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April 10, 2014

Mr. Jerry Wickham, PG
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: First Quarter 2014 – Groundwater Monitoring Report
P&D 23rd Avenue Associates, LLC
1125 Miller Avenue, Oakland, CA
Clearwater Project No. CB018S
ACEH Fuel Case Leak No. RO0000294

Dear Mr. Wickham,

As the legally authorized representative of the above-referenced project location I have reviewed the attached report prepared by my consultant of record, Clearwater Group. I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,

Mr. John Protopappas
FOR P&D 23rd Avenue Associates, LLC

CLEARWATER GROUP
Environmental Services

April 10, 2014

Mr. Jerry Wickham, P.G.
Senior Hazardous Materials Specialist
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: First Quarter 2014 – Groundwater Monitoring Report and Request for LTCP Closure
P&D 23rd Avenue Associates LLC
(Formerly 23rd Avenue Partners)
1125 Miller Avenue
Oakland, California
Geotracker Global ID # T0600177455
Clearwater Group Project Number CB018S

Dear Mr. Wickham,

This report, prepared by Clearwater Group (Clearwater) on behalf of P&D 23rd Avenue Associates LLC, summarizes the results of quarterly groundwater-monitoring activities conducted during the first quarter 2014, at 1125 Miller Avenue in Oakland, Alameda County, California (*site*) [**Figures 1** and **2**]. This is the fourth of four events completing a full hydrologic cycle. This is also a formal request for case closure as a "Low Threat Case Closure" case.

A summary (which is periodically updated) of historic investigation work, remediation completed at the *site*, and details regarding groundwater-monitoring activities is included in **Attachment A**; a reference list of reports written for this case is included at the end of the summary. Well construction details for groundwater-monitoring wells MW-1 through MW-3 are included in **Table 1**. Field activities were performed in general accordance with Clearwater's field protocols, included in **Attachment B**. Information on groundwater level and well purging, recorded on the *Well Inspection and Water Level Gauging Form* and *Groundwater Sampling Forms: Low-Flow, Low-Stress Method*, is included in **Attachment C**.

GROUNDWATER MONITORING

Groundwater Monitoring Activities
On March 17, 2014, three groundwater-monitoring wells (MW-1 through MW-3) were gauged, and groundwater samples were collected for analysis from all three wells.

Laboratory Analyses

Groundwater samples were analyzed by Kiff Analytical, LLC (Kiff), a State of California Department of Health Services-certified analytical laboratory, located in Davis, California. The samples were analyzed for concentrations of benzene, toluene, ethylbenzene, and xylenes (collectively known as BTEX); methyl tertiary butyl ether (MTBE); total petroleum hydrocarbons as gasoline (TPH-g); and volatile organic compounds including trichloroethene (TCE), by United States Environmental Protection Agency (EPA) Method 8260B. The samples were also analyzed for total petroleum hydrocarbons as diesel (TPH-d) by EPA Method 8015M. The analytical report for the first quarter 2014 groundwater-monitoring event including chain-of-custody documentation (Kiff Report number 87732) is included in **Attachment D**.

GROUNDWATER MONITORING RESULTS

Groundwater Elevation and Flow

The static depth-to-water measurements recorded in the groundwater-monitoring wells on March 17, 2014, ranged from approximately 9.37 feet below ground surface (MW-1) to 11.39 feet below ground surface (MW-3) [**Table 2**]. Depth-to-water measurements and well elevation data were used to generate a groundwater elevation map (**Figure 3**). During the first quarter 2014 groundwater-monitoring event, the inferred direction of groundwater flow was to the south-southwest at a gradient of 0.0042. The groundwater flow direction has also been plotted on **Figure 3**, and is consistent with the previous observations calculated from the data collected on September 6, 2013 and December 18, 2013; groundwater flow has been documented from southwest through southeast over four events in one hydrologic year.

Groundwater Quality Parameters

During the March 17, 2014, event, the samples were described as clear with neither hydrocarbon sheen nor hydrocarbon odor documented or observed in or on the groundwater purged from any of the wells.

Groundwater Sample Analytical Results

The laboratory reported various concentrations of the following contaminants of concern above the laboratory detection limits: TPH-d, benzene, chloroform, and trichloroethene (TCE). The values detected during the March 17, 2014, sampling event are listed in the table below:

Groundwater Sampling Results from March 17, 2014

Well Number	Sampling Date	TPH-d (µg/L)	TPH-g (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	TCE (µg/L)
MW-1	3/17/2014	61 [B]	<50	<0.50	<0.50	1.2
MW-2	3/17/2014	**210**	<50	**2.2**	<0.50	2.4
MW-3	3/17/2014	<50	<50	<0.50	1.0	**5.2**
ESL [A]		100	100	1.0	70	5.0

µg/L Micrograms per liter

Footnote A Environmental Screening Levels (ESL), from 2013 Tier 1 ESLs (screening levels resulting from default setting), available from http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/ESL/Lookup_Tables_Summary_May_2013.pdf

Footnote B Laboratory note: Hydrocarbons are higher-boiling than typical for Diesel Fuel.

Boldface **Values in boldface type represent results above the Environmental Screening Levels**

Analytical results and data on depth to water and groundwater elevation are presented in **Table 3**. **Figure 4** presents the site plan showing the reported concentrations of dissolved-phase compounds in the groundwater samples collected on March 17, 2014.

RESULTS

All three monitoring wells were impacted by contaminants of concern. Groundwater samples collected from all of the wells contained low concentrations of TCE; chloroform was detected at low levels in MW-3.

GEOTRACKER

Clearwater uploaded depth-to-water data spreadsheets known as GEO_WELL and an electronic laboratory report (EDF) to the State of California GeoTracker website (www.geotracker.swrcb.ca.gov) on April 2, 2014. Confirmations of the submittal of these data electronically to the website are included (**Attachment E**). This report, upon its completion and certification, will be converted into a PDF file and uploaded to the GeoTracker website per the January 1, 2005, GEO_REPORT requirement.

PROJECT STATUS SUMMARY

Significant activities performed for this *site* during the first quarter of 2014 included:

- The first quarter 2014 groundwater monitoring event on March 17, 2014. This event is the fourth of four events for a full hydrologic cycle.

CONCLUSIONS AND RECOMMENDATIONS

Clearwater recommends consideration of this *site* for case closure based on these results and with respect to the State Water Resource Control Board (SWRCB) Low-Threat Closure Policy (LTCP) guidelines (**Attachment F**). The Path to Closure Plan reflects the need for Verification Monitoring for 12 months (**Attachment G**). Twelve months of verification monitoring has now been completed.

LOW THREAT DISCUSSION

On July 30, 2012, the State of California's Office of Administrative Law completed their review and approved the State Water Resources Control Board's *Low-Threat Underground Storage Tank Case Closure Policy*, or "Low Threat Closure Policy" (LTCP). This policy became effective on August 17, 2012. The *site* meets seven of the eight "General Criteria" listed in the LTCP "General Criteria a. through h.", as listed below:

a. The unauthorized release is located within the service area of a public water system (the *site* is within an area serviced by a public water system);
b. The groundwater plume contains low levels of chloroform and TCE in addition to petroleum hydrocarbons. Note that the levels of TCE are just at the ESL. The TCE appears to be higher in the upgradient direction from the tank pit. The Chloroform detection is a fraction of the ESL;
c. The unauthorized ("primary") release from the Underground Storage Tank system has been stopped (the tank and the dispenser piping were removed);
d. Free product has been removed to the maximum extent practicable (no free product has been encountered);
e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed (see the September 23, 2013 Clearwater report, "2013 Well Installation, Dispenser Excavation Completion, and Site Assessment Report");
f. Secondary source has been removed to the extent practicable (the secondary source was removed during the original tank pull and during the 2013 dispenser excavation);
g. Soil and groundwater have been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15 (results have been reported); and
h. Nuisance as defined by Water Code section 13050 does not exist at the *site* (no nuisance exists per the definition of nuisance as follows: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal, (3) Occurs during, or as a result of, the treatment or disposal of wastes.).

Additionally, with current data, the *site* meets case closure criteria for all three media at the *site*: medium 1 – "Groundwater," medium 2 – "Vapor Intrusion to Indoor Air," and medium 3 – "Direct Contact and Outdoor Air Exposure." Cumulative hydrocarbon soil sample analytical

results are presented in **Table 4A**, cumulative volatile organic compound soil sample analytical results are presented in **Table 4B**, cumulative soil vapor sample analytical results for commercial and residential samples are presented in **Tables 5A** and **5B**, respectively. The following is a summary of these sections of the LTCP with regard to the *site*:

Groundwater (medium 1) – On the basis of Criterion 1 within the "Groundwater-Specific Criteria" section of the LTCP, groundwater impacts can be considered "low threat" because, according to the LTCP,

a. The contaminant plume that exceeds water quality objectives is less than 100 feet in length (the TPH-d plume is uncharacterized as there are no downgradient wells; however, it could be assumed that it is less than 100 feet in length as long as it does not migrate via preferential pathways i.e. utility conduits);
b. There is no free product (free product is not currently encountered);
c. The nearest existing water supply well or surface water body is greater than 200 feet from the defined plume boundary (no current supply wells were identified within 2,000 feet of the *site* and the nearest surface water body is approximately 1,900 feet distance from the *site* – see the February 21, 2013 Clearwater report, "2,000-Foot-Radius Well Search Report"); and
d. The dissolved concentration of benzene is less than 1,000 µg/L, and the dissolved concentration of MTBE is less than 1,000 µg/L (benzene *site* values were measured at a maximum of 2.2 µg/L and MTBE *site* values were below detection limits).

Vapor Intrusion to Indoor Air (medium 2) – With regard to vapor intrusion to indoor air, the *site* does not qualify for "low threat" by satisfying criteria 1 through 3 (page 7 of the LTCP).

- In scenario 1, the light, non-aqueous phase liquid (LNAPL) must be either absent at the *site* (this requirement is met for the *site*) or lower than 30 feet below the bottom of the building foundation;
- In scenario 2, the TPH is less than 100 mg/kg 30-feet from the foundation (this requirement is not met for the *site*);
- In scenario 3, benzene concentrations in groundwater must be less than 100 µg/L within the first 5 feet below ground surface (bgs) or less than 1,000 µg/L within the first 10 feet bgs (this requirement is met for the *site*); and

Although the *site* does not meet scenarios 1 through 3, it does meet option c (page 7 of the LTCP), as follows:

- As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health.

Over the dispenser island area excavation, a concrete pad was installed on top of controlled density fill and a vapor barrier. The surface of the concrete pad was completed with a two step

"Aquafin Vaportight Coat." This work was reported in the Clearwater *2013 Well Installation, Dispenser Excavation Completion and Site Assessment Report* dated September 23, 2013. The tank pit area was previously fully capped with a concrete driveway.

Direct Contact and Outdoor Air Exposure (medium 3) – All soil sample analytical results (all values shown below are in milligrams per kilogram) are below the LTCP commercial/industrial requirements:

Trigger LTCP Values	**Benzene**	**Ethylbenzene**	**Naphthalene**
0 to 5 feet bgs	8.2	89	45
5 to 10 feet bgs	12	134	45
Site Values	**Benzene**	**Ethylbenzene**	**Naphthalene**
Highest Site Value	1.4	0.24	0.072
Location of detection	TW2	S15	CS-1
Depth of detection	16.5 ft.	10 ft.	2.5 ft.

FORMAL REQUEST FOR CASE CLOSURE

This *site* should be considered for case closure based on these results as they compare to the SWRCB LTCP guidelines. According to the LTCP guidelines, the *site* meets seven of the eight "General Criteria" and the case closure criteria for all three of the media categories: media 1 - "Groundwater," media 2 – "Petroleum Vapor Intrusion to Indoor Air," and media 3 - "Direct Contact and Outdoor Air." In that criteria for which closure is not met (presence of TCE) the level in groundwater is at the ESL.

CLEARWATER
GROUP
Environmental Services

REPORT LIMITATION

All work performed under this contract was directed by a licensed professional. The work was performed in accordance with generally accepted practices at the time the work was performed and completed in accordance with generally acceptable standards. In the course of normal business, recommendations by the in-house professional may include the use of equipment, services, or products in which the Company has an interest. Therefore, the Company is making full disclosure of potential or perceived conflicts of interest to all parties.

This report was prepared under the supervision of a State of California Professional Geologist. Statements, conclusions, and recommendations made in this report are based on information provided to Clearwater, observations of existing site conditions, our general knowledge of the site, limited testing of selected soil and groundwater samples, and interpretations of a limited set of data. Clearwater cannot be held responsible for the accuracy of the analytical work performed by others.

Information and interpretation presented herein are for the use of the client. Third parties should rely upon the information and interpretation contained in this document at their own risk. No other warranties, certifications, or representations, either expressed or implied, are made about the information supplied in this report. The service performed by Clearwater has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site.

Sincerely,
CLEARWATER GROUP

PROFESSIONAL GEOLOGIST
JAMES ALAN JACOBS
NO. 88
CERTIFIED HYDROGEOLOGIST
STATE OF CALIFORNIA

Gavin P. Fisco
Geologist

James A. Jacobs, P.G. #4815, C.H.G. #88
Chief Hydrogeologist

Olivia Jacobs, C.E.M #1465
Chief Executive Officer

FIGURES

Figure 1:	Site Vicinity Map
Figure 2:	Site Plan
Figure 3:	Groundwater Elevation and Contour Map (March 17, 2014) and Groundwater Flow Rose Diagram
Figure 4:	Dissolved-Phase Analytical Concentrations (March 17, 2014)

TABLES

Table 1:	Well Construction Data
Table 2:	Cumulative Groundwater Elevation and Gradient Summary
Table 3:	Cumulative Groundwater Elevation and Analytical Results
Table 4A:	Cumulative Hydrocarbon Soil Sample Analytical Results
Table 4B:	Cumulative Volatile Organic Compound Soil Sample Analytical Results
Table 5A:	Cumulative Soil Vapor Sample Analytical Results – Commercial
Table 5B:	Cumulative Soil Vapor Sample Analytical Results – Residential

ATTACHMENTS

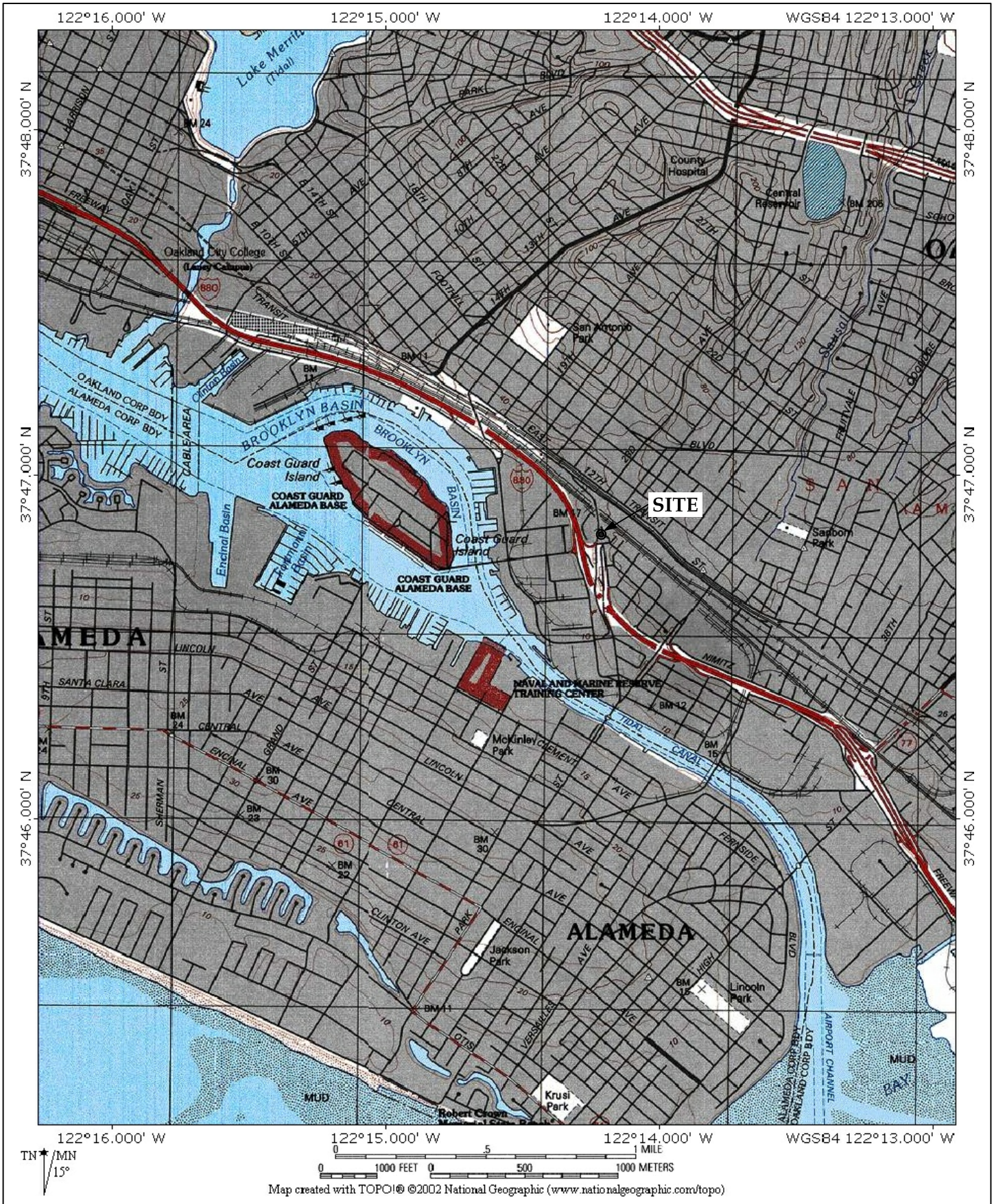
Attachment A:	Summary of Site Investigation Activities, References List, and Floor Plan with Historic Overlay
Attachment B:	Low-Flow (Minimal Drawdown) Groundwater Monitoring Standard Operating Procedure
Attachment C:	Well Inspection and Water Level Gauging Form Groundwater Sampling Forms: Low-Flow, Low-Stress Method
Attachment D:	Kiff Analytical, LLC Report Number 87732
Attachment E:	GeoTracker Upload Confirmation Pages
Attachment F:	Low-Threat Underground Storage Tank Case Closure Policy
Attachment G:	GeoTracker Path to Closure Plan FY 12/13 as of 12/11/2013

cc: Mr. John Protopappas
P&D 23rd Avenue Associates, LLC
c/o Madison Park Financial
155 Grand Avenue, Suite 1025
Oakland, California 94612

Mr. Leroy Griffin
City of Oakland
Fire Department
250 Frank H. Ogawa Plaza, Suite 3341
Oakland, CA 94612-2032

Alameda County Environmental Health Services
(Sent via electronic upload to the Geotracker website)

FIGURES

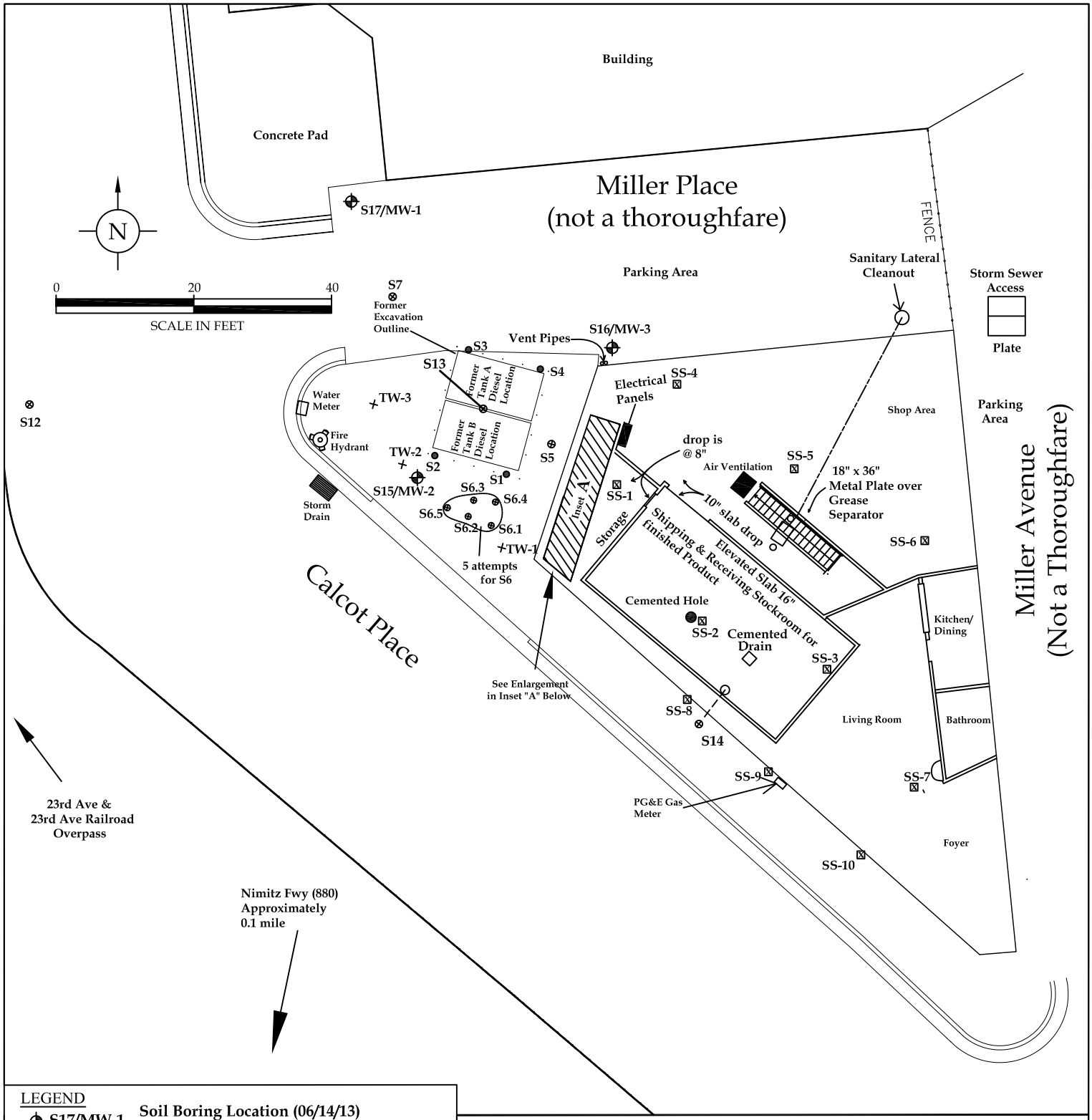


Site Vicinity Map

1125 Miller Avenue
Oakland, California

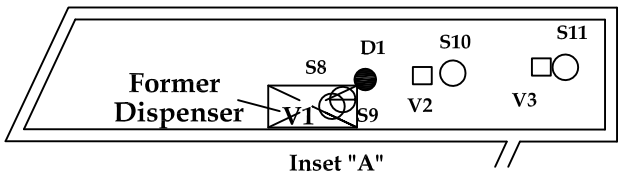
CLEARWATER GROUP

Project No.	Figure Date	Figure
CB018	**05/13**	**1**



LEGEND

S17/MW-1	Soil Boring Location (06/14/13) Groundwater Monitoring Well
S12-S13	Soil Boring Locations (11/28/11)
S14	Slanted Soil Boring Location (11/28/11)
SS-1-SS-10	Sub-slab Vapor Location (06/17/10, 11/04/10) and 11/10/11)
S1-S4	Soil Boring Location (12/2/98)
S5-S8	Soil Boring Location (11/16/05)
D1	Soil Boring Location (10/24/00)
TW-3	Temporary Well (10/24/00)
S9-S11	Soil Boring Location (11/15/06)
V1-V3	Soil Vapor Location (11/15/06)
. . .	Excavation Outline



