

November 14, 2012 Meeting

OPTIONS FOR CLOSING EXCAVATION AT 1125 MILLER AVENUE

- 1 Increase the volume of the excavation by hand digging to remove more highly contaminated soil. Undermining the building foundation would limit the excavation. The excavation would entail hand digging to remove concrete rubble and fill soil.
- 2 Treat the contaminated soil in place using oxidants or other remedial compounds. This would require a bench test to insure that metals are not liberated to groundwater during the treatment. The site was formerly a metals foundry.
- 3 Install a passive soil venting system. The excavation would be filled with non-cohesive permeable material with a PVC slotted casing installed within it, the casing would be connected to a passive soil vent on the side of the building. This would require a permit from the BAAQMD.
- 4 Fill the current excavation with controlled density fill. This is an engineered, pourable, self-leveling fill with low permeability.
- 5 Reinstall the concrete floor using concrete with a vapor permeability reducing additive, such as Xipex.
- 6 Combinations of the above options.

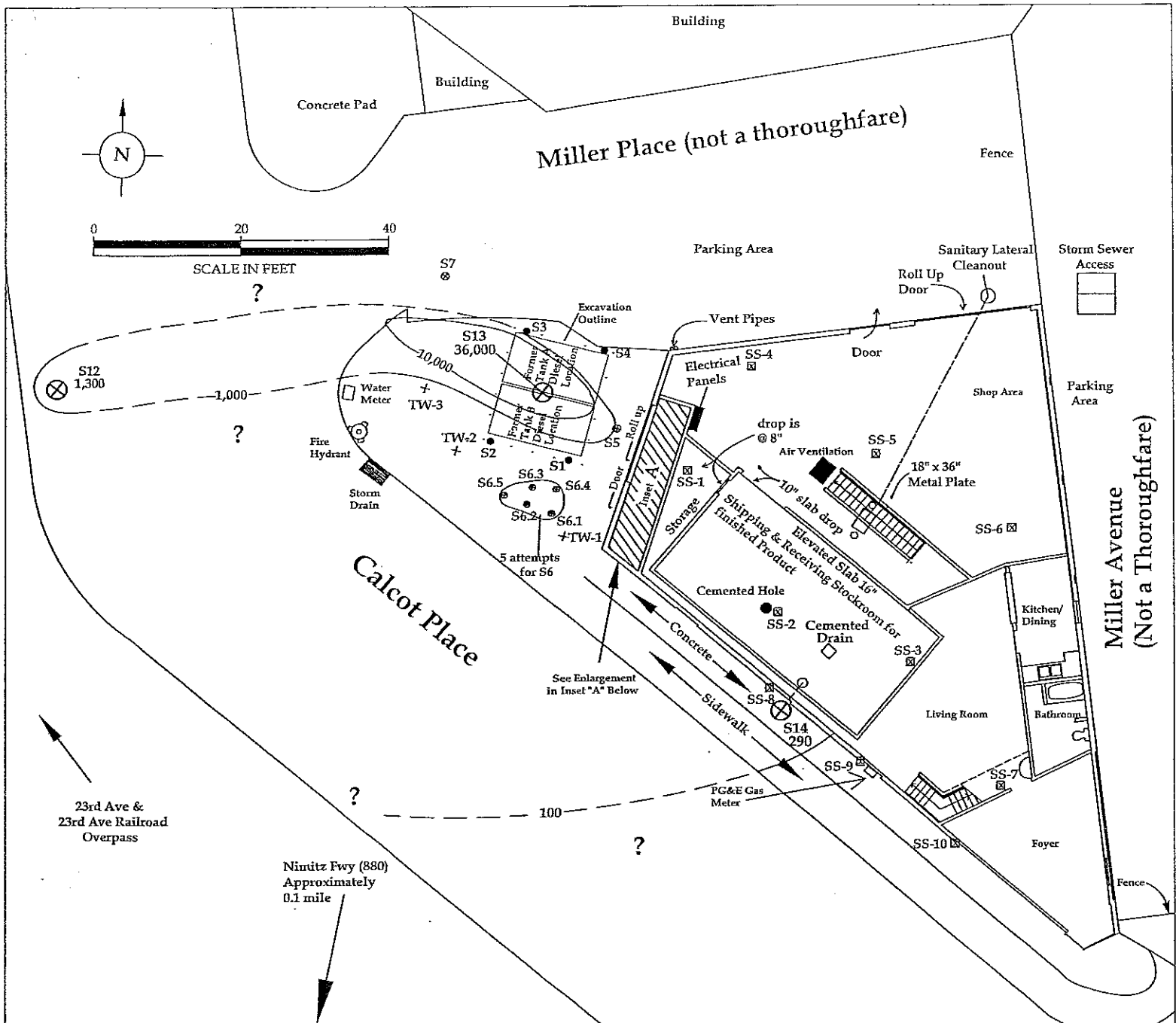
Implements 4 and 5

-w/ site management requirements

Need well survey w/ door to door well survey

- Pending results from well survey, site may meet LTCP criteria for groundwater
- Could also need further work pending well survey results.

Attendees: John Protopoulos, Responsible Party representative
Jim Jacobs
Olivia Jacobs
Robert Nelson } Clearwater
Jerry Wickham, ACEH



LEGEND

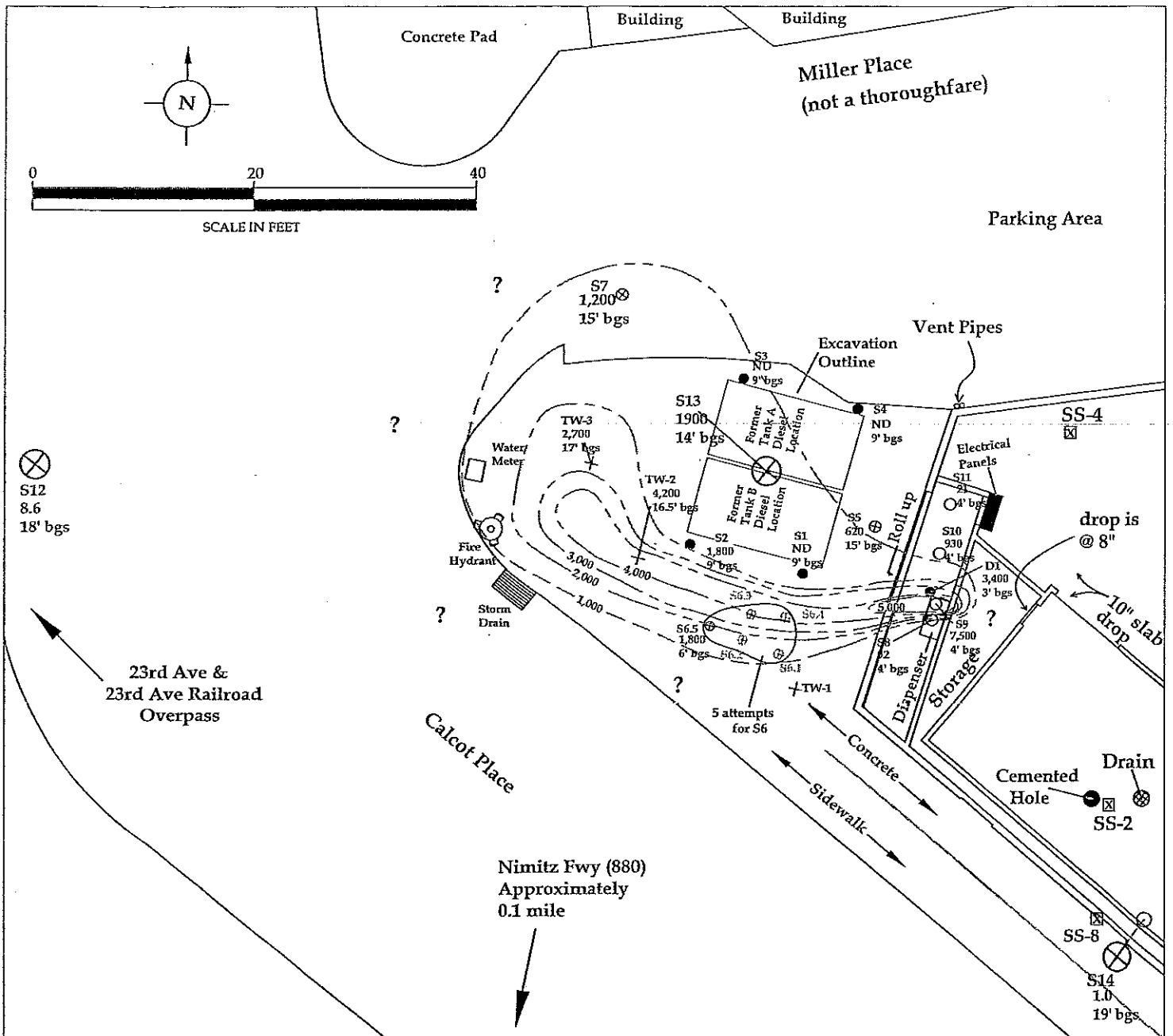
- ⊗ S12-S13 Soil Boring Locations (11/28/11)
- ⊗ S14 Slanted Soil Boring Locations (11/28/11)
- ⊠ SS-1-SS-10 Sub-slab Vapor Location (06/17/10, 11/04/10, and 11/10/11)
- ⊕ S1-S4 Soil Boring Location (12/2/98)
- ⊕ S5-S8 Soil Boring Location (11/16/05)
- D1 Soil Boring Location (10/24/00)
- + TW-3 Temporary Well (10/24/00)
- S9-S11 Soil Boring Location (11/15/06)
- V1-V3 Soil Vapor Location (11/15/06)
- 1,000— TPH-d groundwater contour
- - - Contour lines dashed where inferred
- ? Definition of TPH-d impacts not complete in this direction.

