 009, five soil borings (APLB-12, APLB-13, APLB-14, APLB-20, and APLB-21) were drilled and sampled around a former trench location (Figures 4A and 4B). Three soil samples were collected from each boring at depths ranging from 1.5 to 8.5 feet bgs. The soil samples were analyzed for TPHd and TPHmo using EPA Method 8015M, and for CAM 17 metals using EPA Method 6010. Groundwater samples were collected from temporary wells installed in the borings. The groundwater samples were analyzed for TPHd and TPHmo using EPA Method 8015M, and CAM 17 metals using EPA Method 6010. The following provides an evaluation of soil and groundwater samples collected from the four borings with respect to updated ESLs.

#### *3.1.4.1 Soil*

Comparison of analytical results to updated ESLs indicated that TPHd, TPHmo, and zinc (which exceeded previous ESLs) did not exceed updated ESLs and that lead was detected at concentrations exceeding updated ESLs in samples collected from APLB-13, APLB-14, and APLB-21; and that arsenic was detected at concentrations exceeding ESLs in samples collected from APLB-12, APLB-13, APLB-14, APLB-20, and APLB-21. With the exception of the sample collected from APLB-20 at 8.5 ft bgs, the locations and depths of samples

exceeding updated ESLs were similar as when compared to previous ESLs. The sample collected from 8.5 ft bgs from APLB-20 did not exceed the previous arsenic ESL.

The following presents the maximum lead and arsenic concentrations at each of these locations:

Boring APLB-12 (at 1.5 feet bgs), located 14 feet north of the former trench location:

- arsenic at 4.4 mg/kg in APLB-12(1.5)

Boring APLB-13 (at 2 and 4.5 feet bgs), located 18 feet south of the west side of the former trench location:

- arsenic at 4.6 mg/kg in APLB-13(4.5)
- lead at 350 mg/kg in APLB-13(2)

Boring APLB-14 (at 2 and 8.4 feet bgs), located 20 feet south of the east side of the former trench location:

- arsenic at 9.6 mg/kg in APLB-14(2)
- lead at 360 mg/kg in APLB-14(4.5)

Boring APLB-20 (at 1.5, 4.5, and 8.5 feet bgs), located 25 feet south of the west side of the former trench location:

- arsenic at 6.2 mg/kg in APLB-20(4.5)

Boring APLB-21 (at 2.5 and 4.5 feet bgs), located 10 feet east of the former trench location:

- arsenic at 7.4 mg/kg in APLB-21(2.5)
- lead at 470 mg/kg in APLB-21(4.5)

Figure 4A shows analytical results for these compounds. Based on results of this investigation, the extent of arsenic in soil at concentrations exceeding updated ESLs at Case Area 009 is not characterized to the south, north, west, and east and the extent of lead-impacted soil has not been characterized to the east and south of the former trench.

It is likely that concentrations of arsenic detected in Case Area 009 borings (ranging from 1.2 to 9.6 mg/kg) are from naturally occurring metals in soils because these concentrations fall within the range of background concentrations in California benchmark soils (0.6 to 11 mg/kg) (Kearny Foundation, 1996). Lead concentrations detected in borings APLB-13, APLB-14 and APLB-21 exceeded the maximum background concentration of these elements in California benchmark soils (lead 107.9 mg/kg) (Kearny Foundation, 1996) and therefore, may not be naturally occurring.

#### *3.1.4.2 Groundwater*

Comparison of analytical results to updated ESLs indicates that selenium was detected at concentrations above the ESL in one sample and that concentrations of TPHd and TPHmo exceeded ESLs in four samples. With the exception of barium in the groundwater sample from APLB-21, comparison of COPC concentrations in groundwater to updated ESLs indicate that the same COPCs exceeded updated ESLs and COPCs exceeded updated ESLs at the same locations as when results were compared to previous ESLs. Because the updated ESL for barium is higher than the previous ESL, the barium concentration in the groundwater sample from APLB-21 did not exceed the updated ESL.

Selenium, TPHd, and TPHmo were detected above updated ESLs at the indicated maximum concentrations in groundwater samples collected from Case Area 009:

Boring APLB-12, located 14 feet north of the former trench location:

- TPHd at 1,400 µg/L in APLB-12(GW)
- TPHmo at 2,300 µg/L in APLB-12(GW)

Boring APLB-13, located 18 feet south of the west side of the former trench location:

- TPHd at 2,800 µg/L in APLB-13(GW)
- TPHmo at 1,100 µg/L in APLB-13(GW)
- selenium at 52 µg/L in APLB-13(GW)

Boring APLB-14, located 20 feet south of the east side of the former trench location:

- TPHd at 2,800 µg/L in APLB-14(GW)
- TPHmo at 4,100 µg/L in APLB-14(GW)

Boring APLB-20, located 25 feet south of the west side of the former trench location:

- TPHd at 920 µg/L in APLB-20(GW)
- TPHmo at 1,300 µg/L in APLB-20(GW)

Figure 4B shows analytical results for these compounds. Based on results of this investigation, the areal extent of TPHd- and TPHmo-impacted groundwater at Case Area 009 has been characterized to the east of the former trench location but not to the north, west, and south. The areal extent of metals-impacted groundwater at Case Area 009 has been characterized to the north, southeast, east, and west of the former trench location, but not to the southwest.

### 3.1.5 Case Area 010

To further characterize previously identified contamination at Case Area 010, five soil borings (APLB-15, APLB-16, APLB-17, APLB-18, and APLB-19) were drilled and sampled around the location of previously collected sample P1A-005-E4 (Figures 5A and 5B). Three soil samples

were collected from each boring at depths ranging from 2 to 8.5 feet bgs. The soil samples were analyzed for total petroleum hydrocarbons TPHd, TPHmo, TPHg, VOCs, and SVOCs using EPA Methods 8015M, 8260B, and 8270C, respectively. Three groundwater samples were collected from each temporary well installed in Case Area 010 borings. The groundwater samples were analyzed for TPHd, TPHmo, and TPHg using EPA Method 8015M, and VOCs and SVOCs using 8260B and 8270C, respectively. The following provides an evaluation of soil and groundwater analytical results for samples collected from the five borings with respect to updated ESLs.

#### *3.1.5.1 Soil*

Comparison of analytical results to updated ESLs indicates that concentrations of TPHg, TPHmo, VOCs, and SVOCs did not exceed ESLs in soil samples collected from the five borings. This evaluation differed from comparison to previous ESLs where detected concentrations of TPHd and TPHmo in a soil sample collected from APLB-19 at 8.5 ft bgs exceeded previous ESLs and TPHmo in the sample from APLB-15 at 4.5 bgs exceeded the previous ESL.

TPHd was detected above the updated ESL at the indicated maximum concentration in the soil sample collected from Boring APLB-15 at a depth of 4.5 feet bgs as follows:

- TPHd at 5,800 mg/kg in APLB-15(4.5)

Figure 5A shows results for this analyte. Based on results of this investigation, TPHg, TPHmo, VOCs, and SVOCs are not present in soil at concentrations exceeding ESLs and are considered characterized. TPHd is present in soil at a concentration that exceeds updated ESLs at boring APLB-15 at a depth of 4.5 feet bgs. The areal extent TPHd-impacted soil at Case Area 010 has been characterized to the south, west, and east of the limits of the former trench location, but not to the north.

#### *3.1.5.2 Groundwater*

Comparison of analytical results to updated ESLs indicates that SVOCs were not detected in groundwater samples collected from the five borings and that VOC concentrations did not exceed ESLs in groundwater samples collected from borings APLB-15, APLB-16, APLB-17, and APLB-18. TPHd, TPHmo, TPHg, and one VOC were detected at concentrations exceeding ESLs. There were no changes to the locations or specific COPCs detected in groundwater at concentrations exceeding ESLs based on comparison updated ESLs.

The following presents a summary of the locations where COPCs were detected at concentrations exceeding updated ESLs and the detected COPC concentration:

Boring APLB-15, located 17 feet north-east of the limits of the former trench location:

- TPHd at 900 µg/L in APLB-15(GW)

Boring APLB-16, located 4 feet south-east of the limits of the former trench location:

- TPHd at 2,000 µg/L in APLB-16(GW)

Boring APLB-17, located 8 feet south-east of the limits of the former trench location:

- TPHd at 910 µg/L in APLB-17(GW)

Boring APLB-18, located 9 feet south-west of the limits of the former trench location:

- TPHd at 1,100 µg/L in APLB-18(GW)
- TPHmo at 1,100 µg/L in APLB-18(GW)

Boring APLB-19, located 9 feet north-west of the limits of the former trench location:

- TPHd at 1,600 µg/L in APLB-19(GW)
- TPHmo at1,100 µg/L in APLB-19(GW)
- TPHg at 950 µg/L in APLB-19(GW)
- chlorobenzene at 540 µg/L in APLB-19(GW)

Figure 5B shows analytical results for these compounds. Based on results of this investigation, SVOCs have not impacted groundwater and there has been limited impact from VOCs and TPHg. The areal extent of TPHg and VOCs in groundwater at Case Area 010 has been characterized to the north, south, and east of the limits of the former trench location but not to the west. The areal extent of TPHmo in groundwater has been characterized to the north and east of the limits of the former trench location but not to the south and west. The areal extent of TPHd in groundwater has not been characterized.

### 3.1.6 Former Building E-221 Area

To further characterize previously identified contamination at Building E-221, three groundwater monitoring wells (APLMW-1, APLMW-2, and APLMW-3) were installed and sampled in the area around Former Building E-221 (Figures 6A and 6B). Two soil samples were collected from each monitoring well boring during drilling at depths ranging from 4 to 8.2 feet bgs. The soil samples were analyzed for TPHd, TPHmo, and TPHg using EPA Method 8015M; for benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) using EPA Method 8021B; and for polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270C-SIM. Three groundwater samples were collected from each monitoring well installed at the Former Building E-221 Area. The groundwater samples were analyzed for TPHd, TPHmo, and TPHg using EPA Method 8015M; for BTEX and MTBE using EPA Method 8021B; and for PAHs using EPA Method 8270C-SIM. The following provides an evaluation of analytical results for soil and groundwater samples collected from the three monitoring wells with respect to updated ESLs.

#### *3.1.6.1 Soil*

Comparison of analytical results to updated ESLs indicates that benzo(a)pyrene exceeded the ESL in one soil sample, but that concentrations of TPHg, TPHd, TPHmo, BTEX, and MTBE did not exceed ESLs in soil samples collected from the three well borings. This differed from the results of comparison to previous ESLs that showed that TPHd, TPHmo, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were detected in soil samples at concentrations exceeding previous ESLs.

Benzo(a)pyrene was detected at the indicated maximum concentration in the soil sample collected from the Former Building E-221 Area as follows:

Monitoring well APLMW-3 (at 4 feet bgs), located 52 feet east of the southeast corner of the former Building E-221 footprint:

- Benzo(a)pyrene at 2,600 µg/kg in APLMW-3(4)

Based on the results of this investigation, soil at the Former Building E-221 Area does not contain TPHg, TPHd, TPHmo, BTEX, and MTBE at concentrations exceeding updated ESLs. Benzo(a)pyrene was detected in soil in APLMW-3 at a depth of 4 feet bgs at a concentration that exceeds the ESL. The areal extent of TPHg, TPHd, TPHmo, BTEX, and MTBE in soil has been characterized to the northeast and southeast of Former Building E-221. The areal extent of PAHs has been characterized to the northeast of Former Building E-221 but is not characterized to the southeast.

#### *3.1.6.2 Groundwater*

Comparison of analytical results to updated ESLs indicates that concentrations of TPHg, BTEX, MTBE, and PAHs did not exceed ESLs in the groundwater samples collected from the monitoring wells. TPHd and TPHmo were detected at concentrations above updated ESLs in groundwater collected from APLMW-2 and APLMW-3. Based on comparison to updated ESLs, there were no changes to the COPCs exceeding ESLs or to the locations where COPC concentrations in groundwater exceeded ESLs from the evaluation presented in the Report.

The following summarizes detected concentrations of TPHd and TPHmo ESL exceedances in each of the monitoring wells sampled:

Monitoring well APLMW-2, located 12 feet east of the southeast corner of the former Building E-221 footprint:

- TPHd at 3,600 µg/L in APLMW-2(GW)
- TPHmo at 1,800 µg/L in APLMW-2(GW)

Monitoring well APLMW-3, located 52 feet east of the southeast corner of the former Building E-221 footprint:

- TPHd at 2,700 µg/L in APLMW-3(GW)
- TPHmo at 1,900 µg/L in APLMW-3(GW)

Based on results of this investigation, TPHg, BTEX, MTBE, and PAHs have not impacted groundwater at the Former Building E-221 Area and are considered characterized to the northeast and southeast of Former Building E-221. TPHd and TPHmo concentrations in groundwater northeast of Former Building E-221 do not exceed ESLs and are considered characterized in this area. TPHd and TPHmo are present above updated ESLs in groundwater to the southeast of Former Building E-221 and are not characterized in that area.

## 4.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This section presents revisions to the summary, conclusions, and recommendations presented in Section 6.0 of the Report.

### 4.1 SUMMARY AND CONCLUSIONS

The following presents a summary of the findings and conclusions regarding the Phase I investigation at each of the six investigation areas.

**Case Area 002**

VOCs and SVOCs were detected in soil at concentrations above ESLs in two (APLB-3 and APLB-4) of the four soil borings drilled at this case area. Maximum concentrations of VOCs and SVOCs in soil exceeded ESLs by three orders of magnitude.

VOCs and SVOCs in soil appear to have impacted the underlying groundwater. At least one VOC was detected in groundwater samples collected from each boring at a concentration exceeding the ESL. VOCs and SVOCs were detected in groundwater sample APLB-3(GW) at concentrations exceeding ESLs. Chlorobenzene was detected in groundwater sample APLB-3(GW) at a concentration that was three orders of magnitude greater than the ESL. Maximum concentrations of SVOCs in groundwater were one order of magnitude higher than ESLs.

VOCs and SVOCs detected in soil and groundwater at concentrations exceeding ESLs in these borings suggest that additional evaluation of COPCs in soil and groundwater in this area is warranted.

**Case Area 004**

TPHd was detected in soil at a concentration above the ESL in one (APLB-5) of the three borings drilled at this case area. TPHd and TPHmo were detected in groundwater at concentrations above the ESL in two (APLB-5 and APLB-6) of the three borings drilled at this

case area. The maximum detected concentrations of TPHd and TPHmo in groundwater exceeded ESLs by one order of magnitude.