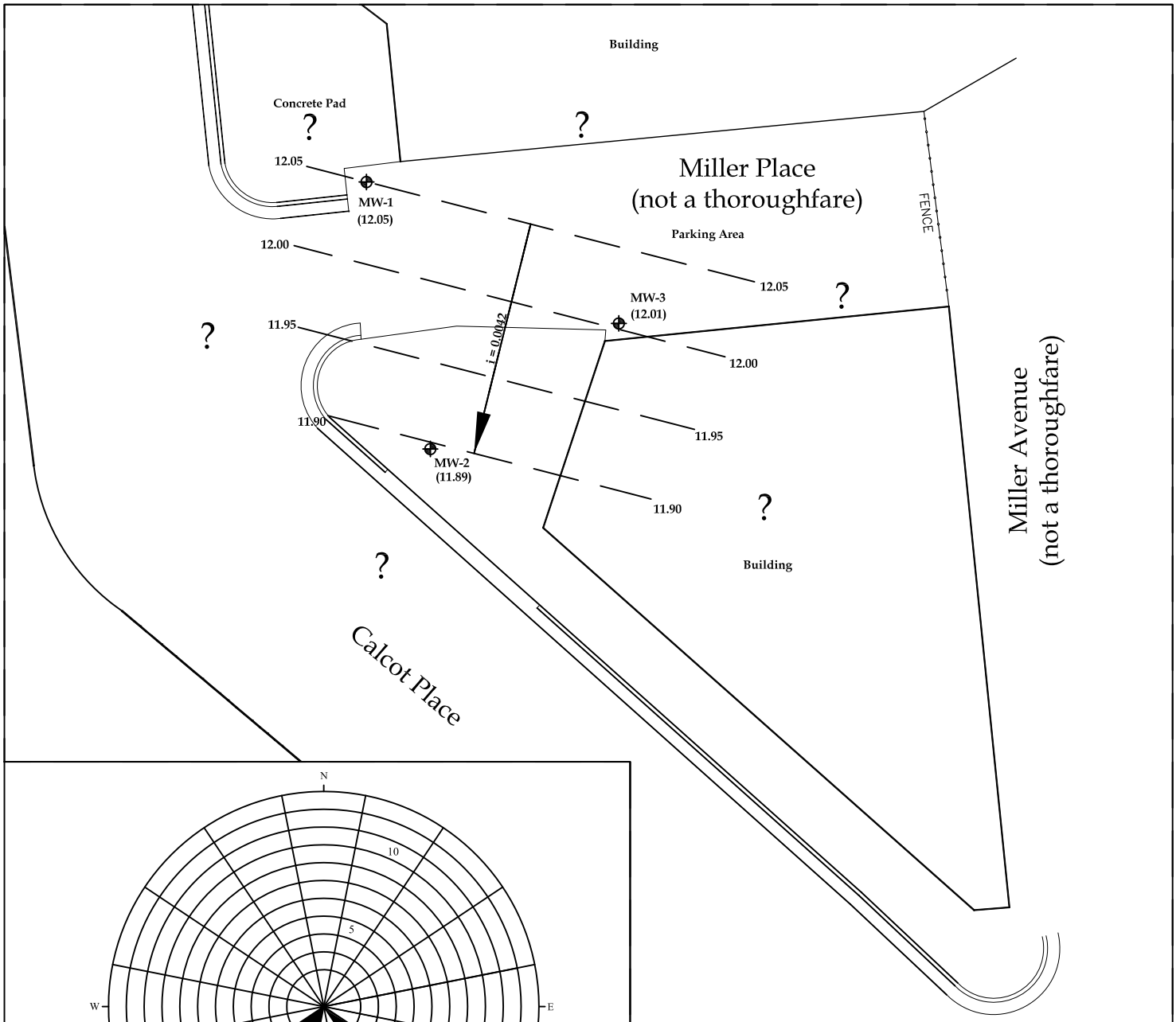
Inset "A"

Site Plan

1125 Miller Avenue
Oakland, California

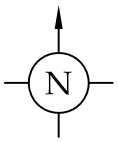
CLEARWATER GROUP

Project No.	Figure Date	Figure
CB018	07/13	2



Each individual, shaded segment (between adjacent concentric circles) represents one groundwater monitoring event, with groundwater flow in the direction indicated (for example, south, south-southeast, southeast).

The direction reflects predominant flow direction, incorporating elevation data from all site wells.



LEGEND

MW-1	Groundwater Monitoring Well
(11.78)	Groundwater Elevation in feet above mean sea level
0.003	Approximate Groundwater Flow Direction and Gradient
11.70	Groundwater Elevation Contour in feet above mean sea level

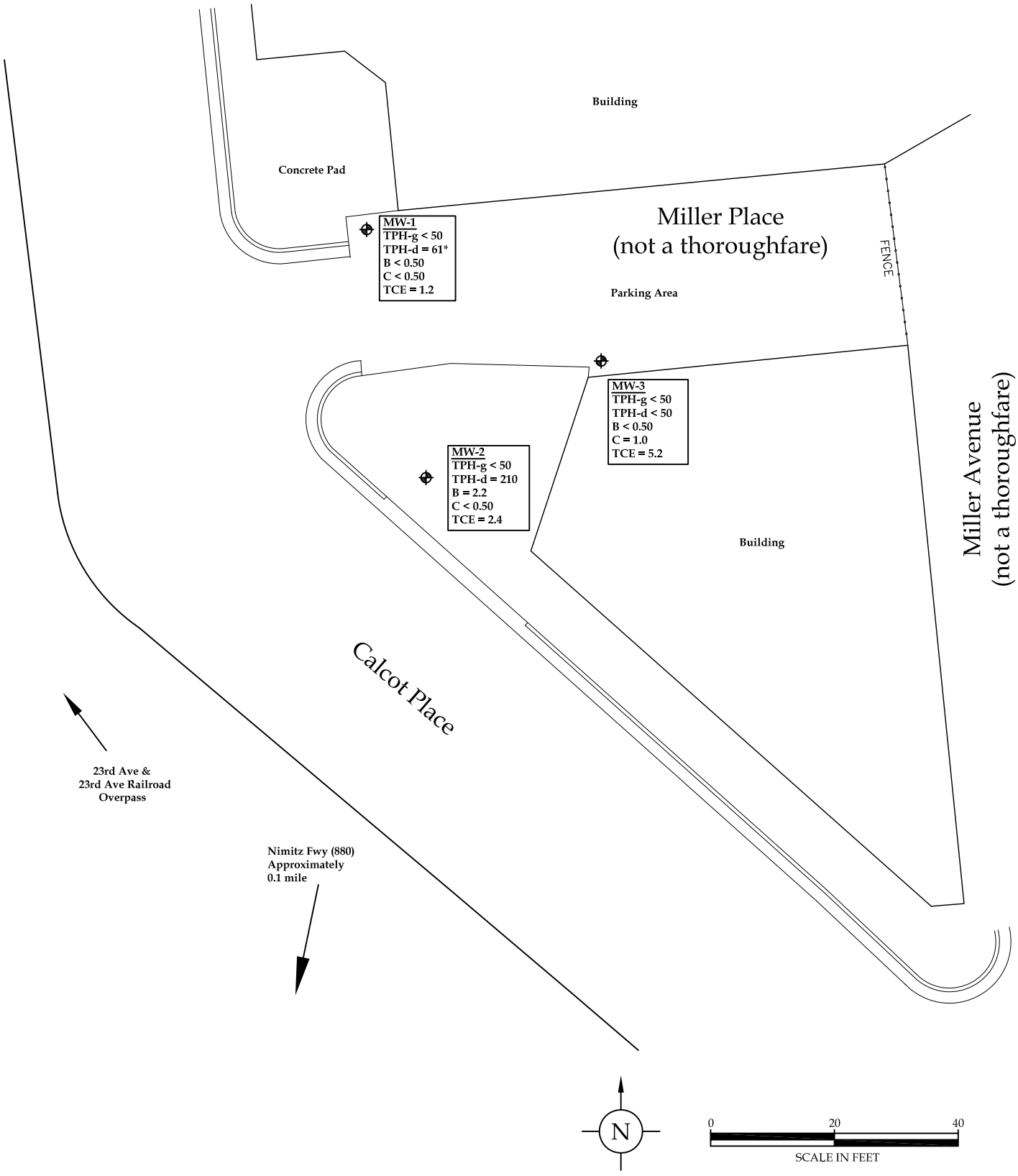
Groundwater Elevation and Contour Map and Groundwater Flow Rose Diagram March 17, 2014

1125 Miller Avenue
Oakland, California

CLEARWATER GROUP

Project No.	Figure Date	Figure
CB018S	**03/14**	**3**

S:\Department\Jobs\CB018 - P&D 23rd Ave. Partners, Oakland\Graphics\CAD\2014\1Q14\CB018S - Fig 3 Groundwater Elevation and Contour Map and Rose



LEGEND

MW-1 **Groundwater Monitoring Well**

MW-1
TPH-g < 50
TPH-d < 50
B < 0.50
C < 0.50
TCE = 0.93

Concentrations of:
Total Petroleum Hydrocarbons as Diesel (TPH-d),
Total Petroleum Hydrocarbons as Gasoline (TPH-g),
Benzene (B),
Chloroform (C), and
Tetrachloroethene (TCE).
All concentrations reported in micrograms per liter (µg/L).

* Laboratory Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.

Dissolved-Phase Analytical Concentrations
March 17, 2014

1125 Miller Avenue
Oakland, California

CLEARWATER GROUP

Project No.	Figure Date	Figure
CB018S	**04/14**	**4**

S:\Department\Jobs\CB018 - P&D 23rd Ave. Partners, Oakland\Graphics\CAD\2014\1Q14\CB018S - Fig 4 Dissolved-Phase Analytical Concentrations

TABLES

TABLE 1
Well Construction Data
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Well Number	Date Installed	Borehole Diameter (inches)	Depth of Borehole (feet) *	Casing Diameter (inches)	Screened Interval (feet) *	Filter Pack (feet) *	Bentonite Seal (feet) *	Concrete/ Cement Seal (feet) *	TOC Elevation (feet AMSL)	Latitude Decimal Degrees	Longitude Decimal Degrees
MW-1	06/14/2013	6.0	25.0	2.0	9.0 - 24.0	8.0 - 25.0	7.0 - 8.0	0.0 - 7.0	21.42	37.7807930	-122.2368373
MW-2	06/14/2013	6.0	25.0	2.0	9.0 - 24.0	8.0 - 25.0	7.0 - 8.0	0.0 - 7.0	21.57	37.7806835	-122.2368016
MW-3	06/14/2013	6.0	25.0	2.0	9.0 - 24.0	8.0 - 25.0	7.0 - 8.0	0.0 - 7.0	23.40	37.7807367	-122.2367051

Notes:

TOC Top-of-casing elevation in feet relative to mean sea level

AMSL Above mean sea level

(feet) * Feet below ground surface

Well construction details for MW-1 through MW-3 were obtained from boring logs prepared by Clearwater Group.

Monitoring well elevation and GPS survey event for wells MW-1 through MW-3 was conducted by Morrow Surveying in June 2013.

TABLE 2
Cumulative Groundwater Elevation and Gradient Summary
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Sample Date	MW-1 TOC (feet) = 21.42		MW-2 TOC (feet) = 21.57		MW-3 TOC (feet) = 23.40		Groundwater Gradient and Flow Direction	
	DTW (feet)	GWE (feet)	DTW (feet)	GWE (feet)	DTW (feet)	GWE (feet)		
04/26/2013	9.64	11.78	9.87	11.70	11.71	11.69	0.0025	SE
09/06/2013	10.29	11.13	10.56	11.01	12.27	11.13	0.0039	SW
12/18/2013	10.25	11.17	10.51	11.06	12.25	11.15	0.0032	SW
03/17/2014	9.37	12.05	9.68	11.89	11.39	12.01	0.0042	SSW

Notes:

TOC	Top-of-casing elevation surveyed by Morrow Surveying on June 20, 2013
DTW	Depth-to-water measurement collected on northern side of the TOC
GWE	Static groundwater elevation (TOC-DTW = GWE)

Table 3
Cumulative Groundwater Elevation and Analytical Results
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Sample Point Location	Sample ID	Sampling Date	Depth (feet bgs)	TOC (feet)	DTW (feet)	GWE (feet)	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Chloroform (µg/L)	TCE (µg/L)
Environmental Screening Levels in µg/L [G]							100	100	1.0	40	30	20	5.0	70	5.0
Low Threat Closure Threshold [A, B]			**Criterion 1 [C]**				**No limits defined in policy for Criterion 1**								
TW2	*TW2*	*10/24/2000*	*16*	-	-	-	*660*	-	*65*	*2.4*	*<0.5*	*3.2*	*<2.5*	-	-
TW3	*TW3*	*10/24/2000*	*17*	-	-	-	*800*	-	*0.9*	*<0.5*	*<0.5*	*<1.5*	*<2.5*	-	-
S5	S5	11/16/2005	17	-	-	-	890	-	<0.50	<0.50	<0.50	<0.50	-	-	-
S12	S-12	11/28/2011	11-15	-	-	-	1,300 [D]	<50	<0.50	<0.50	<0.50	<0.50	-	-	-
S13	S-13	11/28/2011	11-15	-	-	-	36,000	200	<0.50	<0.50	<0.50	<0.50	-	-	-
S14	S-14	11/28/2011	11-15	-	-	-	290 [D]	<50	<0.50	<0.50	<0.50	<0.50	-	-	-
MW-1	MW-1	06/26/2013	-	21.42	9.64	11.78	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.93
		09/06/2013	-	21.42	10.29	11.13	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4
		12/18/2013	-	21.42	10.25	11.17	51 [E]	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3
		03/17/2014	-	21.42	9.37	12.05	61 [F]	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2
MW-2	MW-2	06/26/2013	-	21.57	9.87	11.70	2,500	55	7.8	<0.50	<0.50	<0.50	<0.50	<0.50	1.6
		09/06/2013	-	21.57	10.56	11.01	350	<50	3.8	<0.50	<0.50	<0.50	<0.50	0.54	2.6
		12/18/2013	-	21.57	10.51	11.06	110	<50	0.75	<0.50	<0.50	<0.50	<0.50	<0.50	2.4
		03/17/2014	-	21.57	9.68	11.89	210	<50	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	2.4
MW-3	MW-3	06/26/2013	-	23.40	11.71	11.69	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.99	4.3
		09/06/2013	-	23.40	12.27	11.13	150 [E]	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	5.2
		12/18/2013	-	23.40	12.25	11.15	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	5.3
		03/17/2014	-	23.40	11.39	12.01	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.0	5.2

Notes:

TPH-d	Total petroleum hydrocarbons as diesel using EPA Method 8015/8020 (modified)
TPH-g	Total petroleum hydrocarbons as gasoline using EPA Method 8260B
B	Benzene using EPA Method 8020/8260B
T	Toluene using EPA Method 8020/8260B
E	Ethylene using EPA Method 8020/8260B
X	Xylenes using EPA Method 8020/8260B
MTBE	Methyl tertiary-butyl ether using EPA Method 8260B
TCE	Trichloroethene using EPA Method 8260B
Chloroform	Chloroform using EPA Method 8260B
µg/L	Micrograms per liter (approximately equal to parts per billion: ppb)
-	Not analyzed, not available, or not applicable
<###	Not detected in concentrations exceeding the indicated laboratory reporting limit
bgs	Below Ground Surface
TOC	Top-of-casing elevation surveyed by Morrow Surveying on June 20, 2013
DTW	Depth-to-water measurement collected on northern side of the TOC
GWE	Static groundwater elevation (TOC-DTW = GWE)
Footnote A	Low Threat Closure Thresholds are from *Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure* , August 17, 2012.
Footnote B	In order to qualify for Low Threat Closure, a site must meet all of the following General Critera: a. The unauthorized release is located within the service area of a public water system; b. The unauthorized release consists only of petroleum; c. The unauthorized ("primary") release from the UST system has been stopped; d. Free product has been removed to the maximum extent practicable; e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed; f. Secondary source has been removed to the extent practicable; g. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15; and h. Nuisance as defined by Water Code section 13050 does not exist at the site.
Footnote C	Low Threat Closure, Criterion 1: a) The contaminant plume that exceeds water quality objectives is less than 100 feet in length, b) There is no free product, c) The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.
Footnote D	Laboratory note: Discrete peaks, higher boiling hydrocarbons present, atypical for Diesel Fuel.
Footnote E	Laboratory note: Discrete peaks in Diesel range, atypical for Diesel Fuel.
Footnote F	Laboratory note: Hydrocarbons are higher-boiling than typical Diesel Fuel.
Footnote G	Environmental Screening Levels (ESL), from Summary Tables A and C, available from http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/ESL/Lookup_Tables_Dec_2013_Summary.pdf

Analytical results reported in *italics* are from the December 31, 2001 *Subsurface Exploration Report* prepared by Environmental Bio-Systems.

TABLE 4A
Cumulative Hydrocarbon Soil Sample Analytical Results
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Soil Boring ID	Sample ID	Collection Depth (feet)	Sampling Date	TPH-d (mg/kg)	TPH-g (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)
Shallow Soil ESL[I] for Commercial Use				500	500	0.044	2.9	3.3	2.3	0.023
Deep Soil ESL[I] for Commercial Use				580	530	0.044	2.9	3.3	2.3	0.023
Low Threat Closure Thresholds - Commercial [A, B]		**0-5 feet bgs**		--	--	**8.2**	--	**89**	--	--
		5-10 feet bgs		--	--	**12**	--	**134**	--	--
S1	*S1-9*	*9*	*12/01/1998*	*ND*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
S2	*S2-9*	*9*	*12/01/1998*	*1,800*	*NA*	*ND*	*ND*	*ND*	*0.51*	*ND*
S3	*S3-9*	*9*	*12/01/1998*	*ND*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
S4	*S4-9*	*9*	*12/01/1998*	*ND*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
TW2	*TW2 -16.5*	*16.5*	*10/24/2000*	*4,200*	*NA*	*1.4*	*ND*	*ND*	*ND*	*ND*
TW3	*TW3-17*	*17*	*10/24/2000*	*2,700*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
D1	*D1-3*	*3*	*10/24/2000*	*3,400*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
D1	*D1-8*	*8*	*10/24/2000*	*34*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
S5	S5-5	5	11/16/2005	14[F]	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S5	S5-10	10	11/16/2005	610	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S5	S5-15	15	11/16/2005	620	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S5	S5-20	20	11/16/2005	5.8	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S6	S6-6	6	11/16/2005	1,800[F]	NA	NA[C]	NA[C]	NA[C]	NA[C]	NA[D]
S7	S7-5	5	11/16/2005	150[F]	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S7	S7-10	10	11/16/2005	32[F]	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S7	S7-15	15	11/16/2005	1,200	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S7	S7-20	20	11/16/2005	300	*NA*	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S8	S8-4	4	11/16/2005	92	*NA*	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S9	S9.4.0	4	11/15/2006	7,500	*NA*	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S10	S10.4.0	4	11/15/2006	930	*NA*	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S11	S11.4.0	4	11/15/2006	21	*NA*	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S12	B12-18	18	11/28/2011	8.6 [E]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S13	B13-11	11	11/28/2011	740	7.0	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S13	B13-14	14	11/28/2011	1,900	65	<0.025	<0.025	<0.025	<0.025	NA[D]
S13	B13-19	19	11/28/2011	4.4 [E]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S13	B13-23.5	23.5	11/28/2011	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
S14	B14-19	19	11/28/2011	1.0 [E]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA[D]
CS-1	CS-1	2.5	10/16/2012	730 [F]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CS-2	CS-2	2	10/16/2012	14,000 [F]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CS-3	CS-3	1	10/16/2012	7,600 [F]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CS-4	CS-4	0.5	10/16/2012	9,800 [F]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CS-5	CS-5	0.5	10/16/2012	8,000 [F]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CS-6	CS-6-Comp 3 Drums	0 [G]	10/16/2012	7,400 [F]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S15	S15-8.0'	8	06/14/2013	4,000 [H]	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S15	S15-10.0'	10	06/14/2013	3,400 [H]	76	0.042	0.034	<0.025	0.090	<0.025
S15	S15-15.0'	15	06/14/2013	10,000	600	0.98	0.11	0.24	0.73	<0.050
S15	S15-17.0'	17	06/14/2013	5,800	21	0.11	0.0078	0.010	0.024	<0.0050
S15	S15-19.0'	19	06/14/2013	8,400 [H]	43	0.37	0.024	0.0057	0.083	<0.0050
S15	S15-24.5'	24.5	06/14/2013	8.4 [H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-7'grab hand auger	7	06/14/2013	7.7 [H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-10'grab	10	06/14/2013	11	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

TABLE 4A
Cumulative Hydrocarbon Soil Sample Analytical Results
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Soil Boring ID	Sample ID	Collection Depth (feet)	Sampling Date	TPH-d (mg/kg)	TPH-g (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)
Shallow Soil ESL[I] for Commercial Use				500	500	0.044	2.9	3.3	2.3	0.023
Deep Soil ESL[I] for Commercial Use				580	530	0.044	2.9	3.3	2.3	0.023
Low Threat Closure Thresholds - Commercial [A, B]		**0-5 feet bgs**		--	--	**8.2**	--	**89**	--	--
		5-10 feet bgs		--	--	**12**	--	**134**	--	--
S16	S16-15'grab	15	06/14/2013	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-17'grab	17	06/14/2013	1.9 [E,H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-20'grab	20	06/14/2013	3.0 [H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-25'grab	25	06/14/2013	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-7.0'	7	06/14/2013	1.6 [H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-10.0'	10	06/14/2013	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-17.0'	17	06/14/2013	3.0 [E,H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-21.0'	21	06/14/2013	5.9 [E,H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-24.5'	24.5	06/14/2013	1.6 [E,H]	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Notes:

TPH-d	Total petroleum hydrocarbons as diesel using EPA Method 8015/8020 (modified)
TPH-g	Total petroleum hydrocarbons as gasoline using EPA Method 8260B
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes using EPA Method 8015/8020 (modified)
MTBE	Methyl tertiary-butyl ether using EPA Method 8260
mg/kg	Milligrams per kilogram (approximately equal to parts per million)
ND	Not detected above laboratory reporting limits
NA	Not analyzed
<0.0050	Not detected in concentrations exceeding the indicated laboratory reporting limit
bgs	Below ground surface
bold	Contamination in the sample exceeded Low Threat Closure thresholds.
--	Thresholds not listed in Low Threat Closure guidelines.
Footnote A	Low Threat Closure Thresholds are commercial values from Table 1 (page 8) of *Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure*, August 17, 2012.
Footnote B	In order to qualify for Low Threat Closure, a site must meet all of the following requirements: a. The unauthorized release is located within the service area of a public water system; b. The unauthorized release consists only of petroleum; c. The unauthorized ("primary") release from the UST system has been stopped; d. Free product has been removed to the maximum extent practicable; e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed; f. Secondary source has been removed to the extent practicable; g. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15; and h. Nuisance as defined by Water Code section 13050 does not exist at the site.
Footnote C	Analysis not performed due to lack of sample volume.
Footnote D	Analysis of MTBE not required by ACEH.
Footnote E	Laboratory Notes: Discrete peaks in Diesel range, atypical for Diesel Fuel.
Footnote F	Laboratory Note: Concentration reported is atypical for diesel, these hydrocarbons have a higher boiling point
Footnote G	Composite sample collected from disposal materials.
Footnote H	Laboratory Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.
Footnote I	Environmental Screening Levels (ESL), from Summary Tables A and C, available from http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/ESL/Lookup_Tables_Summary_May_2013.pdf

Analytical results reported in italics are from the December 31, 2001 *Subsurface Exploration Report* prepared by Environmental Bio-Systems.

