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By Alameda County Environmental Health 1:52 pm, Feb 11, 2016

January 21, 2016

Mr. Keith E. Nowell, P.G., C.H.G.
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

RE: RO#0000010_2015 Annual Methane Monitoring Results and Direct and Indirect Evidence of Product - Port of Oakland, 651 Maritime Street, Oakland, CA_2016-01-22

Dear Mr. Nowell:

Please find attached the two following submittals for the subject site located at 651 Maritime Street, Oakland:¹

1. *Methane Abatement System Check Data, Methane Self-Monitoring Plan, Port of Oakland, Harbor Facilities Complex, 651 Maritime Street, Oakland, CA.* This table presents methane monitoring results from all annual methane monitoring events including 2015, performed on August 4, 2015; and
2. *Direct and Indirect Evidence of Product, Port of Oakland's Harbor Facility Complex, 651 Maritime Street, Oakland, California - Alameda County Fuel Leak Case No. RO0000010*, based on San Francisco Regional Water Quality Control Board (RWQCB) document entitled, "Technical Justification for Low-Threat Closure Scenarios for Petroleum Vapor Intrusion Pathway", June 30, 2011.

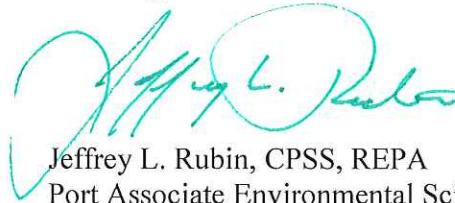
The Port of Oakland ("Port") has retained ARCADIS, U.S., Inc. ("ARCADIS") to gather these data and prepare this documentation. The information is being submitted and uploaded to the applicable regulatory agency websites in accordance with your request during our meeting on Tuesday, November 3, 2015, located at our Port of Oakland office. If you have any questions or comments regarding the results, please contact Jeff Rubin at (510) 627-1134.

¹ The Site has been referred to historically as the "Shippers" and "Ringsby" sites, based on the Port tenants that occupied the site at the time of release discoveries. Prior to site redevelopment in 2004, the site was also referred to as 2277 and 2225 Seventh Street. After redevelopment, the Site address became 651 and 555 Maritime Street, although referenced hereafter (including within this Report) as only 651 Maritime Street (*Fuel Leak Case RO0000010*).

January 22, 2016

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached report and table prepared by ARCADIS are true and correct to the best of my knowledge. Please note that the report is stamped by a Registered Professional Geologist in the State of California.

Sincerely,



Jeffrey L. Rubin, CPSS, REPA
Port Associate Environmental Scientist
Environmental Programs and Planning

Enclosures: noted

Cc (w encl.): Michele Heffes (Port of Oakland)

Cc (w/o encl.): Katherine Brandt, P.G. (ARCADIS)
Yane Nordhav (Baseline Environmental)
Diane Heinze (Port of Oakland)

Table 2
Methane Abatement System Check Data

Methane Self-Monitoring Plan
Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Date	Wind Turbines Turning	T-1				T-2				W-1				W-2			
		Auto Maintenance Shop				Under Stairs in Office Building				Welding Shop				Warehouse			
		FID w/ carbon filter	FID w/o carbon filter	Flow Rate (ft/min)	Direction	FID w/ carbon filter	FID w/o carbon filter	Flow Rate (ft/min)	Direction	FID w/ carbon filter	FID w/o carbon filter	Flow Rate (ft/min)	Direction	FID w/ carbon filter	FID w/o carbon filter	Flow Rate (ft/min)	Direction
6/23/2010	Yes	0.0	0.0	116	Into Port	0.0	0.0	79.0	Into Port	0.0	0.0	177.0	Up	0.0	0.0	177.0	Up
6/24/2011	Yes	0.0	0.0	242	Into Port	0.0	0.0	172.0	Into Port	0.0	0.0	202.0	Up	0.0	0.0	169.0	Up
6/19/2012	Yes	0.0	0.0	--	Into Port	0.0	0.0	--	Into Port	0.0	0.0	--	Up	0.0	0.0	--	Up
6/20/2013	Yes	0.0	0.0	241	Into Port	0.0	0.0	255.0	Into Port	0.0	0.0	145.0	Up	0.0	0.0	98.0	Up
1/13/2014	Yes	0.0	0.0	203	Into Port	0.0	0.0	128.0	Into Port	0.0	0.0	116.0	Up	0.0	0.0	42.0	Up
8/4/2015	Yes	0.0	0.0	0	Into Port	0.0	0.0	0.0	Into Port	0.0	0.0	185.0	Up	0.0	0.0	165.0	Up

Acronyms and Abbreviations:

ppm = parts per million
ft/min = feet per minute
-- = not analyzed

Mr. Keith Nowell
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Arcadis U.S., Inc.
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Subject:

Direct and Indirect Evidence of Product
Port of Oakland's Harbor Facility Complex
651 Maritime Street
Oakland, California
Alameda County Fuel Leak Case No. RO0000010

ENVIRONMENT

Date:

January 22, 2016

Contact:

Katherine Brandt

Phone:

510.596.9675

Email:

Katherine.Brandt@arcadis.com

Our ref:

04656020.HFC1

Dear Mr. Nowell:

On behalf of the Port of Oakland, Arcadis U.S., Inc. (Arcadis) prepared this letter to summarize findings regarding direct and indirect evidence of light non-aqueous phase liquids (LNAPL or product) at the Harbor Facilities Complex (HFC) site located at 651 Maritime Street, Oakland, California (site)¹. Groundwater impacts beneath the site are related to two former underground storage tank sites occupied and operated by Port tenants at the time the tank releases were discovered.

Evidence of LNAPL presence at a site may consist of visual observations (direct) or elevated concentrations of hydrocarbon constituents in soil, groundwater or vapor. The concentrations of benzene, total petroleum hydrocarbons as gasoline (GRO), and total petroleum hydrocarbons as diesel (DRO) in media will indicate different types of historical releases (gasoline or diesel).

The following sections discuss direct and indirect evidence of LNAPL at the site and soil vapor mitigation measures that are in place.

¹ The site has been referred to in the past as the "Shippers" and "Ringsby" sites, based on the Port tenants occupying the site at the time of release discoveries. In addition, prior to site redevelopment in 2004, the site was referred to as 2277 and 2225 Seventh Street; the site addresses after redevelopment are 651 and 555 Maritime Street, although referenced in this report as 651 Maritime Street.

DIRECT AND INDIRECT GROUNDWATER EVIDENCE

Groundwater monitoring provides direct evidence (visual observations and measurements) of LNAPL at a site. During the second semi-annual 2014 groundwater monitoring event, LNAPL was observed in one monitoring well (MW-3) and five recovery wells (RW-4, RW-6, RW-7, RW-8, and RW-9). LNAPL thicknesses in the wells ranged from 0.84 foot in RW-9 to 3.98 feet in RW-4. Groundwater monitoring data from the second semi-annual 2014 groundwater monitoring event are provided in Table 1. A LNAPL plume contour based on direct evidence is shown on Figures 1 and 2.

Groundwater sampling also provides indirect evidence of LNAPL at a site. Elevated concentrations of benzene, toluene, ethylbenzene, total xylenes (collectively BTEX), and DRO may be indicative of LNAPL. According to the Technical Justification for Low-Threat Closure Scenarios for Petroleum Vapor Intrusion Pathway (Technical Justification; State Water Resources Control Board [SWRCB], 2011), the following concentrations are indirect evidence of LNAPL:

- Benzene greater than 3 milligrams per liter (mg/L)
- BTEX greater than 20 mg/L
- DRO greater than 5 mg/L

The second semi-annual 2014 groundwater monitoring event did not contain elevated concentrations suggesting indirect evidence of LNAPL. However, between 1998 and 2014, 3 monitoring and recovery wells have been sampled that show indirect evidence of LNAPL due to elevated concentrations of DRO (>5 mg/L). Elevated concentrations were observed in November 1998, November 1999, and June 2014. All analytical data showing indirect evidence of LNAPL on site were collected from monitoring well MW-6 and recovery wells RW-4 and RW-8; these wells are located within the observed LNAPL plume. The lack of elevated benzene (> 3mg/L) or BTEX (>20 mg/L) constituents suggests that the LNAPL plume is not volatile. Analytical data is provided in Table 2 and an indirect groundwater plume is shown on Figure 1.

The analytical results from May 2000 were not used for indirect evidence of LNAPL. Sampling results from the May 2000 sampling event were anomalous due to severely improper sampling procedures, and resultant data considered invalid to evaluate plume trends.