Detections of TPHd in soil and TPHd and TPHmo in groundwater at concentrations exceeding ESLs in these borings suggest that additional evaluation COPCs in soil and groundwater in this area is warranted.

**Case Area 005**

TPHd was detected in soil at a concentration exceeding the ESL in boring APLB-8. The maximum detected concentration of TPHd in soil exceeded the ESL by one order of magnitude. Fluorene and phenanthrene (PAHs) were detected in soil at concentrations exceeding ESLs in APLB-8. Groundwater sample results show that TPHg and TPHd concentrations in one boring (APLB-8) exceeded ESLs by one order of magnitude

Detections of TPHd, TPHmo, fluorene, and phenanthrene in soil and TPHg and TPHd in groundwater at concentrations exceeding ESLs in these borings suggest that additional evaluation of COPCs in soil and groundwater in this area is warranted.

**Case Area 009**

Arsenic was detected in soil at concentrations above the ESL in all five borings drilled at this case area. Although arsenic concentrations are present above the ESLs, the detected concentrations are within the range of background and are likely naturally occurring. Lead was detected in soil at concentrations above the associated ESL in three (APLB-13, APLB-14, and APLB-21) of the five borings drilled at this case area.

Groundwater sample results show that TPHd and TPHmo were detected at concentrations that exceeded ESLs in four (APLB-12, APLB-13, APLB-14, and APLB-20) of the five borings. TPHmo concentrations in groundwater exceeded the ESL by an order of magnitude. Selenium was detected in groundwater from APLB-13 at concentrations that exceeded the ESL.

Detections of TPHd, TPHmo, and lead in soil and TPHd, TPHmo, and selenium in groundwater at concentrations exceeding ESLs in these borings suggest that additional evaluation of these COPCs in soil and groundwater in this area is warranted.

**Case Area 010**

TPHd was detected in soil at a concentration that exceeded the ESL in boring APLB-15 by one order of magnitude. Comparison of groundwater sample analytical results to ESLs shows that TPHd concentrations from all five borings, TPHmo concentrations from two borings (APLB-18 and APLB-19), and TPHg and chlorobenzene concentrations from one boring (APLB-19) exceeded ESLs. Maximum concentrations of chlorobenzene, TPHmo, and TPHd in groundwater exceeded ESLs by an order of magnitude.

Detections of TPHd and TPHmo in soil and TPHd, TPHmo, TPHg, and chlorobenzene in groundwater at concentrations exceeding ESLs in these borings suggest that additional evaluation of COPCs in soil and groundwater in this area is warranted.

**Former Building E-221**

Benzo(a)pyrene (a PAH) was detected in soil at a concentration above the ESL by one order of magnitude in one of the well borings (APLMW-3) drilled in this case area. Analytical results for groundwater samples collected from the monitoring wells installed in this area show that TPHd and TPHmo concentrations in two of the wells exceeded ESLs. Maximum concentrations of TPHd and TPHmo in groundwater exceeded ESLs by an order of magnitude.

Detections of TPHd and TPHmo in soil and groundwater at concentrations exceeding ESLs in these wells suggest that additional evaluation of potential environmental concerns in this area is warranted.

## 4.2 RECOMMENDATIONS

As discussed in previous sections of this Amendment, analytical data were evaluated with respect to ESLs. Review of analytical results for soil and groundwater samples collected as part of this investigation indicate that COPCs are present above updated ESLs in soil and/or groundwater in at least one of the borings sampled at each investigation area. As stated in the *Interim Final User's Guide: Derivation and Application of Environmental Screening Levels* (Cal/EPA, 2016b); "*With certain limitations, risks to human health and the environment can be considered not to be of regulatory concern at sites where concentrations of chemicals of concern do not exceed the respective ESLs. The presence of chemicals at concentrations above the ESLs does not necessarily indicate that a significant risk exists at the site. It does generally indicate that additional evaluation of potential environmental concerns is warranted*."

The Site is currently paved and groundwater is not currently used for drinking water; which limits potential exposure to human receptors. However, the levels of COPCs present in site soil and groundwater would likely not be acceptable if the current land use were to change in the future. Further characterization of the extent of COPCs in soil and groundwater is necessary to assess potential impacts to the environment and human health and to make risk management or remedial decisions regarding the site.

It is recommended that a Work Plan be prepared that would describe a second phase of soil and groundwater investigation to characterize the extent of COPCs in soil and groundwater at the six investigation areas. Amec Foster Wheeler recommends utilizing a "step-out" investigation and sampling approach. Step-out boring locations would be identified in the Work Plan and would be drilled in areas around previous boring locations where COPCs exceeded

ESLs in soil or groundwater. Soil and groundwater samples collected from these borings would be analyzed for COPCs that previously exceeded ESLs.

Prior to sampling, potential step-out boring areas would be permitted and geophysically cleared for subsurface utilities. After the initial round of sampling, the analytical data would be reviewed and additional step-out borings will be drilled and sampled if COPC concentrations discovered during the initial round of sampling exceed ESLs. Data would also be evaluated to assess whether COPCs are from a point source or ubiquitous and related to fill material at the site. If it is believed to be related to fill, sufficient samples will be collected and analyzed to characterize the range of concentrations of COPCs in the fill material and assess potential risks.

After completion of the investigation, the extent and magnitude of COPC-impacted soil and groundwater could be estimated, as practicable (if contamination is related to a point-source release), and risks to the environment and human health from COPCs in soil and groundwater calculated. On the basis of that evaluation, management or remedial decisions can be identified and evaluated.

## 5.0 REFERENCES


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## TABLES

**TABLE 1**

**SOIL SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

| Case Area | Boring | Sample Number [a] | Approximate Sample Depth | Sample Type | Date | Lab ID | Total Petroleum Hydrocarbons mg/kg | | | BTEX and MTBE (8021B) µg/kg | | | | | | PAHs (8270C-SIM) µg/kg | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | TPHd (8015M) | TPHmo (8015M) | TPHg (8015M) | MTBE | Benzene | Toluene | Ethylbenzene | m,pXylenes | o-Xylene | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benzo(a)anthracene | Chrysene |
| **Previous Environmental Screening Level [b1] - Shallow Soils Commerical/Industrial Land Use** | | | | | | | **110** | **500** | **500** | **--** | **1,200** | **9,300** | **4,700** | **11,000 (Total)** | | **4,800** | **13,000** | **19,000** | **8,900** | **11,000** | **2,800** | **40,000** | **85,000** | **1,300** | **13,000** |
| **Updated Soil Environmental Screening Level - 2016 [b2]** | | | | | | | **1,154** | **139,513** | **3,392** | **835** | **49** | **9,285** | **1,383** | **11,312** | | **3,940** | **12,720** | **18,730** | **8,936** | **10,692** | **2,848** | **60,447** | **85,064** | **2,890** | **23,240** |
| 002 | APLB-1 | APLB-1(2) | 2 | Primary | 5/1/2015 | 266525-010 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-1(4.5) | 4.5 | Primary | 5/1/2015 | 266525-011 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-1(8.4) | 8.4 | Primary | 5/1/2015 | 266525-012 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-2 | APLB-2(2) | 2 | Primary | 5/1/2015 | 266525-019 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-2(5) | 5 | Primary | 5/1/2015 | 266525-020 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-2(8) | 8 | Primary | 5/1/2015 | 266525-021 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-3 | APLB-3(2) | 2 | Primary | 5/1/2015 | 266525-016 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-3(5) | 5 | Primary | 5/1/2015 | 266525-017 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-3(8) | 8 | Primary | 5/1/2015 | 266525-018 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-4 | APLB-4(2) | 2 | Primary | 5/1/2015 | 266525-013 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-4(4.5) | 4.5 | Primary | 5/1/2015 | 266525-014 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-4(7) | 7 | Primary | 5/1/2015 | 266525-015 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 004 | APLB-5 | APLB-5(2.5) | 2.5 | Primary | 4/27/2015 | 266374-013 | **60** | **240** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-5(4.5) | 4.5 | Primary | 4/27/2015 | 266374-014 | **96** | **65** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-5(6) | 6 | Primary | 4/27/2015 | 266374-015 | **2,700** | <110 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-6 | APLB-6(2.5) | 2.5 | Primary | 4/27/2015 | 266374-016 | **140** | **460** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-6(4.5) | 4.5 | Primary | 4/27/2015 | 266374-017 | **150** | **63** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-6(5.5) | 5.5 | Primary | 4/27/2015 | 266374-018 | **130** | **64** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-7 | APLB-7(2) | 2 | Primary | 4/27/2015 | 266374-019 | **16** | **280** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-7(4.5) | 4.5 | Primary | 4/27/2015 | 266374-020 | **33** | **160** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-7(6.5) | 6.5 | Primary | 4/27/2015 | 266374-021 | **4.6** | **14** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 005 | APLB-8 | APLB-8(2) | 2 | Primary | 4/27/2015 | 266374-009 | **48** | **230** | <0.21 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-8(4.5) | 4.5 | Primary | 4/27/2015 | 266374-010 | **38** | **220** | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-8(5.5) | 5.5 | Primary | 4/27/2015 | 266374-011 | **31,000** | **830** | **430** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-9 | APLB-9(2) | 2 | Primary | 4/27/2015 | 266374-022 | **6.8** | **130** | <0.16 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-9(4.5) | 4.5 | Primary | 4/27/2015 | 266374-003 | **18** | **140** | <0.18 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-9(8) | 8 | Primary | 4/27/2015 | 266374-004 | <1.2 | <6.0 | <0.20 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-10 | APLB-10(2) | 2 | Primary | 4/27/2015 | 266374-005 | **50** | **410** | <0.17 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-10(4.5) | 4.5 | Primary | 4/27/2015 | 266374-006 | **65** | **280** | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-10(8.5) | 8.5 | Primary | 4/27/2015 | 266374-007 | **4.1** | <5.9 | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-11 | APLB-11(2) | 2 | Primary | 4/30/2015 | 266511-011 | **170** | **930** | <0.18 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-11(4.3) | 4.3 | Primary | 4/30/2015 | 266511-012 | **1.9** | **12** | <0.20 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-11(5) | 5 | Primary | 4/30/2015 | 266511-013 | **4.6** | **6.3** | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 009 | APLB-12 | APLB-12(1.5) | 1.5 | Primary | 4/30/2015 | 266511-029 | **54** | **1,000** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-12(4.5) | 4.5 | Primary | 4/30/2015 | 266511-030 | **61** | **56** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-12(7.8) | 7.8 | Primary | 4/30/2015 | 266511-031 | <1.1 | <5.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-13 | APLB-13(2) | 2 | Primary | 5/1/2015 | 266525-004 | **420** | **3,900** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-13(4.5) | 4.5 | Primary | 5/1/2015 | 266525-005 | **84** | **390** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-13(8) | 8 | Primary | 5/1/2015 | 266525-006 | <1.1 | <5.7 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-14 | APLB-14(2) | 2 | Primary | 5/1/2015 | 266525-001 | **26** | **260** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-14(4.5) | 4.5 | Primary | 5/1/2015 | 266525-002 | **140** | **500** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-14(8.4) | 8.4 | Primary | 5/1/2015 | 266525-003 | **390** | **850** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-20 | APLB-20(1.5) | 1.5 | Primary | 5/1/2015 | 266525-007 | **190** | **1,300** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-20(4.5) | 4.5 | Primary | 5/1/2015 | 266525-008 | <1.1 | **6.2** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-20(8.5) | 8.5 | Primary | 5/1/2015 | 266525-009 | <1.1 | <5.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-21 | APLB-21(2.5) | 2.5 | Primary | 4/28/2015 | 266392-004 | **2.6** | **13** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-21(4.5) | 4.5 | Primary | 4/28/2015 | 266392-005 | **60** | **320** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-21(8.5) | 8.5 | Primary | 4/28/2015 | 266392-006 | **2.9** | **10** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 010 | APLB-15 | APLB-15(2.5) | 2.5 | Primary | 4/30/2015 | 266511-014 | **50** | **210** | <0.16 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-15(4.5) | 4.5 | Primary | 4/30/2015 | 266511-015 | **5,800** | **14,000** | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-15(8) | 8 | Primary | 4/30/2015 | 266511-016 | **12** | **200** | <0.29 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-16 | APLB-16(2.5) | 2.5 | Primary | 4/30/2015 | 266511-017 | **27** | **160** | <0.20 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-16(4.5) | 4.5 | Primary | 4/30/2015 | 266511-018 | **1.1** | **6.5** | <0.25 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-16(7.6) | 7.6 | Primary | 4/30/2015 | 266511-019 | **9.9** | **55** | <0.21 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-17 | APLB-17(2) | 2 | Primary | 4/30/2015 | 266511-020 | **1.5** | **14** | <0.18 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-17(5) | 5 | Primary | 4/30/2015 | 266511-021 | **25** | **140** | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-17(6.5) | 6.5 | Primary | 4/30/2015 | 266511-022 | **24** | **100** | <0.27 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-18 | APLB-18(2) | 2 | Primary | 4/30/2015 | 266511-026 | **7.6** | **45** | <0.21 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-18(4.5) | 4.5 | Primary | 4/30/2015 | 266511-027 | **13** | **270** | <0.22 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-18(7.5) | 7.5 | Primary | 4/30/2015 | 266511-028 | <1.1 | <5.7 | <0.19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-19 | APLB-19(2) | 2 | Primary | 4/30/2015 | 266511-023 | <1.1 | <5.5 | <0.16 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-19(4.5) | 4.5 | Primary | 4/30/2015 | 266511-024 | <1.0 | <5.2 | <0.21 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-19(8.5) | 8.5 | Primary | 4/30/2015 | 266511-025 | **530** | **1,600** | <0.25 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Former Building E-221 | APLMW-1 | APLMW-1(4) | 4 | Primary | 5/14/2015 | 266803-001 | **9.6** | **65** | <0.21 | <4.2 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 |
| | | APLMW-1(7.5) | 7.5 | Primary | 5/14/2015 | 266803-002 | **300** | **520** | **140** | <250 | <61 | **160** | <61 | <61 | <61 | <5.5 | <5.5 | <5.5 | <5.5 | <5.5 | <5.5 | **7.1** | **13** | <5.5 | <5.5 |
| | APLMW-2 | APLMW-2(4.5) | 4.5 | Primary | 5/15/2015 | 266820-001 | **380** | **220** | **1.5** | <3.9 | <0.97 | <0.97 | <0.97 | <0.97 | **1.3** | **11** | **17** | <5.2 | **28** | **78** | <5.2 | **26** | **52** | **13** | **26** |
| | | APLMW-2(8.2) | 8.2 | Primary | 5/15/2015 | 266820-002 | **3.2** | **8.4** | <0.21 | <4.2 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 |
| | APLMW-3 | APLMW-3(4) | 4 | Primary | 5/14/2015 | 266803-003 | **150** | **900** | <0.23 | <4.7 | <1.2 | <1.2 | <1.2 | <1.2 | <1.2 | <550 | **720** | <550 | <550 | **710** | <550 | **2,100** | **3,400** | **910** | **1,300** |
| | | APLMW-3(7) | 7 | Primary | 5/14/2015 | 266803-004 | **460** | **1,400** | **1.6** | **7.8** | **4.5** | **16** | **2.5** | **3.6** | **4.1** | **15** | **7.3** | <6.5 | <6.5 | **18** | **7.8** | **53** | **80** | **28** | **41** |
| IDW | Soil from Case Area Borings | APLB-DRUM | NA | Primary | 6/19/2015 | 267609-001 | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |

**TABLE 1**

**SOIL SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

| Case Area | Boring | Sample Number [a] | Approximate Sample Depth | Sample Type | Date | Lab ID | PAHs (8270C-SIM) µg/kg | | | | | | Volatile Organic Compounds (8260B) µg/kg | | | | | | | | | | | Semi-volatile Organic Compounds µg/kg | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Benzo(b)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1,2,3-cd)pyrene | Dibenz(a,h)anthracene | Benzo(g,h,i)perylene | 1,2,3-Trichlorobenzene | 1,2,4-Trichlorobenzene | 1,2-Dichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2-Butanone | Acetone | Chlorobenzene | n-Butylbenzene | sec-Butylbenzene | Toluene | 1,2,4-Trichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2-Methylnaphthalene | Acenaphthene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Chrysene | Fluoranthene | Fluorene | Naphthalene | Phenanthrene | Pyrene |
| **Previous Environmental Screening Level [b1] - Shallow Soils Commerical/Industrial Land Use** | | | | | | | **1,300** | **1,300** | **130** | **1,300** | **380** | **27,000** | **--** | **7,600** | **1,600** | **7,400** | **1,800** | **13,000** | **500** | **1,500** | **--** | **--** | **9,300** | **7,600** | **7,400** | **1,800** | **250** | **19,000** | **12,000** | **130** | **1,300** | **27,000** | **13,000** | **40,000** | **89,000** | **4,800** | **11,000** | **85,000** |
| **Updated Soil Environmental Screening Level - 2016 [b2]** | | | | | | | **2,890** | **28,894** | **289** | **2,890** | **289** | **26,560** | **--** | **7,607** | **1,599** | **7,367** | **1,388** | **--** | **504** | **1,483** | **--** | **--** | **9,285** | **7,607** | **7,367** | **1,388** | **255** | **18,730** | **2,890** | **289** | **2,890** | **26,560** | **23,240** | **60,447** | **8,936** | **3,940** | **10,692** | **85,064** |
| 002 | APLB-1 | APLB-1(2) | 2 | Primary | 5/1/2015 | 266525-010 | -- | -- | -- | -- | -- | -- | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | <10 | <20 | <5.1 | <5.1 | <5.1 | <5.1 | <36,000 | <36,000 | <36,000 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 | <7,200 |
| | | APLB-1(4.5) | 4.5 | Primary | 5/1/2015 | 266525-011 | -- | -- | -- | -- | -- | -- | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <11 | <21 | <5.3 | <5.3 | <5.3 | <5.3 | <36,000 | <36,000 | <36,000 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 | <7,100 |
| | | APLB-1(8.4) | 8.4 | Primary | 5/1/2015 | 266525-012 | -- | -- | -- | -- | -- | -- | <4.4 | <4.4 | <4.4 | <4.4 | <4.4 | <8.7 | **37** | <4.4 | <4.4 | <4.4 | <4.4 | <410 | <410 | <410 | <82 | <82 | <82 | <82 | <82 | <82 | <82 | **130** | <82 | <82 | **85** | **120** |
| | APLB-2 | APLB-2(2) | 2 | Primary | 5/1/2015 | 266525-019 | -- | -- | -- | -- | -- | -- | <250 | **430** | <250 | <250 | <250 | <490 | <980 | <250 | <250 | <250 | <250 | <6,000 | <6,000 | <6,000 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 |
| | | APLB-2(5) | 5 | Primary | 5/1/2015 | 266525-020 | -- | -- | -- | -- | -- | -- | <4.7 | **77** | **15** | **920** | **59** | <9.4 | <19 | **160** | <4.7 | <4.7 | <4.7 | **360** | **520** | <360 | <71 | <71 | <71 | <71 | <71 | <71 | <71 | **94** | <71 | <71 | <71 | **110** |
| | | APLB-2(8) | 8 | Primary | 5/1/2015 | 266525-021 | -- | -- | -- | -- | -- | -- | <8.0 | <8.0 | <8.0 | <8.0 | <8.0 | <16 | <32 | <8.0 | <8.0 | <8.0 | <8.0 | <500 | <500 | <500 | <100 | <100 | <100 | <100 | **110** | <100 | **110** | **210** | <100 | <100 | **210** | **200** |
| | APLB-3 | APLB-3(2) | 2 | Primary | 5/1/2015 | 266525-016 | -- | -- | -- | -- | -- | -- | <5.4 | **8.8** | <5.4 | <5.4 | <5.4 | <11 | <22 | **29** | <5.4 | <5.4 | <5.4 | <1,800 | <1,800 | <1,800 | <350 | <350 | <350 | <350 | <350 | <350 | <350 | <350 | <350 | <350 | <350 | <350 | <350 |
| | | APLB-3(5) | 5 | Primary | 5/1/2015 | 266525-017 | **1,300,000** | **7,200,000** | **62,000** | <4,900 | **57,000** | <9,800 | <20,000 | **55,000** | <4,900 | <4,900 | <4,900 | **6,000,000** | <72,000 | <72,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 | <14,000 |
| | | APLB-3(8) | 8 | Primary | 5/1/2015 | 266525-018 | -- | -- | -- | -- | -- | -- | **210,000** | **1,100,000** | **26,000** | **240,000** | **650,000** | <7,800 | <16,000 | **97,000** | <3,900 | <3,900 | <3,900 | **2,300,000** | **220,000** | **560,000** | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 | <16,000 |
| | APLB-4 | APLB-4(2) | 2 | Primary | 5/1/2015 | 266525-013 | -- | -- | -- | -- | -- | -- | **1,500** | **8,100** | <250 | <250 | <250 | <500 | <1,000 | **2,200** | <250 | <250 | <250 | <18,000 | <18,000 | <18,000 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 | <3,600 |
| | | APLB-4(4.5) | 4.5 | Primary | 5/1/2015 | 266525-014 | -- | -- | -- | -- | -- | -- | **130** | **4,000** | **32** | **77** | **200** | <11 | <21 | **110** | <5.3 | <5.3 | <5.3 | **3,400** | <350 | **530** | <69 | <69 | <69 | <69 | <69 | <69 | <69 | <69 | <69 | <69 | <69 | <69 | <69 |
| | | APLB-4(7) | 7 | Primary | 5/1/2015 | 266525-015 | -- | -- | -- | -- | -- | -- | **11,000** | **120,000** | <4,200 | **98,000** | **130,000** | <8,400 | <17,000 | **100,000** | <4,200 | <4,200 | <4,200 | **29,000** | **36,000** | **40,000** | <160 | <160 | <160 | <160 | <160 | <160 | <160 | <160 | <160 | <160 | <160 | <160 | <160 |
| 004 | APLB-5 | APLB-5(2.5) | 2.5 | Primary | 4/27/2015 | 266374-013 | -- | -- | -- | -- | -- | -- | <4.5 | <4.5 | <4.5 | <4.5 | <4.5 | <8.9 | <18 | <4.5 | <4.5 | <4.5 | **4.7** | <18,000 | <18,000 | <18,000 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 | <3,500 |
| | | APLB-5(4.5) | 4.5 | Primary | 4/27/2015 | 266374-014 | -- | -- | -- | -- | -- | -- | <3.8 | <3.8 | <3.8 | <3.8 | <3.8 | <7.7 | <15 | <3.8 | <3.8 | <3.8 | <3.8 | <730 | <730 | <730 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 |
| | | APLB-5(6) | 6 | Primary | 4/27/2015 | 266374-015 | -- | -- | -- | -- | -- | -- | <190 | <190 | <190 | <190 | <190 | <380 | <770 | <190 | <190 | <190 | <190 | <2,700 | <2,700 | <2,700 | <540 | <540 | <540 | <540 | <540 | <540 | <540 | <540 | <540 | <540 | <540 | <540 | <540 |
| | APLB-6 | APLB-6(2.5) | 2.5 | Primary | 4/27/2015 | 266374-016 | -- | -- | -- | -- | -- | -- | <3.9 | <3.9 | <3.9 | <3.9 | <3.9 | <7.8 | <16 | <3.9 | <3.9 | <3.9 | <3.9 | <5,900 | <5,900 | <5,900 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 | <1,200 |
| | | APLB-6(4.5) | 4.5 | Primary | 4/27/2015 | 266374-017 | -- | -- | -- | -- | -- | -- | <4.8 | <4.8 | <4.8 | <4.8 | <4.8 | <9.5 | <19 | <4.8 | <4.8 | <4.8 | <4.8 | <770 | <770 | <770 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 |
| | | APLB-6(5.5) | 5.5 | Primary | 4/27/2015 | 266374-018 | -- | -- | -- | -- | -- | -- | <4.5 | <4.5 | <4.5 | <4.5 | <4.5 | <9.0 | <18 | <4.5 | <4.5 | <4.5 | <4.5 | <1,200 | <1,200 | <1200 | <230 | <230 | <230 | <230 | <230 | **230** | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| | APLB-7 | APLB-7(2) | 2 | Primary | 4/27/2015 | 266374-019 | -- | -- | -- | -- | -- | -- | <4.7 | <4.7 | <4.7 | <4.7 | <4.7 | <9.5 | <19 | <4.7 | <4.7 | <4.7 | <4.7 | <1,000 | <1,000 | <1,000 | <210 | <210 | <210 | <210 | <210 | <210 | <210 | <210 | <210 | <210 | <210 | <210 | <210 |
| | | APLB-7(4.5) | 4.5 | Primary | 4/27/2015 | 266374-020 | -- | -- | -- | -- | -- | -- | <4.7 | <4.7 | <4.7 | <4.7 | <4.7 | <9.4 | <19 | <4.7 | <4.7 | <4.7 | <4.7 | <760 | <760 | <760 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 | <150 |
| | | APLB-7(6.5) | 6.5 | Primary | 4/27/2015 | 266374-021 | -- | -- | -- | -- | -- | -- | <4.5 | <4.5 | <4.5 | <4.5 | <4.5 | <9.1 | <18 | <4.5 | <4.5 | <4.5 | <4.5 | <390 | <390 | <390 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 |
| 005 | APLB-8 | APLB-8(2) | 2 | Primary | 4/27/2015 | 266374-009 | -- | -- | -- | -- | -- | -- | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | <10 | <20 | <5.1 | <5.1 | <5.1 | <5.1 | <3,600 | <3,600 | <3,600 | <730 | <730 | <730 | <730 | <730 | <730 | <730 | <730 | <730 | <730 | <730 | <730 | <730 |
| | | APLB-8(4.5) | 4.5 | Primary | 4/27/2015 | 266374-010 | -- | -- | -- | -- | -- | -- | <4.3 | <4.3 | <4.3 | <4.3 | <4.3 | <8.6 | <17 | <4.3 | <4.3 | <4.3 | <4.3 | <35,000 | <35,000 | <35,000 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 | <6,900 |
| | | APLB-8(5.5) | 5.5 | Primary | 4/27/2015 | 266374-011 | -- | -- | -- | -- | -- | -- | <230 | <230 | <230 | <230 | <230 | <460 | <920 | <230 | **1,000** | **780** | <230 | <7,900 | <7,900 | <7,900 | <1,600 | **4,600** | <1,600 | <1,600 | <1,600 | <1,600 | <1,600 | <1,600 | **9,500** | <1,600 | **22,000** | <1,600 |
| | APLB-9 | APLB-9(2) | 2 | Primary | 4/27/2015 | 266374-022 | -- | -- | -- | -- | -- | -- | <4.3 | <4.3 | <4.3 | <4.3 | <4.3 | <8.7 | <17 | <4.3 | <4.3 | <4.3 | <4.3 | <700 | <700 | <700 | <140 | <140 | <140 | <140 | <140 | <140 | <140 | <140 | <140 | <140 | <140 | <140 | <140 |
| | | APLB-9(4.5) | 4.5 | Primary | 4/27/2015 | 266374-003 | -- | -- | -- | -- | -- | -- | <4.2 | <4.2 | <4.2 | <4.2 | <4.2 | <8.4 | <17 | <4.2 | <4.2 | <4.2 | <4.2 | <7,400 | <7,400 | <7,400 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 | <1,500 |
| | | APLB-9(8) | 8 | Primary | 4/27/2015 | 266374-004 | -- | -- | -- | -- | -- | -- | <4.9 | <4.9 | <4.9 | <4.9 | <4.9 | <9.8 | <20 | <4.9 | <4.9 | <4.9 | <4.9 | <400 | <400 | <400 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 |
| | APLB-10 | APLB-10(2) | 2 | Primary | 4/27/2015 | 266374-005 | -- | -- | -- | -- | -- | -- | <4.2 | <4.2 | <4.2 | <4.2 | <4.2 | <8.4 | <17 | <4.2 | <4.2 | <4.2 | <4.2 | <3,600 | <3,600 | <3,600 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 |
| | | APLB-10(4.5) | 4.5 | Primary | 4/27/2015 | 266374-006 | -- | -- | -- | -- | -- | -- | <3.9 | <3.9 | <3.9 | <3.9 | <3.9 | <7.8 | <16 | <3.9 | <3.9 | <3.9 | <3.9 | <3,700 | <3,700 | <3,700 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 |
| | | APLB-10(8.5) | 8.5 | Primary | 4/27/2015 | 266374-007 | -- | -- | -- | -- | -- | -- | <5.8 | <5.8 | <5.8 | <5.8 | <5.8 | <12 | <23 | <5.8 | <5.8 | <5.8 | <5.8 | <390 | <390 | <390 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 | <78 |
| | APLB-11 | APLB-11(2) | 2 | Primary | 4/30/2015 | 266511-011 | -- | -- | -- | -- | -- | -- | <5.2 | <5.2 | <5.2 | <5.2 | <5.2 | <10 | **48 J** | <5.2 | <5.2 | <5.2 | <5.2 | <3,600 | <3,600 | <3,600 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 | <720 |
| | | APLB-11(4.3) | 4.3 | Primary | 4/30/2015 | 266511-012 | -- | -- | -- | -- | -- | -- | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <11 | <21 | <5.3 | <5.3 | <5.3 | <5.3 | <380 | <380 | <380 | <75 | <75 | **170** | **100** | **150** | <75 | **170** | **310** | <75 | <75 | **170** | **260** |
| | | APLB-11(5) | 5 | Primary | 4/30/2015 | 266511-013 | -- | -- | -- | -- | -- | -- | <4.3 | <4.3 | <4.3 | <4.3 | <4.3 | <8.7 | **59** | <4.3 | <4.3 | <4.3 | <4.3 | <410 | <410 | <410 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 |
| 009 | APLB-12 | APLB-12(1.5) | 1.5 | Primary | 4/30/2015 | 266511-029 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-12(4.5) | 4.5 | Primary | 4/30/2015 | 266511-030 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-12(7.8) | 7.8 | Primary | 4/30/2015 | 266511-031 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-13 | APLB-13(2) | 2 | Primary | 5/1/2015 | 266525-004 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-13(4.5) | 4.5 | Primary | 5/1/2015 | 266525-005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-13(8) | 8 | Primary | 5/1/2015 | 266525-006 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-14 | APLB-14(2) | 2 | Primary | 5/1/2015 | 266525-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-14(4.5) | 4.5 | Primary | 5/1/2015 | 266525-002 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-14(8.4) | 8.4 | Primary | 5/1/2015 | 266525-003 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-20 | APLB-20(1.5) | 1.5 | Primary | 5/1/2015 | 266525-007 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-20(4.5) | 4.5 | Primary | 5/1/2015 | 266525-008 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-20(8.5) | 8.5 | Primary | 5/1/2015 | 266525-009 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-21 | APLB-21(2.5) | 2.5 | Primary | 4/28/2015 | 266392-004 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-21(4.5) | 4.5 | Primary | 4/28/2015 | 266392-005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-21(8.5) | 8.5 | Primary | 4/28/2015 | 266392-006 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 010 | APLB-15 | APLB-15(2.5) | 2.5 | Primary | 4/30/2015 | 266511-014 | -- | -- | -- | -- | -- | -- | <4.3 | <4.3 | <4.3 | <4.3 | <4.3 | <8.5 | **20** | <4.3 | <4.3 | <4.3 | <4.3 | <370 | <370 | <370 | **120** | <73 | <73 | <73 | <73 | **94** | **110** | <73 | **110** |
| | | APLB-15(4.5) | 4.5 | Primary | 4/30/2015 | 266511-015 | -- | -- | -- | -- | -- | -- | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | **15** | **97** | <5.1 | <5.1 | <5.1 | <5.1 | <39,000 | <39,000 | <39,000 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 | <7,800 |
| | | APLB-15(8) | 8 | Primary | 4/30/2015 | 266511-016 | -- | -- | -- | -- | -- | -- | <6.4 | <6.4 | <6.4 | <6.4 | <6.4 | **22** | **120** | <6.4 | <6.4 | <6.4 | <6.4 | <550 | <550 | <550 | <110 | <110 | <110 | <110 | <110 | <110 | <110 | <110 | <110 | <110 | <110 | <110 | <110 |
| | APLB-16 | APLB-16(2.5) | 2.5 | Primary | 4/30/2015 | 266511-017 | -- | -- | -- | -- | -- | -- | <4.6 | <4.6 | <4.6 | <4.6 | <4.6 | <9.2 | **33** | <4.6 | <4.6 | <4.6 | <4.6 | <3,800 | <3,800 | <3,800 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 | <750 |
| | | APLB-16(4.5) | 4.5 | Primary | 4/30/2015 | 266511-018 | -- | -- | -- | -- | -- | -- | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <10 | **27** | <5.0 | <5.0 | <5.0 | <5.0 | <380 | <380 | <380 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 |
| | | APLB-16(7.6) | 7.6 | Primary | 4/30/2015 | 266511-019 | -- | -- | -- | -- | -- | -- | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <11 | **54** | <5.3 | <5.3 | <5.3 | <5.3 | <400 | <400 | <400 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 | <80 |
| | APLB-17 | APLB-17(2) | 2 | Primary | 4/30/2015 | 266511-020 | -- | -- | -- | -- | -- | -- | <4.7 | <4.7 | <4.7 | <4.7 | <4.7 | <9.5 | **23** | <4.7 | <4.7 | <4.7 | <4.7 | <370 UJ | <370 | <370 UJ | <74 | <74 | <74 | <74 | <74 | <74 | <74 | <74 | <74 | <74 | <74 | <74 | <74 |
| | | APLB-17(5) | 5 | Primary | 4/30/2015 | 266511-021 | -- | -- | -- | -- | -- | -- | <4.3 | <4.3 | <4.3 | <4.3 | <4.3 | **9.8** | **51** | <4.3 | <4.3 | <4.3 | <4.3 | <390 | <390 | <390 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 |
| | | APLB-17(6.5) | 6.5 | Primary | 4/30/2015 | 266511-022 | -- | -- | -- | -- | -- | -- | <6.3 | <6.3 | <6.3 | <6.3 | <6.3 | <13 | <25 | <6.3 | <6.3 | <6.3 | <6.3 | <410 | <410 | <410 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 | <81 |
| | APLB-18 | APLB-18(2) | 2 | Primary | 4/30/2015 | 266511-026 | -- | -- | -- | -- | -- | -- | <4.3 | <4.3 | <4.3 | <4.3 | <4.3 | <8.5 | <17 | <4.3 | <4.3 | <4.3 | <4.3 | <380 | <380 | <380 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 | <77 |
| | | APLB-18(4.5) | 4.5 | Primary | 4/30/2015 | 266511-027 | -- | -- | -- | -- | -- | -- | <4.8 | <4.8 | <4.8 | <4.8 | <4.8 | <9.6 | <19 | <4.8 | <4.8 | <4.8 | <4.8 | <4,100 | <4,100 | <4,100 | <820 | <820 | <820 | <820 | <820 | <820 | <820 | <820 | <820 | <820 | <820 | <820 | <820 |
| | | APLB-18(7.5) | 7.5 | Primary | 4/30/2015 | 266511-028 | -- | -- | -- | -- | -- | -- | <4.9 | <4.9 | <4.9 | <4.9 | <4.9 | <9.8 | <20 | <4.9 | <4.9 | <4.9 | <4.9 | <380 | <380 | <380 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 | <76 |
| | APLB-19 | APLB-19(2) | 2 | Primary | 4/30/2015 | 266511-023 | -- | -- | -- | -- | -- | -- | <4.1 | <4.1 | <4.1 | <4.1 | <4.1 | <8.3 | <17 | <4.1 | <4.1 | <4.1 | <4.1 | <370 | <370 | <370 | <73 | <73 | <73 | <73 | <73 | <73 | <73 | <73 | <73 | <73 | <73 | <73 | <73 |
| | | APLB-19(4.5) | 4.5 | Primary | 4/30/2015 | 266511-024 | -- | -- | -- | -- | -- | -- | <4.8 | <4.8 | <4.8 | <4.8 | <4.8 | <9.7 | <19 | <4.8 | <4.8 | <4.8 | <4.8 | <350 | <350 | <350 | <70 | <70 | <70 | <70 | <70 | <70 | <70 | <70 | <70 | <70 | <70 | <70 | <70 |
| | | APLB-19(8.5) | 8.5 | Primary | 4/30/2015 | 266511-025 | -- | -- | -- | -- | -- | -- | <5.4 | <5.4 | <5.4 | <5.4 | <5.4 | <11 | **54** | <5.4 | <5.4 | <5.4 | <5.4 | <17,000 | <17,000 | <17,000 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 | <3,300 |
| Former Building E-221 | APLMW-1 | APLMW-1(4) | 4 | Primary | 5/14/2015 | 266803-001 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | <5.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLMW-1(7.5) | 7.5 | Primary | 5/14/2015 | 266803-002 | <5.5 | <5.5 | <5.5 | <5.5 | <5.5 | <5.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-2 | APLMW-2(4.5) | 4.5 | Primary | 5/15/2015 | 266820-001 | **39** | **11** | **34** | **22** | <5.2 | **31** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLMW-2(8.2) | 8.2 | Primary | 5/15/2015 | 266820-002 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 | 6.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-3 | APLMW-3(4) | 4 | Primary | 5/14/2015 | 266803-003 | **2,600** | **650** | **2,600** | **1,700** | <550 | **2,400** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLMW-3(7) | 7 | Primary | 5/14/2015 | 266803-004 | **66** | <33 | **51** | **35** | **7.0** | **51** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| IDW | Soil from Case Area Borings | APLB-DRUM | NA | Primary | 6/19/2015 | 267609-001 | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**TABLE 1**