TABLE 4B
Cumulative Volatile Organic Compound Soil Sample Analytical Results
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Soil Boring ID	Sample ID	Collection Depth (feet)	Sampling Date	PCE (mg/kg)	TCE (mg/kg)	1,2,4-TMB (mg/kg)	Naphthalene (mg/kg)	Isopropyl benzene (mg/kg)	n-Propylbenzene (mg/kg)	sec-Butylbenzene (mg/kg)	n-Butylbenzene (mg/kg)
Soil ESL[G] for Commercial Use				0.7	0.46	--	1.2	--	--	--	--
Low Threat Closure Thresholds - Commercial[A, B]		**0-5 feet bgs**		--	--	--	**45**	--	--	--	--
		5-10 feet bgs		--	--	--	**45**	--	--	--	--
S1	*S1-9*	*9 - grab*	*12/01/1998*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
S2	*S2-9*	*9 - grab*	*12/01/1998*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
S3	*S3-9*	*9 - grab*	*12/01/1998*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
S4	*S4-9*	*9 - grab*	*12/01/1998*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
TW2	*TW2 -16.5*	*16.5 - grab*	*10/24/2000*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
TW3	*TW3-17*	*17 - grab*	*10/24/2000*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
D1	*D1-3*	*3 - grab*	*10/24/2000*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
D1	*D1-8*	*8 - grab*	*10/24/2000*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
S5	S5-5	5	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S5	S5-10	10	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S5	S5-15	15	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S5	S5-20	20	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S6	S6-6	6	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S7	S7-5	5	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S7	S7-10	10	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S7	S7-15	15	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S7	S7-20	20	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S8	S8-4	4	11/16/2005	NA	NA	NA	NA	NA	NA	NA	NA
S9	S9.4.0	4	11/15/2006	NA	NA	NA	NA	NA	NA	NA	NA
S10	S10.4.0	4	11/15/2006	NA	NA	NA	NA	NA	NA	NA	NA
S11	S11.4.0	4	11/15/2006	NA	NA	NA	NA	NA	NA	NA	NA
S12	B12-18	18	11/28/2011	NA	NA	NA	NA	NA	NA	NA	NA
S13	B13-11	11	11/28/2011	NA	NA	NA	NA	NA	NA	NA	NA
S13	B13-14	14	11/28/2011	NA	NA	NA	NA	NA	NA	NA	NA
S13	B13-19	19	11/28/2011	NA	NA	NA	NA	NA	NA	NA	NA
S13	B13-23.5	23.5	11/28/2011	NA	NA	NA	NA	NA	NA	NA	NA
S14	B14-19	19	11/28/2011	NA	NA	NA	NA	NA	NA	NA	NA
CS-1	CS-1	2.5	10/16/2012	<0.0050	<0.0050	0.015 [D]	0.072 [C]	NA	NA	NA	NA
CS-2	CS-2	2	10/16/2012	<0.0050	<0.0050	<0.0050 [D]	<0.0050 [C]	NA	NA	NA	NA
CS-3	CS-3	1	10/16/2012	<0.0050	<0.0050	0.0067 [D]	0.042 [C]	NA	NA	NA	NA
CS-4	CS-4	0.5	10/16/2012	<0.0050	<0.0050	<0.0050 [D]	<0.0050 [C]	NA	NA	NA	NA
CS-5	CS-5	0.5	10/16/2012	<0.0050	<0.0050	<0.0050 [D]	<0.0050 [C]	NA	NA	NA	NA
CS-6	CS-6-Comp 3 Drums	0 [E]	10/16/2012	<0.0050	<0.0050	<0.0050 [D]	0.0074 [C]	NA	NA	NA	NA
S15	S15-8.0'	8	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	0.0096	0.028	0.021	0.063
S15	S15-10.0'	10	06/14/2013	<0.025	<0.025	<0.025	<0.080 [F]	0.33	1.3	0.30	0.94
S15	S15-15.0'	15	06/14/2013	<0.050	<0.050	<0.050	<0.50 [F]	3.0	11	1.8	5.8
S15	S15-17.0'	17	06/14/2013	<0.0050	<0.0050	<0.0050	<0.010 [F]	0.12	0.37	0.052	0.15
S15	S15-19.0'	19	06/14/2013	<0.0050	<0.0050	0.0091	<0.020 [F]	0.089	0.20	0.090	0.24
S15	S15-24.5'	24.5	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-7'grab hand auger	7	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-10'grab	10	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-15'grab	15	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-17'grab	17	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-20'grab	20	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S16	S16-25'grab	25	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-7.0'	7	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-10.0'	10	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-17.0'	17	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-21.0'	21	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
S17	S17-24.5'	24.5	06/14/2013	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

TABLE 4B
Cumulative Volatile Organic Compound Soil Sample Analytical Results
P & D 23rd Avenue Associates LLC
1125 Miller Avenue
Oakland, California
Clearwater Project No. CB018

Soil Boring ID	Sample ID	Collection Depth (feet)	Sampling Date	PCE (mg/kg)	TCE (mg/kg)	1,2,4-TMB (mg/kg)	Naphthalene (mg/kg)	Isopropyl benzene (mg/kg)	n-Propylbenzene (mg/kg)	sec-Butylbenzene (mg/kg)	n-Butylbenzene (mg/kg)
Soil ESL[G] for Commercial Use				0.7	0.46	--	1.2	--	--	--	--
Low Threat Closure Thresholds - Commercial[A, B]		**0-5 feet bgs**		--	--	--	**45**	--	--	--	--
		5-10 feet bgs		**--**	**--**	**--**	**45**	**--**	**--**	**--**	**--**

Notes:

PCE	Tetrachloroethene using EPA Method 8260
TCE	Trichloroethene using EPA Method 8260
1,2,4-TMB	1,2,4-Trimethylbenzene using EPA Method 8260
mg/kg	Milligrams per kilogram (approximately equal to parts per million
NA	Not analyzed
<0.0050	Not detected in concentrations exceeding the indicated laboratory reporting lim
bgs	Below ground surface
bold	Contamination in the sample exceeded Low Threat Closure threshold
--	Thresholds not listed in Low Threat Closure guidelines
Footnote A	Low Threat Closure Thresholds are commercial values from Table 1 (page 8) o*Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure*, August 17, 2012.
Footnote B	In order to qualify for Low Threat Closure, a site must meet all of the following requirements: a. The unauthorized release is located within the service area of a public water system; b. The unauthorized release consists only of petroleum; c. The unauthorized ("primary") release from the UST system has been stopped; d. Free product has been removed to the maximum extent practicable; e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed; f. Secondary source has been removed to the extent practicable; g. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15; and h. Nuisance as defined by Water Code section 13050 does not exist at the site.
Footnote C	Laboratory Note: Matrix Spike/Matrix Spike Duplicate results were affected by the analyte concentrations already present in the un-spiked sampl
Footnote D	Laboratory Note: Matrix Spike/Matrix Spike Duplicate results were outside of control limits. This may indicate a bias for the sample that was spiked. Since LCS recoveries were within control limits, no data are flagg
Footnote E	Composite sample collected from disposal materials
Footnote F	The Method Reporting Limit has been increased due to the presence of an interfering compoun
Footnote G	Environmental Screening Levels (ESL), from Summary Tables A and C, available from http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/ESL/Lookup_Tables_Summary_May_2013.p

Analytical results reported in italics are from the December 31, 2001 *Subsurface Exploration Report* prepared by Environmental Bio-Systems

TABLE 5A
Cumulative Soil Vapor Sample Analytical Results - Commercial
P & D 23rd Avenue Associates LLC
1125 Miller Avenue, Oakland, CA
Clearwater Project No. CB018

Sample ID	Sampling Date	Analytical Method	TPH-d	Naph-thalene	1-Methyl naphthalene	2-Methyl naph-thalene	TPH-g	B	T	E	X [E]	MTBE	TBA	ETBE TAME DIPE	2-Propanol	Propane	1,3,5-Trimethyl-benzene	1,2,4-Trimethyl-benzene	Propyl benzene	4-Ethyl toluene	Ethanol	Tetra-hydro-furan	Tetra-chloro-ethene	Methylene Chloride	Hexane	Cyclo-hexane	Cumene	Acetone	Chloro-form	Freon 11	Freon 12	Freon 113
Unit of Measurement			(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)		(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)
Low-Threat Soil Gas Criteria - No Bioattenuation																																
Zone - Commercial [J]			NE	310	NE	NE	NE	280	NE	3,600	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHHSLs, Commercial [1]			NE	110	NE	NE	NE	120	380,000	1,400	880,000	13,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ESLs, Commercial [A]			570,000	360	NE	NE	1,200,000	420	1,300,000	4,900	440,000	47,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	2100	26,000	NE	NE	NE	140,000,000	2,300	NE	NE	NE
V2.2 Suma	11/15/2006	TO-15	--	--	--	--	--	41	43	<7.9	28.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V2.2 Suma Duplicate	11/15/2006	TO-15	--	--	--	--	--	42	46	<7.9	29.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V2.4 Suma	11/15/2006	TO-15	--	--	--	--	--	<21	<28	<24	<28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V1.4 1L	11/15/2006	TO-17	>150,000 [F]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V1.4 4L	11/15/2006	NIOSH 1550	**580,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V1.4 4L Duplicate	11/15/2006	NIOSH 1550	**600,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V2.2 1L	11/15/2006	NIOSH 1550	**710,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V2.2 4L	11/15/2006	NIOSH 1550	180,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V2.4 1L	11/15/2006	NIOSH 1550	280,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V2.4 4L	11/15/2006	NIOSH 1550	**700,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V3.4 1L	11/15/2006	NIOSH 1550	**7,300,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V3.4 4L	11/15/2006	NIOSH 1550	**570,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-1	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	<10,000	<100	<200	<100	<200	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-1	11/04/2010	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<240	<3.8	<4.5	<5.1	<5.1	<4.3	<14	<20 [D]	<12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-1	04/01/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	540	<3.7	<4.4	<5.0	<5.0	<4.2	<14	<19 [D]	<11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-1	12/09/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<160	<2.5	<2.9	<3.4	<3.4	<2.8	<9.4	<13	<7.6	--	<3.8	<3.8	<3.8	<3.8	<5.8	<2.3	<5.2	<27	<2.7	<2.7	<3.8	<18	<3.8	<4.4	<3.8	<5.9
SS-2	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	<10,000	<100	<200	<100	<200	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-2	11/04/2010	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<240	<3.8	<4.5	<5.2	5.3	<4.3	<14	<20 [D]	<12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-2	04/01/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	530	<3.7	<4.4	<5.0	<5.0	<4.2	<14	<19 [D]	<11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-2	12/09/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<160	<2.5	<3.0	<3.4	<3.4	<2.8	<9.6	<13	<7.8	--	<3.9	<3.9	<3.9	<3.9	<6.0	<2.3	<5.4	<27	<2.8	<2.7	<3.9	19	5.5	<4.4	<3.9	<6.0
SS-3	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	37,000	<100	2,600	2,000	6,050	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-3 Duplicate	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	30,000	<100	2,100	1,600	4,990	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-3	11/04/2010	TO-17/TO-15 [B]	5,800	8.0	24	36	12,000	<8.2	60	560	2,940	<9.2	<31	<43 [D]	<25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-3	11/04/2010	Modified ASTM D-1945	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0051%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-3	04/01/2011	TO-17/TO-15 [B]	8,200	4.2	7.0	<2.5	8,600	3.8	16	110	650	<3.8	<13	<18 [D]	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-3	12/08/2011	TO-17/TO-15 [B]	<5,000	3.7	8.0	<2.5	11,000	<2.5	3.8	19	119	<2.8	<9.6	<13	<7.8	--	8.3	13	<3.9	16	10	2.4	<5.4	67	3.1	160	3.9	270	<3.8	<4.4	<3.9	<6.0
SS-3	12/08/2011	Modified ASTM D-1945	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0016%																
SS-4	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	<10,000	<100	<200	<100	<200	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-4	11/04/2010	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<240	<3.8	<4.5	<5.2	<5.2	<4.3	<14	<20 [D]	<12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-4	04/01/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	520	<3.7	<4.4	<5.0	<5.0	<4.2	<14	<19 [D]	<11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-4	12/08/2011	TO-17/TO-15 [B]	9,500 [G]	<2.5	<2.5	<2.5	<160	<2.5	<2.9	<3.4	<3.4	<2.8	<9.4	<13	<7.6	--	<3.8	<3.8	<3.8	<3.8	<5.8	2.5	130	<27	<2.7	<2.7	<3.8	<18	<3.8	<4.4	<3.8	<5.9
SS-5	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	<10,000	<100	<200	<100	<200	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-5	11/04/2010	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<260	<4.0	<4.7	<5.5	<5.5	<4.5	<15	<21 [D]	<12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-5 (IPA)	11/04/2010	Modified TO-15 GC/MS	--	--	--	--	--	--	--	--	--	--	--	--	81,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-5	04/01/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	880	<3.7	8.2	<5.0	<5.0	<4.2	<14	<19 [D]	<11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-5	12/08/2011	TO-15	<5,000	<2.5	<2.5	<2.5	<160	<2.5	<2.9	<3.4	<3.4	<2.8	<9.4	<13	<7.6	--	<3.8	<3.8	<3.8	<3.8	<5.8	<2.3	240	<27	<2.7	<2.7	<3.8	<18	<3.8	<4.4	5.2	<5.9
SS-6	06/17/2010	8260B/ 8015M [C]	<50,000	<100	--	--	<10,000	<100	<200	<100	<200	<100	<1,000	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-6	11/04/2010	TO-17/TO-15 [A]	<5,000	4.6	<2.5	4.3	<250	<3.9	<4.6	<5.3	<5.3	<4.4	<15	<20 [D]	<12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-6	04/01/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	400	<3.8	<4.5	<5.2	<5.2	<4.3	<14	<20 [D]	<12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-6	12/09/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	<160	<2.5	<3.0	<3.4	<3.4	<2.8	<9.6	<13	<7.8	--	<3.9	<3.9	<3.9	<3.9	<6.0	<2.3	5.7	<27	<2.8	<2.7	<3.9	22	<3.8	<4.4	4.7	9.3
SS-8	12/08/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	340	<2.6	<3.1	<3.6	<3.6	<3.0	<9.9	<14	<8.1	--	<4.0	<4.0	<4.0	<4.0	<6.2	2.5	<5.6	<28	<2.9	<2.8	<4.0	<19	<4.0	<4.6	<4.0	<6.3

TABLE 5A
Cumulative Soil Vapor Sample Analytical Results - Commercial
P & D 23rd Avenue Associates LLC
1125 Miller Avenue, Oakland, CA
Clearwater Project No. CB018

Sample ID	Sampling Date	Analytical Method	TPH-d	Naph-thalene	1-Methyl naphthalene	2-Methyl naph-thalene	TPH-g	B	T	E	X [E]	MTBE	TBA	ETBE TAME DIPE	2-Propanol	Propane	1,3,5-Trimethyl-benzene	1,2,4-Trimethyl-benzene	Propyl benzene	4-Ethyl toluene	Ethanol	Tetra-hydro-furan	Tetra-chloro-ethene	Methylene Chloride	Hexane	Cyclo-hexane	Cumene	Acetone	Chloro-form	Freon 11	Freon 12	Freon 113
Unit of Measurement			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
Low-Threat Soil Gas Criteria - No Bioattenuation																																
Zone - Commercial [J]			NE	310	NE	NE	NE	280	NE	3,600	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHHSLs, Commercial [1]			NE	110	NE	NE	NE	120	380,000	1,400	880,000	13,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	600	NE	NE	NE	NE	NE	NE	NE	NE	NE

Notes:

ESL	Environmental Screening Limit
($\mu g/m^3$)	Micrograms per cubic meter
TO-15	Samples analyzed using modified EPA method TO-15 for soil vapor collected in specially prepared canisters and analyzed by gas chromatography/mass spectrometry (GC/MS).
TO-17	Samples analyzed using modified EPA method TO-17 for soil vapor samples collected using multi-bed sorbent tubes and analyzed by GC/MS.
NIOSH 1550	Alternative analytical method used for saturated sorbent tubes using chemical extraction (carbon disulfide) and analyzed using gas chromatography/flame ionization detector (GC/FID).
ASTM D-1945	Sample analyzed using modified ASTM D-1945
TPH-d	Total petroleum hydrocarbons detected within the diesel range of C10-C28
TPH-g	Total petroleum hydrocarbons detected within the gasoline range of C6-C12
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total Xylenes
MTBE	Methyl-t-butyl ether
ETBE	Ethyl-t-butyl ether
TAME	Tert-amyl methyl ether
DIPE	Diisopropyl ether
TBA	tert-Butanol
2-Propanol	2-Propanol is also known as Isopropyl alcohol (IPA)
--	Not Analyzed
<#	Contamination in the sample was below method reporting limits.
bold	Contamination in the sample exceeded Low Threat Soil Gas Criteria or if no Low Threat values were established, it exceeded other environmental screening limits. For contaminants for which a standard has not been established (shown as NE), no bolding was used.
NE	Standard Not Established
(ID)	Identification
CHHSL	California Human Health Screening Level - Shallow Soil Gas Human Health Screening Levels

Footnote A	Environmental Screening Levels (ESL), from Summary Table E. Environmental Screening Levels (ESLs) Indoor Air and Soil Gas (Soil Gas values shown), available from http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/ESL/Lookup_Tables_Summary_May_2013.pdf
Footnote B	TPH-d, Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene by Modified TO-17 VI; TPH-g, B, T, E, X, MTBE, TBA, ETBE, TAME, DIPE by Modified TO-15.
Footnote C	BTEX, Naphthalene, Oxygenates and TPH-g by EPA method 8260B; TPH-d by EPA method 8015m
Footnote D	Analyte is listed as isopropyl ether, not diisopropyl ether.
Footnote E	Xylene is reported as the sum of m,p-Xylene and o-Xylene
Footnote F	Laboratory Notes: TPH gasoline was detected at a concentration less than 5 times the reporting limit. Because the preceding sample contained high concentration of TPH-g, the result for TPH-g in this sample may be biased high for possible carry-over. A re-analysis of this sample was not possible due to insufficient sample volume.
Footnote G	Laboratory Notes: The TPH pattern did not resemble that of diesel fuel. The hydrocarbons were distributed in the lighter carbon range of diesel.
Footnote H	Laboratory Notes: Dilution was performed on this sample due to the presence of high level target species.
Footnote I	CHHSLs - *California Human Health Screening Levels, Revised September 2010.* Table 3 Soil Gas Screening Numbers for Volatile Chemicals Below Buildings Constructed Without Engineered Fill Below Sub-Slab Gra
Footnote J	Bio-attenuation zone as defined by the Water Control Policy for the Low-Threat Underground Storage Tank Closure .

V2.2 Summa	Vapor sample collected at 2 feet below ground surface using 6-liter Summa canister at a flow rate of 200 mL per minute for 30 minutes.
V2.4 Summa	Vapor sample collected at 4 feet below ground surface using 6-liter Summa canister at a flow rate of 200 mL per minute for 30 minutes.
V1.4 1L	Vapor sample collected at 4 feet below ground surface using TO-17 Carbotrap 300 tube at a flow rate of 66.7 mL per minute for 15 minutes. Sample was analyzed using modified EPA method TO-17.
V1.4 4L	Vapor sample collected at 4 feet below ground surface using TO-17 Carbotrap 300 tube at a flow rate of 133.3 mL per minute for 30 minutes.
> ## (S)	Sample results are flagged as greater than saturated peak for analyte.
1L	Sample flow rate equal to 66.7 milliliters per minute for 15 minutes.
4L	Sample flow rate equal to 133.3 milliliters per minute for 30 minutes.

TABLE 5B
Cumulative Soil Vapor Sample Analytical Results - Residential
P & D 23rd Avenue Associates LLC
1125 Miller Avenue, Oakland, CA
Clearwater Project No. CB018

Sample ID	Sampling Date	Analytical Method	TPH-d	Naph-thalene	1-Methyl naphthalene	2-Methyl naph-thalene	TPH-g	B	T	E	X [E]	MTBE	TBA	ETBE TAME DIPE	2-Propanol	Propane	1,3,5-Trimethyl-benzene	1,2,4-Trimethyl-benzene	Propyl benzene	4-Ethyl toluene	Ethanol	Tetra-hydro-furan	Tetra-chloro-ethene	Methylene Chloride	Hexane	Cyclo-hexane	Cumene	Acetone	Chloro-form	Freon 11	Freon 12	Freon 113
Unit of Measurement			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
Low-Threat Soil Gas Criteria - No Bioattenuation Zone - Residential [J]			NE	**93**	NE	NE	NE	**85**	NE	**1,100**	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHHSLs, Residential [I]			NE	32	NE	NE	NE	36	140,000	420	320,000	4,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	180	NE	NE	NE	NE	NE	NE	NE	NE
ESLs, Residential [A]			68,000	36	NE	NE	150,000	42	160,000	490	52,000	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	210	2,600	NE	NE	NE	16,000,000	230	NE	NE	NE
SS-7	04/01/2011	TO-17/TO-15 [B]	<5,000	10	9.0	10	690	<3.8	5.9	<5.2	<5.2	<4.3	<14	<20 [D]	85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-7 (IPA)	04/01/2011	TO-15	--	--	--	--	--	--	--	--	--	--	--	--	93,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
SS-7	12/09/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	530 [F]	<2.5	<2.9	<3.4	<3.4	<2.8	<9.4	<13	<7.6	--	<3.8	8.8	<3.8	9.4	<5.8	<2.3	<5.2	<27	<2.7	5.2	<3.8	20	<3.8	5.4	4.5	12	
SS-7 (IPA)	12/09/2011	TO-15	--	--	--	--	--	--	--	--	--	--	--	--	20,000 [H]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-9	12/08/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	310	<2.6	<3.0	<3.5	<3.5	<2.9	<9.8	<13	<7.9	--	<4.0	<4.0	<4.0	<4.0	<6.1	2.6	<2.5	<28	<2.8	<2.8	<4.0	<19	<3.9	<4.5	<4.0	<6.2	
SS-10	12/08/2011	TO-17/TO-15 [B]	<5,000	<2.5	<2.5	<2.5	1,900	37	160	37	208	<2.7	<9.2	<13	<7.5	--	16	47	12	45	7.1	<2.2	<5.2	<26	<2.7	<2.6	<3.7	<18	<3.7	<4.3	<3.8	<5.8	

Notes:

ESL	Environmental Screening Limit
($\mu g/m^3$)	Micrograms per cubic meter
TO-15	Samples analyzed using modified EPA method TO-15 for soil vapor collected in specially prepared canisters and analyzed by gas chromatography/mass spectrometry (GC/MS).
TO-17	Samples analyzed using modified EPA method TO-17 for soil vapor samples collected using multi-bed sorbent tubes and analyzed by GC/MS.
NIOSH 1550	Alternative analytical method used for saturated sorbent tubes using chemical extraction (carbon disulfide) and analyzed using gas chromatography/flame ionization detector (GC/FID).
ASTM D-1945	Sample analyzed using modified ASTM D-1945
TPH-d	Total petroleum hydrocarbons detected within the diesel range of C10-C28
TPH-g	Total petroleum hydrocarbons detected within the gasoline range of C6-C12
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total Xylenes
MTBE	Methyl-t-butyl ether
ETBE	Ethyl-t-butyl ether
TAME	Tert-amyl methyl ether
DIPE	Diisopropyl ether
TBA	tert-Butanol
2-Propanol	2-Propanol is also known as Isopropyl alcohol (IPA)
--	Not Analyzed
<#	Contamination in the sample was below method reporting limits.
bold	Contamination in the sample exceeded Low Threat Soil Gas Criteria or if no Low Threat values were established, it exceeded other environmental screening limits. For contaminants for which a standard has not been established (shown as NE), no bolding was used.
NE	Standard Not Established
(ID)	Identification
CHHSL	California Human Health Screening Level - Shallow Soil Gas Human Health Screening Levels

Footnote A	Environmental Screening Levels (ESL), from Summary Table E. Environmental Screening Levels (ESLs) Indoor Air and Soil Gas (Soil Gas values shown), available from http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/ESL/Lookup_Tables_Summary_May_2013.pdf
Footnote B	TPH-d, Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene by Modified TO-17 VI; TPH-g, B, T, E, X, MTBE, TBA, ETBE, TAME, DIPE by Modified TO-15.
Footnote C	BTEX, Naphthalene, Oxygenates and TPH-g by EPA method 8260B; TPH-d by EPA method 8015m
Footnote D	Analyte is listed as isopropyl ether, not diisopropyl ether.
Footnote E	Xylene is reported as the sum of m,p-Xylene and o-Xylene
Footnote F	Laboratory Notes: TPH gasoline was detected at a concentration less than 5 times the reporting limit. Because the preceding sample contained high concentration of TPH-g, the result for TPH-g in this sample may be biased high for possible carry-over. A re-analysis of this sample was not possible due to insufficient sample volume.
Footnote G	Laboratory Notes: The TPH pattern did not resemble that of diesel fuel. The hydrocarbons were distributed in the lighter carbon range of diesel.
Footnote H	Laboratory Notes: Dilution was performed on this sample due to the presence of high level target species.
Footnote I	CHHSLs - *California Human Health Screening Levels, Revised September 2010.* Table 3 Soil Gas Screening Numbers for Volatile Chemicals Below Buildings Constructed Without Engineered Fill Below Sub-Slab Grave
Footnote J	Bio-attenuation zone as defined by the Water Control Policy for the Low-Threat Underground Storage Tank Closure .