INDIRECT SOIL VAPOR EVIDENCE

Total petroleum hydrocarbon (TPH) vapor readings from a photoionization detector (PID) may be used as indirect evidence of LNAPL on site. During the 2014 natural source zone depletion study at the site (Arcadis, 2014a), PID readings were collected from 5 monitoring and recovery wells on site. According to the SWRCB Technical Justification (SWRCB, 2011), PID readings showing greater than 10 parts per million TPH suggest indirect evidence of LNAPL. Three wells (MW-3, RW-3, and MW-1) analyzed displayed elevated PID readings. Wells MW-3 and RW-2 are located within the observed LNAPL plume and well MW-1 is on the edge of the LNAPL plume. PID readings are presented in Table 3 and the indirect vapor plume is shown on Figure 2.

The vapor plume cannot be defined due to the limited PID data. The site maintains a soil vapor venting system beneath site buildings. Vapor intrusion is unlikely at this site with the site mitigation measure in place.

INDIRECT SOIL EVIDENCE

Soil samples containing elevated concentrations of GRO and DRO can provide indirect evidence of LNAPL. In 2002, a phase II site assessment was performed at the site. In preparation and as part of the assessment, 6 piezometers were installed and 46 soil borings were drilled, resulting in 153 soil samples collected. Samples were analyzed using silica gel cleanup to remove interfering characteristics of biogenic material. According to the SWRCB Technical Justification (SWRCB, 2011), elevated concentrations of GRO (greater than 100 milligrams per kilogram [mg/kg]) and/or DRO (greater than 10 mg/kg) suggest indirect evidence of LNAPL on site. Of the 153 soil samples, 62 samples, representing 39 locations, contain elevated concentrations of GRO and/or DRO.

Soil samples were collected over 13 years ago and located across the site. Since the time of soil sample collection, the site grade was raised during redevelopment. Based on this grade change, sample collection depths were reviewed and revised to reflect their new vertical profile depth location. As a result, soil samples originally collected below 3.5 feet below ground surface (bgs) now correspond to approximately 7 feet bgs. The revised depth (approximately 7 feet bgs) places these samples at approximately the top of the water table. Samples originally collected at greater than 3.5 feet bgs should therefore be assumed submerged samples. These potentially submerged samples were removed from the evaluated data set. Historical analytical soil data are provided in Table 4.

Soil is inherently variable and soil constituent analysis is therefore highly variable across the site. Soil constituent concentrations vary laterally, vertically, and with time. Concentrations also vary between parent and duplicate samples, due to sampling techniques and laboratory extraction methods. Soil constituent concentration contours have therefore not been plotted for the site because it is extremely difficult to present these data in a meaningful form.

It is critical to note that historic soil analytical results do not accurately represent current site conditions due to natural source zone depletion processes taking place at the site (Arcadis, 2014a). As concluded in the LNAPL Recovery Assessment and Natural Source Zone Depletion Report (Arcadis, 2014a), mass reduction of LNAPL is occurring through dissolution and biodegradation in the saturated zone, and volatilization and biodegradation in the unsaturated zone.

SITE MITIGATION MEASURES

In October 2014, a Methane Self-Monitoring Plan (Arcadis, 2014b) was established for the site. The plan discusses the soil vapor venting system that was installed in 2005 beneath the site buildings to mitigate methane and soil vapor migration into the buildings. In addition, performance monitoring and system maintenance programs were established in the plan. Since methane monitoring began in 2010, methane has not been detected inside the buildings or in the ambient air.

REFERENCES

Arcadis. 2014a. Light Non-Aqueous Phase Liquid Recovery Assessment and Natural Source Zone Depletion Report, 651 Maritime Street, Oakland, California. November 7, 2014.

Arcadis. 2014b. Methane Self-Monitoring Plan, 651 Maritime Street, Oakland, California. October 31, 2014.

State Water Resources Control Board (SWRCB), 2011. Technical Justification for Low-Threat Closure Scenarios for Petroleum Vapor Intrusion Pathway. June 30, 2011.

If you have any questions or concerns regarding the information in this letter, please contact me at Katherine.Brandt@arcadis.com or 510.596.9675.

Sincerely,

ARCADIS U.S.. Inc.



Katherine Brandt
Senior Geologist



Copies:

Jeff Rubin

Enclosures:

Tables

- 1 Recent Groundwater Monitoring Data
- 2 Historical Groundwater Analytical Data
- 3 Historical Soil Vapor Data
- 4 Historical Soil Data

Figures

- 1 Direct and Indirect Groundwater Evidence
- 2 Direct and Indirect Soil Vapor Evidence

Table 1
Recent Groundwater Monitoring Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)	D / I
MW-1	01/06/15	15.80	NP	9.87	0.00	5.93	--
MW-2	01/08/15	16.43	NP	10.70	0.00	5.73	--
MW-3	01/08/15	15.66	9.74	10.71	0.97	5.63	D
MW-4	01/07/15	15.91	NP	11.03	0.00	4.88	--
MW-5	01/07/15	15.39	NP	9.02	0.00	6.37	--
MW-8A	01/07/15	14.99	NP	10.00	0.00	4.99	--
MW-9	01/07/15	16.33	NP	10.97	0.00	5.36	--
MW-10	01/06/15	15.65	NP	9.70	0.00	5.95	--
MW-11	01/08/15	15.47	NP	9.41	0.00	6.06	--
MW-12	01/08/15	16.79	NP	10.68	0.00	6.11	--
RW-2	01/06/15	15.56	NP	8.78	0.00	6.78	--
RW-3	01/06/15	15.56	NP	9.81	0.00	5.75	--
RW-4	01/06/15	14.92	8.44	12.42	3.98	5.29	D
RW-6	01/06/15	15.75	8.84	10.12	1.28	6.53	D
RW-7	01/06/15	15.02	8.19	8.81	0.62	6.64	D
RW-8	01/06/15	15.91	9.02	9.99	0.97	6.60	D
RW-9	01/06/15	16.57	9.65	10.49	0.84	6.67	D

Table 1
Recent Groundwater Monitoring Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Notes:

Source of data prior to December 2005: Innovative Technical Solutions, Inc. *Third Quarter of 2005 Groundwater Monitoring and Product Monitoring Report*, 8 November 2005.

NP = no product detected with the interface probe

btc = below top of the well casing

-- = not indicative of free phase product

¹ Wells were resurveyed on January 24, 2009. Elevation data is relative to North American Vertical Datum of 1988 (NAVD 88).

Groundwater elevation for wells MW-1, MW-3, and MW-8, when calculated, assumes the density of the free product is 0.70 .

² Well could not be measured due to abundant surface water covering well head.

³ Viscous product not related to the lighter product identified in other wells.

⁴ Product not measureable, but visible evidence of product on interface probe

**Table 2
Historical Groundwater Analytical Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
MW-1										
	5/22/2000*	3,600	41,000	<3,000	100	13 ⁸	2.9	2.05	3.2 ⁸	--
	12/08/09	1,400	1,200 ²	<300	120	2.9	1.8	3.0	<1.0	--
	06/22/11	1,100 ²	890 ²⁴	<300 ²⁴	46	1.9	2.6	2.0	<0.5	--
	06/19/13	1,600 ²	3,100	<300	18	2.2	4.4	1.8	<0.5	--
	12/13/13	1,700	1,700	<300	10	2.6	1.2	3.3	<0.5	--
	06/24/14	1,500 ²	1,500	<290	7	1.8	1.4	2.3	<0.5	--
	01/06/15	1,700 ²	2,000	<300	27	1.6	1.8	1.6	<0.5	--
MW-2										
	05/27/94	87	470	NA	<0.5	<0.5	<0.5	<0.5	NA	--
	03/29/95	<50	110	1,400	<0.4	<0.3	<0.3	<0.4	NA	--
	09/06/95	<50	NA	NA	<0.4	<0.3	<0.3	<0.4	NA	--
	01/08/96	<50	<50	1200	<0.4	<0.3	<0.3	<0.4	NA	--
	04/04/96	<50	160	320	<0.5	<0.5	<0.5	<1.0	NA	--
	07/10/96	<50	120	1400	<0.4	<0.3	<0.3	<0.4	NA	--
	12/03/96	<50	230 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	03/28/97	<50	714	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	06/13/97	51	<50	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	09/18/97	82	<50	<250	0.56	<0.5	<0.5	<1.0	NA	--
	12/31/97	<50	<47	<280	1.4	<0.5	<0.5	<1.0	NA	--
	04/13/98	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	NA	--
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	11/12/99	<50	120 ^{2,6}	<300	<0.5	<0.5	<0.5	<0.5	6.3 ^{8,9}	--
	02/11/00	<50	<50	<300	5.4	<0.5	<0.5	<0.5	<2	--
	5/22/2000*	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2	--
	09/06/00	<50	<50	<300	0.76 ⁸	<0.5	<0.5	<0.5	<0.5 ¹⁰	--
	12/19/00	200 ^{3,11}	<50	<300	39	1.8	<0.5	2.6	<0.5 ^{10,12}	--
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/05/01	<50	<50	<300	4.4	<0.5	<0.5	<0.5	5.0 ¹⁴	--
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0	--
	06/13/02	62 ¹⁵	<57	<570	<0.5	<0.5	<0.5	<0.5	<5.0	--
	09/26/02	69 ²	<50	<500	1.8	<0.5	<0.5	<0.5	<5.0	--
	12/12/02	<50	<50	<300	0.98	<0.5	<0.5	<0.5	<2.0	--
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	06/18/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/03/03	<50	<50	<300	3.2	<0.5	<0.5	<0.5	<2.0	--
	11/26/03	<50	<50	<300	3	<0.5	<0.5	<0.5	<2.0	--
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	06/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/03/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/16/04	<50	96 ^{6,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/29/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	08/10/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
	09/29/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/21/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	03/24/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	07/28/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--