**SOIL SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

| Case Area | Boring | Sample Number [a] | Approximate Sample Depth | Sample Type | Date | Lab ID | Metals mg/kg | | | | | | | | | | | | | | | | | TCLP Lead (mg/L) | STLC Lead (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | | |
| **Previous Environmental Screening Level [b1] - Shallow Soils Commerical/Industrial Land Use** | | | | | | | **40** | **1.6** | **1,500** | **8.0** | **12** | **2,500** | **80** | **225** | **320** | **10** | **40** | **150** | **10** | **40** | **10** | **200** | **600** | **NA** | **NA** |
| **Updated Soil Environmental Screening Level - 2016 [b2]** | | | | | | | **467** | **0.31** | **216,085** | **2,212** | **578** | **1,752,000** | **347** | **46,720** | **320** | **187** | **5,840** | **11,083** | **5,840** | **5,840** | **11.7** | **576,408** | **350,400** | **NA** | **NA** |
| 002 | APLB-1 | APLB-1(2) | 2 | Primary | 5/1/2015 | 266525-010 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-1(4.5) | 4.5 | Primary | 5/1/2015 | 266525-011 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-1(8.4) | 8.4 | Primary | 5/1/2015 | 266525-012 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-2 | APLB-2(2) | 2 | Primary | 5/1/2015 | 266525-019 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-2(5) | 5 | Primary | 5/1/2015 | 266525-020 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-2(8) | 8 | Primary | 5/1/2015 | 266525-021 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-3 | APLB-3(2) | 2 | Primary | 5/1/2015 | 266525-016 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-3(5) | 5 | Primary | 5/1/2015 | 266525-017 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-3(8) | 8 | Primary | 5/1/2015 | 266525-018 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-4 | APLB-4(2) | 2 | Primary | 5/1/2015 | 266525-013 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-4(4.5) | 4.5 | Primary | 5/1/2015 | 266525-014 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-4(7) | 7 | Primary | 5/1/2015 | 266525-015 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 004 | APLB-5 | APLB-5(2.5) | 2.5 | Primary | 4/27/2015 | 266374-013 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-5(4.5) | 4.5 | Primary | 4/27/2015 | 266374-014 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-5(6) | 6 | Primary | 4/27/2015 | 266374-015 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-6 | APLB-6(2.5) | 2.5 | Primary | 4/27/2015 | 266374-016 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-6(4.5) | 4.5 | Primary | 4/27/2015 | 266374-017 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-6(5.5) | 5.5 | Primary | 4/27/2015 | 266374-018 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-7 | APLB-7(2) | 2 | Primary | 4/27/2015 | 266374-019 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-7(4.5) | 4.5 | Primary | 4/27/2015 | 266374-020 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-7(6.5) | 6.5 | Primary | 4/27/2015 | 266374-021 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 005 | APLB-8 | APLB-8(2) | 2 | Primary | 4/27/2015 | 266374-009 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-8(4.5) | 4.5 | Primary | 4/27/2015 | 266374-010 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-8(5.5) | 5.5 | Primary | 4/27/2015 | 266374-011 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-9 | APLB-9(2) | 2 | Primary | 4/27/2015 | 266374-022 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-9(4.5) | 4.5 | Primary | 4/27/2015 | 266374-003 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-9(8) | 8 | Primary | 4/27/2015 | 266374-004 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-10 | APLB-10(2) | 2 | Primary | 4/27/2015 | 266374-005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-10(4.5) | 4.5 | Primary | 4/27/2015 | 266374-006 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-10(8.5) | 8.5 | Primary | 4/27/2015 | 266374-007 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-11 | APLB-11(2) | 2 | Primary | 4/30/2015 | 266511-011 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-11(4.3) | 4.3 | Primary | 4/30/2015 | 266511-012 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-11(5) | 5 | Primary | 4/30/2015 | 266511-013 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 009 | APLB-12 | APLB-12(1.5) | 1.5 | Primary | 4/30/2015 | 266511-029 | <0.50 | **4.4** | **85** | **0.30** | **0.71** | **26** | **7.3** | **22** | **34** | **0.20** | **0.50** | **25** | **0.76** | <0.25 | <0.50 | **37** | **65** | -- | -- |
| | | APLB-12(4.5) | 4.5 | Primary | 4/30/2015 | 266511-030 | **0.84** | **3.5** | **190** | **0.39** | **1.4** | **8.5** | **10** | **21** | **7.3** | **0.31** | **0.42** | **12** | **1.7** | <0.26 | <0.51 | **45** | **100** | -- | |
| | | APLB-12(7.8) | 7.8 | Primary | 4/30/2015 | 266511-031 | <0.52 | **1.7** | **36** | **0.12** | <0.26 | **30** | **3.2** | **3.3** | **2.0** | **0.022** | <0.26 | **16** | <0.52 | <0.26 | <0.52 | **16** | **11** | -- | -- |
| | APLB-13 | APLB-13(2) | 2 | Primary | 5/1/2015 | 266525-004 | **25** | **4.6** | **99** | **0.34** | <0.25 | **26** | **8.2** | **33** | **350** | **0.16** | **0.49** | **31** | <0.50 | <0.25 | <0.50 | **40** | **66** | -- | -- |
| | | APLB-13(4.5) | 4.5 | Primary | 5/1/2015 | 266525-005 | <0.54 | **7.1** | **95** | **0.30** | **0.34** | **32** | **10** | **45** | **33** | **0.91** | **0.80** | **36** | <0.54 | **0.28** | <0.54 | **40** | **120** | -- | -- |
| | | APLB-13(8) | 8 | Primary | 5/1/2015 | 266525-006 | <0.59 | **1.7** | **39** | <0.12 | <0.30 | **23** | **3.6** | **3.7** | **1.8** | <0.018 | <0.30 | **18** | <0.59 | <0.30 | <0.59 | **16** | **17** | -- | -- |
| | APLB-14 | APLB-14(2) | 2 | Primary | 5/1/2015 | 266525-001 | <0.50 | **9.6** | **110** | **0.34** | <0.25 | **20** | **9.6** | **42** | **11** | **0.38** | **0.72** | **18** | <0.50 | <0.25 | <0.50 | **52** | **120** | -- | -- |
| | | APLB-14(4.5) | 4.5 | Primary | 5/1/2015 | 266525-002 | **5.9** | **3.0** | **110** | **0.21** | **0.63** | **54** | **6.9** | **39** | **360** | **0.30** | <0.28 | **41** | <0.56 | **0.43** | <0.56 | **32** | **290** | -- | -- |
| | | APLB-14(8.4) | 8.4 | Primary | 5/1/2015 | 266525-003 | **1.1** | **2.5** | **23** | <0.11 | **0.44** | **23** | **2.7** | **29** | **63** | **0.058** | <0.29 | **15** | <0.57 | <0.29 | <0.57 | **17** | **660** | -- | -- |
| | APLB-20 | APLB-20(1.5) | 1.5 | Primary | 5/1/2015 | 266525-007 | <0.52 | **5.8** | **100** | **0.35** | <0.26 | **25** | **7.4** | **27** | **37** | **0.34** | **0.39** | **28** | <0.52 | <0.26 | <0.52 | **34** | **81** | -- | -- |
| | | APLB-20(4.5) | 4.5 | Primary | 5/1/2015 | 266525-008 | <0.54 | **6.2** | **77** | **0.45** | **0.67** | **7.1** | **13** | **16** | **14** | **0.13** | **0.43** | **7.6** | <0.54 | **0.33** | <0.54 | **67** | **160** | -- | -- |
| | | APLB-20(8.5) | 8.5 | Primary | 5/1/2015 | 266525-009 | <0.52 | **1.2** | **25** | **0.10** | <0.26 | **24** | **2.5** | **3.6** | **2.0** | <0.017 | <0.26 | **13** | <0.52 | <0.26 | <0.52 | **14** | **9.3** | -- | -- |
| | APLB-21 | APLB-21(2.5) | 2.5 | Primary | 4/28/2015 | 266392-004 | <0.52 | **7.4** | **100** | **0.31** | **1.3** | **18** | **9.5** | **21** | **5.9** | **0.43** | **0.74** | **15** | **1.5** | <0.26 | <0.52 | **38** | **87** | -- | -- |
| | | APLB-21(4.5) | 4.5 | Primary | 4/28/2015 | 266392-005 | **2.0** | **5.6** | **280** | **0.27** | **1.2** | **49** | **8.4** | **66** | **470** | **1.2** | **0.92** | **41** | **0.98** | <0.29 | <0.59 | **38** | **240** | -- | -- |
| | | APLB-21(8.5) | 8.5 | Primary | 4/28/2015 | 266392-006 | <0.55 | **1.9** | **59** | **0.19** | **0.35** | **39** | **5.9** | **6.2** | **4.7** | <0.020 | <0.28 | **28** | <0.55 | <0.28 | <0.55 | **24** | **17** | -- | -- |
| 010 | APLB-15 | APLB-15(2.5) | 2.5 | Primary | 4/30/2015 | 266511-014 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-15(4.5) | 4.5 | Primary | 4/30/2015 | 266511-015 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-15(8) | 8 | Primary | 4/30/2015 | 266511-016 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-16 | APLB-16(2.5) | 2.5 | Primary | 4/30/2015 | 266511-017 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-16(4.5) | 4.5 | Primary | 4/30/2015 | 266511-018 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-16(7.6) | 7.6 | Primary | 4/30/2015 | 266511-019 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-17 | APLB-17(2) | 2 | Primary | 4/30/2015 | 266511-020 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-17(5) | 5 | Primary | 4/30/2015 | 266511-021 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-17(6.5) | 6.5 | Primary | 4/30/2015 | 266511-022 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-18 | APLB-18(2) | 2 | Primary | 4/30/2015 | 266511-026 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-18(4.5) | 4.5 | Primary | 4/30/2015 | 266511-027 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-18(7.5) | 7.5 | Primary | 4/30/2015 | 266511-028 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-19 | APLB-19(2) | 2 | Primary | 4/30/2015 | 266511-023 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-19(4.5) | 4.5 | Primary | 4/30/2015 | 266511-024 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLB-19(8.5) | 8.5 | Primary | 4/30/2015 | 266511-025 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Former Building E-221 | APLMW-1 | APLMW-1(4) | 4 | Primary | 5/14/2015 | 266803-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLMW-1(7.5) | 7.5 | Primary | 5/14/2015 | 266803-002 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-2 | APLMW-2(4.5) | 4.5 | Primary | 5/15/2015 | 266820-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLMW-2(8.2) | 8.2 | Primary | 5/15/2015 | 266820-002 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-3 | APLMW-3(4) | 4 | Primary | 5/14/2015 | 266803-003 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | APLMW-3(7) | 7 | Primary | 5/14/2015 | 266803-004 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| IDW | Soil from Case Area Borings | APLB-DRUM | NA | Primary | 6/19/2015 | 267609-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **0.37** | **12** |