V2.2 Summa	Vapor sample collected at 2 feet below ground surface using 6-liter Summa canister at a flow rate of 200 mL per minute for 30 minutes.
V2.4 Summa	Vapor sample collected at 4 feet below ground surface using 6-liter Summa canister at a flow rate of 200 mL per minute for 30 minutes.
V1.4 1L	Vapor sample collected at 4 feet below ground surface using TO-17 Carbotrap 300 tube at a flow rate of 66.7 mL per minute for 15 minutes. Sample was analyzed using modified EPA method TO-17.
V1.4 4L	Vapor sample collected at 4 feet below ground surface using TO-17 Carbotrap 300 tube at a flow rate of 133.3 mL per minute for 30 minutes.
> ## (S)	Sample results are flagged as greater than saturated peak for analyte.
1L	Sample flow rate equal to 66.7 milliliters per minute for 15 minutes.
4L	Sample flow rate equal to 133.3 milliliters per minute for 30 minutes.

ATTACHMENTS

ATTACHMENT A

SUMMARY OF SITE INVESTIGATION ACTIVITIES AND REFERENCES LIST

P&D 23rd Avenue Associates, LLC
1125 Miller Avenue
Oakland, California
ACEH Site Number RO#0000294
Clearwater Group Project Number CB018

Site Location

The P&D 23rd Avenue Associates, LLC property (*site*), an underground storage tank (UST) fuel release *site*, is located at 1125 Miller Avenue, in the City of Oakland, County of Alameda, California. The *site* is improved with a two-story structure constructed on a single slab on grade foundation, which is currently in use as a "work-live" building by a graphic artist who operates a t-shirt production workshop and lives in an apartment located adjacent to and above the work space. The United States Geological Survey Oakland East Quadrangle Map shows the *site* to be located in Section 6, Township 2 south, Range 3 west of the Mount Diablo Base and Meridian (USGS, 1980).

Miller Avenue bounds the *site* to the east, and Miller Place bounds the *site* to the north. Calcot Place defines the property to the southwest. A "work-live" apartment building is located across Miller Place to the northwest, north, and northeast, and a fenced parking and storage lot abuts the *site* to the northeast, east, and southeast. The main line of the Union Pacific Railroad is located to the north, beyond the "work-live" apartments and behind a chain-link fence. The 23rd Avenue railroad overcrossing ramp structure lies across Calcot Place to the west.

Site History

1870 to 1998 – History before the UST removal

Historical records for the *site* and neighboring properties as far back as the 1870's were obtained from local resources. Between 1870 and 1998 the *site* and neighboring properties have had many uses, including industrial, commercial, and most recently, residential. The former north and east parcel boundaries of the 1125 Miller Avenue *site* were established in 1903. In 1963, after part of the block was taken by the City of Oakland by "eminent domain," the current hypotenuse property boundary was formed and defined by Calcot Place.

- Between 1878 and 1903, the current property was part of 25th Avenue and a block defined by Park Avenue (now 23rd Avenue), East 10th Street, 26th Avenue, 25th Avenue, and the Central Pacific Railroad Company railroad bed. No information, except that about ownership, regarding specific use of the *site* is reasonably ascertainable from the locally available historical data record for this time period. Data were reported in the December 1, 2010 "Historical Property Uses" Report produced by Clearwater Group (Clearwater).
- Between 1924 and 1928 (after subdivision), the west half of the northern half of the current *site* (Parcels 1 and 2) was developed with a commercial/industrial structure.
- Between 1928 (first phone directory listing) and 1946, the *site* (Parcels 1 and 2) was used by Bay Cities Forge Company, for blacksmithing and general metal "forgings," as stated in the Polk's Telephone Directory (listing and advertisement). The interior work area of the Forge (west half of Parcels 1 and 2) aligns with five refusals at soil boring S6 as well as the refusal at TW1 shown in **Figure A**. The unimproved backyard (east half of Parcels

1 and 2) was improved, by 1950, with a brick incinerator (at the current location of the workshop and the kitchen and bathroom). In 1947, Parcel 3 was improved with a Residence fronting on 23rd Avenue, and in 1950 Parcel 4 was improved with a soda bottling works.

- The Sanborn map shows that, in the backyard of the Residence, a garage structure (structure labeled "auto") and a garden were present at the *site* (Parcel 3). The former location of the auto garage is approximately equivalent to the current position of part of the living room, bathroom, and kitchen.
- According to Mr. Ronald Dreisbach (a part owner of P&D 23rd Avenue Associates, LLC), the *site* (Parcel 1 and 2) was used for lumber storage, and the neighboring property to the north was used as a planing mill and a lumber yard as early as 1940; these uses are corroborated by Mr. Dreisbach's photo of his father at the property and by the Sanborn Maps. The incinerator that was at the *site* was built for the burning of sawdust and wood debris originating from the lumber planing operation. The incinerator was constructed in the current location of the kitchen/dining area and a large portion of the current printing workshop at the *site*. According to the telephone directories, the planing mill operation to the north ceased in approximately 1955 and was replaced by a box and lumber operation, which was replaced by a fruit sorting and packing operation.
- In 1952-1957, the *site* was used as a warehouse (except for the incinerator) for Parcels 1 and 2, a residence for Parcel 3, and a venetian blind factory for Parcel 4.
- In 1959, the *site* was used for the storage of firewood and old machinery as well as for a records storage warehouse; the incinerator was no longer in use on Parcels 1 and 2. Parcel 3 was razed, and Parcel 4 remained as a venetian blind factory.
- In 1960, Parcels 1 and 2 continued to be used for a records storage warehouse as well as for a woodworking shop. Parcel 3 was improved with a steel warehouse. Parcel 4 remained in use as a venetian blind factory.
- Between 1962 and 1963, the City of Oakland (City) took the *site* by eminent domain for construction of its 23rd Avenue railroad overcrossing ramp. After the City took the property, the *site* buildings were razed.
- After the block was razed, a new street, Calcot Place, was constructed across the block. The Dreisbachs, who had owned Parcels 1 and 2 of the block, became the owners of the new "triangle" property upon which they built a new building (Architect Plans are dated 1966), which is the current building.
- No records are present regarding the year that the two 5,000-gallon fuel tanks were installed. However, the architect's drawing dated 1966 for the *site* indicates the existence of plans for a canopy to be built over a concrete pad, which corresponds to the location of the tank pit. This suggests that the tanks were considered in the planning of the 1966 architectural design. Mr. Dreisbach reported the use of gas and diesel in the tanks since the 1970's.
- According to Sanborn maps, a printing company operated at the *site* between 1967 and 1969. Between 1970 and 1980, according to street directories, the *site* was used as a U.S. Department of Agriculture (USDA) meat inspection facility and warehouse. Two floor drains and a grease trap that drained to the sanitary sewer (see **Figure A**), were likely installed during this time for use with the meat inspection facility operations.
- Telephone directory records indicate that between 1980 and 1981 the USDA meat inspection facility ceased operations at the *site*.

- Between 1981 and 1990, the *site* was used as a mechanics shop for the rebuilding of Cummins diesel injectors. Hazardous materials were stored or used on *site* for this operation.
- In 1985 the fire department reported that two 5,000-gallon diesel tanks were in use. (Again, the date of tank installation is not reasonably ascertainable in the record.) Hazardous waste was reported to have been generated in the form of diesel, solvents, and sludge originating from the injectors. [Until recently (2010), two floor drains from the meat packing operation (the current t-shirt warehouse area) were open. They are now cemented closed.]
- In 1989, leakage was detected at the unions of the delivery lines on both fuel pumps, during a routine inspection.
- In March 1990, Heitz Trucking, Inc. began to use the *site*.
- In 1993, a routine inspection reported the generation of waste oil and solvents, which were being stored at the *site*.
- In 1995, the *site* was re-developed as an artist "work-live" space; however, the truck refueling facility remained in operation.
- In 1996, a routine inspection reported that fuel had spilled into the storm sewer system and that the UST vent pipes were broken.
- In 1998, a fuel spill from the fuel tank dispenser into the storm sewer was reported, and broken vent pipes were noted.
- In 1990, Mechanic Jim Brooks claimed that he had "worked with the tank system for 10 years."
- During December 1990, seepage of fuel at a vent pipe coupling located one foot above ground was reported, according to the Fire Department.

December 1998

Environmental Bio-Systems (EBS) excavated and removed two 5,000-gallon diesel USTs and the associated product piping from the tank pit at the *site*. A total of four soil samples were collected near the ends of each tank from approximately nine feet below ground surface (bgs). All four soil samples were subsequently analyzed for total petroleum hydrocarbons detected as diesel (TPH-d); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl tertiary butyl ether (MTBE). Samples were collected from the pit wall northeast and southeast of Tank A (the northern tank). No detections were reported above the method detection limit in the samples collected from the northeast and southeast ends of Tank A. Samples were collected from the pit wall northwest and southwest of Tank B (the southern tank); the northwest sample was found to contain 1,800 milligrams per kilogram (mg/kg) TPH-d and 0.051 mg/kg xylenes, and no detections were reported above the method detection limit in the southwest sample.

February 2000

The February 18, 2000 "Workplan: Subsurface Exploration" was produced by EBS.

October 2000

In October 2000, EBS drilled four soil borings (designated TW1, TW2, TW3, and D1). Soil borings TW1 through TW3 were drilled in the concrete-paved area surrounding the former UST excavation. Boring D1 was drilled in the building, adjacent to the former dispenser location, which had been housed within an enclosed room at the west end of the building.

EBS collected four soil samples from the borings and installed pre-packed temporary well points in two of the borings (TW2 and TW3). Soil sample TW2 was collected at 16.5 feet bgs, and soil sample TW3 was collected at 17 feet bgs; two soil samples were collected from D1. The drilling and sampling were performed by FAST-TEK Engineering Support Services of Point Richmond, California (C-57 Lic. #624461) using a Geoprobe 5400 direct push rig. Borings TW2 and TW3 were drilled to a total depth of 22 feet bgs. Boring D1 was drilled to a total depth of 8 feet bgs, and boring TW1 was abandoned at 3 feet bgs because of subsurface obstructions; neither the soil nor groundwater was sampled at this location. Groundwater was encountered between 16.5 feet and 17.0 feet bgs. EBS submitted four soil samples and two groundwater samples to Analytical Sciences, Inc. of Petaluma, California, a California State-certified laboratory for TPH-d, BTEX, and MtBE analyses. The results were presented in the EBS "Subsurface Exploration Report" dated December 31, 2001.

Soil sample TW2-16.5' was found to contain 4,200 mg/kg TPH-d and 1.4 mg/kg benzene. Soil sample TW3-17' was found to contain 2,700 mg/kg TPH-d. Soil samples D1-3' and D1-8' were found to contain 3,400 and 34 mg/kg TPH-d, respectively. Groundwater sample TW2-H_2O was found to contain 660 micrograms per liter (µg/L) TPH-d, 65 µg/L benzene, 2.4 µg/L toluene, and 3.2 µg/L total xylenes. Groundwater sample TW3-H_2O was found to contain 800 µg/L TPH-d and 0.9 µg/L benzene.

April 2002

On April 15, 2002, Alameda County Environmental Health Department (ACEH) approved the work proposed in Clearwater's "Site Closure Workplan" (dated March 21, 2002). An October 3, 2002, "Site Closure Report" reported findings of the work that had been approved in the workplan. Sensitive receptors listed in the "Site Closure Report" included the residents of the building, and Clearwater recommended that migration pathways (via concrete cracks and other permeable features) be sealed. On the basis of information on groundwater flow available in reports on other local sites, the groundwater flow direction was found to be north at a gradient of 0.01. No drinking water wells were found to be present in the direct vicinity per the EDR report. However, subsequently, several wells per block have been identified on the Sanborn Maps. The only subsurface conduits identified were the utility trenches under and around the property.

November 2005

On November 16, 2005, Clearwater supervised the advancement of four soil borings (S5 through S8) at the *site*. One grab groundwater sample was collected from soil boring S5, which was located between the dispenser and the former tank pit. Boring logs indicated that the subsurface (to 20 feet) is composed of mostly clayey gravel (most likely this reflects backfill), and the laboratory results showed no detectable concentrations of BTEX. The concentrations of TPH-d in soil ranged from 5.8 mg/kg in S5-20′ to 1,200 mg/kg in S7-15′. Analytical results of the groundwater sample at S5 indicated a TPH-d concentration of 890 µg/L, and no other constituents of concern were reported. Evidence of previous forge use was observed in the drilling of soil boring S6 (5 refusals), consisting of metal slag, debris, and general fill materials. These results were reported in the February 23, 2006, Clearwater document titled "Subsurface Investigation Results."

June 2006

On the basis of approvals by ACEH on June 13, 2006, and August 4, 2006, Clearwater performed a soil investigation and soil vapor survey at the *site*. Soil samples were collected from S9 through S11 at 4 feet bgs. Soil vapor samples were collected at borings V1 through V3. TPH-d was reported at concentrations ranging between 21 mg/kg in S11 to 7,500 mg/kg in S9. No soil sample results showed concentrations of BTEX above the laboratory reporting limit of 0.0050 mg/kg. Two soil vapor samples were collected from each vapor boring at 4 feet bgs. Concentrations of TPH-d detected in vapor samples ranged from 180,000 micrograms per cubic-meter ($\mu g/m^3$) in V2.2 4L (V2 at 2 feet bgs using a 4 liter canister) to 7,300,000 $\mu g/m^3$ in V3.4 1L. Results were documented in the January 11, 2007, Clearwater report titled "Results of Soil Vapor and Soil Boring Sampling Investigation – Risk Based Corrective Analysis Report."

June 2010

On October 28, 2009, ACEH concurred with Clearwater's work plan titled "Work Plan for Sub-Slab Vapor Sampling" (dated September 9, 2008), and this work phase was begun on June 10, 2010. Soil vapor samples were collected from the soil vapor points on June 17, 2010. Samples were collected at installed soil vapor points SS-1 through SS-6. The constituent of concern, TPH-d, was not detected in any of the soil vapor samples. Toluene (T) was detected in SS-3 at 2,600 $\mu g/m^3$. Xylenes (X) were detected in SS-3 at 6,050 $\mu g/m^3$. Ethylbenzene (E) was detected in SS-3 at 2,000 $\mu g/m^3$. TPH-g was detected in SS-3 at 37,000 $\mu g/m^3$. No other constituents of concern were detected. The source for TPH-g and TEX was unknown. This information is documented in the Clearwater July 23, 2010, report titled "Results of Sub-Slab Soil Vapor Investigation Report." To rule out propane as the TPH-g source (SS-3 is close to a 3-inch diameter natural gas line servicing the building structure but not currently in use), both methane and PG&E's leak detection gas were tested for. The results for both were negative.

Because of the elevated reporting levels reported in the soil vapor samples collected June 17, 2010, ACEH requested re-sampling of the 6 soil vapor sample points, in a letter dated August 16, 2010. Re-sampling was performed on November 4, 2010. The re-sampling results indicated a TPH-d concentration of 5,800 $\mu g/m^3$ at vapor sampling point SS-3. No other detections of TPH-d were reported by the laboratory. Naphthalene was detected in SS-3 (8.0 $\mu g/m^3$) and in SS-6 (4.6 $\mu g/m^3$). Analytes 1-methylnaphthalene (24 $\mu g/m^3$) and 2-methylnaphthalene (36 $\mu g/m^3$) were both detected in SS-3. Analyte 2-methylnaphthalene was also detected in SS-6 (4.3 $\mu g/m^3$). Concentrations of TPH-g and TEX were detected above detection limits in SS-3 (TPH-g at 13,000 $\mu g/m^3$, toluene at 60 $\mu g/m^3$, ethylbenzene at 560 $\mu g/m^3$, and xylenes at 2,940 $\mu g/m^3$).

The focus of the investigation shifted to identifying the source that was contributing to the TPH-g and TEX detections. The lack of benzene detections indicated that the detected fraction of TPH-g was likely a weathered fuel and thus the evidence of a relatively old release. Concurrently, Clearwater obtained data on historical uses for information on the possible source of such a release. The uses of interest include an auto garage, a truck parts repair company, an incinerator, a forgings (blacksmith), and the fueling facility. The utility infrastructure in the surrounding streets may provide a conduit. But no clear source was identified. The "Historical Uses" Report on the *site* was produced on December 1, 2010.

The November 4, 2010, soil vapor sampling results were documented in the December 10, 2010, report titled "Results of Additional Sub-Slab Vapor Investigation." This investigation included a workplan.

Clearwater staff met with ACEH staff to review the workplan. Discussion during the meeting resulted in the following changes to the projected plan of work at the *site*: 1) the installation of an additional vapor sample point (SS-7) within the first floor living area; 2) a round of sampling of all existing vapor points (SS-1 through SS-7); 3) three soil borings for the collection of soil and groundwater data near the former tank pit, west of the former tank pit, and west of SS-3; and 4) the (limited) excavation of impacted soil and removal of the vent pipes and dispenser island. Clearwater produced a workplan addendum to address these changes.

February 2011

Per the February 1, 2011, ACEH approval of Clearwater's January 24, 2011, work plan addendum titled "Revised Workplan," soil vapor points SS-5R and SS-7 were installed on February 10, 2011. SS-5R replaced SS-5 because the original SS-5 had been crushed by a t-shirt printer. SS-7 was installed within the living room as a step-out from SS-3. On April 1, 2011, soil vapor probes SS-1 through SS-7 were sampled. TPH-g was detected in all the samples collected during the April 2011 event, at concentrations ranging from <160 $\mu g/m^3$ in several samples to 12,000 $\mu g/m^3$ in sample SS-3. In addition to naphthalene (8,200 $\mu g/m^3$) and TPH-g (12,000 $\mu g/m^3$), all the BTEX components were detected in sample SS-3. Only toluene was detected in samples SS-5 (8.2 $\mu g/m^3$) and SS-7 (5.9 $\mu g/m^3$). Naphthalene was also detected in SS-7 at a concentration of 10 $\mu g/m^3$. TPH-d was detected above the detection limit in SS-3 (8,200 $\mu g/m^3$) and SS-4 (9,500 $\mu g/m^3$). Because of inconclusive source information, Clearwater requested the installation of additional step-out soil vapor sampling points, which ACEH approved.

November 2011

Per concurrence from ACEH on June 6, 2011, Clearwater installed soil vapor points SS-8 through SS-10 on November 10, 2011.

A soil and groundwater investigation event took place on November 28, 2011. Soil samples were collected at various depths in soil borings S12 through S14. The highest TPH-d concentration in soil [(in the tank pit) 1,900 mg/kg] was detected in S13 at 14 feet bgs. TPH-g was detected at 65 mg/kg in S13 at 14 feet bgs. A total of three grab groundwater samples were collected during the November 28, 2011, investigation, at borings S-12, S-13, and S-14. The highest TPH-d concentration was detected in S-13 at 36,000 µg/L (collected between 11 and 15 feet bgs). The highest TPH-g concentration was detected in S-13 at 200 µg/L (collected between 11 and 15 feet bgs). (The PG&E field clearance technician advises Clearwater that there is a 4" gas main in Calcot Place, near the SB-12 location.)

On December 8, 2011, soil vapor samples were collected at sample points SS-1 through SS-10.

February 2012

On February 29, 2012, Clearwater produced *Sub-Slab Soil Vapor Sampling Report*, and *Soil and Groundwater Investigation Results*.

June 2012
Alameda County Health Care Services requested that the claimant submit a work plan by August 28, 2012, to address the technical comments, or meet with ACEH representatives to agree to a work scope, the surgical dig, and collection of soil vapor sampling samples and analysis for VOCs using the existing 10 soil vapor points. The meeting occurred on November 14, 2012.

Prior to excavating the Dispenser Room, Clearwater staff prepared an *Excavation and Filling Procedures* plan for the 6-foot-wide by 6-foot-deep by 3-foot-long excavation.

October 2012
As requested by ACEH, Clearwater requested from the laboratory that previously reported soil vapor analytical data be re-generated with the addition of chlorinated solvents detections. Air Toxics Ltd. Laboratory provided the laboratory report for the updated data collected on December 8, 2011. VOC detections included the following, which were added to the cumulative sol vapor tables: TPH-g, TPH-d, naphthalene, 1-methyl naphthalene, toluene, ethylbenzene, xylenes, 1, 3, 5-Trimethylbenzene, 1, 2, 4-Trimethylbenzene, Ethanol, tetrachloroethene, methyl chloride, hexane, cyclohexane, cumene, chloroform, Freon 11, Freon 12, Freon 113, 4-ethyltoluene, acetone, and tetrahydrofuran were detected. Some soil vapor points are located in the residential-use area and some are located in commercial-use area. All detections were at levels well below the CHHSLs for their respective use-area. The reporting of this data was provided in Clearwater's, *Update of the Soil Vapor Sample Analytical Report Presented in the Sub-Slab Soil Vapor Sampling Report*.

The dispenser vent pipes and the dispenser room concrete pad were removed. Visibly stained soil below the dispenser area was removed/excavated, and PID readings and samples were taken. Three drums of soil were generated from the excavation and disposed of under manifest. The analytical report from the waste disposal data was sent to Clearwater from Kiff Analytical, and the determination was made that this document does not need to be uploaded due to its status as a waste characterization report.

November 2012 -January 2013
The subslab excavation report, *Sub-Slab Excavation Report*, was produced. An agency meeting occurred at ACEH to review progress and re-set the future scope of work. Per ACEH directive to identify wells within 2,000 feet, a DWR Well Completion Report Request to the ACEH and an Alameda County Public Works Agency (ACPWA) well search request were prepared and submitted to those agencies. A Site area visit was conducted to check for any utility sumps or any obvious presence of wells within the 2,000 foot radius. An EDR Sanborn Map report to identify wells within a ½ mile radius around the *site* was requested and produced. This included a Sanborn Map report order of 14 Tiles.

February 2013
The *2,000-Foot-Radius Well Search Report* was produced. From the DWR and the ACPWA sources, forty sites with wells were identified. Upwards of 138 historic well sites (evidenced by windmill and/or water tank on roof) were identified in the radius on the Sanborn Tiles.

May 2013
On May 6, notice of additional funding from the USTCF was received. On May 23, Clearwater staff produced the *Workplan for Groundwater Investigation Monitoring Well Installation, Vapor Point Destruction, and Excavation Closure*.

June 2013
Three wells (MW-1 through MW-3) were installed, developed, surveyed, and sampled. Control density fill, a vapor barrier, and a concrete pad were used to bring the excavation back up to grade level. On June 26, 2013, Clearwater staff performed the second quarter 2013 groundwater monitoring event.

August 2013
On August 1, 2013, Clearwater submitted the *Second Quarter 2013 – Groundwater Monitoring* Report to ACEH. Contaminants included TPH-d, benzene, chloroform, and trichloroethene at maximum levels of 110 µg/L, 0.75 µg/L, 1.2 µg/L, and 5.3 µg/L, respectively. On August 12 and 13, 2013, Clearwater staff installed the final vapor seal on the slab. On August 29, 2013, Clearwater submitted the *Evaluation of Sub-Slab Soil Vapor*, which detailed the re-reporting of the sub-slab soil vapor results, to ACEH.

September 2013
On September 6, 2013, Clearwater staff performed the third quarter 2013 groundwater monitoring event.

On September 23, 2013, Clearwater staff submitted the *2013 Well Installation, Dispenser Excavation Completion, and Site Assessment Report* to ACEH. This report detailed the results of the well installation, dispenser excavation completion, and *site* assessment. The *site* assessment results indicated that a small contaminant source was present in the soil near MW-2; however, no concentrations exceeded the Low-Threat Case Closure Policy (LTCP).