Table 2
Historical Groundwater Analytical Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
MW-2 (cont)	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/05/08	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	03/04/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/17/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/09/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/17/10	<50	220 ²	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/15/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/22/11	<50	<50	<300 ^{2,3}	<0.5	<0.5	<0.5	<0.5	<0.5	--
	09/26/11	<50	<50 ²⁴	<300 ²⁴	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/12	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/04/12	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/13	<50	<51	<310	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/12/13	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/25/14	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	01/08/15	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	--
MW-3										
	Not sampled due to the presence of free-phase product									
MW-4										
	09/11/95	150	<200	500	23	<0.3	<0.3	<0.4	NA	--
	01/08/96	790	90	400	170	1.2	0.6	0.6	NA	--
	04/04/96	1,100	180	300	320	1.6	1.1	1.2	NA	--
	07/10/96	1,200	120	300	470	1.5	0.8	0.8	NA	--
	12/03/96	990	220 ^{1,2}	<250	350	3.3	1.3	1.3	NA	--
	03/28/97	440 ²	<50	<250	190	1.2	0.64	<1.0	NA	--
	06/13/97	1,300	92 ⁵	<250	500	5.5	3.4	2.8	NA	--
	09/18/97	1,300	150	<250	550	4.9	2.1	2.00	NA	--
	12/31/97	73 ^{1,2,3}	<47	<280	110 ¹	1.0 ¹	<0.5	<1.0	NA	--
	04/13/98	150 ^{2,3}	<50	<300	520	2.9	<2.5	<5.0	NA	--
	11/06/98	<50	<50	<300	250	1.7	<1.0	<1.0	<4	--
	03/19/99	81	<50	<300	250	<1	1.2	<1.0	<4	--
Dup.	06/24/99	190	<50	<300	360	1.4	2.2	1.0	24.0	--
	09/28/99	750 ^{3,5}	63 ^{3,5}	<300	280	1.5	<1.0	<1.0	<4	--
	11/12/99	330 ³	840 ²	<300	740	<2.5	<2.5	<2.5	42 ⁹	--
	02/11/00	200 ²	<50	<300	58	0.73	<0.5	<0.5	4.4 ⁸	--
	5/22/2000*	240	<50	<300	500	<2.5	<2.5	<2.5	17	--
	09/06/00	530 ^{2,3}	<50	<300	190	0.93	0.6	0.57	<0.5 ¹⁰	--
	12/19/00	960 ^{3,11}	70 ⁵	<300	420	<2.5	<2.5	<2.5	<0.5 ^{10,12}	--
	12/19/00	1,200 ^{3,11}	<50	<300	440	<2.5	<2.5	<2.5	<0.5 ^{10,12}	--
	02/21/01	450 ¹³	<50	<300	120	<0.5	<0.5	<0.5	<0.5 ¹⁰	--
	07/10/01	<250	110 ^{2,13}	<300	620	2.6	2.9	<2.5	<0.5 ^{8,10}	--
	12/05/01	180	<50	<300	61	<0.5	<0.5	<0.5	3.8 ¹⁴	--
	03/08/02	490 ²	54 ²	<500	180	<2.5	<2.5	<2.5	<25	--
	06/13/02	830 ²	<50	<500	250	<5.0	<5.0	<5.0	<50	--
Dup.	06/13/02	820 ²	<56	<560	240	<5.0	<5.0	<5.0	<50	--
	09/26/02	390 ²	57	<500	150	2.1	<1.0	<1.0	<10	--
Dup.	09/26/02	500 ²	<50 ¹⁶	<500 ¹⁶	200	1.5	<1.0	<1.0	<10	--
	12/12/02	580	<50	<300	240	1.4	0.56	<0.5	<2.0	--
Dup.	12/12/02	2,400	<50	<300	680	5.0	2.3	1.4	<2.0	--

Table 2
Historical Groundwater Analytical Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
	03/17/03	130 ¹⁵	<50	<300	320 ¹⁷	<0.5	<0.5	<0.5	<0.5 ¹⁰	--
Dup.	03/17/03	82 ¹⁵	<50	<300	190	0.64 ¹⁷	0.56	0.53	<0.5 ¹⁰	--
MW-4 (cont)	06/18/03	360 ^{11,15}	<50	<300	150	<0.5	<0.5	<0.5	<2.0	--
Dup.	06/18/03	330 ^{11,15}	<50	<300	140	<0.5	<0.5	<0.5	<2.0	--
	09/03/03	140 ^{11,15}	<50	<300	240	1.3	<0.5	<0.5	<2.0	--
Dup.	09/03/03	83 ^{11,15}	<50	<300	130	0.58 ¹⁷	<0.5	<0.5	<2.0	--
	11/26/03	160 ¹⁵	68 ¹⁵	<300	320	0.91 ¹⁷	<0.5	0.53	<2.0	--
Dup.	11/26/03	120 ¹⁵	<50	<300	210	0.66 ¹⁷	<0.5	<0.5	<2.0	--
	03/05/04	90 ¹¹	<50	<300	190	1.1	0.55	0.50 ¹⁷	23 ^{14,17} , <0.5 ¹⁰	--
Dup.	03/05/04	84 ¹¹	<50	<300	180	0.81	<0.5	<0.5	21 ^{14,17} , <0.5 ¹⁰	--
	06/02/04	620 ¹³	<50	<300	210	0.55 ¹⁷	<0.5	<0.5	<2.0	--
Dup.	06/02/04	400 ¹³	<50	<300	130	<0.5	<0.5	<0.5	<2.0	--
	09/03/04	780 ^{13,15}	<50	<300	<0.5	1.0 ¹⁷	<0.5	0.57	<2.0	--
Dup.	09/03/04	370 ^{13,15}	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/16/04	840	<50	<300	290	1.3 ¹⁷	0.69	0.75	<2.0	--
Dup.	12/16/04	670	<50	<300	230	1.3 ¹⁷	<0.5	<0.5	<2.0	--
	03/29/05	440 ¹³	<50	<300	140	0.57	<0.5	<0.5	<2.0	--
Dup.	03/29/05	540 ¹³	<50	<300	170	0.72	<0.5	<0.5	<2.0	--
	08/10/05	500 ¹⁸	<50	<250	180	<2.5	<2.5	<2.5	<2.5	--
	09/29/05	360 ¹⁸	59 ²⁰	<250	160	<5.0	<5.0	<5.0	<5.0	--
Dup.	09/29/05	420 ¹⁸	<50	<250	150	<5.0	<5.0	<5.0	<5.0	--
	12/21/05	110	<50	<300	76	<0.5	<0.5	<0.5	<0.5	--
Dup.	12/21/05	160	<50	<300	76	<0.5	<0.5	<0.5	<0.5	--
	03/24/06	420	51	<300	120	0.8	<0.7	<0.7	<0.7	--
Dup.	03/24/06	440	<50	<300	130	<0.7	<0.7	<0.7	<0.7	--
	08/04/06	560	92 ²	<300	160	<1.3	4.3	<1.3	<1.3	--
Dup.	08/04/06	590	100 ²	<300	150	<1.3	4.5	<1.3	<1.3	--
	11/29/06	300	<50	<300	42	<0.7	1.0	<0.7	<0.7	--
Dup.	11/29/06	300	<50	<300	60	<0.7	<0.7	<0.7	<0.7	--
	06/01/07	100 ^{13,15}	<50	<300	10	<0.5	<0.5	<0.5	<0.5	--
Dup.	06/01/07	100 ^{13,15}	<50	<300	11	<0.5	<0.5	<0.5	<0.5	--
	11/14/07	54 ¹⁵	<50	<300	2.1	<0.5	<0.5	<0.5	<0.5	--
Dup.	11/14/07	51 ¹⁵	<50	<300	2.1	<0.5	<0.5	<0.5	<0.5	--
	06/05/08	67 ¹⁵	<50	<300	14	<0.5	<0.5	<0.5	<0.5	--
Dup.	06/05/08	91 ¹⁵	<50	<300	15	<0.5	<0.5	<0.5	<0.5	--
	03/04/09	60 ²	<50	<300	3.8	<0.5	<0.5	<0.5	<0.5	--
Dup.	03/04/09	<50	<50	<300	4.4	<0.5	<0.5	<0.5	<0.5	--
	04/01/09	<50	<50	<300	7.5	<0.5	<0.5	<0.5	<0.5	--
Dup.	04/01/09	<50	<50	<300	7.8	<0.5	<0.5	<0.5	<0.5	--
	06/19/09	69 ²	<50	<300	15	<0.5	<0.5	<0.5	<0.5	--
	12/08/09	<50	<50	<300	3.3	<0.5	<0.5	<0.5	<0.5	--
Dup.	12/08/09	<50	<50	<300	3.5	<0.5	<0.5	<0.5	<0.5	--
	06/16/10	<50	<50	<300	15	<0.5	<0.5	<0.5	<0.5	--
Dup.	06/16/10	<50	<50	<300	18	<0.5	<0.5	<0.5	<0.5	--
	12/14/10	<50	<50	<300	2.2	<0.5	<0.5	<0.5	<0.5	--
Dup.	12/14/10	<50	<50	<300	2.7	<0.5	<0.5	<0.5	<0.5	--
	06/21/11	160 ²	<56	<330	30	<0.5	<0.5	<0.5	<0.5	--
Dup.	06/21/11	84 ²	<53	<320	28	<0.5	<0.5	<0.5	<0.5	--
	09/27/11	130 ²	72	<300	13	<0.5	<0.5	<0.5	<0.5	--
Dup.	09/27/11	130 ²	57 ²⁴	<300 ²⁴	12	<0.5	<0.5	<0.5	<0.5	--
	06/19/12	120 ²	<51	<310	19	<0.5	<0.5	<0.5	<0.5	--