**TABLE 1**

**SOIL SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

Notes

Soil and groundwater samples were analyzed by Curtis &Tompkins, Ltd. Laboratory analytical reports are provided in Appendix F of the Report.

[a] The sample depth is entered in parentheses at the end of the sample number.

[b1] Summary Table B2 - Shallow Soil Screening Levesl (<3 m bgs) Commercial/Industrial Land Use, (groundwater is not a current or potential drinking water resource) from Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, Interim Final (Cal/EPA SFRWQCB, 2013)

[b2] Direct Exposure Human Health Risk Levels (Table S-1) Com/Ind: Shallow Soil Exposure and Leaching to Groundwater Levels (Table S-2) Nondrinking Water. San Francisco Bay Regional Water Quality Control Board (Feb-2016)

[c1] Table F-1b. Groundwater Screening Levels (groundwater is not a current or potential drinking water resource) from Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, Interim Final (Cal/EPA SFRWQCB, 2013)

[c2] Ecological Aquatic Habitat Goal Levels (Table GW-2), Groundwater Vapor Intrusion Human Health Risk Levels (Table GW-3) - Shallow Groundwater - Com/Ind, Gross Contamination Levels (GW-4), and Odor Nuisance Levels (Table GW-5) - Non-Drinking Water. San Francisco Bay Regional Water Quality Control Board (Feb-2016)

For VOCs and SVOCs, only detected compounds are listed. Comprehensive analytical results are presented in Appendix F of the Report.

Results shown in **bold font** are detected results

Results highlighted in grey are ESL exceedances that have not changed.

Results highlighted in red are now ESL exceedances that were not previously.

Results highlighted in green previously exceeded ESLs but are no longer exceedances

<13 = Not detected at indicated reporting limit

Abbreviations

-- = Not analyzed.
BTEX = collective term for benzene, toluene, ethylbenzene, and xylenes
GW = groundwater
ID= identification
mg/kg = milligrams per kilogram
MTBE = methyl tertiary-butyl ether
PAHs = polynuclear aromatic hydrocarbons
TPHd = Total Petroleum Hyrdocarbons Diesel Range
TPHg = Total Petroleum Hyrdocarbons Gasoline Range
TPHmo = Total Petroleum Hyrdocarbons Motor Oil range
µg/kg = micrograms per kilogram
µg/L = micrograms per liter

Qualifiers

J = Result is an estimated concentration.
U = The analyte was analyzed for, but was not detected at the reporting limit shown.
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate.

**TABLE 2**

**GROUNDWATER SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

| Case Area | Well | Sample Number | Sample Type | Date | Lab ID | Total Petroleum Hydrocarbons µg/L | | | BTEX and MTBE (8021B) µg/L | | | | | | PAHs (8270C-SIM) µg/L | | | Volatile Organic Compounds µg/L | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | TPHd (8015M) | TPHmo (8015M) | TPHg (8015M) | MTBE | Benzene | Toluene | Ethylbenzene | m,pXylenes | o-Xylene | Acenaphthylene | Fluorene | Pyrene | 1,2,3-Trichlorobenzene | 1,2,4-Trichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | Benzene | Chlorobenzene | MTBE | n-Butyl-benzene |
| **Previous Groundwater Environmental Screening Level [c1]** | | | | | | **640** | **640** | **500** | **--** | **27** | **130** | **43** | **100 (Total)** | | **30** | **3.9** | **2.0** | **--** | **25** | **65** | **15** | **270** | **25** | **--** | **--** |
| **Updated Groundwater Environmental Screening Level - 2016 [c2]** | | | | | | **640** | **640** | **443** | **180** | **9.7** | **130** | **43** | **100 (Total)** | | **30** | **3.9** | **2.0** | **--** | **25** | **64.5** | **15** | **9.7** | **25** | **180** | **--** |
| 002 | APLB-1 | APLB-1(GW) | Primary | 5/1/2015 | 266525-027 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <10 | <10 | <10 | <10 | **110** | **1,200** | <10 | <10 |
| | APLB-2 | APLB-2(GW) | Primary | 5/1/2015 | 266525-030 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <2.0 | **7.2** | **14** | **4.6** | <2.0 | **200** | <2.0 | <2.0 |
| | APLB-3 | APLB-3(GW) | Primary | 5/1/2015 | 266525-029 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **110** | **490** | **290** | **1,000** | **280** | **15,000** | <100 | <100 |
| | APLB-4 | APLB-4(GW) | Primary | 5/1/2015 | 266525-028 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <13 | **15** | <13 | **15** | <13 | **1,700** | <13 | <13 |
| 004 | APLB-5 | APLB-5(GW) | Primary | 4/27/2015 | 266374-001 | **7,600** | **2,100** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | APLB-6 | APLB-6(GW) | Primary | 4/27/2015 | 266374-002 | **2,700** | **1,500** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | APLB-7 | APLB-7(GW) | Primary | 4/28/2015 | 266392-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| 005 | APLB-8 | APLB-8(GW) | Primary | 4/27/2015 | 266374-012 | **8,400** | **560** | **9,100** | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | **1.8** | **0.50** |
| | APLB-9 | APLB-9(GW) | Primary | 4/28/2015 | 266392-002 | **520** | **310** | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| | APLB-10 | APLB-10(GW) | Primary | 4/27/2015 | 266374-008 | **270** | <300 | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | APLB-11 | APLB-11(GW) | Primary | 4/30/2015 | 266511-002 | **520** | <300 | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | **2.6** | <2.0 |
| | APLB-11 | DUP4/30/15 | Duplicate | 4/30/2015 | 266511-003 | **590** | <300 | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 | **2.6** | <1.7 |
| 009 | APLB-12 | APLB-12(GW) | Primary | 4/30/2015 | 266511-010 | **1,400** | **2,300** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-13 | APLB-13(GW) | Primary | 5/1/2015 | 266525-023 | **2,800** | **1,100** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-14 | APLB-14(GW) | Primary | 5/1/2015 | 266525-022 | **2,800** | **4,100** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-20 | APLB-20(GW) | Primary | 5/1/2015 | 266525-024 | **920** | **1,300** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-21 | APLB-21(GW) | Primary | 4/28/2015 | 266392-003 | <50 | **460** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |
| 010 | APLB-15 | APLB-15(GW) | Primary | 4/30/2015 | 266511-005 | **900** | **530** | <5,000 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| | APLB-16 | APLB-16(GW) | Primary | 4/30/2015 | 266511-006 | **2,000** | **640** | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | APLB-17 | APLB-17(GW) | Primary | 4/30/2015 | 266511-007 | **910** | **630** | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | APLB-18 | APLB-18(GW) | Primary | 4/30/2015 | 266511-009 | **1,100** | **1,100** | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 |
| | APLB-19 | APLB-19(GW) | Primary | 4/30/2015 | 266511-008 | **1,600** | **1,100** | **950** | -- | -- | -- | -- | -- | -- | -- | -- | -- | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | **540** | <5.0 | <5.0 |
| Former Building E-221 | APLMW-1 | APLMW-1(GW) | Primary | 5/23/2015 | 267026-001 | **400** | <300 | **420** | <2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | **0.20** | **0.10** | **0.10** | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-2 | APLMW-2(GW) | Primary | 5/23/2015 | 267026-002 | **3,100** | **1,400** | **100** | <2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | **0.20** | <0.20 | <0.20 | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-2 | DUP052315 | Duplicate | 5/23/2015 | 267026-003 | **3,600** | **1,800** | **86** | <2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | **0.20** | <0.20 | <0.20 | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-3 | APLMW-3(GW) | Primary | 5/23/2015 | 267026-005 | **2,700** | **1,900** | <50 | <2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.20 | <0.20 | <0.20 | -- | -- | -- | -- | -- | -- | -- | -- |
| QA/QC | TB | TB42815 | QC | 4/28/2015 | 266392-007 | **--** | **--** | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | RG | RB43015 | QC | 4/30/2015 | 266511-001 | <50 | <300 | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | TB | TB4/30/15 | QC | 4/30/2015 | 266511-004 | **--** | **--** | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | RB | RB5-1-15 | QC | 5/1/2015 | 266525-026 | <50 | <300 | **--** | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | TB | TB5-1-15 | QC | 5/1/2015 | 266525-025 | -- | -- | **--** | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | TB | TB052315 | QC | 5/23/2015 | 267026-004 | -- | -- | <50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| IDW | Rinsate and Purge Water | RW052315 | QC | 5/23/2015 | 267026-006 | **1,500** | **810** | **64** | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |

**TABLE 2**

**GROUNDWATER SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

| Case Area | Well | Sample Number | Sample Type | Date | Lab ID | Semi-volatile Organic Compounds µg/L | | | | | | Metals µg/L | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1,2-Dichlorobenzene | 1,2,4-Trichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2-Chlorophenol | Naphthalene | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selnium | Silver | Thallium | Vanadium | Zinc |
| **Previous Groundwater Environmental Screening Level** [c1] | | | | | | **14** | **25** | **65** | **15** | **1.8** | **24** | **30** | **36** | **1,000** | **0.53** | **0.25** | **180** | **3.0** | **3.1** | **2.5** | **0.025** | **240** | **8.2** | **5.0** | **0.19** | **4.0** | **19** | **81** |
| **Updated Groundwater Environmental Screening Level - 2016** [c2] | | | | | | **14** | **25** | **64.5** | **15** | **1.8** | **24** | **30** | **36** | **50,000** | **2.65** | **0.25** | **180** | **3.0** | **3.1** | **2.5** | **0.051** | **240** | **8.2** | **5.0** | **0.19** | **6.3** | **19** | **81** |
| 002 | APLB-1 | APLB-1(GW) | Primary | 5/1/2015 | 266525-027 | <13 | <130 | <130 | <130 | <13 | <13 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-2 | APLB-2(GW) | Primary | 5/1/2015 | 266525-030 | <13 | <130 | <130 | <130 | <13 | <13 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-3 | APLB-3(GW) | Primary | 5/1/2015 | 266525-029 | **34** | **450** | **300** | **970** | **35** | **19** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-4 | APLB-4(GW) | Primary | 5/1/2015 | 266525-028 | <11 | <110 | <110 | <110 | <11 | <11 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 004 | APLB-5 | APLB-5(GW) | Primary | 4/27/2015 | 266374-001 | <19 | <190 | <190 | <190 | <19 | <19 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-6 | APLB-6(GW) | Primary | 4/27/2015 | 266374-002 | <10 | <100 | <100 | <100 | <10 | <10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-7 | APLB-7(GW) | Primary | 4/28/2015 | 266392-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 005 | APLB-8 | APLB-8(GW) | Primary | 4/27/2015 | 266374-012 | <100 | <1,000 | <1,000 | <1,000 | <100 | <100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-9 | APLB-9(GW) | Primary | 4/28/2015 | 266392-002 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-10 | APLB-10(GW) | Primary | 4/27/2015 | 266374-008 | <9.4 | <94 | <94 | <94 | <9.4 | <9.4 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-11 | APLB-11(GW) | Primary | 4/30/2015 | 266511-002 | <9.8 | <98 | <98 | <98 | <9.8 | <9.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-11 | DUP4/30/15 | Duplicate | 4/30/2015 | 266511-003 | <9.8 | <98 | <98 | <98 | <9.8 | <9.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 009 | APLB-12 | APLB-12(GW) | Primary | 4/30/2015 | 266511-010 | -- | -- | -- | -- | -- | -- | <10 | <5.0 | **540** | <2.0 | <5.0 | **9.6** | <5.0 | <5.0 | <5.0 | <0.20 | **8.9** | <5.0 | <10 | <5.0 | <10 | <5.0 | <20 |
| | APLB-13 | APLB-13(GW) | Primary | 5/1/2015 | 266525-023 | -- | -- | -- | -- | -- | -- | <10 | <5.0 | **190** | <2.0 | <5.0 | **16** | <5.0 | <5.0 | <5.0 | <0.20 | **7.6** | <5.0 | **52** | <5.0 | <10 | **11** | <20 |
| | APLB-14 | APLB-14(GW) | Primary | 5/1/2015 | 266525-022 | -- | -- | -- | -- | -- | -- | <10 | <5.0 | **770** | <2.0 | <5.0 | **5.9** | <5.0 | <5.0 | <5.0 | <0.20 | **5.3** | <5.0 | <10 | <5.0 | <10 | <5.0 | <20 |
| | APLB-20 | APLB-20(GW) | Primary | 5/1/2015 | 266525-024 | -- | -- | -- | -- | -- | -- | <10 | <5.0 | **590** | <2.0 | <5.0 | **6.2** | <5.0 | <5.0 | <5.0 | <0.20 | **5.1** | <5.0 | <10 | <5.0 | <10 | <5.0 | <20 |
| | APLB-21 | APLB-21(GW) | Primary | 4/28/2015 | 266392-003 | -- | -- | -- | -- | -- | -- | <10 | <5.0 | **1,400** | <2.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <0.20 | <5.0 | <5.0 | <10 | <5.0 | <1.0 | <5.0 | <20 |
| 010 | APLB-15 | APLB-15(GW) | Primary | 4/30/2015 | 266511-005 | <10 | <100 | <100 | <100 | <10 | <10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-16 | APLB-16(GW) | Primary | 4/30/2015 | 266511-006 | <9.8 | <98 | <98 | <98 | <9.8 | <9.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-17 | APLB-17(GW) | Primary | 4/30/2015 | 266511-007 | <9.8 | <98 | <98 | <98 | <9.8 | <9.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-18 | APLB-18(GW) | Primary | 4/30/2015 | 266511-009 | <9.4 | <94 | <94 | <94 | <9.4 | <9.4 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLB-19 | APLB-19(GW) | Primary | 4/30/2015 | 266511-008 | <9.8 | <98 | <98 | <98 | <9.8 | <9.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Former Building E-221 | APLMW-1 | APLMW-1(GW) | Primary | 5/23/2015 | 267026-001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-2 | APLMW-2(GW) | Primary | 5/23/2015 | 267026-002 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-2 | DUP052315 | Duplicate | 5/23/2015 | 267026-003 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | APLMW-3 | APLMW-3(GW) | Primary | 5/23/2015 | 267026-005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| QA/QC | TB | TB42815 | QC | 4/28/2015 | 266392-007 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | RG | RB43015 | QC | 4/30/2015 | 266511-001 | <13 | <130 | <130 | <130 | <13 | <13 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | TB | TB4/30/15 | QC | 4/30/2015 | 266511-004 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | RB | RB5-1-15 | QC | 5/1/2015 | 266525-026 | <13 | <130 | <130 | <130 | <13 | <13 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | TB | TB5-1-15 | QC | 5/1/2015 | 266525-025 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | TB | TB052315 | QC | 5/23/2015 | 267026-004 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| IDW | Rinsate and Purge Water | RW052315 | QC | 5/23/2015 | 267026-006 | <49 | <49 | <49 | <49 | <49 | <49 | <10 | <5.0 | **71** | <2.0 | <5.0 | **37** | **6.5** | **8.8** | <5.0 | <0.20 | **30** | **9.3** | <10 | <5.0 | <10 | **26** | **24** |

**TABLE 2**

**GROUNDWATER SAMPLE ANALYTICAL RESULTS**
Former APL Terminal, Port of Oakland
Oakland, California

Notes
Soil and groundwater samples were analyzed by Curtis &Tompkins, Ltd. Laboratory analytical reports are provided in Appendix F of the Report.
[a] The sample depth is entered in parentheses at the end of the sample number.
[b1] Summary Table B2 - Shallow Soil Screening Levesl (<3 m bgs) Commercial/Industrial Land Use, (groundwater is not a current or potential drinking water resource) from Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, Interim Final (Cal/EPA SFRWQCB, 2013)
[b2] Direct Exposure Human Health Risk Levels (Table S-1) Com/Ind: Shallow Soil Exposure and Leaching to Groundwater Levels (Table S-2) Nondrinking Water. San Francisco Bay Regional Water Quality Control Board (Feb-2016)
[c1] Table F-1b. Groundwater Screening Levels (groundwater is not a current or potential drinking water resource) from Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, Interim Final (Cal/EPA SFRWQCB, 2013)
[c2] Ecological Aquatic Habitat Goal Levels (Table GW-2), Groundwater Vapor Intrusion Human Health Risk Levels (Table GW-3) - Shallow Groundwater - Com/Ind, Gross Contamination Levels (GW-4), and Odor Nuisance Levels (Table GW-5) - Non-Drinking Water.
For VOCs and SVOCs, only detected compounds are listed. Comprehensive analytical results are presented in Appendix F of the Report.
Results shown in **bold font** are detected results
Results highlighted in grey are ESL exceedances that have not changed.
Results highlighted in red are now ESL exceedances that were not previously.
Results highlighted in green previously exceeded ESLs but are no longer exceedances based on the updated ESLs.
<13 = Not detected at indicated reporting limit

Abbreviations
-- = Not analyzed.
BTEX = collective term for benzene, toluene, ethylbenzene, and xylenes
GW = groundwater
ID= identification
mg/kg = milligrams per kilogram
MTBE = methyl tertiary-butyl ether
PAHs = polynuclear aromatic hydrocarbons
TPHd = Total Petroleum Hyrdocarbons Diesel Range
TPHg = Total Petroleum Hyrdocarbons Gasoline Range
TPHmo = Total Petroleum Hyrdocarbons Motor Oil range
µg/kg = micrograms per kilogram
µg/L = micrograms per liter

Qualifiers
J = Result is an estimated concentration.
U = The analyte was analyzed for, but was not detected at the reporting limit shown.
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate.

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**FIGURES**

APLB-16

APLB-19

APLB-17

APLB-1 (2 ft.) 5/1/2015
1,2,4-Trichlorobenzene <5.1
1,2-Dichlorobenzene <5.1
1,3-Dichlorobenzene <5.1
1,4-Dichlorobenzene <5.1
Chlorobenzene <5.1

APLB-1 (4.5 ft.) 5/1/2015
1,2,4-Trichlorobenzene <5.3
1,2-Dichlorobenzene <5.3
1,3-Dichlorobenzene <5.3
1,4-Dichlorobenzene <5.3
Chlorobenzene <5.3

APLB-1 (8.4 ft.) 5/1/2015
1,2,4-Trichlorobenzene <4.4
1,2-Dichlorobenzene <4.4
1,3-Dichlorobenzene <4.4
1,4-Dichlorobenzene <4.4
Chlorobenzene <4.4

APLB-2 (2 ft.) 5/1/2015
1,2,4-Trichlorobenzene 430
1,2-Dichlorobenzene <250
1,3-Dichlorobenzene <250
1,4-Dichlorobenzene <250
Chlorobenzene <250

APLB-2 (5 ft.) 5/1/2015
1,2,4-Trichlorobenzene 77
1,2-Dichlorobenzene 15
1,3-Dichlorobenzene 920
1,4-Dichlorobenzene 59
Chlorobenzene 160

APLB-2 (8 ft.) 5/1/2015
1,2,4-Trichlorobenzene <8.0
1,2-Dichlorobenzene <8.0
1,3-Dichlorobenzene <8.0
1,4-Dichlorobenzene <8.0
Chlorobenzene <8.0

**Case 002**

APLB-1

P1A-007-E5

APLB-4

APLB-3

APLB-2

APLB-4 (2 ft.) 5/1/2015
**1,2,4-Trichlorobenzene 8,100**
1,2-Dichlorobenzene <250
1,3-Dichlorobenzene <250
1,4-Dichlorobenzene <250
**Chlorobenzene 2,200**

APLB-4 (4.5 ft.) 5/1/2015
1,2,4-Trichlorobenzene 4,000
1,2-Dichlorobenzene 32
1,3-Dichlorobenzene 77
1,4-Dichlorobenzene 200
Chlorobenzene 110

APLB-4 (7 ft.) 5/1/2015
**1,2,4-Trichlorobenzene 120,000**
1,2-Dichlorobenzene <4,200
**1,3-Dichlorobenzene 98,000**
**1,4-Dichlorobenzene 130,000**
**Chlorobenzene 100,000**

APLB-3 (2 ft.) 5/1/2015
1,2,4-Trichlorobenzene 8.8
1,2-Dichlorobenzene <5.4
1,3-Dichlorobenzene <5.4
1,4-Dichlorobenzene <5.4
Chlorobenzene 29

APLB-3 (5 ft.) 5/1/2015
**1,2,4-Trichlorobenzene 7,200,000**
**1,2-Dichlorobenzene 62,000**
1,3-Dichlorobenzene <4,900
**1,4-Dichlorobenzene 57,000**
**Chlorobenzene 55,000**

APLB-3 (8 ft.) 5/1/2015
**1,2,4-Trichlorobenzene 2,300,000**
**1,2-Dichlorobenzene 26,000**
**1,3-Dichlorobenzene 240,000**
**1,4-Dichlorobenzene 650,000**
**Chlorobenzene 97,000**

## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (ug/kg)

| | |
|---|---|
| 1,2,4-Trichlorobenzene | 7,607 |
| 1,2-Dichlorobenzene | 1,599 |
| 1,3-Dichlorobenzene | 7,367 |
| 1,4-Dichlorobenzene | 1,388 |
| Chlorobenzene | 1,483 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-2 - Boring Identification
APLB-2 (2 ft.) 5/1/2015 - Sample Identification and Sample Date
<5.4 - Analytical Result in ug/kg

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80
Feet

CASE 002 BORING LOCATIONS AND ESL EXCEEDANCES - SOIL
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

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Figure
**1A**

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APLB-16

APLB-19

APLB-17

APLB-1(GW) 5/1/2015
1,2,4-Trichlorobenzene <10
1,3-Dichlorobenzene <10
1,4-Dichlorobenzene <10
**Benzene 110**
**Chlorobenzene 1,200**
1,2-Dichlorobenzene <13
2-Chlorophenol <13

**Case 002**

APLB-1

P1A-007-E5

APLB-2(GW) 5/1/2015
1,2,4-Trichlorobenzene 7.2
1,3-Dichlorobenzene 14
1,4-Dichlorobenzene 4.6
Benzene <2.0
**Chlorobenzene 200**
1,2-Dichlorobenzene <13
2-Chlorophenol <13

APLB-4

APLB-2

APLB-4(GW) 5/1/2015
1,2,4-Trichlorobenzene 15
1,3-Dichlorobenzene <13
1,4-Dichlorobenzene 15
Benzene <13
**Chlorobenzene 1,700**
1,2-Dichlorobenzene <11
2-Chlorophenol <11

APLB-3

APLB-3(GW) 5/1/2015
**1,2,4-Trichlorobenzene 490**
**1,3-Dichlorobenzene 300**
**1,4-Dichlorobenzene 1,000**
**Benzene 280**
**Chlorobenzene 15,000**
**1,2-Dichlorobenzene 34**
**2-Chlorophenol 35**

## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (ug/L)

| | |
|---|---|
| 1,2,4-Trichlorobenzene | 25 |
| 1,3-Dichlorobenzene | 64.5 |
| 1,4-Dichlorobenzene | 15 |
| Benzene | 9.7 |
| Chlorobenzene | 25 |
| 1,2-Dichlorobenzene | 14 |
| 2-Chlorophenol | 1.8 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-2 - Boring Identification
APLB-2(GW) 5/1/2015 - Sample Identification and Sample Date
7.2 - Analytical Result in ug/L

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 002 BORING LOCATIONS AND ESL EXCEEDANCES - GROUNDWATER
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