On September 30, 2013, Clearwater submitted the *Third Quarter 2013 – Groundwater Monitoring* Report to ACEH. This report detailed the results of the third quarter 2013 groundwater monitoring event and recommended that two more quarters of groundwater monitoring be performed (to complete one full hydrologic cycle) and then the *site* be evaluated for closure based on the LTCP.

December 2013
On December 18, 2013, Clearwater staff performed the fourth quarter 2013 groundwater monitoring event.

January 2014
On January 23, 2014, Clearwater submitted the *Fourth Quarter 2013 – Groundwater Monitoring* Report to ACEH. This report detailed the results of the fourth quarter 2013 groundwater monitoring event and recommended that one more quarter of groundwater monitoring be performed (to complete one full hydrologic cycle) and then the *site* be evaluated for closure based on the LTCP.

March 2014
On March 17, 2014, the first quarter 2014 groundwater monitoring event took place.

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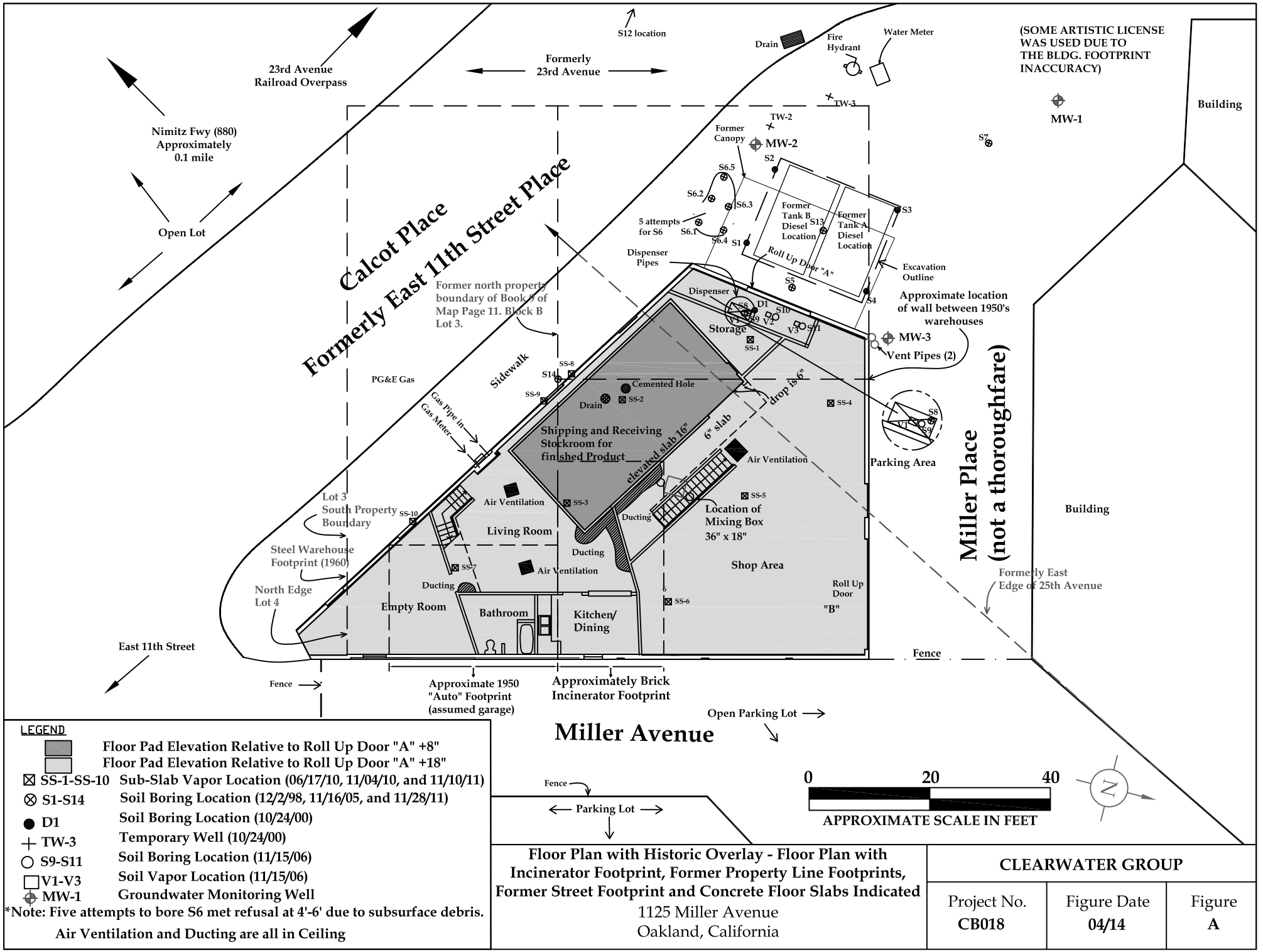

Floor Plan with Historic Overlay - Floor Plan with Incinerator Footprint, Former Property Line Footprints, Former Street Footprint and Concrete Floor Slabs Indicated

1125 Miller Avenue
Oakland, California

CLEARWATER GROUP

Project No.	Figure Date	Figure
CB018	**04/14**	**A**

ATTACHMENT B

CLEARWATER GROUP

Low-Flow (Minimal Drawdown) Groundwater Monitoring
Standard Operating Procedure

Purpose: The purpose of this standard operating procedure (SOP) is to provide a method of purging that minimizes its impact on the groundwater chemistry during sample collection and to minimize the volume of water that is being purged and disposed of. This will be accomplished by placing the pump intake within the screen interval and by keeping the drawdown at a minimal level until the water quality parameters have stabilized and sample collection is complete. The flow rate at which the pump will be operating will be dependent upon both hydraulic conductivity of the aquifer and the drawdown, with the goal of minimizing the drawdown. The flow rate from the pump during purging and sampling will be at a rate that will not compromise the integrity of the analyte that is being sampled. The flow of groundwater to the pump intake will be dependent on the distribution of the hydraulic conductivity (K) of the aquifer within the screen interval. In order to minimize the drawdown in the monitoring well, a low-flow rate must be utilized. Low-flow refers to the velocity at which water enters the pump intake from the surrounding formation in the immediate vicinity of the well screen.

Equipment: Depth-to-water measuring device – An electronic water-level indicator or steel tape and chalk, with marked intervals of 0.01 foot. Interface probe for determination of liquid products (Non-Aqueous Phase Liquid) presence, if needed. Steel tape and weight – Used for measuring total depth of well. Lead weight should not be used. Sampling pump – Submersible or bladder pumps with adjustable rate controls are preferred. Pumps are to be constructed of inert materials, such as stainless steel and Teflon®. Pump types that are acceptable include gear and helical driven, centrifugal (low-flow type) and air-activated piston. Adjustable rate, peristaltic pump can be used when the depth to water is 20 feet or less. Tubing – Teflon® or Teflon®-lined polyethylene tubing is preferred when sampling for organic compounds. Polyethylene tubing can be used when sampling in organics. Power Source – If a combustion type (gasoline or diesel driven) generator is used, it must be placed downwind of the sampling area. Flow measurement supplies – flow meter, graduated cylinder and a stopwatch. Multi-Parameter meter with flow-through-cell – This can be one instrument or more contained in a flow-through cell. The water-quality indicator parameters that must be monitored are pH, oxidation-reduction potential (ORP), dissolved oxygen (DO), specific conductivity, and temperature. Turbidity readings must be collected before the flow-thru cell because of the potential for sediment buildup, which can bias the turbidity measurements. Calibration fluids for all instruments should be NIST-traceable, and there should be enough for daily calibration throughout the sampling event. The inlet of the flow cell must be located near the bottom of the flow cell and the outlet near the top. The size of the flow cell should be kept to a minimum and a closed cell is preferred. The flow cell must not contain any air or gas bubbles when monitoring for the water-quality indicator parameters. Decontamination Supplies – Include a reliable and documented source of distilled water and any solvents (if used). Pressure sprayers, buckets or decontamination tubes for pumps, brushes, and non-phosphate soap will also be needed. Sample bottles, sample preservation supplies, sample tags or labels, and chain-of-custody forms. Filtration equipment, if needed. An in-line disposable filter is recommended. Polyethylene sheeting, which will be placed on ground around the wellhead. Personal protective equipment specified in the Site Health and Safety Plan. Air

monitoring equipment as specified in the Site Health and Safety Plan. Tool box – All needed tools for all site equipment used. A 55-gallon drum or container to contain the purged water. Materials of construction of the sampling equipment (bladders, pumps, tubing, and other equipment that comes in contact with the sample) should be limited to stainless steel, Teflon®, glass and other inert material. This will reduce the chance that the sampling materials will alter the groundwater where concentrations of the site contaminants are expected to be near the detection limits. The thickness of the sample tubing diameter should be maximized, and the tubing length should be minimized so that the loss of contaminants into and through the tubing walls may be reduced and the rate of stabilization of groundwater parameters is maximized.

Paper/Forms: Well construction data, field and water quality data from the previous sampling event. Well keys and map of well locations. Field notebook, groundwater sampling logs, and calculator. Site Specific Health and Safety Plan.

Procedures:

- Use a bailer to collect a sample from the top of the water column in the well and put into a glass jar to settle for 1 hour. Check for presence of sheen and denote on field notes.
- Set up equipment at well. Connect tubing to YSI flow-thru cell. Outflow tubing should be from top spout of the YSI flow-thru cell directed into a 5-gallon purge bucket. New inflow tubing to YSI flow-thru cell should be connected into the bottom of the YSI coming from the pump. A flow regulator device can be attached in line between the YSI flow-thru cell and the pump.
- Pump reel is connected to the controller.
- Controller is connected to car battery of running vehicle or separate deep charge rechargeable car battery
- Desired flow is set using controller.
- Parameters are collected every 3 minutes until three sets of parameter measurements are within desired range (listed on purge form).
- Flow-thru cell is removed, and sample is collected directly from tubing, making sure not to change the flow rate.

Important: These three procedures must be adhered to for process to be considered "low flow":

- **Flow rate**: rate must be kept at less than **500 ml/min**. Optimal for many surface aquifers is 150-250 ml/min, although if aquifer is high producing, this may be higher.
- **Drawdown:** drawdown should be less than **3/10ths (0.3 foot)** of a foot measured from static depth to water.
- **Pump placement**: If specific zones of contamination, or lithologic zones that have a greater chance of bearing contaminants (i.e. sandy or gravelly lithologies) are known to be present within a zone that is within the well screen interval, this zone will be specified on the field sheet prior to sampling and the pump intake placed accordingly; otherwise, the pump intake should be placed at the middle of the screened interval**.** If the water level is below the middle of the screened interval, the pump intake should be placed approximately 2–3 feet below the depth of the water. Ideally, 2–3 feet of water (head) should be over the pump so that "stagnant" water that has been sitting in the well is not purged.

ATTACHMENT C

CLEARWATER
GROUP
229 Tewksbury Avenue,
Point Richmond, CA 94801
Tel: (510) 307-9943 Fax: (510) 232-2823

Well Inspection and Water Level Gauging Form

Date: 03/17/2014

Project Name: P&D 23rd Avenue Partners

Project Number: CB018S

Field Personnel: Kevin Pope

Well ID	Time	Inspect Well Bolts and Cover	Inspect Well Cap and Lock	DTW (feet)*	DTB (feet)*	DTP (feet)*	Comments
MW-3	12:25	OK	OK	11.39	23.46	—	
MW-1	12:28	"	"	9.37	23.47	—	
MW-2	12:31	"	"	9.68	23.45	—	
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Notes:
DTW = depth to water
DTB = depth to bottom of well (minimize disturbance)
DTP = depth to product
* Measured from top of PVC casing, north side.

Field Form A

GROUNDWATER SAMPLING FORM: LOW-FLOW, LOW-STRESS METHOD

CLEARWATER GROUP
Environmental Services

Sample Location	MW-3
Date	3/17/2014
Project Name	P&D 23rd Avenue Partners
Project Number	CB018S

Static Depth to Water (ft)	11.39	Sample Collection Time	13:27
Total Purge Volume (gal)	2.2 Gallons	Purge Method	Low-Flow
Total Depth (ft)	23.46	Sample Method and Analytical	TPH-g, TPH-d, BTEX, MTBE, VOC Full List by 8260B and 8015M
Screen Depth Interval (ft)	8' - 23'	Water Description (Sheen Y/N)	clear w/no odor
Pump Intake Depth (feet)	1/2 water column est @ 20' 17.5	Sampling Personnel	Kevin Pope

Time (min)	Volume Purged (L)	Flow Rate (mL/min)	Depth to Water (ft)	Drawdown (ft)	Temp © +/- 0.1	Dissolved Oxygen (mg/L) +/- 10%	Conductivity (u-siemens/cm) +/- 3%	pH (SU) +/- 0.1	ORP (mV) +/- 10 mV	Comments:
12:54										
12:57	.75	250	11.45		18.1	1.45	469.5	6.71	360.1	
13:00	2.0	250	11.49		18.2	1.23	412.2	6.59	362.8	
13:03	2.9	250	11.45		18.1	1.15	393.4	6.59	364.4	
13:06	3.6	250	11.45		18.2	1.10	385.6	6.58	365.9	
13:09	4.5	250	11.45		18.1	1.06	383.8	6.58	367.2	
13:12	5.3	250	11.45		18.1	1.01	383.3	6.58	368.1	
13:15	6.0	250	11.45		18.2	0.97	382.7	6.57	368.9	
13:18	6.8	250	11.45		18.3	0.95	383.8	6.57	369.6	
13:21	7.5	250	11.45		18.3	0.92	382.3	6.57	370.8	
13:24	8.1	250	11.45		18.3	0.91	383.8	6.57	370.8	

GROUNDWATER SAMPLING FORM: LOW-FLOW, LOW-STRESS METHOD

CLEARWATER GROUP
Environmental Services

Sample Location	MW-1
Date	3/17/2014
Project Name	P&D 23rd Avenue Partners
Project Number	CB018S

Static Depth to Water (ft)	9.37	Sample Collection Time	14:29
Total Purge Volume (gal)	3.0 Gal	Purge Method	Low-Flow
Total Depth (ft)	23.47	Sample Method and Analytical	TPH-g, TPH-d, BTEX, MTBE, VOC Full List by 8260B and 8015M
Screen Depth Interval (ft)	8' - 23'	Water Description (Sheen Y/N)	clear w/ no odor
Pump Intake Depth (feet)	1/2 water column est. @ 20' 16	Sampling Personnel	Kevin Pope

Time (min)	Volume Purged (L)	Flow Rate (mL/min)	Depth to Water (ft)	Drawdown (ft)	Temp © +/- 0.1	Dissolved Oxygen (mg/L) +/- 10%	Conductivity (u-siemens/cm) +/- 3%	pH (SU) +/- 0.1	ORP (mV) +/- 10 mV	Comments:
13:50										
13:53	1.2	250	9.48		19.8	1.09	368.3	6.76	375.4	
13:56	1.9	250	9.48		19.8	1.03	368.6	6.73	375.3	
13:59	2.8	250	9.48		19.9	0.95	367.1	6.71	375.2	
14:02	3.5	250	9.48		19.9	0.91	367.0	6.70	374.8	
14:05	4.6	250	9.48		20.0	0.91	366.5	6.69	374.4	
14:08	5.5	250	9.48		20.1	0.91	367.7	6.68	373.7	
14:11	6.5	250	9.48		20.0	0.90	366.6	6.67	373.6	
14:14	7.4	250	9.48		20.0	0.85	365.9	6.66	373.1	
14:17	8.0	250	9.48		20.1	0.85	366.3	6.66	372.6	
14:20	9.3	250	9.48		20.1	0.84	366.5	6.65	371.8	
14:23	10.3	250	9.48		20.1	0.88	366.9	6.65	371.4	
14:26	11.0	250	9.48		20.1	0.89	366.4	6.65	370.9	

GROUNDWATER SAMPLING FORM: LOW-FLOW, LOW-STRESS METHOD

CLEARWATER GROUP
Environmental Services

Sample Location	**MW-2**
Date	3/17/2014
Project Name	P&D 23rd Avenue Partners
Project Number	CB018S

Static Depth to Water (ft)	9.68	Sample Collection Time	15:26
Total Purge Volume (gal)	2.5 Gallons	Purge Method	Low-Flow
Total Depth (ft)	23.45	Sample Method and Analytical	TPH-g, TPH-d, BTEX, MTBE, VOC Full List by 8260B and 8015M
Screen Depth Interval (ft)	8' - 23'	Water Description (Sheen Y/N)	clear w/ no odor
Pump Intake Depth (feet)	1/2 water column est @ 20' 16.5	Sampling Personnel	Kevin Pope

Time (min)	Volume Purged (L)	Flow Rate (mL/min)	Depth to Water (ft)	Drawdown (ft)	Temp © +/- 0.1	Dissolved Oxygen (mg/L) +/- 10%	Conductivity (u-siemens/cm) +/- 3%	pH (SU) +/- 0.1	ORP (mV) +/- 10 mV	Comments:
14:52										
14:55	1.0	250	9.70		19.7	0.53	462.3	6.56	374.2	
14:58	1.9	250	9.70		19.6	0.49	464.6	6.54	372.2	
15:01	3.0	250	9.70		19.7	0.48	441.0	6.53	369.2	
15:04	3.6	250	9.70		19.7	0.46	436.9	6.53	368.3	
15:07	4.5	250	9.70		19.8	0.45	431.4	6.53	366.6	
15:10	5.5	250	9.70		19.7	0.45	425.4	6.53	365.3	
15:13	6.4	250	9.70		19.6	0.43	426.7	6.53	364.1	
15:16	7.4	250	9.70		19.7	0.43	420.5	6.52	362.5	
15:19	8.0	250	9.70		19.7	0.42	423.9	6.53	361.4	
15:22	9.2	250	9.70		19.7	0.42	419.5	6.52	360.1	

ATTACHMENT D

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Laboratory Results

Olivia Jacobs
Clearwater Group, Inc
229 Tewksbury Avenue
Point Richmond, CA 94801

Subject : 3 Water Samples
Project Name : P&D 23rd Avenue Partners
Project Number : CB018S

Dear Ms. Jacobs,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC and TNI 2009 standards. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the Environmental Laboratory Accreditation Program (ELAP), lab # 08263CA.
If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S**

Sample : **MW-3** Matrix : Water Lab Number : 87732-01
Sample Date :03/17/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	03/20/14 20:12
Octacosane (Diesel Surrogate)	88.5		% Recovery	M EPA 8015	03/20/14 20:12

Sample : **MW-1** Matrix : Water Lab Number : 87732-02
Sample Date :03/17/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
TPH as Diesel	**61**	50	ug/L	M EPA 8015	03/20/14 20:42
(Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.)					
Octacosane (Diesel Surrogate)	95.4		% Recovery	M EPA 8015	03/20/14 20:42

Sample : **MW-2** Matrix : Water Lab Number : 87732-03
Sample Date :03/17/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
TPH as Diesel	**210**	50	ug/L	M EPA 8015	03/20/14 21:11
Octacosane (Diesel Surrogate)	94.4		% Recovery	M EPA 8015	03/20/14 21:11

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Sample : **MW-3**
Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S** Lab Number : 87732-01
Matrix : Water Sample Date :03/17/2014 Analysis Method: EPA 8260B

Parameter	Measured Value	Method Reporting Limit	Units	Date/Time Analyzed
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	03/20/14 00:04
TPH as Gasoline	< 50	50	ug/L	03/20/14 00:04
Dichlorodifluoromethane	< 0.50	0.50	ug/L	03/20/14 00:04
Chloromethane	< 0.50	0.50	ug/L	03/20/14 00:04
Vinyl Chloride	< 0.50	0.50	ug/L	03/20/14 00:04
Bromomethane	< 20	20	ug/L	03/20/14 00:04
Chloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
Trichlorofluoromethane	< 0.50	0.50	ug/L	03/20/14 00:04
1,1-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 00:04
Methylene Chloride	< 5.0	5.0	ug/L	03/20/14 00:04
trans-1,2-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 00:04
1,1-Dichloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
2,2-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 00:04
cis-1,2-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 00:04
Chloroform	**1.0**	0.50	ug/L	03/20/14 00:04
Bromochloromethane	< 0.50	0.50	ug/L	03/20/14 00:04
1,1,1-Trichloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
1,1-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 00:04
1,2-Dichloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
Carbon Tetrachloride	< 0.50	0.50	ug/L	03/20/14 00:04
Benzene	< 0.50	0.50	ug/L	03/20/14 00:04
Trichloroethene	**5.2**	0.50	ug/L	03/20/14 00:04
1,2-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 00:04
Bromodichloromethane	< 0.50	0.50	ug/L	03/20/14 00:04
Dibromomethane	< 0.50	0.50	ug/L	03/20/14 00:04
cis-1,3-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 00:04
Toluene	< 0.50	0.50	ug/L	03/20/14 00:04
trans-1,3-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 00:04
1,1,2-Trichloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
1,3-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 00:04
Tetrachloroethene	< 0.50	0.50	ug/L	03/20/14 00:04
Dibromochloromethane	< 0.50	0.50	ug/L	03/20/14 00:04
1,2-Dibromoethane	< 0.50	0.50	ug/L	03/20/14 00:04
Chlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:04

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Sample : **MW-3**
Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S** Lab Number : 87732-01
Matrix : Water Sample Date :03/17/2014 Analysis Method: EPA 8260B

Parameter	Measured Value	Method Reporting Limit	Units	Date/Time Analyzed
1,1,1,2-Tetrachloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
Ethylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
P,M-Xylene	< 1.0	1.0	ug/L	03/20/14 00:04
O-Xylene	< 0.50	0.50	ug/L	03/20/14 00:04
Styrene	< 0.50	0.50	ug/L	03/20/14 00:04
Isopropyl benzene	< 0.50	0.50	ug/L	03/20/14 00:04
Bromoform	< 0.50	0.50	ug/L	03/20/14 00:04
1,1,2,2-Tetrachloroethane	< 0.50	0.50	ug/L	03/20/14 00:04
1,2,3-Trichloropropane	< 0.50	0.50	ug/L	03/20/14 00:04
n-Propylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
Bromobenzene	< 0.50	0.50	ug/L	03/20/14 00:04
1,3,5-Trimethylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
2+4-Chlorotoluene	< 1.0	1.0	ug/L	03/20/14 00:04
tert-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
1,2,4-Trimethylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
sec-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
p-Isopropyltoluene	< 0.50	0.50	ug/L	03/20/14 00:04
1,3-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:04
1,4-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:04
n-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 00:04
1,2-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:04
1,2-Dibromo-3-chloropropane	< 0.50	0.50	ug/L	03/20/14 00:04
1,2,4-Trichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:04
Hexachlorobutadiene	< 0.50	0.50	ug/L	03/20/14 00:04
Naphthalene	< 0.50	0.50	ug/L	03/20/14 00:04
1,2,3-Trichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:04
1,2-Dichloroethane-d4 (Surr)	99.4		% Recovery	03/20/14 00:04
4-Bromofluorobenzene (Surr)	98.6		% Recovery	03/20/14 00:04
Toluene - d8 (Surr)	99.9		% Recovery	03/20/14 00:04

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Sample : **MW-1**
Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S** Lab Number : 87732-02
Matrix : Water Sample Date :03/17/2014 Analysis Method: EPA 8260B