Table 2
Historical Groundwater Analytical Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
Dup.	06/19/12	120 ²	<52	<310	20	<0.5	<0.5	<0.5	<0.5	--
	12/04/12	76 ²	<53	<320	1.7	<0.5	<0.5	<0.5	<0.5	--
Dup.	12/04/12	60 ²	56 ²	<310	1.3	<0.5	<0.5	<0.5	<0.5	--
MW-4 (cont)	06/19/13	150 ²	<56	<330	19	<0.5	<0.5	<0.5	<0.5	--
Dup.	06/19/13	150 ²	<50	<300	19	<0.5	<0.5	<0.5	<0.5	--
	12/13/13	81	<50	<300	2.6	<0.5	<0.5	<0.5	<0.5	--
Dup.	12/13/13	85	<50	<300	2.4	<0.5	<0.5	<0.5	<0.5	--
	06/25/14	270 ²	<50	<300	52	<0.5	<0.5	<0.5	<0.5	--
Dup.	06/25/14	280 ²	<50	<300	54	<0.5	<0.5	<0.5	<0.5	--
	01/07/15	290 ²	67 ²	<300	29	<0.5	<0.5	<1.0	<0.5	--
Dup.	01/07/15	280 ²	53 ²	<300	28	<0.5	<0.5	<1.0	<0.5	--
MW-5										
	09/11/95	90	<300	2,500	3.3	<0.3	<0.3	<0.4	NA	--
	04/04/96	<50	180	520	<0.5	<0.5	<0.5	<1.0	NA	--
	07/10/96	<50	120	1,500	<0.4	<0.3	<0.3	<0.4	NA	--
	12/03/96	<50	200 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	03/28/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	06/13/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	09/18/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	12/31/97	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA	--
	04/13/98	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA	--
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3.1	--
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	11/12/99	<50	110 ^{2,6}	<300	<0.5	<0.5	<0.5	<0.5	5.5 ⁹	--
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	5/22/2000*	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/06/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/19/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/05/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0	--
	06/13/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0	--
	09/26/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0	--
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 ¹⁰	--
	06/18/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/03/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	11/26/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	4.1 ¹⁴ , <0.5 ¹⁰	--
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	06/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/03/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/16/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	2.2 ¹⁴ , <0.5 ¹⁰	--
	03/29/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	08/10/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
Dup.	08/10/05	<50 ¹⁹	<50 ¹⁹	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
	09/29/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/21/05	<50	180 ^{15,22}	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	07/28/06	<50	180	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--

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Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/05/08	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
MW-5 (cont)	03/04/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/08/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/16/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/14/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/22/11	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	09/27/11	<50	<50 ²⁴	<300 ²⁴	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/12	<50	<51	<310	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/04/12	<50	<54	<330	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/13	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/16/13	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/24/14	<50	72 ²	<290	<0.5	<0.5	<0.5	<0.5	<0.5	--
	01/07/15	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	--
MW-6										
	11/06/98	120	12,000	1,200	19	0.65	1.8	<0.5	<2	I
	03/19/99	170	3,800	580	21	0.86	1.5	2.9	<2	--
	06/24/99	120	1,700 ⁷	<300 ⁷	18	<0.5	1.0	<0.5	54	--
	09/28/99	130 ^{3,5}	820	<300	20	0.51	2.2	<0.5	<2	--
	11/12/99	150	11,000 ^{2,6}	3,000 ^{3,6}	27	<0.5	2.2	<0.5	13 ⁹	I
	02/11/00	270 ²	2,300	<300	23	0.51	2.7	<0.5	5.8	--
	5/22/2000*	350	3,000	<300	18	0.51	<0.5	<0.5	7.7	--
	09/06/00	190	610	<300	26	<0.5	1.7	<0.5	<0.5 ¹⁰	--
	12/19/00	130 ^{3,11}	620	<300	24	<0.5	1.6	<0.5	<2	--
	02/21/01	120 ¹³	440	<300	21	<0.5	0.96	<0.5	<2	--
	07/10/01	120	560	<300	29	<0.5	0.99	<0.5	<2	--
	12/12/01	53	550	<300	27	<0.5	1.3	<0.5	<2.0	--
	03/08/02	160 ²	640 ²	<500	30	<0.5	<0.5	<0.5	5.0 ¹⁴	--
	06/13/02	160 ²	670 ²	<500	34	<0.5	<0.5	<0.5	<5.0	--
	09/26/02	230 ²	1400 ²	<500	40	0.64	0.8	<0.5	<5.0	--
	12/12/02	53	110	<300	43	<0.5	<0.5	<0.5	<2.0	--
	12/18/02	Monitoring well was destroyed								
MW-7										
	09/06/95	<50	<300	800	<0.4	<0.3	<0.3	<0.4	NA	--
	01/08/96	<50	410	110	<0.4	<0.3	<0.3	<0.4	NA	--
	04/04/96	<50	530	340	<0.5	<0.5	<0.5	<1.0	NA	--
	07/10/96	80	840	1,700	<0.4	<0.3	<0.3	<0.4	NA	--
	12/03/96	<50	280 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	03/28/97	65 ⁶	94 ²	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	06/13/97	<50	100	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	09/18/97	<50	240	<250	<0.5	<0.5	<0.5	<1.0	NA	--
	12/31/97	<50	53 ^{2,3}	<280	<0.5	<0.5	<0.5	<1.0	NA	--
	04/13/98	<50	<48	<290	<0.5	<0.5	<0.5	<1.0	NA	--
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2	--
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	5.3	--
	06/24/99	73	<50	<300	<0.5	<0.5	<0.5	<0.5	12	--

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		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	14	--
	11/12/99	<50	600 ^{2,6}	420 ³	<0.5	<0.5	<0.5	<0.5	15 ⁹	--
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	51	--
	5/22/2000*	110	53 ²	<300	<0.5	<0.5	<0.5	<0.5	75	--
	09/06/00	50 ⁶	<50	<300	<0.5	<0.5	<0.5	<0.5	40 ¹⁰	--
MW-7 (cont.)	12/19/00	54 ¹¹	51 ⁵	<300	<0.5	<0.5	<0.5	<0.5	47 ^{10,12}	--
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	66 ¹⁰	--
Dup.	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	60 ¹⁰	--
	07/10/01	<50	51 ²	<300	<0.5	<0.5	<0.5	<0.5	76 ¹⁰	--
Dup.	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	75 ¹⁰	--
	12/12/01	51	<50	<300	<0.5	<0.5	<0.5	<0.5	98 ¹⁴	--
Dup.	12/12/01	64	52 ^{13,15}	<300	<0.5	<0.5	<0.5	<0.5	96 ¹⁴	--
	03/08/02	52 ²	<50	<500	<0.5	<0.5	<0.5	<0.5	24 ¹⁴	--
	06/13/02	87 ²	54 ²	<500	<0.5	<0.5	<0.5	<0.5	51	--
	09/26/02	83 ²	84 ²	<500	<0.5	<0.5	<0.5	<0.5	75 ¹⁰	--
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	58 ¹⁴	--
	12/18/02	Monitoring well was destroyed								
MW-8										
	Not sampled due to the presence of free-phase product									
MW-8A										
	12/12/01	68	720 ^{11,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/08/02	<50	760 ²	<570	<0.5	<0.5	<0.5	<0.5	<5.0	--
Dup.	03/08/02	<50	350 ²	<580	<0.5	<0.5	<0.5	<0.5	<5.0	--
	06/13/02	<50	570 ²	<570	<0.5	<0.5	<0.5	<0.5	<5.0	--
	09/26/02	<50	410 ²	<500	<0.5	<0.5	<0.5	<0.5	<5.0	--
	12/12/02	<50	160 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 ¹⁰	--
	06/18/03	<50	74 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/03/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3.0 ¹⁴ / <0.5 ¹⁰	--
	11/26/03	<50	94 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	06/02/04	<50	67 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	09/03/04	<50	86 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	12/16/04	<50	160 ^{6,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	03/29/05	<50	53	<300	<0.5	<0.5	<0.5	<0.5	<2.0	--
	08/10/05	<50 ¹⁹	150 ^{15,19}	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
	09/29/05	<50	66 ²¹	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/21/05	<50	63 ^{15,22}	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	03/24/06	<50	71	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	07/28/06	<50	70 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/05/08	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	03/04/09	<50	51 ²	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/17/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/08/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/16/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/14/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/23/11	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--