Note: Sample data shown were collected between 2,000 and 2011, over an 11-year period. TPH-d concentrations may have changed in this time.

**Grab Groundwater Sample
TPH-d Iso-Concentration
Contour Map**

1125 Miller Avenue
Oakland, California

CLEARWATER GROUP		
Project No. CB018	Figure Date 2/12	Figure 7

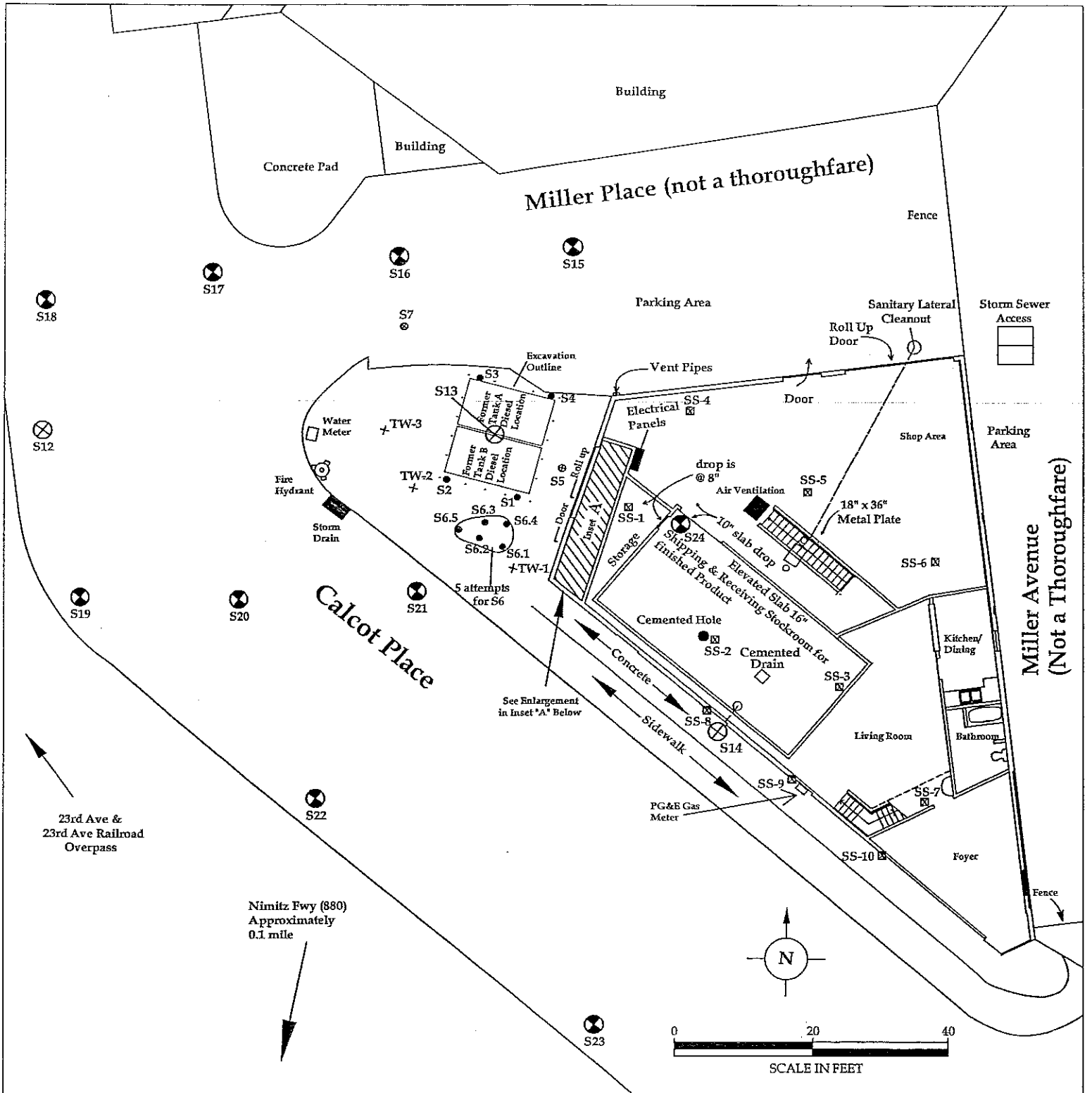


LEGEND

- ⊗ S12-S14 Soil Boring Locations (11/28/11)
- ⊗-⊙ S14 Slanted Soil Boring Location (11/28/11)
- ⊕ 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)
- ND Not Detected Above Laboratory Reporting Limits
- 1,000 (contour line) TPH-d Soil Contour
- ? Definition of TPH-d impacts not complete in this direction

Note: Soil sample collected over 13-year period between 1998 and 2011. Some TPH-d concentrations may have changed during this time.

Soil Sample TPH-d Iso-Concentration Contour Map 1125 Miller Avenue Oakland, California	CLEARWATER GROUP		
	Project No. CB018	Figure Date 3/12	Figure 6