Parameter	Measured Value	Method Reporting Limit	Units	Date/Time Analyzed
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	03/20/14 00:35
TPH as Gasoline	< 50	50	ug/L	03/20/14 00:35
Dichlorodifluoromethane	< 0.50	0.50	ug/L	03/20/14 00:35
Chloromethane	< 0.50	0.50	ug/L	03/20/14 00:35
Vinyl Chloride	< 0.50	0.50	ug/L	03/20/14 00:35
Bromomethane	< 20	20	ug/L	03/20/14 00:35
Chloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
Trichlorofluoromethane	< 0.50	0.50	ug/L	03/20/14 00:35
1,1-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 00:35
Methylene Chloride	< 5.0	5.0	ug/L	03/20/14 00:35
trans-1,2-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 00:35
1,1-Dichloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
2,2-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 00:35
cis-1,2-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 00:35
Chloroform	< 0.50	0.50	ug/L	03/20/14 00:35
Bromochloromethane	< 0.50	0.50	ug/L	03/20/14 00:35
1,1,1-Trichloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
1,1-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 00:35
1,2-Dichloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
Carbon Tetrachloride	< 0.50	0.50	ug/L	03/20/14 00:35
Benzene	< 0.50	0.50	ug/L	03/20/14 00:35
Trichloroethene	**1.2**	0.50	ug/L	03/20/14 00:35
1,2-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 00:35
Bromodichloromethane	< 0.50	0.50	ug/L	03/20/14 00:35
Dibromomethane	< 0.50	0.50	ug/L	03/20/14 00:35
cis-1,3-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 00:35
Toluene	< 0.50	0.50	ug/L	03/20/14 00:35
trans-1,3-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 00:35
1,1,2-Trichloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
1,3-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 00:35
Tetrachloroethene	< 0.50	0.50	ug/L	03/20/14 00:35
Dibromochloromethane	< 0.50	0.50	ug/L	03/20/14 00:35
1,2-Dibromoethane	< 0.50	0.50	ug/L	03/20/14 00:35
Chlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:35

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Sample : **MW-1**
Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S** Lab Number : 87732-02
Matrix : Water Sample Date :03/17/2014 Analysis Method: EPA 8260B

Parameter	Measured Value	Method Reporting Limit	Units	Date/Time Analyzed
1,1,1,2-Tetrachloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
Ethylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
P,M-Xylene	< 1.0	1.0	ug/L	03/20/14 00:35
O-Xylene	< 0.50	0.50	ug/L	03/20/14 00:35
Styrene	< 0.50	0.50	ug/L	03/20/14 00:35
Isopropyl benzene	< 0.50	0.50	ug/L	03/20/14 00:35
Bromoform	< 0.50	0.50	ug/L	03/20/14 00:35
1,1,2,2-Tetrachloroethane	< 0.50	0.50	ug/L	03/20/14 00:35
1,2,3-Trichloropropane	< 0.50	0.50	ug/L	03/20/14 00:35
n-Propylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
Bromobenzene	< 0.50	0.50	ug/L	03/20/14 00:35
1,3,5-Trimethylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
2+4-Chlorotoluene	< 1.0	1.0	ug/L	03/20/14 00:35
tert-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
1,2,4-Trimethylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
sec-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
p-Isopropyltoluene	< 0.50	0.50	ug/L	03/20/14 00:35
1,3-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:35
1,4-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:35
n-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 00:35
1,2-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:35
1,2-Dibromo-3-chloropropane	< 0.50	0.50	ug/L	03/20/14 00:35
1,2,4-Trichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:35
Hexachlorobutadiene	< 0.50	0.50	ug/L	03/20/14 00:35
Naphthalene	< 0.50	0.50	ug/L	03/20/14 00:35
1,2,3-Trichlorobenzene	< 0.50	0.50	ug/L	03/20/14 00:35
1,2-Dichloroethane-d4 (Surr)	97.6		% Recovery	03/20/14 00:35
4-Bromofluorobenzene (Surr)	98.2		% Recovery	03/20/14 00:35
Toluene - d8 (Surr)	99.1		% Recovery	03/20/14 00:35

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Sample : **MW-2**
Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S** Lab Number : 87732-03
Matrix : Water Sample Date :03/17/2014 Analysis Method: EPA 8260B

Parameter	Measured Value	Method Reporting Limit	Units	Date/Time Analyzed
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	03/20/14 01:07
TPH as Gasoline	< 50	50	ug/L	03/20/14 01:07
Dichlorodifluoromethane	< 0.50	0.50	ug/L	03/20/14 01:07
Chloromethane	< 0.50	0.50	ug/L	03/20/14 01:07
Vinyl Chloride	< 0.50	0.50	ug/L	03/20/14 01:07
Bromomethane	< 20	20	ug/L	03/20/14 01:07
Chloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
Trichlorofluoromethane	< 0.50	0.50	ug/L	03/20/14 01:07
1,1-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 01:07
Methylene Chloride	< 5.0	5.0	ug/L	03/20/14 01:07
trans-1,2-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 01:07
1,1-Dichloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
2,2-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 01:07
cis-1,2-Dichloroethene	< 0.50	0.50	ug/L	03/20/14 01:07
Chloroform	< 0.50	0.50	ug/L	03/20/14 01:07
Bromochloromethane	< 0.50	0.50	ug/L	03/20/14 01:07
1,1,1-Trichloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
1,1-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 01:07
1,2-Dichloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
Carbon Tetrachloride	< 0.50	0.50	ug/L	03/20/14 01:07
Benzene	**2.2**	0.50	ug/L	03/20/14 01:07
Trichloroethene	**2.4**	0.50	ug/L	03/20/14 01:07
1,2-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 01:07
Bromodichloromethane	< 0.50	0.50	ug/L	03/20/14 01:07
Dibromomethane	< 0.50	0.50	ug/L	03/20/14 01:07
cis-1,3-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 01:07
Toluene	< 0.50	0.50	ug/L	03/20/14 01:07
trans-1,3-Dichloropropene	< 0.50	0.50	ug/L	03/20/14 01:07
1,1,2-Trichloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
1,3-Dichloropropane	< 0.50	0.50	ug/L	03/20/14 01:07
Tetrachloroethene	< 0.50	0.50	ug/L	03/20/14 01:07
Dibromochloromethane	< 0.50	0.50	ug/L	03/20/14 01:07
1,2-Dibromoethane	< 0.50	0.50	ug/L	03/20/14 01:07
Chlorobenzene	< 0.50	0.50	ug/L	03/20/14 01:07

KIFF Analytical LLC

Report Number : 87732
Date : 03/24/2014

Sample : **MW-2**
Project Name : **P&D 23rd Avenue Partners**
Project Number : **CB018S** Lab Number : 87732-03
Matrix : Water Sample Date :03/17/2014 Analysis Method: EPA 8260B

Parameter	Measured Value	Method Reporting Limit	Units	Date/Time Analyzed
1,1,1,2-Tetrachloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
Ethylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
P,M-Xylene	< 1.0	1.0	ug/L	03/20/14 01:07
O-Xylene	< 0.50	0.50	ug/L	03/20/14 01:07
Styrene	< 0.50	0.50	ug/L	03/20/14 01:07
Isopropyl benzene	< 0.50	0.50	ug/L	03/20/14 01:07
Bromoform	< 0.50	0.50	ug/L	03/20/14 01:07
1,1,2,2-Tetrachloroethane	< 0.50	0.50	ug/L	03/20/14 01:07
1,2,3-Trichloropropane	< 0.50	0.50	ug/L	03/20/14 01:07
n-Propylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
Bromobenzene	< 0.50	0.50	ug/L	03/20/14 01:07
1,3,5-Trimethylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
2+4-Chlorotoluene	< 1.0	1.0	ug/L	03/20/14 01:07
tert-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
1,2,4-Trimethylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
sec-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
p-Isopropyltoluene	< 0.50	0.50	ug/L	03/20/14 01:07
1,3-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 01:07
1,4-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 01:07
n-Butylbenzene	< 0.50	0.50	ug/L	03/20/14 01:07
1,2-Dichlorobenzene	< 0.50	0.50	ug/L	03/20/14 01:07
1,2-Dibromo-3-chloropropane	< 0.50	0.50	ug/L	03/20/14 01:07
1,2,4-Trichlorobenzene	< 0.50	0.50	ug/L	03/20/14 01:07
Hexachlorobutadiene	< 0.50	0.50	ug/L	03/20/14 01:07
Naphthalene	< 0.50	0.50	ug/L	03/20/14 01:07
1,2,3-Trichlorobenzene	< 0.50	0.50	ug/L	03/20/14 01:07
1,2-Dichloroethane-d4 (Surr)	99.2		% Recovery	03/20/14 01:07
4-Bromofluorobenzene (Surr)	98.5		% Recovery	03/20/14 01:07
Toluene - d8 (Surr)	100		% Recovery	03/20/14 01:07

Report Number : 87732

Date : 03/24/2014

QC Report : Method Blank Data

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	03/20/2014
Octacosane (Diesel Surrogate)	100		%	M EPA 8015	03/20/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/19/2014
1,1,1,2-Tetrachloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,1,1-Trichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,1,2,2-Tetrachloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,1,2-Trichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,1-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,1-Dichloroethene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,1-Dichloropropene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2,3-Trichlorobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2,3-Trichloropropane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2,4-Trichlorobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2,4-Trimethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2-Dibromo-3-chloropropane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2-Dichlorobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2-Dichloropropane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,3,5-Trimethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,3-Dichlorobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,3-Dichloropropane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,4-Dichlorobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
2+4-Chlorotoluene	< 1.0	1.0	ug/L	EPA 8260B	03/19/2014
2,2-Dichloropropane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Bromobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Bromochloromethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Bromodichloromethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Bromoform	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Bromomethane	< 20	20	ug/L	EPA 8260B	03/19/2014
Carbon Tetrachloride	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Chlorobenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Chloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Chloroform	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Chloromethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Dibromochloromethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Dibromomethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Dichlorodifluoromethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Hexachlorobutadiene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Isopropyl benzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Methylene Chloride	< 5.0	5.0	ug/L	EPA 8260B	03/19/2014
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
O-Xylene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
P,M-Xylene	< 1.0	1.0	ug/L	EPA 8260B	03/19/2014
Styrene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Tetrachloroethene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Trichloroethene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Trichlorofluoromethane	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
Vinyl Chloride	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
cis-1,2-Dichloroethene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
cis-1,3-Dichloropropene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
n-Butylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
n-Propylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
p-Isopropyltoluene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
sec-Butylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
tert-Butylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
trans-1,2-Dichloroethene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
trans-1,3-Dichloropropene	< 0.50	0.50	ug/L	EPA 8260B	03/19/2014
1,2-Dichloroethane-d4 (Surr)	99.7		%	EPA 8260B	03/19/2014
4-Bromofluorobenzene (Surr)	101		%	EPA 8260B	03/19/2014
Toluene - d8 (Surr)	99.4		%	EPA 8260B	03/19/2014

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH as Diesel														
	BLANK	<50	1000	1000	1150	1170	ug/L	M EPA 8015	3/20/14	115	117	2.28	70-130	25
1,1,1,2-Tetrachloroethane														
	87723-01	<0.50	40.0	40.0	38.7	38.1	ug/L	EPA 8260B	3/19/14	96.8	95.2	1.63	70.0-130	25
1,1,1-Trichloroethane														
	87723-01	<0.50	40.0	40.0	38.0	37.0	ug/L	EPA 8260B	3/19/14	94.9	92.5	2.60	70.0-130	25
1,1,2,2-Tetrachloroethane														
	87723-01	<0.50	40.0	40.0	40.9	40.5	ug/L	EPA 8260B	3/19/14	102	101	0.806	70.0-130	25
1,1,2-Trichloroethane														
	87723-01	<0.50	40.0	40.0	38.6	38.5	ug/L	EPA 8260B	3/19/14	96.6	96.3	0.283	70.0-130	25
1,1-Dichloroethane														
	87723-01	<0.50	40.0	40.0	38.4	37.8	ug/L	EPA 8260B	3/19/14	96.1	94.6	1.61	70.0-130	25
1,1-Dichloroethene														
	87723-01	<0.50	40.0	40.0	39.1	38.1	ug/L	EPA 8260B	3/19/14	97.8	95.2	2.72	70.0-130	25
1,1-Dichloropropene														
	87723-01	<0.50	40.0	40.0	38.9	37.6	ug/L	EPA 8260B	3/19/14	97.3	93.9	3.53	70.0-130	25
1,2,3-Trichlorobenzene														
	87723-01	<0.50	40.0	40.0	38.3	37.8	ug/L	EPA 8260B	3/19/14	95.8	94.4	1.48	70.0-130	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
1,2,3-Trichloropropane														
	87723-01	<0.50	40.0	40.0	40.3	39.0	ug/L	EPA 8260B	3/19/14	101	97.6	3.15	70.0-130	25
1,2,4-Trichlorobenzene														
	87723-01	<0.50	40.0	40.0	38.5	38.0	ug/L	EPA 8260B	3/19/14	96.2	95.0	1.26	70.0-130	25
1,2,4-Trimethylbenzene														
	87723-01	12	40.0	40.0	54.2	52.2	ug/L	EPA 8260B	3/19/14	104	99.2	4.90	70.0-130	25
1,2-Dibromoethane														
	87723-01	<0.50	40.3	40.3	39.8	39.6	ug/L	EPA 8260B	3/19/14	98.6	98.3	0.342	70.0-130	25
1,2-Dichlorobenzene														
	87723-01	<0.50	40.0	40.0	38.0	37.1	ug/L	EPA 8260B	3/19/14	95.1	92.7	2.49	70.0-130	25
1,2-Dichloroethane														
	87723-01	1.5	40.0	40.0	39.5	39.1	ug/L	EPA 8260B	3/19/14	94.9	94.1	0.863	70.0-130	25
1,2-Dichloropropane														
	87723-01	<0.50	40.0	40.0	38.1	37.2	ug/L	EPA 8260B	3/19/14	95.2	92.9	2.39	70.0-130	25
1,2-dibromo-3-chloropropane														
	87723-01	<0.50	40.0	40.0	39.4	40.2	ug/L	EPA 8260B	3/19/14	98.4	100	2.11	70.0-130	25
1,3,5-Trimethylbenzene														
	87723-01	2.7	40.0	40.0	49.1	47.3	ug/L	EPA 8260B	3/19/14	116	112	4.00	70.0-130	25
1,3-Dichlorobenzene														
	87723-01	<0.50	40.0	40.0	39.3	37.8	ug/L	EPA 8260B	3/19/14	98.2	94.6	3.74	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
1,3-Dichloropropane														
	87723-01	<0.50	40.0	40.0	38.1	37.7	ug/L	EPA 8260B	3/19/14	95.2	94.2	1.04	70.0-130	25
1,4-Dichlorobenzene														
	87723-01	<0.50	40.0	40.0	38.4	37.6	ug/L	EPA 8260B	3/19/14	96.1	94.1	2.13	70.0-130	25
2+4-Chlorotoluene														
	87723-01	<1.0	80.0	80.0	78.7	76.1	ug/L	EPA 8260B	3/19/14	98.4	95.2	3.30	70.0-130	25
2,2-Dichloropropane														
	87723-01	<0.50	40.0	40.0	39.4	38.0	ug/L	EPA 8260B	3/19/14	98.6	94.9	3.77	70.0-130	25
Benzene														
	87723-01	9.3	40.0	40.0	47.2	45.9	ug/L	EPA 8260B	3/19/14	94.7	91.5	3.42	70.0-130	25
Bromobenzene														
	87723-01	<0.50	40.0	40.0	38.9	37.8	ug/L	EPA 8260B	3/19/14	97.2	94.5	2.89	70.0-130	25
Bromochloromethane														
	87723-01	<0.50	40.0	40.0	38.8	38.9	ug/L	EPA 8260B	3/19/14	97.0	97.3	0.308	70.0-130	25
Bromodichloromethane														
	87723-01	<0.50	40.0	40.0	38.3	38.3	ug/L	EPA 8260B	3/19/14	95.6	95.8	0.107	70.0-130	25
Bromoform														
	87723-01	<0.50	40.0	40.0	38.6	38.7	ug/L	EPA 8260B	3/19/14	96.4	96.9	0.499	70.0-135	25
Bromomethane														
	87723-01	<20	200	200	164	174	ug/L	EPA 8260B	3/19/14	82.2	86.8	5.45	50.0-135	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Carbon Tetrachloride														
	87723-01	<0.50	40.0	40.0	37.6	37.2	ug/L	EPA 8260B	3/19/14	93.9	93.0	1.03	70.0-130	25
Chlorobenzene														
	87723-01	<0.50	40.0	40.0	39.0	37.7	ug/L	EPA 8260B	3/19/14	97.4	94.2	3.32	70.0-130	25
Chloroethane														
	87723-01	<0.50	40.0	40.0	39.2	38.2	ug/L	EPA 8260B	3/19/14	97.9	95.4	2.60	70.0-130	25
Chloroform														
	87723-01	<0.50	40.0	40.0	38.5	38.0	ug/L	EPA 8260B	3/19/14	96.2	95.0	1.28	70.0-130	25
Chloromethane														
	87723-01	<0.50	40.0	40.0	36.0	36.1	ug/L	EPA 8260B	3/19/14	90.1	90.2	0.190	70.0-130	25
Dibromochloromethane														
	87723-01	<0.50	40.0	40.0	39.4	39.4	ug/L	EPA 8260B	3/19/14	98.5	98.6	0.0457	70.0-130	25
Dibromomethane														
	87723-01	<0.50	40.0	40.0	39.3	39.3	ug/L	EPA 8260B	3/19/14	98.2	98.2	0.0212	70.0-130	25
Dichlorodifluoromethane														
	87723-01	<0.50	40.0	40.0	40.8	40.5	ug/L	EPA 8260B	3/19/14	102	101	0.667	65.0-140	25
Ethylbenzene														
	87723-01	1.9	40.0	40.0	40.9	39.1	ug/L	EPA 8260B	3/19/14	97.5	92.9	4.78	70.0-130	25
Hexachlorobutadiene														
	87723-01	<0.50	40.0	40.0	38.1	37.7	ug/L	EPA 8260B	3/19/14	95.2	94.3	0.983	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Isopropyl benzene														
	87723-01	1.0	40.0	40.0	41.7	39.9	ug/L	EPA 8260B	3/19/14	102	97.3	4.56	70.0-130	25
Methyl-t-butyl ether														
	87723-01	37	39.9	39.9	76.0	76.0	ug/L	EPA 8260B	3/19/14	98.4	98.4	0.0198	70.0-130	25
Methylene Chloride														
	87723-01	<5.0	40.0	40.0	39.2	38.5	ug/L	EPA 8260B	3/19/14	98.0	96.2	1.88	70.0-130	25
Naphthalene														
	87723-01	0.81	40.0	40.0	41.9	41.7	ug/L	EPA 8260B	3/19/14	103	102	0.437	70.0-130	25
O-Xylene														
	87723-01	2.1	40.0	40.0	42.0	40.8	ug/L	EPA 8260B	3/19/14	99.7	96.8	2.98	70.0-130	25
P + M Xylene														
	87723-01	4.1	40.0	40.0	43.6	42.0	ug/L	EPA 8260B	3/19/14	98.7	94.6	4.23	70.0-130	25
Styrene														
	87723-01	<0.50	40.5	40.5	40.1	38.9	ug/L	EPA 8260B	3/19/14	99.1	96.0	3.10	70.0-130	25
Tetrachloroethene														
	87723-01	<0.50	40.0	40.0	38.6	37.8	ug/L	EPA 8260B	3/19/14	96.4	94.4	2.04	70.0-130	25
Toluene														
	87723-01	1.7	40.0	40.0	40.2	39.5	ug/L	EPA 8260B	3/19/14	96.1	94.5	1.73	70.0-130	25
Trichloroethene														
	87723-01	<0.50	40.0	40.0	38.0	37.0	ug/L	EPA 8260B	3/19/14	95.1	92.6	2.65	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Trichlorofluoromethane														
	87723-01	<0.50	40.0	40.0	38.8	38.0	ug/L	EPA 8260B	3/19/14	97.0	95.1	1.95	70.0-130	25
Vinyl Chloride														
	87723-01	<0.50	40.0	40.0	38.6	37.9	ug/L	EPA 8260B	3/19/14	96.6	94.7	1.92	70.0-130	25
c-1,3-Dichloropropene														
	87723-01	<5.0	40.0	40.0	38.8	38.4	ug/L	EPA 8260B	3/19/14	97.1	96.0	1.14	70.0-130	25
cis-1,2-Dichloroethene														
	87723-01	<0.50	40.0	40.0	38.2	38.0	ug/L	EPA 8260B	3/19/14	95.6	95.0	0.606	70.0-130	25
n-butylbenzene														
	87723-01	<0.50	40.0	40.0	40.9	39.7	ug/L	EPA 8260B	3/19/14	102	99.3	2.88	70.0-130	25
n-propylbenzene														
	87723-01	2.8	40.0	40.0	43.9	41.7	ug/L	EPA 8260B	3/19/14	103	97.3	5.36	70.0-130	25
p-isopropyltoluene														
	87723-01	<0.50	40.0	40.0	41.3	39.6	ug/L	EPA 8260B	3/19/14	103	98.9	4.38	70.0-130	25
sec-butylbenzene														
	87723-01	<0.50	40.0	40.0	40.4	39.0	ug/L	EPA 8260B	3/19/14	101	97.4	3.73	70.0-130	25
t-1,2-Dichloroethene														
	87723-01	<5.0	40.0	40.0	38.6	37.1	ug/L	EPA 8260B	3/19/14	96.4	92.9	3.72	70.0-130	25
t-1,3-Dichloropropene														
	87723-01	<5.0	40.0	40.0	38.1	38.0	ug/L	EPA 8260B	3/19/14	95.2	95.0	0.222	70.0-130	25

Report Number : 87732

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
tert-butylbenzene														
	87723-01	<0.50	40.0	40.0	39.7	38.1	ug/L	EPA 8260B	3/19/14	99.3	95.2	4.20	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Date : 03/24/2014

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,1,1,2-Tetrachloroethane	40.1	ug/L	EPA 8260B	3/19/14	96.4	70.0-130
1,1,1-Trichloroethane	40.1	ug/L	EPA 8260B	3/19/14	94.6	70.0-130
1,1,2,2-Tetrachloroethane	40.1	ug/L	EPA 8260B	3/19/14	102	70.0-130
1,1,2-Trichloroethane	40.1	ug/L	EPA 8260B	3/19/14	96.5	70.0-130
1,1-Dichloroethane	40.1	ug/L	EPA 8260B	3/19/14	96.7	70.0-130
1,1-Dichloroethene	40.1	ug/L	EPA 8260B	3/19/14	99.4	70.0-130
1,1-Dichloropropene	40.1	ug/L	EPA 8260B	3/19/14	96.2	70.0-130
1,2,3-Trichlorobenzene	40.1	ug/L	EPA 8260B	3/19/14	95.0	70.0-130
1,2,3-Trichloropropane	40.1	ug/L	EPA 8260B	3/19/14	100	70.0-130
1,2,4-Trichlorobenzene	40.1	ug/L	EPA 8260B	3/19/14	94.4	70.0-130
1,2,4-Trimethylbenzene	40.1	ug/L	EPA 8260B	3/19/14	102	70.0-130
1,2-Dibromoethane	40.4	ug/L	EPA 8260B	3/19/14	97.9	70.0-130
1,2-Dichlorobenzene	40.1	ug/L	EPA 8260B	3/19/14	94.0	70.0-130
1,2-Dichloroethane	40.1	ug/L	EPA 8260B	3/19/14	95.6	70.0-130
1,2-Dichloropropane	40.1	ug/L	EPA 8260B	3/19/14	93.5	70.0-130
1,2-dibromo-3-chloropropane	40.1	ug/L	EPA 8260B	3/19/14	95.4	70.0-130
1,3,5-Trimethylbenzene	40.1	ug/L	EPA 8260B	3/19/14	103	70.0-130
1,3-Dichlorobenzene	40.1	ug/L	EPA 8260B	3/19/14	98.4	70.0-130
1,3-Dichloropropane	40.1	ug/L	EPA 8260B	3/19/14	94.8	70.0-130
1,4-Dichlorobenzene	40.1	ug/L	EPA 8260B	3/19/14	94.6	70.0-130
2+4-Chlorotoluene	80.2	ug/L	EPA 8260B	3/19/14	97.9	70.0-130
2,2-Dichloropropane	40.1	ug/L	EPA 8260B	3/19/14	99.5	70.0-130
Benzene	40.1	ug/L	EPA 8260B	3/19/14	93.8	70.0-130

QC Report : Laboratory Control Sample (LCS)