Table 2
Historical Groundwater Analytical Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
	09/26/11	<50	<50 ²⁴	<300 ²⁴	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/12	<50	<51	<310	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/04/12	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/13	<50	<52	<310	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/13/13	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/25/14	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
MW-8A (cont)	01/07/15	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	--
MW-9										
	03/04/09	290 ²	310 ²	<300	44	<0.5	0.6	0.6	<0.5	--
	04/01/09	210 ²	210 ²	<300	36	<0.5	<0.5	<0.5	<0.5	--
	06/19/09	240 ²	240 ²	<300	43	<0.5	<0.5	<0.5	<0.5	--
	12/08/09	210 ²	210 ²	<300	48	<0.5	<0.5	<0.5	<0.5	--
	06/16/10	160 ²	160 ²	<300	49	<0.5	1.0	0.6	<0.5	--
	12/14/10	170 ²	130 ²	<300	34	<0.5	<0.5	0.6	<0.5	--
	06/22/11	200 ²	160 ²	<300	25	<0.5	<0.5	<0.5	<0.5	--
	09/27/11	190 ²	180 ²⁴	<300 ²⁴	21	<0.5	<0.5	<0.5	<0.5	--
	06/19/12	150 ²	96 ²	<320	11	<0.5	<0.5	<0.5	<0.5	--
	12/04/12	140 ²	200 ²	<320	14	<0.5	1.8	1.5	<0.5	--
	06/19/13	130	100 ²	<320	14	<0.5	1.1	<0.5	<0.5	--
	12/13/13	210	<50	<300	28	0.6	6.9	1.9	4.0	--
	06/24/14	200 ²	110 ²	<290	11	<0.5	0.6	<0.5	<0.5	--
	01/07/15	350 ²	130 ²	<300	69	0.7	12	1.4	<0.5	--
MW-10										
	03/04/09	96 ²	110 ²	<300	11	<0.5	0.5	<0.5	<0.5	--
	04/01/09	87 ²	100 ²	<300	14	<0.5	0.5	<0.5	<0.5	--
	06/17/09	90 ²	220 ²	<300	10	<0.5	1.0	<0.5	<0.5	--
	12/08/09	120 ²	240 ²	<300	26	<0.5	0.8	<0.5	<0.5	--
	06/16/10	140 ²	200	<300	46	<0.5	<0.5	<0.5	<0.5	--
	12/14/10	150 ²	140 ²	<300	47	<0.5	<0.5	<0.5	<0.5	--
	06/22/11	320 ²	630	<300	54	<0.5	2.2	<0.5	<0.5	--
	09/26/11	260 ²	780 ²⁴	<300 ²⁴	61	1	2.4	<0.5	<0.5	--
	06/19/12	330 ²	430 ²	<310	58	<0.5	2.9	<0.5	<0.5	--
	12/04/12	250 ²	1,100	<320	59	<0.5	0.9	<0.5	<0.5	--
	06/19/13	320 ²	280 ²	<310	61	<0.5	1.2	<0.5	<0.5	--
	12/13/13	280	130 ²	<300	57	0.6	<0.5	<0.5	<0.5	--
	06/24/14	320 ²	260	<290	60	<0.5	<0.5	<0.5	<0.5	--
	01/06/15	310 ²	820	<300	66	0.6	<0.5	<1.0	<0.5	--
MW-11										
	03/04/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/09/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/16/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/14/10	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/21/11	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	--
	09/26/11	<50	<50 ²⁴	<300 ²⁴	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/12	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	--
	12/04/12	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	--
	06/19/13	<50	<50	<300	<1.0	<1.0	<1.0	<1.0	<1.0	--
	12/12/13	<50	<50	<300	<1.0	<1.0	<1.0	<1.0	<1.0	--
	06/25/14	<50	<50	<300	<2.5	<2.5	<2.5	<2.5	<2.5	--

**Table 2
Historical Groundwater Analytical Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I
	01/08/15	<50	<50	<300	<2.5	<2.5	<2.5	<2.5	<2.5	--
MW-12										
	03/04/09	150 ²	550 ²	<300	<0.5	<0.5	<0.5	<0.5	5	--
	04/01/09	71 ²	420 ²	<300	<0.5	<0.5	<0.5	<0.5	6	--
	06/17/09	64 ²	310 ²	<300	<0.5	<0.5	<0.5	<0.5	6	--
Dup.	06/17/09	67 ²	310 ²	<300	<0.5	<0.5	<0.5	<0.5	5	--
	12/08/09	90 ²	320 ²	<300	<0.5	<0.5	<0.5	<0.5	5	--
MW-12 (cont.)	06/16/10	94 ²	300	<300	<0.5	<0.5	<0.5	<0.5	5	--
	12/14/10	100 ²	510	<300	<0.5	<0.5	<0.5	<0.5	4	--
	06/23/11	100 ²	270 ²	<300	<0.5	<0.5	<0.5	<0.5	3	--
	09/26/11	62 ²	500 ²⁴	<300 ²⁴	<0.5	<0.5	<0.5	<0.5	4	--
	06/19/12	88	370 ²	<310	<0.5	<0.5	<0.5	<0.5	2	--
	12/04/12	95 ²	390 ²	<320	<0.5	<0.5	<0.5	<0.5	4	--
	06/19/13	66 ²	220 ²	<300	<0.5	<0.5	<0.5	<0.5	5	--
	12/12/13	82 ²	240 ²	<300	<0.5	<0.5	<0.5	0.9	4.9	--
	06/25/14	67 ²	260 ²	<300	<0.5	<0.5	<0.5	<0.5	4.2	--
	01/08/15	86 ²	310	<300	<0.5	<0.5	<0.5	<1.0	4	--
RW-4										
	06/25/14	1,300 ²	5,200	<300	<0.5	<0.5	<0.5	<0.5	<0.5	I
RW-8										
	06/25/14	850 ²	7,200	<290	53	<0.5	<0.5	<0.5	<0.5	I

Table 2
Historical Groundwater Analytical Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Monitoring Well	Date Sampled	Concentration (µg/L)								
		TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D/I

Notes:

Data prior to December 2005 from *3rd Quarterly Groundwater Monitoring, and Product Recovery Report* dated 8 November 2005, by Innovative Technical Solutions, Inc.

µg/L = micrograms per liter

Dup. = duplicate sample

NA = not analyzed

TPHg = total petroleum hydrocarbons in gasoline range.

TPHd = total petroleum hydrocarbons in diesel range.

TPHmo = total petroleum hydrocarbons in motor oil range.

MTBE = methyl tert-butyl ether

* May 2000 data was not collected in accordance with standard procedures and is not representative of groundwater.

¹ Analyte found in the associated blank as well as in the sample.

² Hydrocarbons present do not match profile of laboratory standard.

³ Low boiling point/lighter hydrocarbons are present in the sample.

⁴ Chromatographic pattern matches known laboratory contaminant.

⁵ Hydrocarbons are present in the requested fuel quantification range, but do not resemble pattern of available fuel standard.

⁶ High boiling point/heavier hydrocarbons are present in sample.

⁷ Sample did not pass laboratory QA/QC and may be biased low.

⁸ Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two.

⁹ Trip blank contained MTBE at a concentration of 4.2 µg/L.

¹⁰ MTBE detections confirmed by EPA Test Method 8260; 8260 results displayed.

¹¹ Sample exhibits unknown single peak or peaks.

¹² EPA Method 8260 confirmation analyzed past holding time.

¹³ Lighter hydrocarbons contributed to the quantitation.

¹⁴ MTBE results from EPA Test Method 8021B.

¹⁵ Sample exhibits fuel pattern that does not resemble standard.

¹⁶ Sample extracted out of hold time.

¹⁷ Presence confirmed, but Relative Percent Difference (RPD) between columns exceeds 40%.

¹⁸ Unmodified or weakly modified gasoline is significant.

¹⁹ Liquid sample contains greater than ~1 vol. % sediment.