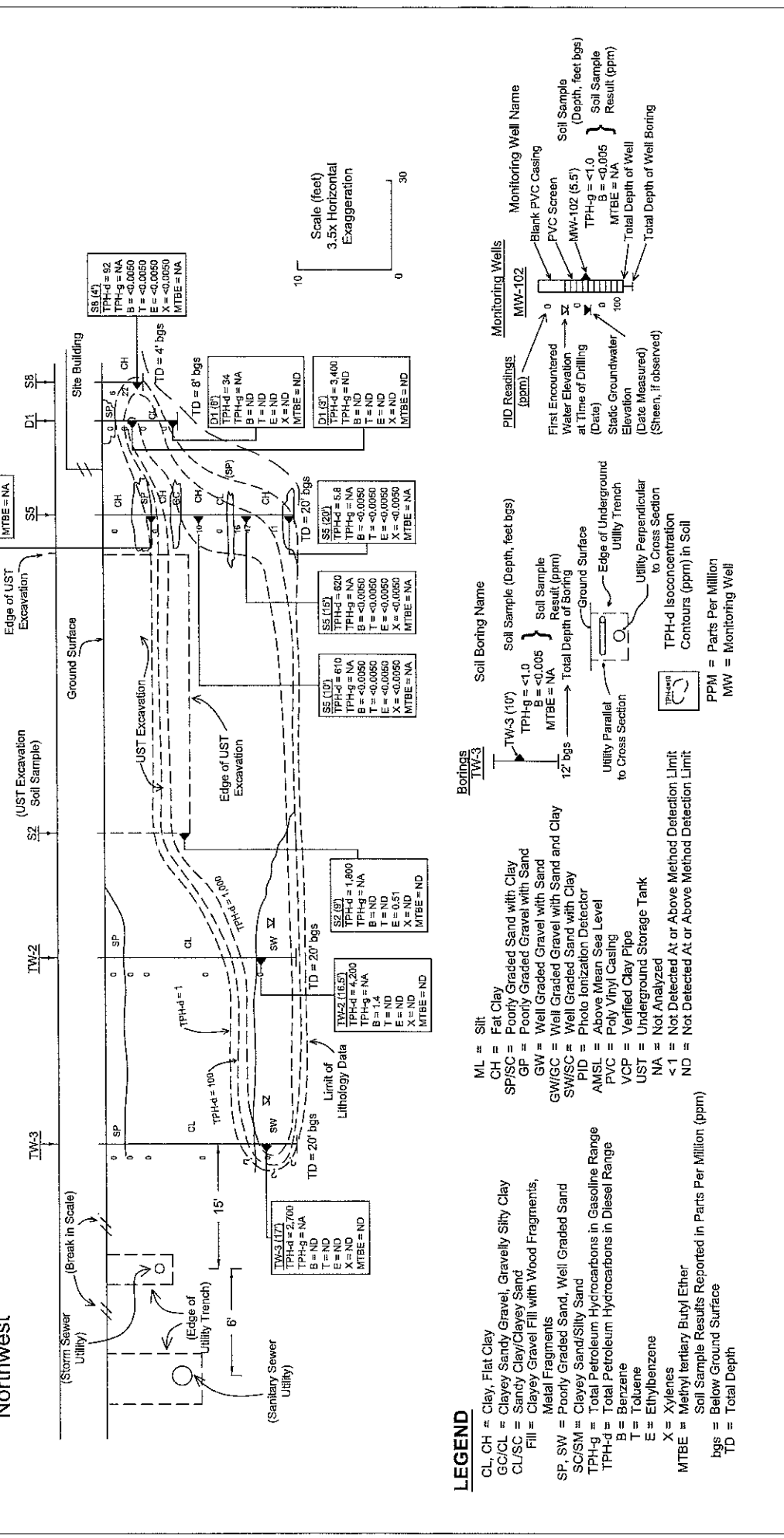
LEGEND

⊗ S12-S13	Soil Boring Locations (11/28/11)
⊗-⊖ S14	Slanted Soil Boring Locations (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)
⊗ S15-S24	Proposed Soil Boring Locations

<p>Proposed Soil Boring Locations</p> <p>1125 Miller Avenue Oakland, California</p>	<p>CLEARWATER GROUP</p>		
	<p>Project No. CB018</p>	<p>Figure Date 3/12</p>	<p>Figure 8</p>