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Figure **1B**

Tuesday, April 12, 2016 12:24:32 PM
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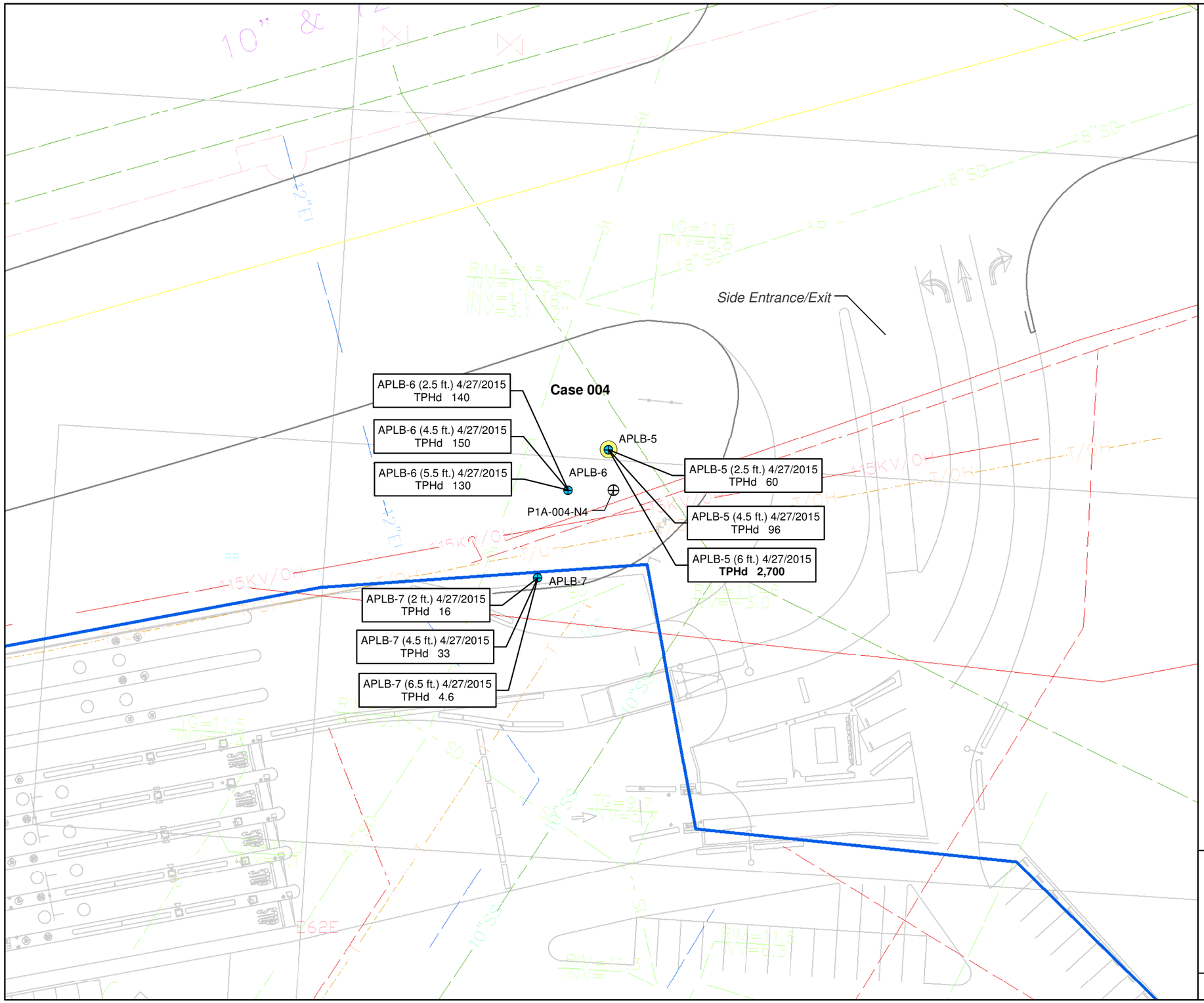


## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (mg/kg)

TPHd 1,154

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-5 - Boring Identification
APLB-5 (2.5 ft.) 5/1/2015 - Sample Identification and Sample Date
60 - Analytical Result in mg/kg

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 004 BORING LOCATIONS AND ESL EXCEEDANCES - SOIL
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

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Figure **2A**

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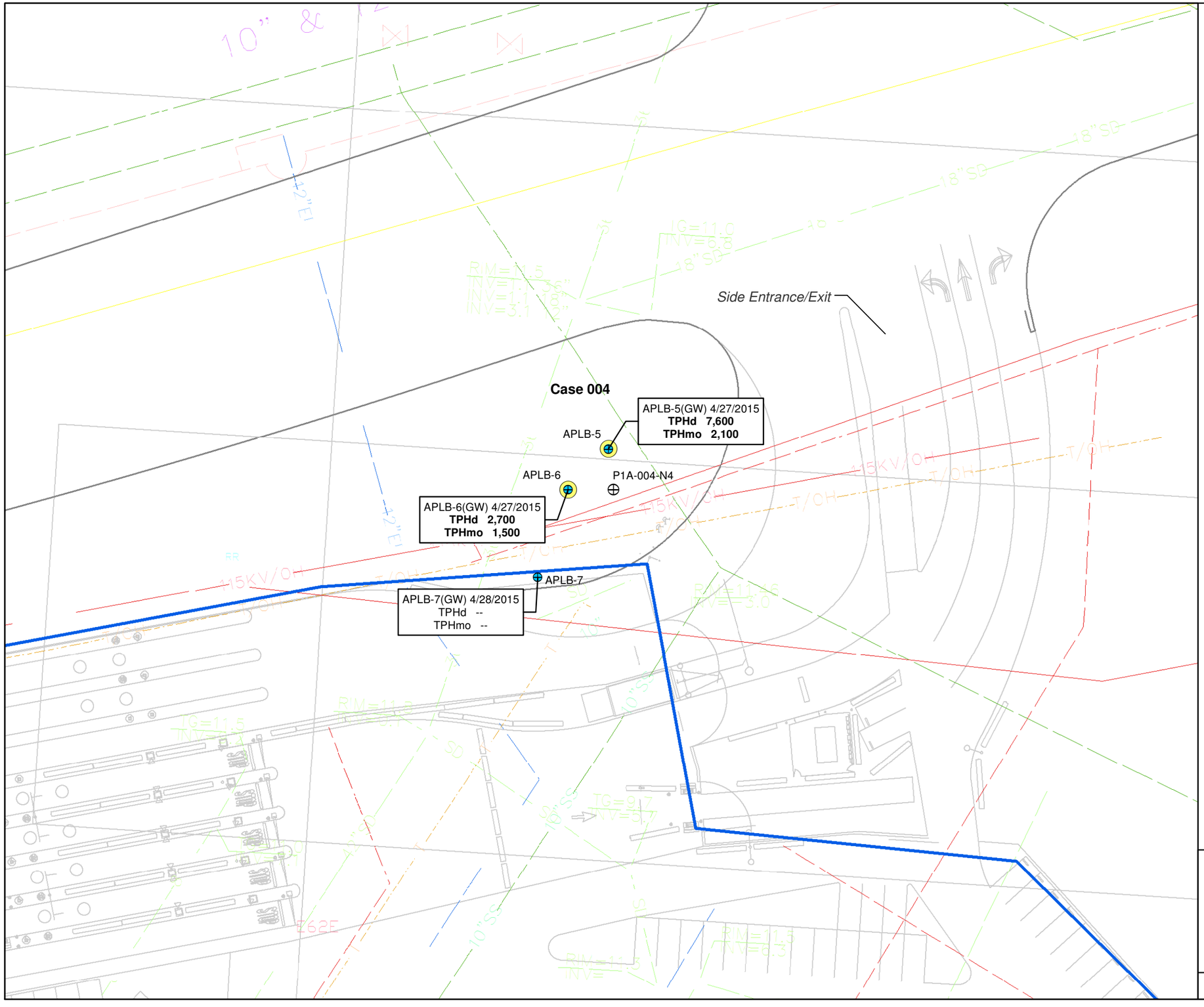


## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (ug/L)

| | |
|---|---|
| TPHd | 640 |
| TPHmo | 640 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-5 - Boring Identification
APLB-5(GW) 5/1/2015 - Sample Identification and Sample Date
7,600 - Analytical Result in ug/L

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 004 BORING LOCATIONS AND ESL EXCEEDANCES - GROUNDWATER
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
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Figure **2B**

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APLB-8 (2 ft.) 4/27/2015
TPHd 48
TPHmo 230
Phenanthrene <730
Fluorene <730

APLB-8 (4.5 ft.) 4/27/2015
TPHd 38
TPHmo 220
Phenanthrene <6,900
Fluorene <6,900

APLB-8 (5.5 ft.) 4/27/2015
**TPHd 31,000**
TPHmo 830
**Phenanthrene 22,000**
**Fluorene 9,500**

APLB-11 (2 ft.) 4/30/2015
TPHd 170
TPHmo 930
Phenanthrene <720
Fluorene <720

APLB-11 (4.3 ft.) 4/30/2015
TPHd 1.9
TPHmo 12
Phenanthrene 170
Fluorene <75

APLB-11 (5 ft.) 4/30/2015
TPHd 4.6
TPHmo 6.3
Phenanthrene <81
Fluorene <81

APLB-9 (2 ft.) 4/27/2015
TPHd 6.8
TPHmo 130
Phenanthrene <140
Fluorene <140

APLB-9 (4.5 ft.) 4/27/2015
TPHd 18
TPHmo 140
Phenanthrene <1,500
Fluorene <1,500

APLB-9 (8 ft.) 4/27/2015
TPHd <1.2
TPHmo <6.0
Phenanthrene <80
Fluorene <80

APLB-10 (2 ft.) 4/27/2015
TPHd 50
TPHmo 410
Phenanthrene <720
Fluorene <720

APLB-10 (4.5 ft.) 4/27/2015
TPHd 65
TPHmo 280
Phenanthrene <750
Fluorene <750

APLB-10 (8.5 ft.) 4/27/2015
TPHd 4.1
TPHmo <5.9
Phenanthrene <78
Fluorene <78

Case 005

APLB-8

P1A-005-E4

APLB-11

APLB-9

APLB-10

E-224

## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs)

| | | |
|---|---|---|
| Fluorene | 8,936 | ug/kg |
| TPHd | 1,154 | mg/kg |
| TPH mo | 139,513 | mg/kg |
| Phenanthrene | 10,692 | ug/kg |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-8 - Boring Identification
APLB-8 (2 ft.) 5/1/2015 - Sample Identification and Sample Date
6.8 - Analytical Result in ug/kg
(Phenanthrene results in ug/kg)

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 005 BORING LOCATIONS AND ESL EXCEEDANCES - SOIL
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

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Case 005

APLB-11(GW) 4/30/2015
TPHd 590
TPHg <50

APLB-11

APLB-8

APLB-8(GW) 4/27/2015
**TPHd 8,400**
**TPHg 9,100**

P1A-005-E4

APLB-10

APLB-9

APLB-9(GW) 4/28/2015
TPHd 520
TPHg <50

APLB-10(GW) 4/27/2015
TPHd 270
TPHg <50

E-224

## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (ug/L)

| | |
|---|---|
| TPHd | 640 |
| TPHg | 443 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-8 - Boring Identification
APLB-8(GW) 5/1/2015 - Sample Identification and Sample Date
8,400 - Analytical Result in ug/L

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80
Feet

CASE 005 BORING LOCATIONS AND ESL EXCEEDANCES - GROUNDWATER
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
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APLB-20 (1.5 ft.) 5/1/2015
**Arsenic 5.8**
Lead 37

APLB-20 (4.5 ft.) 5/1/2015
**Arsenic 6.2**
Lead 14

APLB-20 (8.5 ft.) 5/1/2015
**Arsenic 1.2**
Lead 2.0

APLB-20

APLB-12 (1.5 ft.) 4/30/2015
**Arsenic 4.4**
Lead 34

APLB-12 (4.5 ft.) 4/30/2015
**Arsenic 3.5**
Lead 7.3

APLB-12 (7.8 ft.) 4/30/2015
**Arsenic 1.7**
Lead 2.0

APLB-12

Case 009

APLB-21 (2.5 ft.) 4/28/2015
**Arsenic 7.4**
Lead 5.9

APLB-21

APLB-21 (4.5 ft.) 4/28/2015
**Arsenic 5.6**
**Lead 470**

APLB-21 (8.5 ft.) 4/28/2015
**Arsenic 1.9**
Lead 4.7

APLB-13

APLB-13 (2 ft.) 5/1/2015
**Arsenic 4.6**
**Lead 350**

APLB-13 (4.5 ft.) 5/1/2015
**Arsenic 7.1**
Lead 33

APLB-13 (8 ft.) 5/1/2015
**Arsenic 1.7**
Lead 1.8

APLB-14

APLB-14 (2 ft.) 5/1/2015
**Arsenic 9.6**
Lead 11

APLB-14 (4.5 ft.) 5/1/2015
**Arsenic 3.0**
**Lead 360**

APLB-14 (8.4 ft.) 5/1/2015
**Arsenic 2.5**
Lead 63

## EXPLANATION

- Boring Location
- Sample Location with Exceedance

Environmental Screening Levels (ESLs) (mg/kg)

| | |
|---|---|
| Arsenic | 0.31 |
| Lead | 320 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-14 - Boring Identification
APLB-14 (2 ft.) 5/1/2015 - Sample Identification and Sample Date
26 - Analytical Result in ug/kg

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 009 BORING LOCATIONS AND ESL EXCEEDANCES - SOIL
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

Date: 04/12/2016 | Project No. OD14170810

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Figure
**4A**

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APLB-12(GW) 4/30/2015
**TPHd 1,400**
**TPHmo 2,300**
Selenium <10

APLB-12

APLB-20

APLB-20(GW) 5/1/2015
**TPHd 920**
**TPHmo 1,300**
Selenium <10

**Case 009**

APLB-21(GW) 4/28/2015
TPHd <50
TPHmo 460
Selenium <10

APLB-21

APLB-13

APLB-13(GW) 5/1/2015
**TPHd 2,800**
**TPHmo 1,100**
**Selenium 52**

APLB-14

APLB-14(GW) 5/1/2015
**TPHd 2,800**
**TPHmo 4,100**
Selenium <10

## EXPLANATION

- Boring Location
- Sample Location with Exceedance

Environmental Screening Levels (ESLs) (ug/L)

| | |
|---|---|
| TPHd | 640 |
| TPHg | 640 |
| Selenium | 5.0 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-21 - Boring Identification
APLB-21(GW) 5/1/2015 - Sample Identification and Sample Date
<50 - Analytical Result in ug/L