²⁰ Gasoline compounds are significant.

²¹ Diesel range compounds are significant; no recognizable pattern.

²² Heavier hydrocarbons contributed to the quantitation.

²³ Analyzed outside of holdtime after confirmation of laboratory contamination by (2-ethylhexyl)phthalate.

²⁴ Analyzed both pre- and post-silica gel cleanup. Post-silica gel cleanup results are reported herein. Pre-silica gel cleanup results are included in Appendix B.

Table 3
Historical Soil Vapor Data

Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA

Sample ID	Date	Time	Units	PID	D / I
RW-9	8/5/2014	10:24	ppm	9.1	--
RW-9	8/5/2014	10:30	ppm	9.4	--
MW-3	8/5/2014	11:49	ppm	12.2	I
MW-3	8/5/2014	11:54	ppm	11.4	I
RW-3	8/5/2014	12:27	ppm	25.2	I
RW-3	8/5/2014	12:33	ppm	24.5	I
MW-5	8/5/2014	13:46	ppm	0.7	--
MW-5	8/5/2014	13:52	ppm	0.5	--
MW-1	8/5/2014	15:47	ppm	90	I
MW-1	8/5/2014	15:52	ppm	84.6	I

Acronyms and Abbreviations:

D / I = indicates if sample is directly (D) or indirectly (I) indicative of free phase product

PID = photoionization detector

ppm = parts per million

-- = not indicative of free phase product

**Table 4
Historical Soil Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Sample ID	Date	Sample Collection Depth	Change in Site Grade	Revised Sample Collection Depth	Units	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	D / I
PZ-A 1.0-1.5'	2/11/2002	1 - 1.5	3.3	4.8	mg/kg	< 1.0	4.9	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-A 3.0 - 3.5'	2/11/2002	3 - 3.5	3.3	6.8	mg/kg	< 1.0	2.2	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-A 5.0-5.5'	2/11/2002	5 - 5.5	3.3	8.8	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-B 1.0-1.5'	2/12/2002	1 - 1.5	2.5	4	mg/kg	< 1.0	120	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
PZ-B 3.0-3.5'	2/12/2002	3 - 3.5	2.5	6	mg/kg	< 1.0	2.2	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-B 7.0-7.5'	2/12/2002	7 - 7.5	2.5	10	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-C 1.0-1.5'	2/12/2002	1 - 1.5	2	3.5	mg/kg	< 1.0	4.7	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-C 3.0-3.5'	2/12/2002	3 - 3.5	2	5.5	mg/kg	< 1.0	3.1	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-C 5.5-6.0'	2/11/2002	5.5 - 6	2	8	mg/kg	74	2300	< 0.62	< 0.62	< 0.62	1.3	< 0.62	I
PZ-D 1.0-1.5'	2/12/2002	1 - 1.5	2	3.5	mg/kg	< 1.0	3.2	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-D 3.0-3.5'	2/12/2002	3 - 3.5	2	5.5	mg/kg	< 1.0	22	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
PZ-D 5.0-5.5'	2/11/2002	5 - 5.5	2	7.5	mg/kg	140	7700	< 0.62	< 0.62	< 0.62	< 0.62	< 0.62	I
PZ-E 1.0-1.5'	2/13/2002	1 - 1.5	2	3.5	mg/kg	< 1.0	19	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
PZ-E 3.0-3.5'	2/13/2002	3 - 3.5	2	5.5	mg/kg	< 1.0	17	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
PZ-E 5.5-6.0'	2/13/2002	5.5 - 6	2	8	mg/kg	280	20000	< 0.62	< 0.62	< 0.62	< 0.62	< 0.62	I
PZ-F 1.0-1.5'	2/12/2002	1 - 1.5	2.2	3.7	mg/kg	4.8	41	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
PZ-F 3.0-3.5'	2/12/2002	3 - 3.5	2.2	5.7	mg/kg	< 1.0	2.4	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
PZ-F 5.0-5.5'	2/11/2002	5 - 5.5	2.2	7.7	mg/kg	1.0	83	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-01	3/27/2002	1	3.3	4.3	mg/kg	< 1.0	110	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-01	3/27/2002	2	3.3	5.3	mg/kg	< 1.0	31	0.0076	0.0082	< 0.0050	< 0.0050	< 0.0050	I
MFC-01	3/27/2002	4	3.3	7.3	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-02	3/27/2002	1.5	2.5	4	mg/kg	< 1.0	5.8	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-02	3/27/2002	4.5	2.5	7	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-02	3/27/2002	5.5	2.5	8	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-03	3/27/2002	1.5	2.5	4	mg/kg	< 1.0	19	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-03	3/27/2002	4.5	2.5	7	mg/kg	< 1.0	4.5	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-03	3/27/2002	7.5	2.5	10	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-04	3/27/2002	5	3	8	mg/kg	1.7	320	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-04	3/27/2002	8.5	3	11.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-04	3/27/2002	11	3	14	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-05	3/26/2002	5	2.5	7.5	mg/kg	< 1.0	290	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-05	3/26/2002	8	2.5	10.5	mg/kg	< 1.0	9.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-05	3/26/2002	11	2.5	13.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-06	3/26/2002	5	2	7	mg/kg	< 1.0	220	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I

**Table 4
Historical Soil Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Sample ID	Date	Sample Collection Depth	Change in Site Grade	Revised Sample Collection Depth	Units	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	D / I
MFC-06	3/26/2002	8.5	2	10.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-06	3/26/2002	9	2	11	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-07	3/26/2002	3	2	5	mg/kg	< 1.0	390	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-07	3/26/2002	5	2	7	mg/kg	< 1.0	510	< 0.0050	< 0.0050	< 0.0050	< 0.0020	< 0.0050	I
MFC-07	3/26/2002	5.5	2	7.5	mg/kg	< 200.0	13	< 0.0010	0.0012	< 0.0010	< 0.0020	< 0.0010	I
MFC-07	3/26/2002	8.5	2	10.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-07	3/26/2002	9	2	11	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-08	3/26/2002	2	3	5	mg/kg	< 1.0	160	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-08	3/26/2002	5	3	8	mg/kg	< 1.0	14	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-08	3/26/2002	5.5	3	8.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-08	3/26/2002	8	3	11	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-09	3/26/2002	2	3	5	mg/kg	< 1.0	15	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-09	3/26/2002	5	3	8	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-09	3/26/2002	5.5	3	8.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-10	3/27/2002	1.5	2.5	4	mg/kg	< 1.0	5.4	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-10	3/27/2002	5	2.5	7.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-11	3/27/2002	1.5	2.4	3.9	mg/kg	< 1.0	12	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-11	3/27/2002	4	2.4	6.4	mg/kg	< 1.0	15	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-12	3/27/2002	1.5	2.4	3.9	mg/kg	1.9	21	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-12	3/27/2002	4	2.4	6.4	mg/kg	< 1.0	1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-13	3/27/2002	1.5	2.4	3.9	mg/kg	< 1.0	110	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-13	3/27/2002	3	2.4	5.4	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-14	3/25/2002	1.5	2	3.5	mg/kg	< 1.0	13	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-14	3/25/2002	3	2	5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-14	3/25/2002	4	2	6	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-15	3/25/2002	1.5	2	3.5	mg/kg	< 1.0	6.9	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-15	3/25/2002	3	2	5	mg/kg	< 1.0	6.1	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-15	3/25/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-15 DUP	3/25/2002	4.5	2	6.5	mg/kg	--	1.6	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-16	3/25/2002	1.5	2	3.5	mg/kg	< 1.0	8	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-16	3/25/2002	4	2	6	mg/kg	< 1.0	16	0.010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-17	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	55	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-17	3/26/2002	4.5	2	6.5	mg/kg	< 1.0	2.8	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-18	3/25/2002	1.5	2	3.5	mg/kg	< 1.0	11	--	--	--	--	--	I