A'
Southeast

A
Northwest

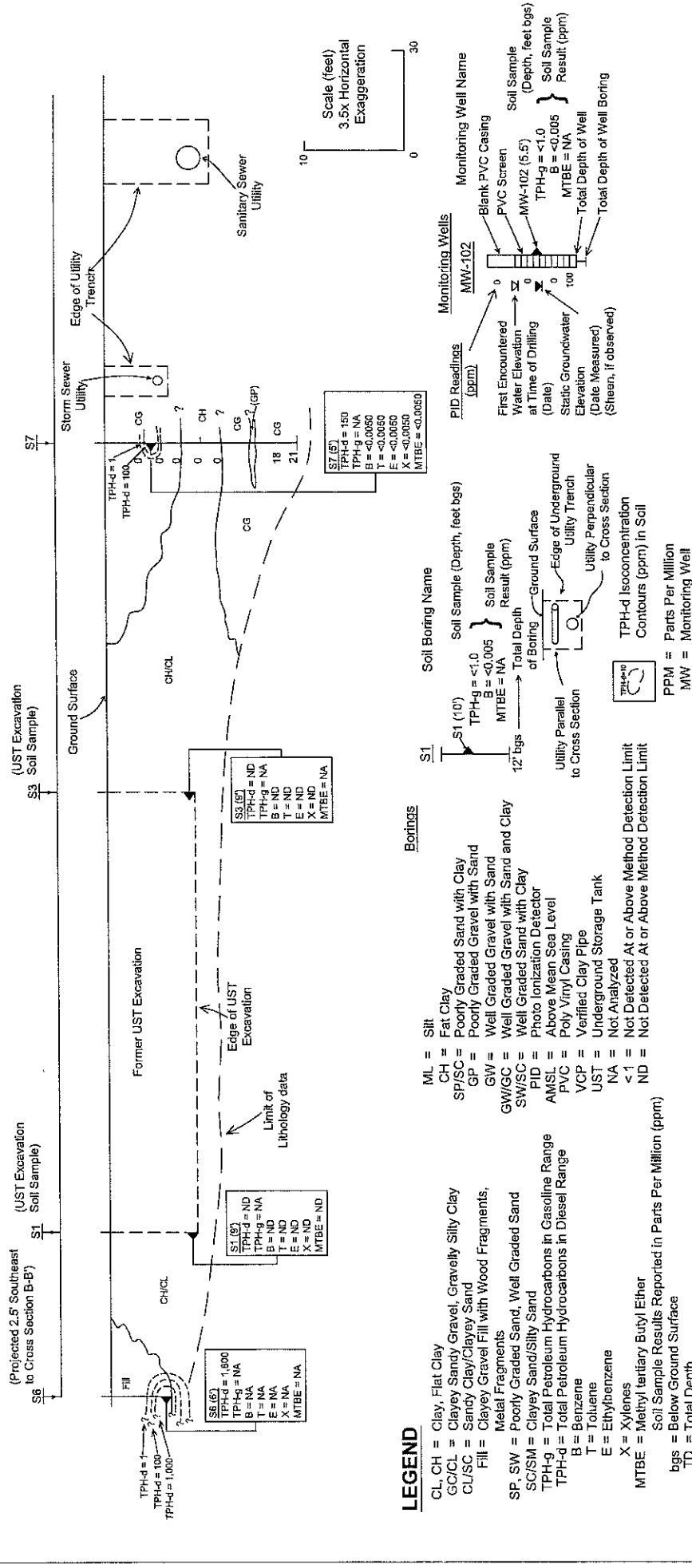


LEGEND

- CL, CH = Clay, Flat Clay
 - GC/CL = Clayey Sandy Gravel, Gravely Silty Clay
 - CU/SC = Sandy Clay/Clayey Sand
 - Fill = Clayey Gravel Fill with Wood Fragments, Metal Fragments
 - SP, SW = Poorly Graded Sand, Well Graded Sand
 - SC/SM = Clayey Sand/Silty Sand
 - TPH-g = Total Petroleum Hydrocarbons in Gasoline Range
 - TPH-d = Total Petroleum Hydrocarbons in Diesel Range
 - B = Benzene
 - T = Toluene
 - E = Ethylbenzene
 - X = Xylenes
 - MTBE = Methyl tertiary Butyl Ether
 - Soil Sample Results Reported in Parts Per Million (ppm)
 - bgs = Below Ground Surface
 - TD = Total Depth
-
- ML = Silt
 - SP/SC = Poorly Graded Sand with Clay
 - GP = Poorly Graded Gravel with Sand
 - GW = Well Graded Gravel with Sand
 - GW/GC = Well Graded Gravel with Sand and Clay
 - SW/GC = Well Graded Sand with Clay
 - PID = Photo Ionization Detector
 - AMSL = Above Mean Sea Level
 - PVC = Poly Vinyl Casing
 - VCP = Verified Clay Pipe
 - UST = Underground Storage Tank
 - NA = Not Analyzed
 - < 1 = Not Detected At or Above Method Detection Limit
 - ND = Not Detected At or Above Method Detection Limit
-
- Soil Boring Name**
- TW-3 (10')
 TPH-g = <1.0
 B = <0.005
 MTBE = NA
 12' bgs → Total Depth of Boring
- Soil Sample
 Soil Sample Result (ppm)
 TPH-g = <1.0
 B = <0.005
 MTBE = NA
- Utility Parallel to Cross Section
 Utility Perpendicular to Cross Section
- Monitoring Wells**
- MW-102
 Blank PVC Casing
 PVC Screen
 MW-102 (5.5')
 TPH-g = <1.0
 B = <0.005
 MTBE = NA
 Total Depth of Well
- PID Readings (ppm)
 First Encountered Water Elevation at Time of Drilling (Date)
 Static Groundwater Elevation (Date Measured) (Sheen, if observed)
- Cross Section A-A'**
 1125 Miller Avenue
 Oakland, California
- CLEARWATER GROUP**
 Project No. CB048
 Figure Date 11/10
 Figure X