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Bromobenzene	40.1	ug/L	EPA 8260B	3/19/14	97.8	70.0-130
Bromochloromethane	40.1	ug/L	EPA 8260B	3/19/14	96.6	70.0-130
Bromodichloromethane	40.1	ug/L	EPA 8260B	3/19/14	94.9	70.0-130
Bromoform	40.1	ug/L	EPA 8260B	3/19/14	94.0	70.0-135
Bromomethane	200	ug/L	EPA 8260B	3/19/14	96.6	50.0-135
Carbon Tetrachloride	40.1	ug/L	EPA 8260B	3/19/14	94.6	70.0-130
Chlorobenzene	40.1	ug/L	EPA 8260B	3/19/14	96.6	70.0-130
Chloroethane	40.1	ug/L	EPA 8260B	3/19/14	102	70.0-130
Chloroform	40.1	ug/L	EPA 8260B	3/19/14	96.6	70.0-130
Chloromethane	40.1	ug/L	EPA 8260B	3/19/14	91.8	70.0-130
Dibromochloromethane	40.1	ug/L	EPA 8260B	3/19/14	95.3	70.0-130
Dibromomethane	40.1	ug/L	EPA 8260B	3/19/14	98.5	70.0-130
Dichlorodifluoromethane	40.1	ug/L	EPA 8260B	3/19/14	104	65.0-140
Ethylbenzene	40.1	ug/L	EPA 8260B	3/19/14	96.6	70.0-130
Hexachlorobutadiene	40.1	ug/L	EPA 8260B	3/19/14	98.0	70.0-130
Isopropyl benzene	40.1	ug/L	EPA 8260B	3/19/14	100	70.0-130
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	3/19/14	98.2	70.0-130
Methylene Chloride	40.1	ug/L	EPA 8260B	3/19/14	99.7	70.0-130
Naphthalene	40.1	ug/L	EPA 8260B	3/19/14	99.8	70.0-130
O-Xylene	40.1	ug/L	EPA 8260B	3/19/14	97.8	70.0-130
P + M Xylene	40.1	ug/L	EPA 8260B	3/19/14	97.4	70.0-130
Styrene	40.6	ug/L	EPA 8260B	3/19/14	97.6	70.0-130
TPH as Gasoline	485	ug/L	EPA 8260B	3/19/14	96.7	70.0-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **P&D 23rd Avenue Partners**

Project Number : **CB018S**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Tetrachloroethene	40.1	ug/L	EPA 8260B	3/19/14	97.6	70.0-130
Toluene	40.1	ug/L	EPA 8260B	3/19/14	96.2	70.0-130
Trichloroethene	40.1	ug/L	EPA 8260B	3/19/14	95.3	70.0-130
Trichlorofluoromethane	40.1	ug/L	EPA 8260B	3/19/14	99.3	70.0-130
Vinyl Chloride	40.1	ug/L	EPA 8260B	3/19/14	96.1	70.0-130
c-1,3-Dichloropropene	40.1	ug/L	EPA 8260B	3/19/14	97.6	70.0-130
cis-1,2-Dichloroethene	40.1	ug/L	EPA 8260B	3/19/14	95.9	70.0-130
n-butylbenzene	40.1	ug/L	EPA 8260B	3/19/14	98.9	70.0-130
n-propylbenzene	40.1	ug/L	EPA 8260B	3/19/14	99.6	70.0-130
p-isopropyltoluene	40.1	ug/L	EPA 8260B	3/19/14	101	70.0-130
sec-butylbenzene	40.1	ug/L	EPA 8260B	3/19/14	100	70.0-130
t-1,2-Dichloroethene	40.1	ug/L	EPA 8260B	3/19/14	96.6	70.0-130
t-1,3-Dichloropropene	40.1	ug/L	EPA 8260B	3/19/14	96.9	70.0-130
tert-butylbenzene	40.1	ug/L	EPA 8260B	3/19/14	98.6	70.0-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 87732

Page ___ of ___

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Olivia Jacobs	California EDF Report? ☑ Yes ☐ No
Company / Address: Clearwater Group 229 Tewksbury Ave. Point Richmond, CA	Sampling Company Log Code: CWGO
Phone Number: 510-307-9943	Global ID: T0600177455
Fax Number: 510-232-2823	EDF Deliverable To (Email Address): gfisco@clearwatergroup.com
Project #: CB018S / P.O. #:	Bill to: Clearwater Group
Project Name: P&D 23rd Avenue Partners	Sampler Signature:
Project Address: 1125 Miller Avenue Oakland, CA	

Sample Designation	Date	Time	Sampling	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative:	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)						TAT	For Lab Use Only
																			Analysis Request (circle method)																										
MW-3	3/17/2014	13:27	5							X					X				X	X	X					X		X													01
MW-1	3/17/2014	14:29	5							X					X				X	X	X					X		X													02
MW-2	3/17/2014	15:26	5							X					X				X	X	X					X		X													03

Relinquished by:	Date	Time	Received by:
	3/17/14	1645	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	031814	1100	

Remarks:

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

Distribution: White - Lab, Pink - Originator
Rev: 031308

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

SRG #: 87732

Sample Receipt	**Initials/Date:** TJB031814	**Storage Time:** 1520	**Sample Login**	**Initials/Date:** TJB for NDB 031814	
TAT: ☒ Standard	☐ Rush	☐ Split	☐ None	**Method of Receipt:** ☒ Courier	☐ Over-the-counter ☐ Shipped
Temp °C 0.8 ☐ N/A	Therm ID IR-1	Time 1515	Coolant present	☒ Yes ☐ No ☐ Water	☐ Temp Excursion
For Shipments Only:	Cooler Receipt Initials/Date/Time:		Custody Seals	☐ N/A ☐ Intact	☐ Broken

Chain-of-Custody:	**Yes**	**No**
Is COC present?	X	
Is COC signed by relinquisher?	X	
Is COC dated by relinquisher?	X	
Is the sampler's name on the COC?	X	
Are there analyses or hold for all samples?	X	

Documented on	**COC**	**Labels**	**Discrepancies:**
Sample ID	X	X	
Project ID	X	X	
Sample Date	X	X	
Sample Time	X	X	
Does COC match project history?	☒ N/A	☐ Yes	☐ No

Samples:	**N/A**	**Yes**	**No**
Are sample custody seals intact?	X		
Are sample containers intact?		X	
Is preservation documented?		X	
In-house Analysis:	**N/A**	**Yes**	**No**
Are preservatives acceptable?		X	
Are samples within holding time?		X	
Are sample container types correct?		X	
Is there adequate sample volume?		X	

Comments:

Receipt Details:

Matrix	Container Type	# of Containers
WA	VOA	15

CS Required: ☐

Proceed With Analysis: ☐ YES ☐ NO Init/Date:
Client Communication:

ATTACHMENT E

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	GEO_WELL
Report Title:	Groundwater Monitoring - 1Q14
Facility Global ID:	T0600177455
Facility Name:	23RD AVENUE PARTNERS
File Name:	GEO_WELL.zip
Organization Name:	Clearwater Group
Username:	CLEARWATERGROUP
IP Address:	173.13.151.1
Submittal Date/Time:	4/2/2014 3:31:21 PM
Confirmation Number:	7907045483

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	EDF
Report Title:	Groundwater Monitoring - 1Q14 (87732)
Report Type:	Monitoring Report - Quarterly
Facility Global ID:	T0600177455
Facility Name:	23RD AVENUE PARTNERS
File Name:	EDF_PD23rdAvenuePartners_87732.ZIP
Organization Name:	Clearwater Group
Username:	CLEARWATERGROUP
IP Address:	173.13.151.1
Submittal Date/Time:	4/2/2014 4:27:52 PM
Confirmation Number:	7511936247

VIEW QC REPORT

VIEW DETECTIONS REPORT

ATTACHMENT F

Low-Threat Underground Storage Tank Case Closure Policy

Preamble

The State Water Resources Control Board (State Water Board) administers the petroleum UST (Underground Storage Tank) Cleanup Program, which was enacted by the Legislature in 1984 to protect health, safety and the environment. The State Water Board also administers the petroleum UST Cleanup Fund (Fund), which was enacted by the Legislature in 1989 to assist UST owners and operators in meeting federal financial responsibility requirements and to provide reimbursement to those owners and operators for the high cost of cleaning up unauthorized releases caused by leaking USTs.

The State Water Board believes it is in the best interest of the people of the State that unauthorized releases be prevented and cleaned up to the extent practicable in a manner that protects human health, safety and the environment. The State Water Board also recognizes that the technical and economic resources available for environmental restoration are limited, and that the highest priority for these resources must be the protection of human health and environmental receptors. Program experience has demonstrated the ability of remedial technologies to mitigate a substantial fraction of a petroleum contaminant mass with the investment of a reasonable level of effort. Experience has also shown that residual contaminant mass usually remains after the investment of reasonable effort, and that this mass is difficult to completely remove regardless of the level of additional effort and resources invested.

It has been well-documented in the literature and through experience at individual UST release sites that petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater. The biodegradation of petroleum, in particular, distinguishes petroleum products from other hazardous substances commonly found at commercial and industrial sites.

The characteristics of UST releases and the California UST Program have been studied extensively, with individual works including:

a. Lawrence Livermore National Laboratory report (1995)
b. SB1764 Committee report (1996)
c. UST Cleanup Program Task Force report (2010)
d. Cleanup Fund Task Force report (2010)
e. Cleanup Fund audit (2010)
f. State Water Resources Control Board site closure orders
g. State Water Resources Control Board Resolution 2009-0081

In general, these efforts have recognized that many petroleum release cases pose a low threat to human health and the environment. Some of these studies also recommended establishing “low-threat” closure criteria in order to maximize the benefits to the people of the State of California through judicious application of available resources.

The purpose of this policy is to establish consistent statewide case closure criteria for low-threat petroleum UST sites. The policy is consistent with existing statutes, regulations, State Water Board precedential decisions, policies and resolutions, and is intended to provide clear direction to responsible parties, their service providers, and regulatory agencies. The policy seeks to increase UST cleanup process efficiency. A benefit of improved efficiency is the preservation of limited resources for mitigation of releases posing a greater threat to human and environmental health.

This policy is based in part upon the knowledge and experience gained from the last 25 years of investigating and remediating unauthorized releases of petroleum from USTs. While this policy does not specifically address other petroleum release scenarios such as pipelines or above ground storage tanks, if a particular site with a different petroleum release scenario exhibits attributes similar to those which this policy addresses, the criteria for closure evaluation of these non-UST sites should be similar to those in this policy.

This policy is a state policy for water quality control and applies to all petroleum UST sites subject to Chapter 6.7 of Division 20 of the Health and Safety Code and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations. The term "regulatory agencies" in this policy means the State Water Board, Regional Water Quality Control Boards (Regional Water Boards) and local agencies authorized to implement Health and Safety Code section 25296.10. Unless expressly provided in this policy, the terms in this policy shall have the same definitions provided in Chapter 6.7 of Division 20 of the Health and Safety Code and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations.

Criteria for Low-Threat Case Closure

In the absence of unique attributes of a case or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents, cases that meet the general and media-specific criteria described in this policy pose a low threat to human health, safety or the environment and are appropriate for closure pursuant to Health and Safety Code section 25296.10. Cases that meet the criteria in this policy do not require further corrective action and shall be issued a uniform closure letter consistent with Health and Safety Code section 25296.10. Annually, or at the request of the responsible party or party conducting the corrective action, the regulatory agency shall conduct a review to determine whether the site meets the criteria contained in this policy.

It is important to emphasize that the criteria described in this policy do not attempt to describe the conditions at all low-threat petroleum UST sites in the State. The regulatory agency shall issue a closure letter for a case that does not meet these criteria if the regulatory agency determines the site to be low-threat based upon a site specific analysis.

This policy recognizes that some petroleum-release sites may possess unique attributes and that some site specific conditions may make case closure under this policy inappropriate, despite the satisfaction of the stated criteria in this policy. It is impossible to completely capture those sets of attributes that may render a site ineligible for closure based on this low-threat policy. This policy relies on the regulatory agency's use of the conceptual site model to identify the special attributes that would require specific attention prior to the application of low-threat criteria. In these cases, it is the regulatory agency's responsibility to identify the conditions that make closure under the policy inappropriate.

General Criteria

General criteria that must be satisfied by all candidate sites are listed as follows:

a. The unauthorized release is located within the service area of a public water system;
b. The unauthorized release consists only of petroleum;
c. The unauthorized ("primary") release from the UST system has been stopped;
d. Free product has been removed to the maximum extent practicable;
e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed;
f. Secondary source has been removed to the extent practicable;
g. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15; and
h. Nuisance as defined by Water Code section 13050 does not exist at the site.

a. The unauthorized release is located within the service area of a public water system

This policy is protective of existing water supply wells. New water supply wells are unlikely to be installed in the shallow groundwater near former UST release sites. However, it is difficult to predict, on a statewide basis, where new wells will be installed, particularly in rural areas that are undergoing new development. This policy is limited to areas with available public water systems to reduce the likelihood that new wells in developing areas will be inadvertently impacted by residual petroleum in groundwater. Case closure outside of areas with a public water system should be evaluated based upon the fundamental principles in this policy and a site specific evaluation of developing water supplies in the area. For purposes of this policy, a public water system is a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

b. The unauthorized release consists only of petroleum

For the purposes of this policy, petroleum is defined as crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means 60 degrees Fahrenheit and 14.7 pounds per square inch absolute, including the following substances: motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents and used oils, including any additives and blending agents such as oxygenates contained in the formulation of the substances.

c. The unauthorized release has been stopped

The tank, pipe, or other appurtenant structure that released petroleum into the environment (i.e. the primary source) has been removed, repaired or replaced. It is not the intent of this policy to allow sites with ongoing leaks from the UST system to qualify for low-threat closure.

d. Free product has been removed to the maximum extent practicable

At petroleum unauthorized release sites where investigations indicate the presence of free product, free product shall be removed to the maximum extent practicable. In meeting the requirements of this section:

(a) Free product shall be removed in a manner that minimizes the spread of the unauthorized release into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable laws;

(b) Abatement of free product migration shall be used as a minimum objective for the design of any free product removal system; and
(c) Flammable products shall be stored for disposal in a safe and competent manner to prevent fires or explosions.

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed

The Conceptual Site Model (CSM) is a fundamental element of a comprehensive site investigation. The CSM establishes the source and attributes of the unauthorized release, describes all affected media (including soil, groundwater, and soil vapor as appropriate), describes local geology, hydrogeology and other physical site characteristics that affect contaminant environmental transport and fate, and identifies all confirmed and potential contaminant receptors (including water supply wells, surface water bodies, structures and their inhabitants). The CSM is relied upon by practitioners as a guide for investigative design and data collection. Petroleum release sites in California occur in a wide variety of hydrogeologic settings. As a result, contaminant fate and transport and mechanisms by which receptors may be impacted by contaminants vary greatly from location to location. Therefore, the CSM is unique to each individual release site. All relevant site characteristics identified by the CSM shall be assessed and supported by data so that the nature, extent and mobility of the release have been established to determine conformance with applicable criteria in this policy. The supporting data and analysis used to develop the CSM are not required to be contained in a single report and may be contained in multiple reports submitted to the regulatory agency over a period of time.

f. Secondary source has been removed to the extent practicable

"Secondary source" is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described herein. "To the extent practicable" means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy.

g. Soil and groundwater have been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15

Health and Safety Code section 25296.15 prohibits closing a UST case unless the soil, groundwater, or both, as applicable have been tested for MTBE and the results of that testing are known to the Regional Water Board. The exception to this requirement is where a regulatory agency determines that the UST that leaked has only contained diesel or jet fuel. Before closing a UST case pursuant to this policy, the requirements of section 25296.15, if applicable, shall be satisfied.

h. Nuisance as defined by Water Code section 13050 does not exist at the site
Water Code section 13050 defines "nuisance" as anything which meets all of the following requirements:

(1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

(2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

(3) Occurs during, or as a result of, the treatment or disposal of wastes.

For the purpose of this policy, waste means a petroleum release.

Media-Specific Criteria
Releases from USTs can impact human health and the environment through contact with any or all of the following contaminated media: groundwater, surface water, soil, and soil vapor. Although this contact can occur through ingestion, dermal contact, or inhalation of the various media, the most common drivers of health risk are ingestion of groundwater from drinking water wells, inhalation of vapors accumulated in buildings, contact with near surface contaminated soil, and inhalation of vapors in the outdoor environment. To simplify implementation, these media and pathways have been evaluated and the most common exposure scenarios have been combined into three media-specific criteria:

1. Groundwater
2. Vapor Intrusion to Indoor Air
3. Direct Contact and Outdoor Air Exposure

Candidate sites must satisfy all three of these media-specific criteria as described below.

1. Groundwater
This policy describes criteria on which to base a determination that threats to existing and anticipated beneficial uses of groundwater have been mitigated or are de minimis, including cases that have not affected groundwater.

State Water Board Resolution 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304* is a state policy for water quality control and applies to petroleum UST cases. Resolution 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. Any alternative level of water quality less stringent than background must be consistent with the maximum benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located. Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.

Water quality control plans (Basin Plans) generally establish “background” water quality as a restorative endpoint. This policy recognizes the regulatory authority of the Basin Plans but underscores the flexibility contained in Resolution 92-49.

It is a fundamental tenet of this low-threat closure policy that if the closure criteria described in this policy are satisfied at a petroleum unauthorized release site, attaining background water quality is not feasible, establishing an alternate level of water quality not to exceed that prescribed in the applicable Basin Plan is appropriate, and that water quality objectives will be attained through natural attenuation within a reasonable time, prior to the expected need for use of any affected groundwater.

If groundwater with a designated beneficial use is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed below. A plume that is "stable or decreasing" is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration.

Groundwater-Specific Criteria

(1) a. The contaminant plume that exceeds water quality objectives is less than 100 feet in length.
   b. There is no free product.
   c. The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.

(2) a. The contaminant plume that exceeds water quality objectives is less than 250 feet in length.
   b. There is no free product.
   c. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.
   d. The dissolved concentration of benzene is less than 3,000 micrograms per liter (µg/l), and the dissolved concentration of MTBE is less than 1,000 µg/l.

(3) a. The contaminant plume that exceeds water quality objectives is less than 250 feet in length.
   b. Free product has been removed to the maximum extent practicable, may still be present below the site where the release originated, but does not extend off-site.
   c. The plume has been stable or decreasing for a minimum of five years.
   d. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.
   e. The property owner is willing to accept a land use restriction if the regulatory agency requires a land use restriction as a condition of closure.

(4) a. The contaminant plume that exceeds water quality objectives is less than 1,000 feet in length.
   b. There is no free product.
   c. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.
   d. The dissolved concentration of benzene is less than 1,000 µg/l, and the dissolved concentration of MTBE is less than 1,000 µg/l.

(5) a. The regulatory agency determines, based on an analysis of site specific conditions that under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame.

Sites with Releases That Have Not Affected Groundwater
Sites with soil that does not contain sufficient mobile constituents [leachate, vapors, or light non-aqueous-phase liquids (LNAPL)] to cause groundwater to exceed the groundwater criteria in this policy shall be considered low-threat sites for the groundwater medium. Provided the general criteria and criteria for other media are also met, those sites are eligible for case closure.

For older releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source for groundwater pollution.

2. Petroleum Vapor Intrusion to Indoor Air
Exposure to petroleum vapors migrating from soil or groundwater to indoor air may pose unacceptable human health risks. This policy describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks. In many petroleum release cases, potential human exposures to vapors are mitigated by bioattenuation processes as vapors migrate toward the ground surface. For the purposes of this section, the term "bioattenuation zone" means an area of soil with conditions that support biodegradation of petroleum hydrocarbon vapors.

The low-threat vapor-intrusion criteria described below apply to sites where the release originated and impacted or potentially impacted adjacent parcels when: (1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or
(2) buildings for human occupancy are reasonably expected to be constructed in the future. Appendices 1 through 4 (attached) illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario. Petroleum release sites shall satisfy the media-specific criteria for petroleum vapor intrusion to indoor air and be considered low-threat for the vapor-intrusion-to-indoor-air pathway if:

a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4 as applicable; or

b. A site-specific risk assessment for the vapor intrusion pathway is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency; or

c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health.

Exception: Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.

3. Direct Contact and Outdoor Air Exposure

This policy describes conditions where direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air poses a low threat to human health. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, and inhalation of volatile soil emissions and inhalation of particulate emissions. The 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers are reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or

b. Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or

c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

Table 1

Concentrations of Petroleum Constituents in Soil That Will Have No Significant Risk of Adversely Affecting Human Health

Chemical	Residential		Commercial/ Industrial		Utility Worker
	0 to 5 feet bgs	Volatilization to outdoor air (5 to 10 feet bgs)	0 to 5 feet bgs	Volatilization to outdoor air (5 to 10 feet bgs)	0 to 10 feet bgs
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	1.9	2.8	8.2	12	14
Ethylbenzene	21	32	89	134	314
Naphthalene	9.7	9.7	45	45	219
PAH[1]	0.063	NA	0.68	NA	4.5

Notes:
1. Based on the seven carcinogenic poly-aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. Sampling and analysis for PAH is only necessary where soil as affected by either waste oil or Bunker C fuel.
2. The area of impacted soil where a particular exposure occurs is 25 by 25 meters (approximately 82 by 82 feet) or less.
3. NA = not applicable
4. mg/kg = milligrams per kilogram

Low-Threat Case Closure

Cases that meet the general and media-specific criteria established in this policy pose a low threat to human health, safety and the environment and satisfy the case-closure requirements of Health and Safety Code section 25296.10, and case closure is consistent with State Water Board Resolution 92-49 that requires that cleanup goals and objectives be met within a reasonable time frame. If the case has been determined by the regulatory agency to meet the criteria in this policy, the regulatory agency shall notify responsible parties that they are eligible for case closure and that the following items, if applicable, shall be completed prior to the issuance of a uniform closure letter specified in Health and Safety Code section 25296.10. After completion of these items, and unless the regulatory agency revises its determination based on comments received on the proposed case closure, the regulatory agency shall issue a uniform closure letter within 30 days from the end of the comment period.

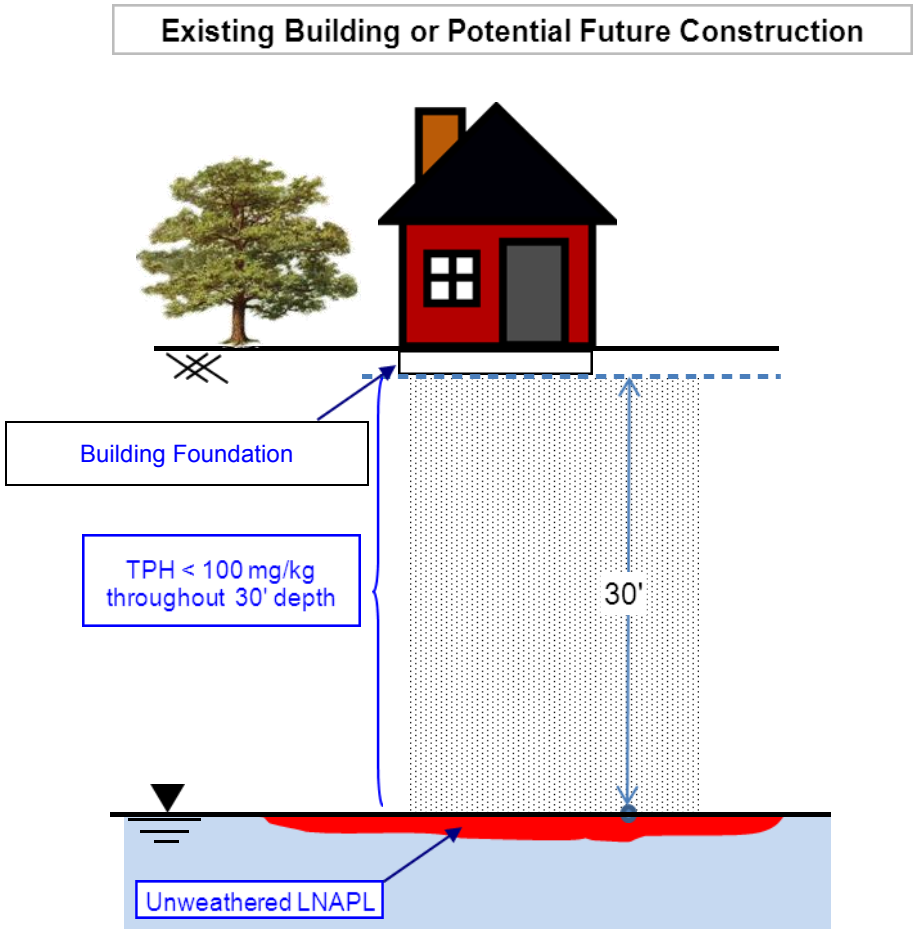
a. Notification Requirements – Municipal and county water districts, water replenishment districts, special act districts with groundwater management authority, agencies with authority to issue building permits for land affected by the petroleum release, owners and occupants of the property impacted by the petroleum release, and the owners and occupants of all parcels adjacent to the impacted property shall be notified of the proposed case closure and provided a 60 day period to comment. The regulatory agency shall consider any comments received when determining if the case should be closed or if site specific conditions warrant otherwise.

b. Monitoring Well Destruction – All wells and borings installed for the purpose of investigating, remediating, or monitoring the unauthorized release shall be properly destroyed prior to case closure unless a property owner certifies that they will keep and maintain the wells or borings in accordance with applicable local or state requirements.

c. Waste Removal – All waste piles, drums, debris and other investigation or remediation derived materials shall be removed from the site and properly managed in accordance with regulatory agency requirements.