**Table 4
Historical Soil Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Sample ID	Date	Sample Collection Depth	Change in Site Grade	Revised Sample Collection Depth	Units	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	D / I
MFC-18	3/25/2002	3	2	5	mg/kg	4.6	310	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-18	3/25/2002	4.5	2	6.5	mg/kg	< 1.0	5.9	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-19	3/25/2002	1	2	3	mg/kg	< 1.0	370	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-19	3/25/2002	2	2	4	mg/kg	< 1.0	3.8	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-19	3/25/2002	4	2	6	mg/kg	< 1.0	1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-20	3/27/2002	4	2	6	mg/kg	< 1.0	21	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-20	3/27/2002	7	2	9	mg/kg	< 1.0	230	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-20	3/27/2002	13	2	15	mg/kg	< 2000.0	1600	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	I
MFC-21	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	7.9	--	--	--	--	--	--
MFC-21 DUP	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	4.2	--	--	--	--	--	--
MFC-21	3/28/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-21	3/28/2002	8	2	10	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-22	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	< 1.0	--	--	--	--	--	--
MFC-22	3/28/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-22	3/28/2002	7.5	2	9.5	mg/kg	< 1.0	1.1	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-23	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	17	--	--	--	--	--	I
MFC-23	3/28/2002	5.5	2	7.5	mg/kg	< 1.0	4.2	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-23	3/28/2002	8	2	10	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-24	3/27/2002	1.5	2	3.5	mg/kg	< 1.0	9.4	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-24	3/27/2002	4	2	6	mg/kg	< 1.0	150	< 0.0050	< 0.0050	< 0.0050	0.005	< 0.0050	I
MFC-24	3/27/2002	4.5	2	6.5	mg/kg	< 200.0	< 5.0	< 0.0010	0.0011	< 0.0010	< 0.0020	< 0.0010	--
MFC-25	3/28/2002	1	2	3	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-25 DUP	3/28/2002	1	2	3	mg/kg	< 1.0	69	--	--	--	--	--	I
MFC-25	3/28/2002	4.5	2	6.5	mg/kg	< 1.0	9.9	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-25	3/28/2002	7.5	2	9.5	mg/kg	< 200.0	1600	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	I
MFC-26	3/27/2002	1.5	2	3.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-26	3/27/2002	5	2	7	mg/kg	< 1.0	2.4	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-26	3/27/2002	7.5	2	9.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-27	3/27/2002	1.5	2	3.5	mg/kg	< 1.0	420	< 0.0050	0.018	0.0055	0.026	--	I
MFC-27	3/27/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-27	3/27/2002	5.5	2	7.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-28	3/27/2002	1	2	3	mg/kg	< 1.0	18	< 0.0050	0.0062	< 0.0050	0.012	--	I
MFC-28	3/27/2002	5	2	7	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-29	3/26/2002	1	2	3	mg/kg	< 1.0	7.4	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--

**Table 4
Historical Soil Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Sample ID	Date	Sample Collection Depth	Change in Site Grade	Revised Sample Collection Depth	Units	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	D / I
MFC-29	3/26/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-29 DUP	3/26/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-29	3/26/2002	5.5	2	7.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-30	3/27/2002	1.5	2	3.5	mg/kg	< 1.0	45	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-30	3/27/2002	4.5	2	6.5	mg/kg	< 200.0	< 5.0	< 0.0010	0.001	< 0.0010	< 0.0020	< 0.0010	--
MFC-31	3/25/2002	1	2	3	mg/kg	< 1.0	16	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-31	3/25/2002	3	2	5	mg/kg	5.4	28	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-31	3/25/2002	4.5	2	6.5	mg/kg	< 1.0	2.7	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-31	3/25/2002	5	2	7	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-32	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	3.4	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-33	3/25/2002	1.5	2	3.5	mg/kg	< 1.0	1300	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-33	3/25/2002	3	2	5	mg/kg	< 1.0	14	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-33	3/25/2002	5	2	7	mg/kg	< 1.0	2.1	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-33	3/25/2002	5.5	2	7.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-34	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	13	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-34	3/26/2002	3	2	5	mg/kg	< 1.0	36	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-34	3/26/2002	5.5	2	7.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-34	3/26/2002	6	2	8	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-35	3/25/2002	1	2	3	mg/kg	< 1.0	45	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-35	3/25/2002	2	2	4	mg/kg	2.0	200	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-35	3/25/2002	5	2	7	mg/kg	< 1.0	57	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-35	3/25/2002	5.5	2	7.5	mg/kg	< 2000.0	1300	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	I
MFC-36	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	7.6	--	--	--	--	--	--
MFC-36 DUP	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	1.6	--	--	--	--	--	--
MFC-36	3/28/2002	4.5	2	6.5	mg/kg	< 1.0	120	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.023	I
MFC-37	3/25/2002	1.5	2	3.5	mg/kg	< 1.0	5.6	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-37	3/25/2002	4.5	2	6.5	mg/kg	310	5700	<0.017	<0.017	<0.017	<0.017	<0.017	I
MFC-37	3/25/2002	5	2	7	mg/kg	< 2000.0	3800	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	I
MFC-38	3/26/2002	1	2	3	mg/kg	< 1.0	14	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-38	3/26/2002	2.5	2	4.5	mg/kg	< 1.0	7.8	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-38	3/26/2002	5	2	7	mg/kg	< 1.0	18	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-38	3/26/2002	5.5	2	7.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-39	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	4.7	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-40	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	7.3	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--

**Table 4
Historical Soil Data**

**Port of Oakland, Harbor Facilities Complex
651 Maritime Street, Oakland, CA**

Sample ID	Date	Sample Collection Depth	Change in Site Grade	Revised Sample Collection Depth	Units	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	D / I
MFC-40	3/26/2002	3	2	5	mg/kg	< 1.0	5.3	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-40	3/26/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	--	--	--	--	--	--
MFC-40	3/26/2002	5	2	7	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-41	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	18	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	I
MFC-41	3/26/2002	2.5	2	4.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-41	3/26/2002	4	2	6	mg/kg	< 1.0	1.9	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-41	3/26/2002	4.5	2	6.5	mg/kg	< 200.0	12	< 0.0010	0.0016	< 0.0010	< 0.0020	< 0.0010	I
MFC-43	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	110	--	--	--	--	--	I
MFC-43	3/28/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0053	--
MFC-44	3/26/2002	1.5	2	3.5	mg/kg	< 1.0	2.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--	--
MFC-44	3/26/2002	4.5	2	6.5	mg/kg	< 1.0	54	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-44	3/26/2002	5	2	7	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--
MFC-45	3/28/2002	1.5	2	3.5	mg/kg	< 1.0	6.2	--	--	--	--	--	--
MFC-45	3/28/2002	4.5	2	6.5	mg/kg	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	--
MFC-46	3/27/2002	4	2	6	mg/kg	< 1.0	46	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-46	3/27/2002	7	2	9	mg/kg	< 1.0	34	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	I
MFC-46	3/27/2002	7.5	2	9.5	mg/kg	< 200.0	< 5.0	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	--

Acronyms and Abbreviations:

D / I = indicates if sample is directly (D) or indirectly (I) indicative of free phase product

mg/kg = milligrams per kilogram

MTBE - methyl t-butyl ether

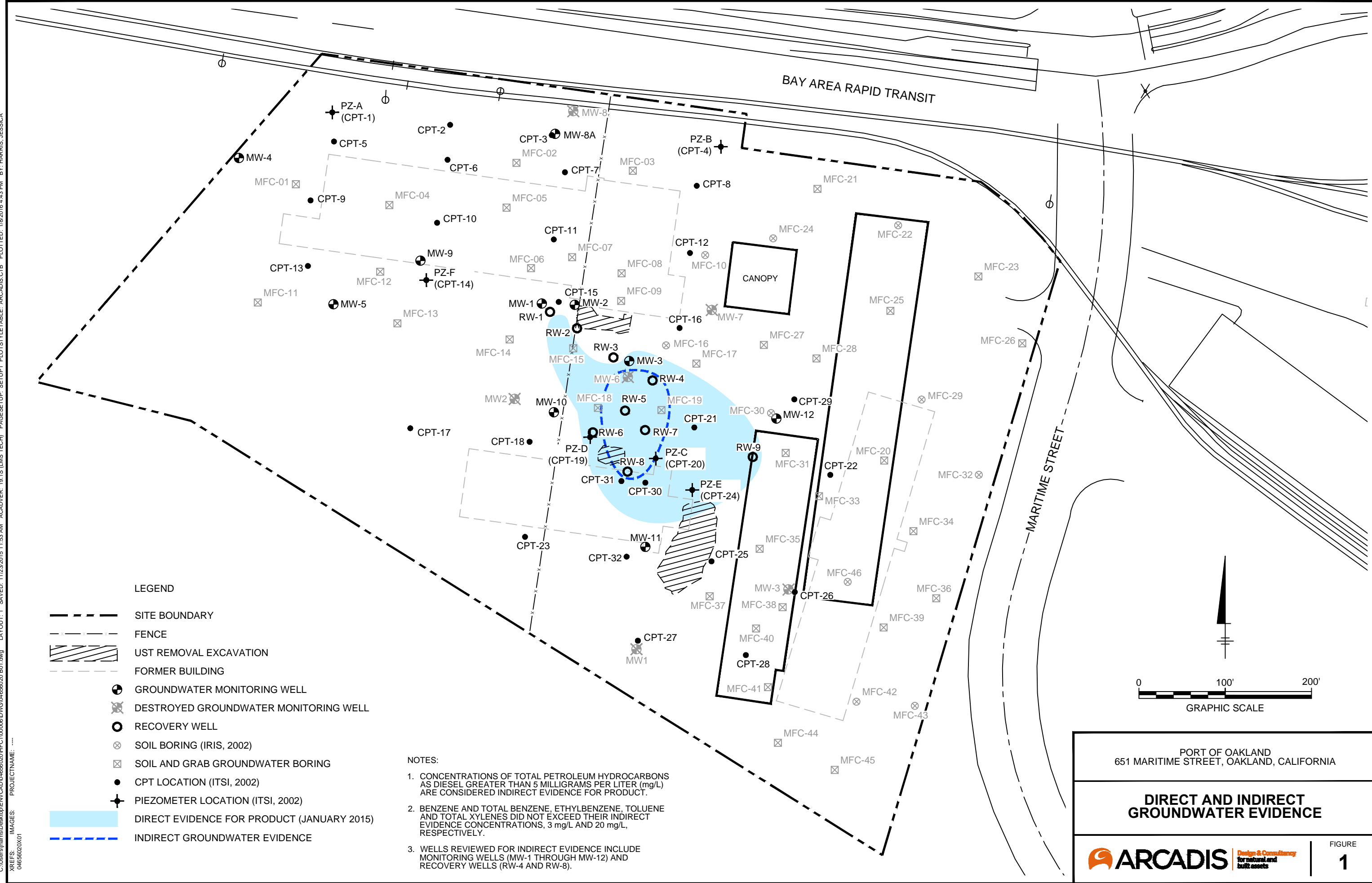
GRO = Total Petroleum Hydrocarbons as Gasoline