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80
Feet

CASE 009 BORING LOCATIONS AND ESL EXCEEDANCES - GROUNDWATER
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

Date: 04/11/2016 | Project No. OD14170810

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Figure
**4B**

Tuesday, April 12, 2016 12:31:55 PM
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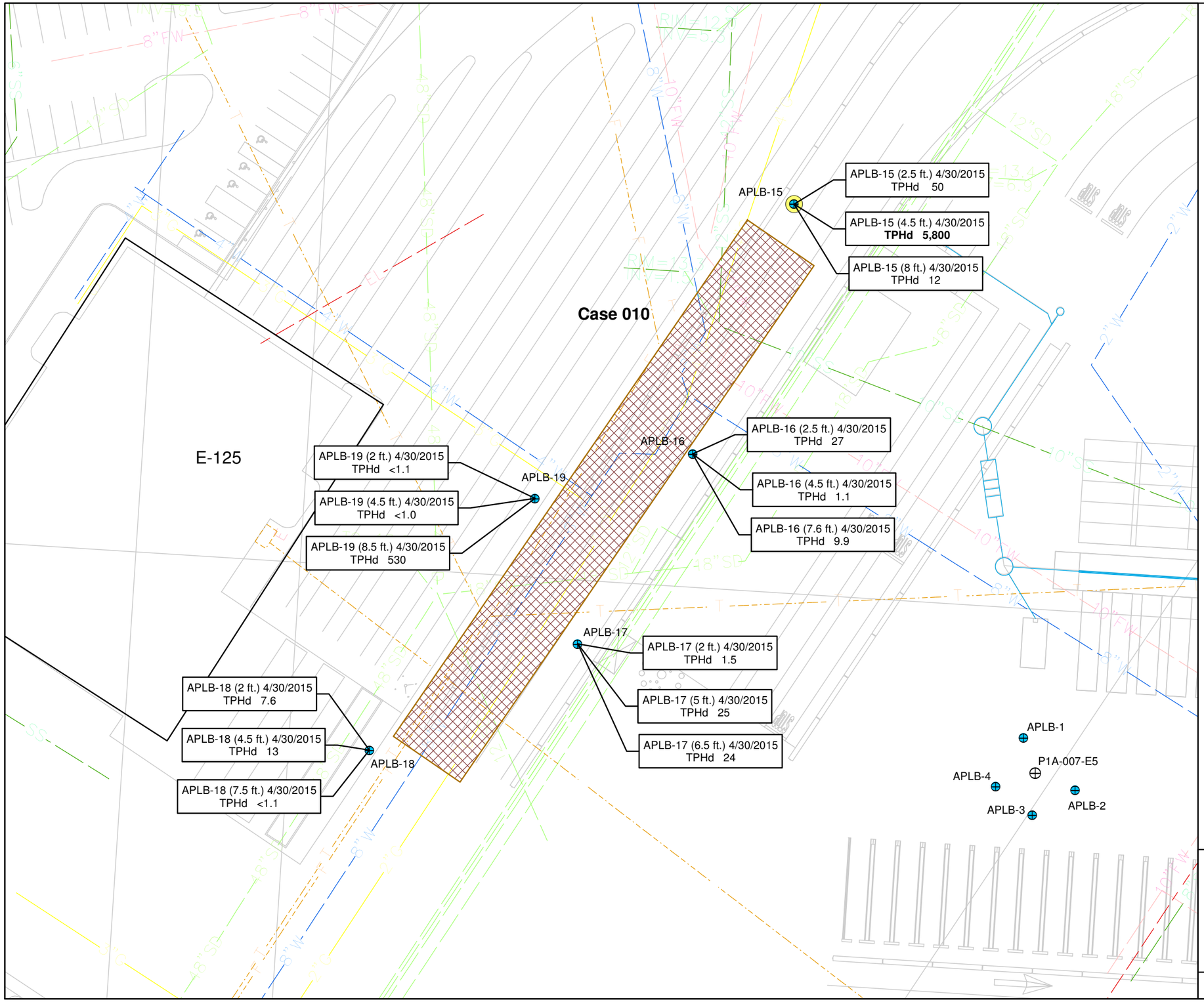


## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (mg/kg)

TPHd 1,154

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-15 - Boring Identification
APLB-15 (2.5 ft.) 5/1/2015 - Sample Identification and Sample Date
50 - Analytical Result in mg/kg

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 010 BORING LOCATIONS AND ESL EXCEEDANCES - SOIL
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

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Date: 04/12/2016 | Project No. OD14170810 | Figure 5A

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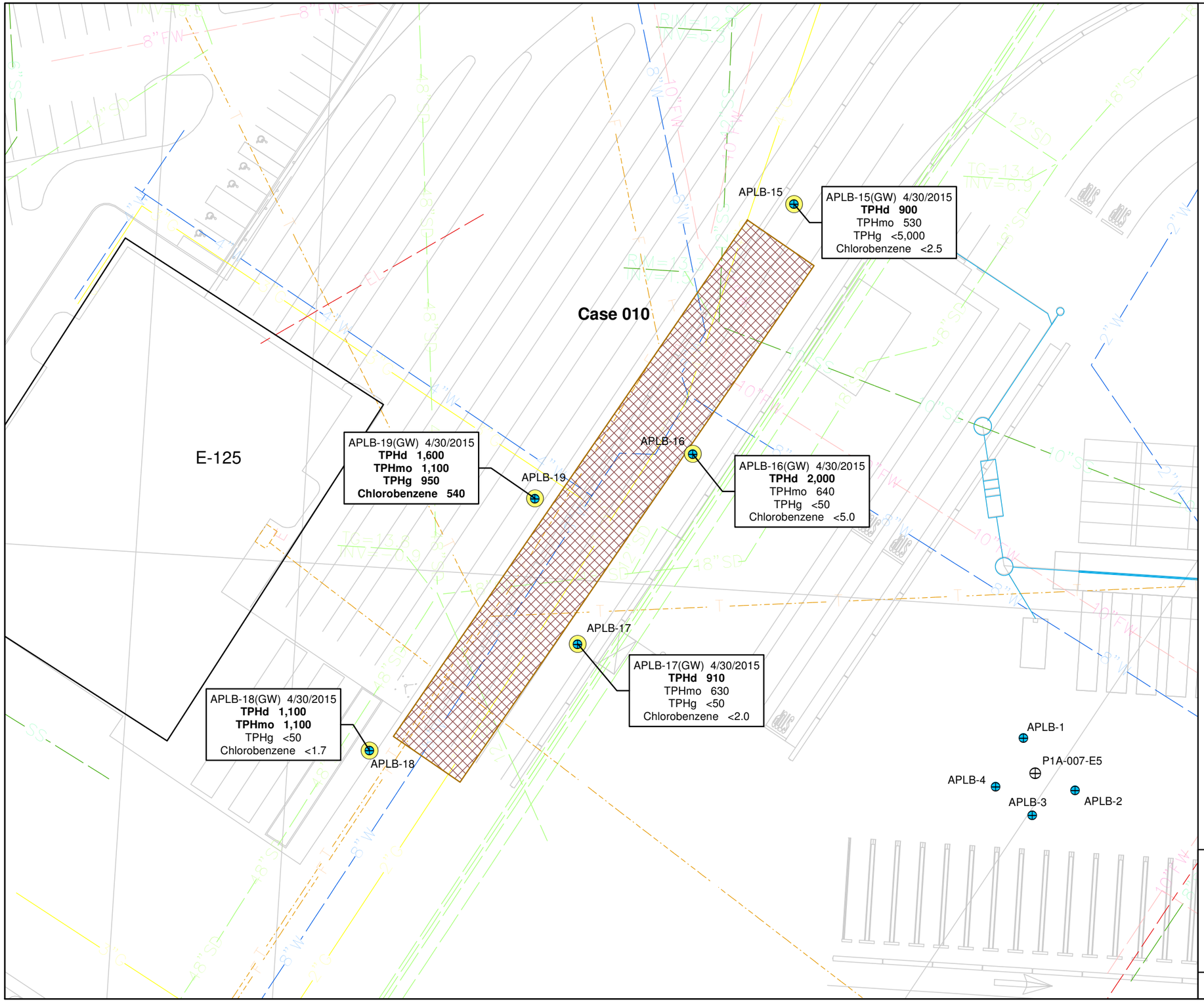


## EXPLANATION

- Boring Location
- Sample Location with Exceedance
- Previous Sample Location

Environmental Screening Levels (ESLs) (ug/L)

| | |
|---|---|
| TPHd | 640 |
| TPHmo | 640 |
| TPHg | 443 |
| Chlorobenzene | 25 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLB-15 - Boring Identification
APLB-15(GW) 5/1/2015 - Sample Identification and Sample Date
<5,000 - Analytical Result in ug/L

- Existing Building Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

CASE 010 BORING LOCATIONS AND ESL EXCEEDANCES - GROUNDWATER
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

Date: 04/11/2016 | Project No. OD14170810

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Figure **5B**

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E-221

Former Sump Location

APLMW-1

APLMW-1 (4 ft.) 5/14/2015
Benzo(a)pyrene <5.3

APLMW-1 (7.5 ft.) 5/14/2015
Benzo(a)pyrene <5.5

APLMW-2

APLMW-2 (4.5 ft.) 5/15/2015
Benzo(a)pyrene 34

APLMW-2 (8.2 ft.) 5/15/2015
Benzo(a)pyrene <6.0

APLMW-3

APLMW-3 (4 ft.) 5/14/2015
**Benzo(a)pyrene 2,600**

APLMW-3 (7 ft.) 5/14/2015
Benzo(a)pyrene 51

## EXPLANATION

Boring Location

Sample Location with Exceedance

Environmental Screening Levels (ESLs)(ug/kg)

PAHs

| | |
|---|---|
| Benzo(a)pyrene | 289 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLMW-1 - Boring Identification
APLMW-1 (4 ft.) 5/1/2015 - Sample Identification and Sample Date
9.6 - Analytical Result in mg/kg or ug/kg

Existing Building Location

Former Building or Facility Location

Former Sump Location

Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

BUILDING E-221 WELL LOCATIONS AND ESL EXCEEDANCES - SOIL
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
Oakland, California

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Figure
**6A**

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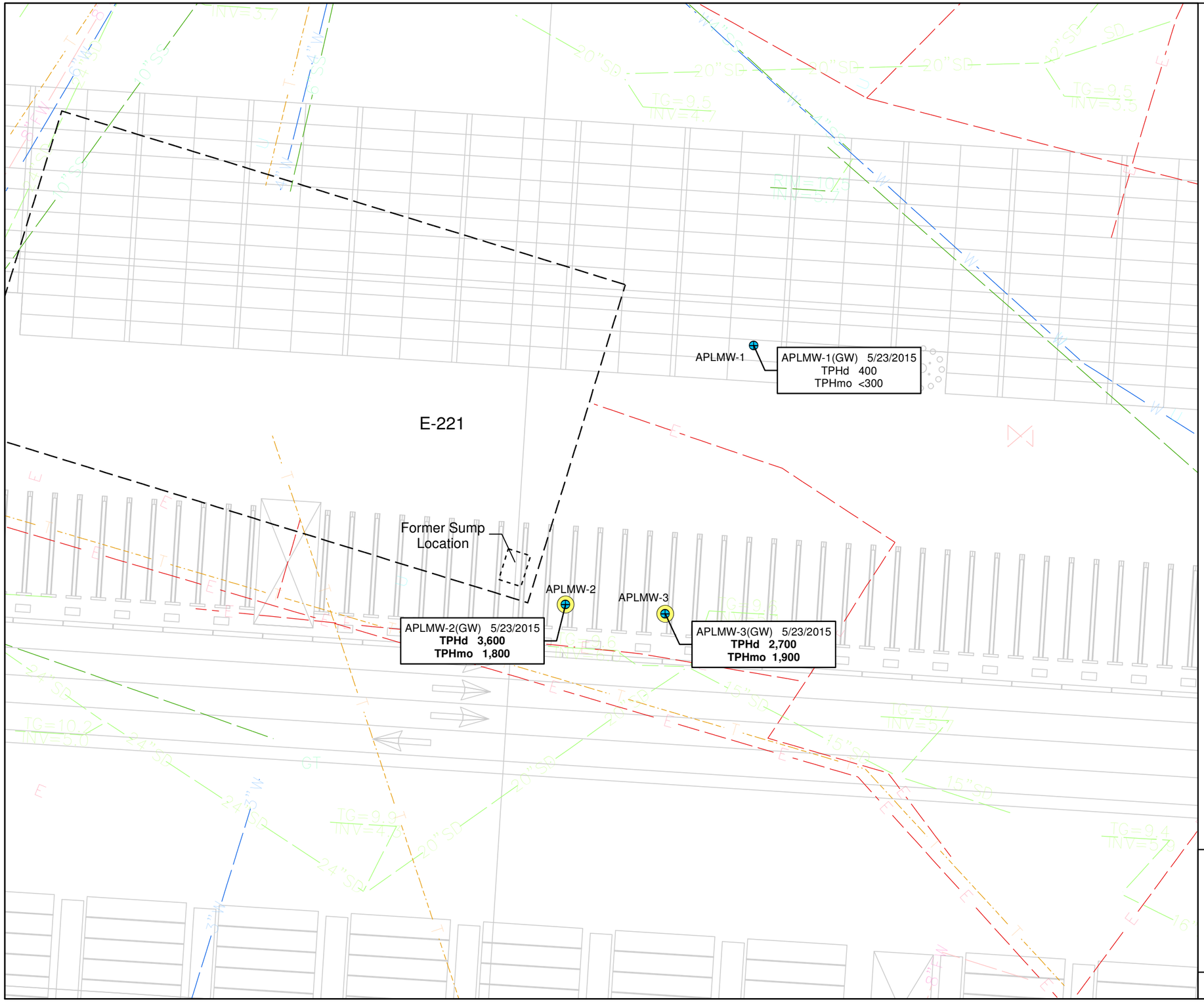


## EXPLANATION

- Boring Location
- Sample Location with Exceedance

Environmental Screening Levels (ESLs) (ug/L)

| | |
|---|---|
| TPHd | 640 |
| TPHmo | 640 |

Results shown in bold font indicate that detected concentration exceeds ESL

APLMW-1 - Boring Identification
APLMW-1(GW) 5/1/2015 - Sample Identification and Sample Date
<300 - Analytical Result in ug/L

- Existing Building Location
- Former Building or Facility Location
- Former Sump Location
- Former Trench Location

Subsurface Utilities

- W — Water Supply
- SS — Sanitary Sewer
- T — Communications
- E — Electrical
- FW — Fire Service
- G — Gas
- SD — Storm Drain

N

0 40 80 Feet

BUILDING E-221 WELL LOCATIONS AND ESL EXCEEDANCES - GROUNDWATER
Amendment to Post-Construction Field Investigation Report
Former APL Terminal, Port of Oakland
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Figure **6B**

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