Appendix 1
Scenario 1: Unweathered* LNAPL in Groundwater

Required Characteristics of the Bioattenuation Zone



Required Characteristics of the Bioattenuation Zone:

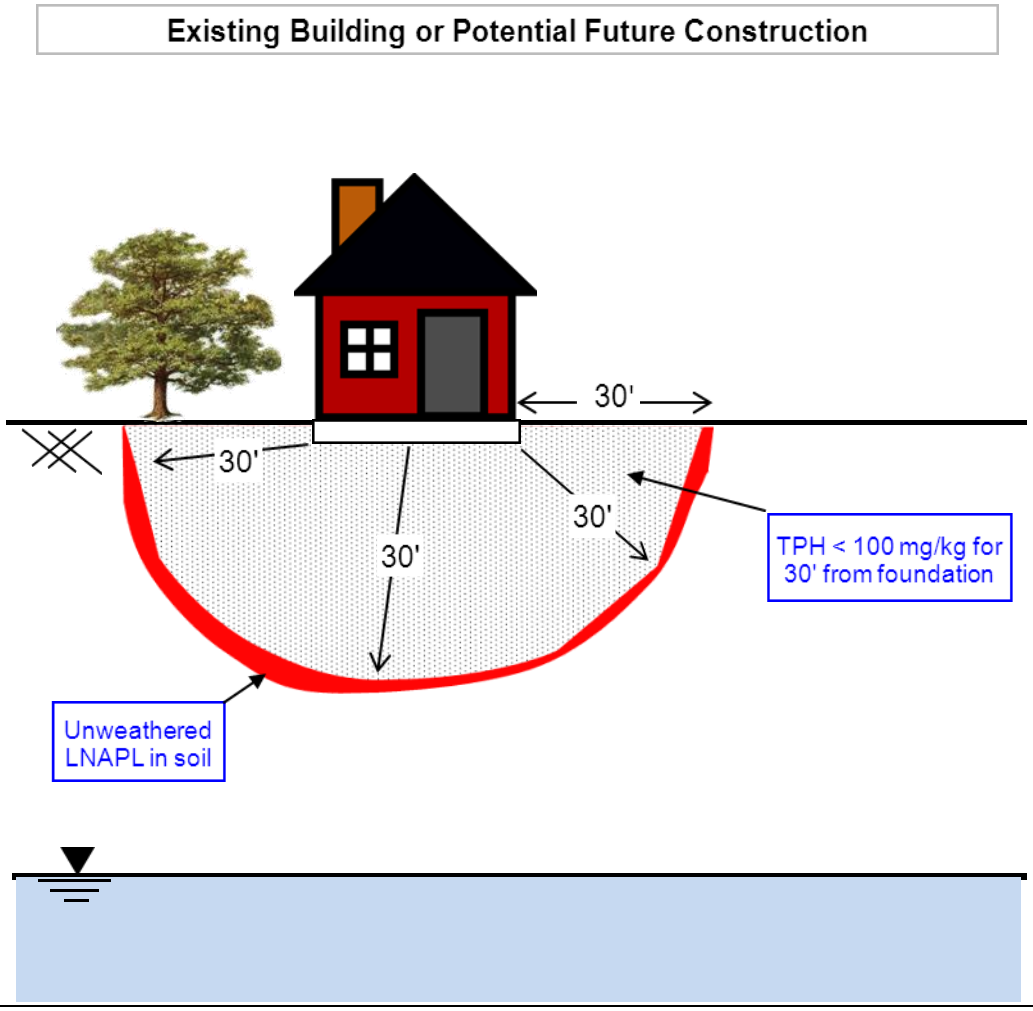
1. The bioattenuation zone shall be a continuous zone that provides a separation of at least 30 feet vertically between the LNAPL in groundwater and the foundation of existing or potential buildings; and
2. Total TPH (TPH-g and TPH-d combined) are less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

TPH = total petroleum hydrocarbons
TPH-g = total petroleum hydrocarbons as gasoline
TPH-d = total petroleum hydrocarbons as diesel

*As used in this context, unweathered LNAPL is generally understood to mean petroleum product that has not been subjected to significant volatilization or solubilization, and therefore has not lost a significant portion of its volatile or soluble constituents (e.g., comparable to recently dispensed fuel).

Appendix 2
Scenario 2: Unweathered* LNAPL in Soil

Required Characteristics of the Bioattenuation Zone



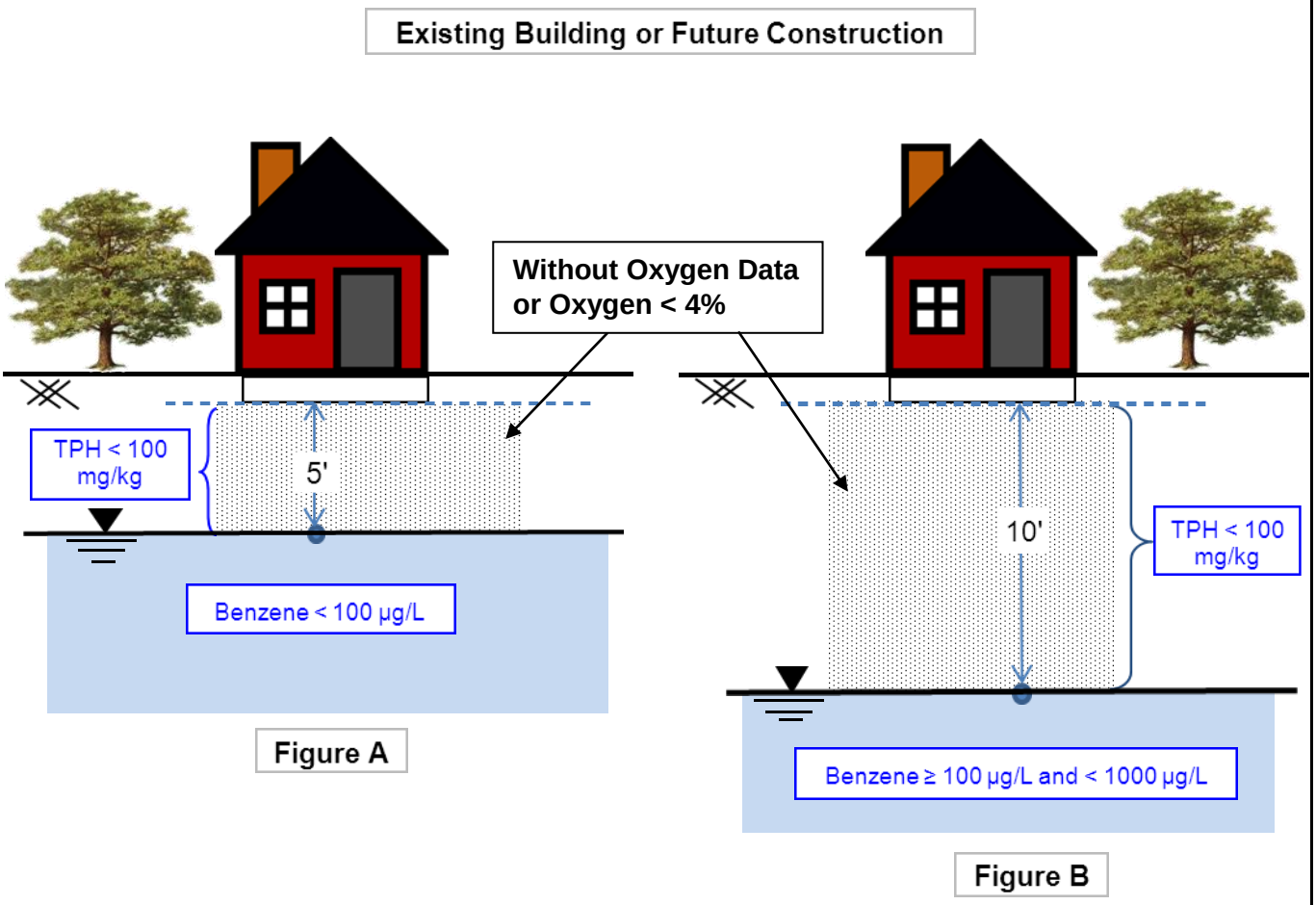
Required Characteristics of the Bioattenuation Zone:

1. The bioattenuation zone shall be a continuous zone that provides a separation of at least 30 feet both laterally and vertically between the LNAPL in soil and the foundation of existing or potential buildings, and
2. Total TPH (TPH-g and TPH-d combined) are less than 100 mg/kg throughout the entire lateral and vertical extent of the bioattenuation zone.

*As used in this context, unweathered LNAPL is generally understood to mean petroleum product that has not been subjected to significant volatilization or solubilization, and therefore has not lost a significant portion of its volatile or soluble constituents (e.g., comparable to recently dispensed fuel).

Appendix 3
Scenario 3 - Dissolved Phase Benzene Concentrations in Groundwater
(Low concentration groundwater scenarios with or without oxygen data)
(1 of 2)

Defining the Bioattenuation Zone Without Oxygen Data or Oxygen < 4%



Required Characteristics of Bioattenuation Zone for Sites Without Oxygen Data or Where Oxygen is < 4%

Figure A: 1) Where benzene concentrations are less than 100 µg/L, the bioattenuation zone:

a) Shall be a continuous zone that provides a separation of at least 5 feet vertically between the dissolved phase Benzene and the foundation of existing or potential buildings; and
b) Contain Total TPH (TPH-g and TPH-d combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

Figure B: 1) Where benzene concentrations are equal to or greater than 100 µg/L but less than 1000 µg/L, the bioattenuation zone:

a) Shall be a continuous zone that provides a separation of at least 10 feet vertically between the dissolved phase Benzene and the foundation of existing or potential buildings; and b) Contain Total TPH (TPH-g and TPH-d combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

Appendix 3
Scenario 3 - Dissolved Phase Benzene Concentrations in Groundwater
(Low concentration groundwater scenarios with or without oxygen data)
(2 of 2)

Defining the Bioattenuation Zone With Oxygen ≥ 4%

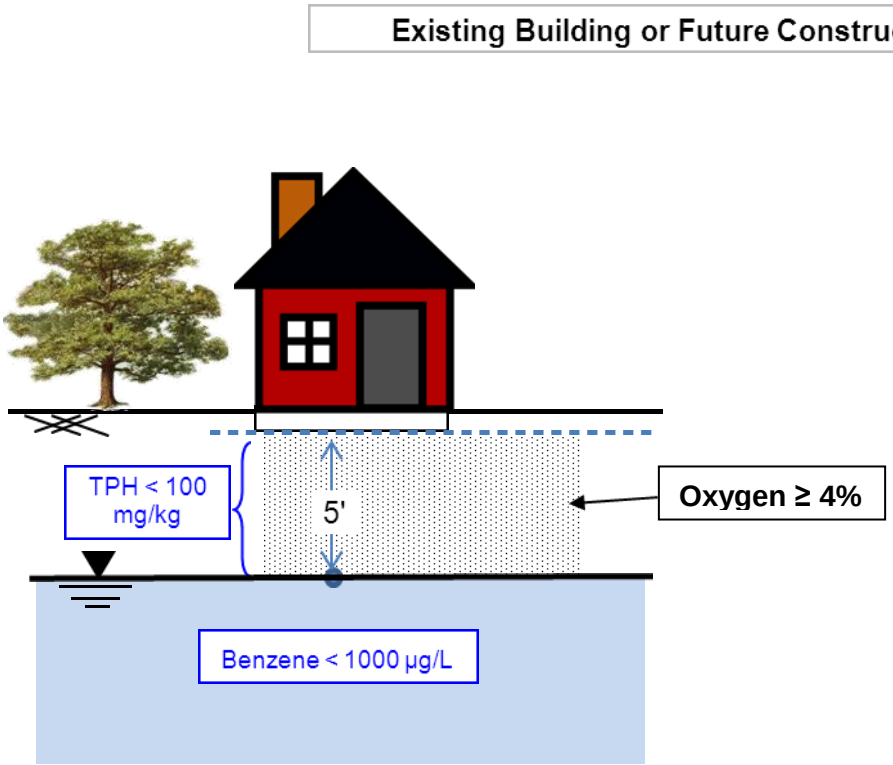


Figure C

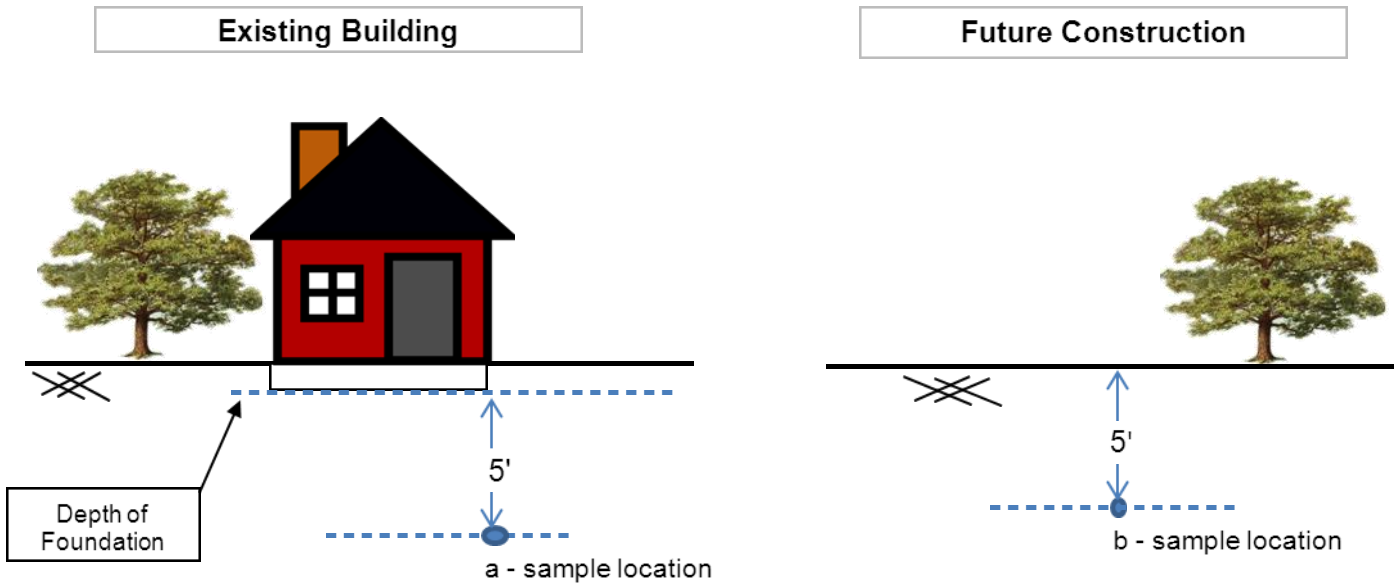
Required Characteristics of Bioattenuation Zone for Sites With Oxygen ≥ 4%

Where benzene concentrations are less than 1000 µg/L, the bioattenuation zone:

1. Shall be a continuous zone that provides a separation of least 5 feet vertically between the dissolved phase Benzene and the foundation of existing or potential buildings; and
2. Contain Total TPH (TPH-g and TPH-d combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

Appendix 4
Scenario 4 - Direct Measurement of Soil Gas Concentrations
(1 of 2)

Soil Gas Sampling – No Bioattenuation Zone



The criteria in the table below apply unless the requirements for a bioattenuation zone, established below, are satisfied.

When applying the criteria below, the soil gas sample must be obtained from the following locations:

a. Beneath or adjacent to an existing building: The soil gas sample shall be collected at least five feet below the bottom of the building foundation.
b. Future construction: The soil gas sample shall be collected from at least five feet below ground surface.

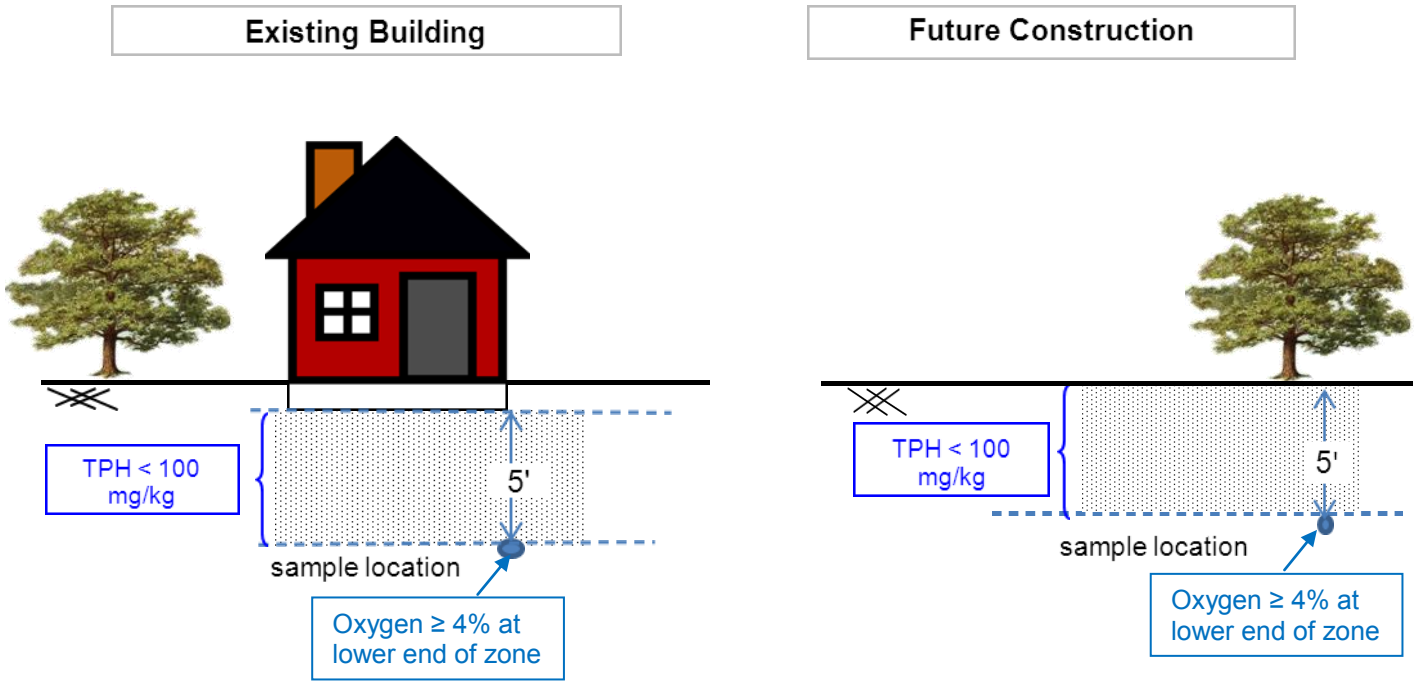
Soil Gas Criteria (µg/m^3)

	No Bioattenuation Zone*	
	Residential	**Commercial**
Constituent	Soil Gas Concentration (µg/m^3)	
Benzene	< 85	< 280
Ethylbenzene	<1,100	<3,600
Naphthalene	< 93	< 310

*For the no bioattenuation zone, the screening criteria are same as the California Human Health Screening Levels (CHHSLs) with engineered fill below sub-slab.

Appendix 4
Scenario 4 - Direct Measurement of Soil Gas Concentrations
(2 of 2)

Soil Gas Sampling – With Bioattenuation Zone



The criteria in the table below apply if the following requirements for a biattenuation zone are satisfied:

1. There is a minimum of five vertical feet of soil between the soil vapor measurement and the foundation of an existing building or ground surface of future construction.
2. TPH (TPHg + TPHd) is less than 100 mg/kg (measured in at least two depths within the five-foot zone.)
3. Oxygen is greater than or equal to four percent measured at the bottom of the five-foot zone.

Soil Gas Criteria (µg/m^3)

	With Bioattenuation Zone**	
	Residential	**Commercial**
Constituent	Soil Gas Concentration (µg/m^3)	
Benzene	< 85,000	< 280,000
Ethylbenzene	<1,100,000	<3,600,000
Naphthalene	< 93,000	< 310,000

**A 1000-fold bioattenuation of petroleum vapors is assumed for the bioattenuation zone.

ATTACHMENT G

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

23RD AVENUE PARTNERS (T0600177455) - (MAP)

SIGN UP FOR EMAIL ALERTS

1125 MILLER
OAKLAND, CA 94601
ALAMEDA COUNTY
LUST CLEANUP SITE
PRINTABLE CASE SUMMARY

CLEANUP OVERSIGHT AGENCIES
ALAMEDA COUNTY LOP *(LEAD)* - *CASE #: RO0000294*
CASEWORKER: *Jerry Wickham*
SAN FRANCISCO BAY RWQCB (REGION 2) - *CASE #: NA*
CASEWORKER: *Cherie McCaulou*

CUF Claim #:	17719
CUF Priority Assigned:	B
CUF Amount Paid:	$361,414

PATH TO CLOSURE PLAN FY 12/13 AS OF 12/11/2013 BACK TO LTCP CHECKLIST

IMPEDIMENT 1:

General Criteria B: The unauthorized release does NOT consist only of petroleum.

Step to Resolve Impediment 1 - Step 1:
Complete groundwater delineation for VOCs

COMPLETION DATE	
PROJECTED DATE	ACTUAL DATE
9/11/2013	9/23/2013

IMPEDIMENT 2:

General Criteria E: A conceptual site model that assesses the nature, extent, and mobility of the release has NOT been developed

Step to Resolve Impediment 2 - Step 1:
Complete groundwater delineation for TPH and VOCs. Verification monitoring (12 months) Closure requirements along path to closure (6 months)

COMPLETION DATE	
PROJECTED DATE	ACTUAL DATE
12/12/2014	

IMPEDIMENT 3:

Media-Specific Criteria: Groundwater: The contaminant plume that exceeds water quality objectives is NOT stable or decreasing in areal extent, and does NOT meet all of the additional characteristics of one of the five classes of sites.

Conditions that do not meet the policy criteria:
- Plume Length (That Exceeds Water Quality Objectives): Unknown

Step to Resolve Impediment 3 - Step 1:
Complete groundwater delineation for TPH and VOCs. Verification monitoring (12 months) Closure requirements along path to closure (6 months)

COMPLETION DATE	
PROJECTED DATE	ACTUAL DATE
12/12/2014	

REQUIREMENTS ALONG PATH TO CLOSURE

DATE IDENTIFIED FOR CLOSURE	CLOSURE INITIATED BY	RP NOTIFICATION DATE	PUBLIC PARTICIPATION COMPLETION DATE	WELL DESTRUCTION DATE	WASTE DISPOSAL DATE	LAND USE RESTRICTION DATE	SITE CLOSURE DATE
	ALAMEDA COUNTY LOP						