DRO = Total Petroleum Hydrocarbons as Diesel

-- = not analyzed, not indicative of free phase product

< = less than the reporting limit

CITY: SAN RAFAEL, CA (POTALUMA) DIV: GROUP: ENV/CAD DB: J. HARRIS
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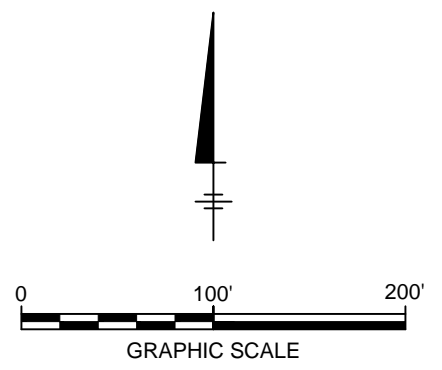


LEGEND

- SITE BOUNDARY
- FENCE
- UST REMOVAL EXCAVATION
- FORMER BUILDING
- GROUNDWATER MONITORING WELL
- DESTROYED GROUNDWATER MONITORING WELL
- RECOVERY WELL
- SOIL BORING (IRIS, 2002)
- SOIL AND GRAB GROUNDWATER BORING
- CPT LOCATION (ITSI, 2002)
- PIEZOMETER LOCATION (ITSI, 2002)
- DIRECT EVIDENCE FOR PRODUCT (JANUARY 2015)
- INDIRECT GROUNDWATER EVIDENCE

NOTES:

1. CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS AS DIESEL GREATER THAN 5 MILLIGRAMS PER LITER (mg/L) ARE CONSIDERED INDIRECT EVIDENCE FOR PRODUCT.
2. BENZENE AND TOTAL BENZENE, ETHYLBENZENE, TOLUENE AND TOTAL XYLENES DID NOT EXCEED THEIR INDIRECT EVIDENCE CONCENTRATIONS, 3 mg/L AND 20 mg/L, RESPECTIVELY.
3. WELLS REVIEWED FOR INDIRECT EVIDENCE INCLUDE MONITORING WELLS (MW-1 THROUGH MW-12) AND RECOVERY WELLS (RW-4 AND RW-8).



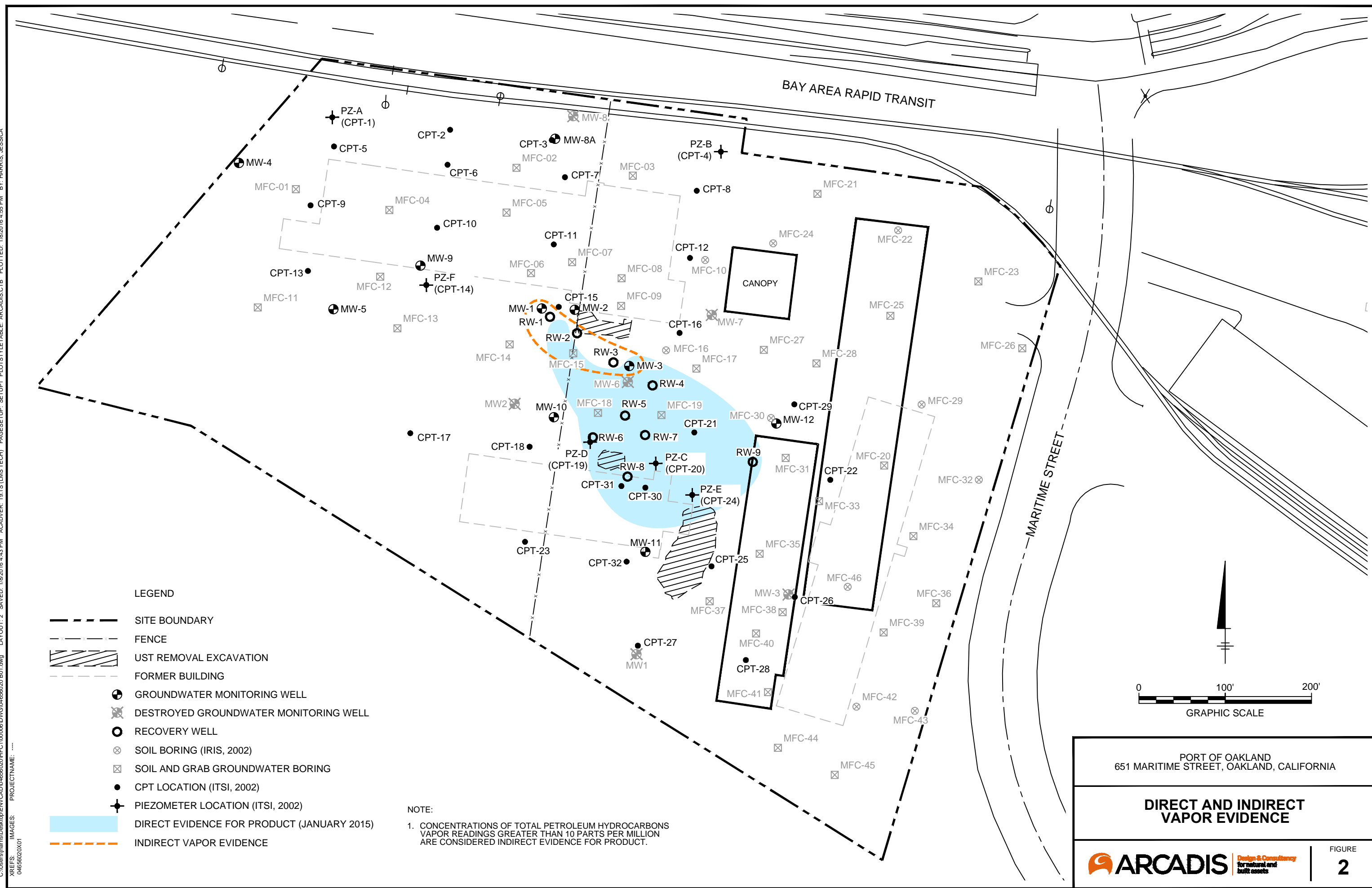
PORT OF OAKLAND
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**DIRECT AND INDIRECT
GROUNDWATER EVIDENCE**

ARCADIS Design & Consultancy
for natural and
built assets

FIGURE
1

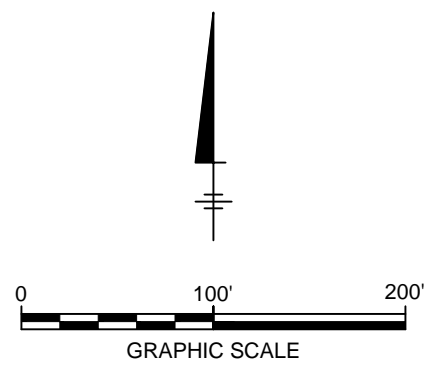
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LEGEND

- SITE BOUNDARY
- FENCE
- UST REMOVAL EXCAVATION
- FORMER BUILDING
- GROUNDWATER MONITORING WELL
- DESTROYED GROUNDWATER MONITORING WELL
- RECOVERY WELL
- SOIL BORING (IRIS, 2002)
- SOIL AND GRAB GROUNDWATER BORING
- CPT LOCATION (ITSI, 2002)
- PIEZOMETER LOCATION (ITSI, 2002)
- DIRECT EVIDENCE FOR PRODUCT (JANUARY 2015)
- INDIRECT VAPOR EVIDENCE

NOTE:
 1. CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS VAPOR READINGS GREATER THAN 10 PARTS PER MILLION ARE CONSIDERED INDIRECT EVIDENCE FOR PRODUCT.



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DIRECT AND INDIRECT
 VAPOR EVIDENCE

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FIGURE
2