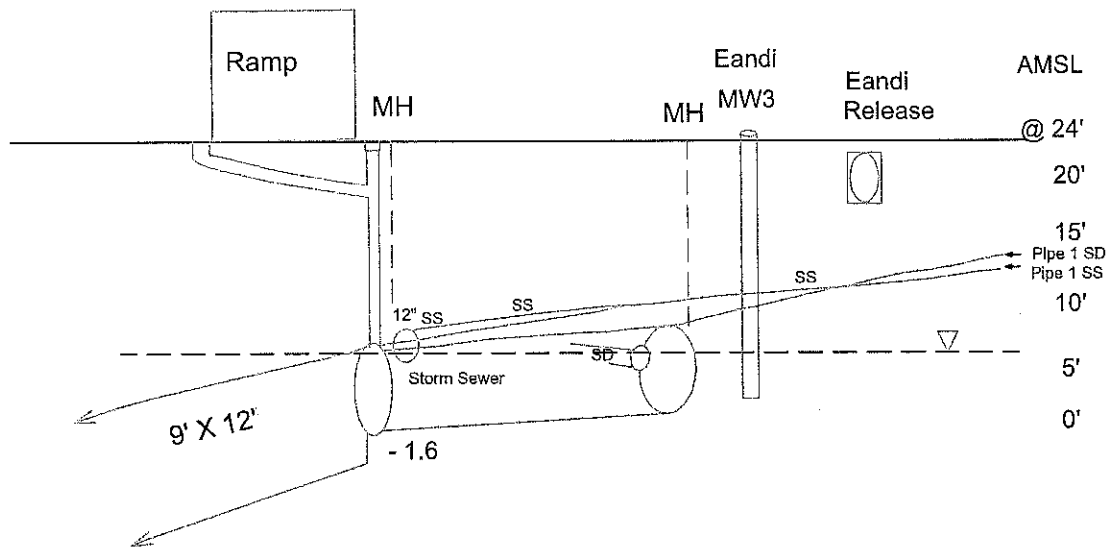
B Southwest

B' Southwest



CLEARWATER GROUP	
Project No. CB018	Figure Date 11/10
Figure X	X

Cross Section B-B'	
1125 Miller Avenue	
Oakland, California	



E. 11th Street
Cross Section

Looking N. West

Cross Section # 2

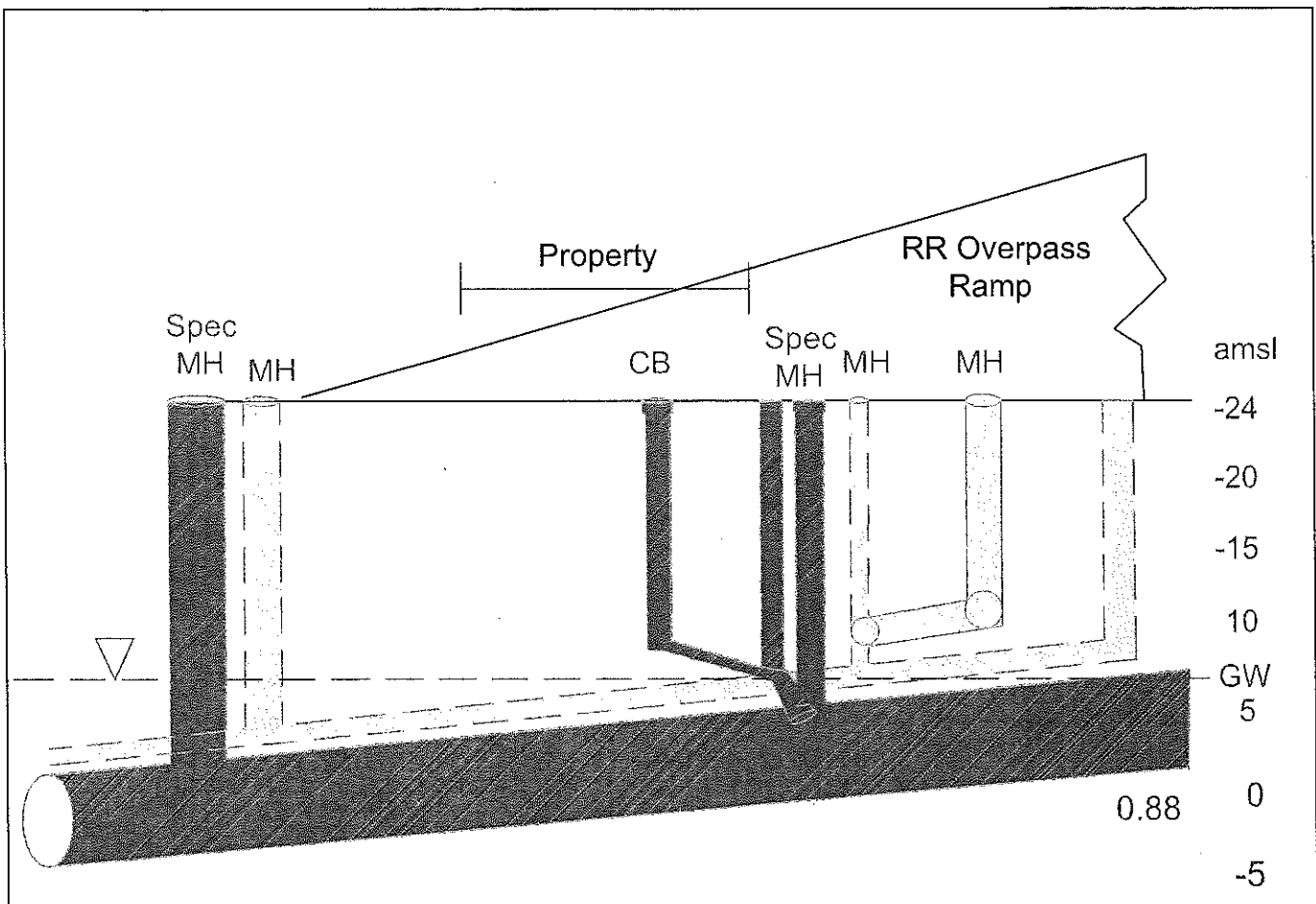
1125 Miller Avenue
Oakland, California

CLEARWATER GROUP

Project No.
CB018H

Figure Date
11/10

Figure
2



Cross Section

1125 Miller Avenue
Oakland, California

CLEARWATER GROUP

Project No.
CB018H

Figure Date
11/10

Figure
1

Table 1
Cumulative Soil Sample Analytical Results
P & D 23rd Avenue Associates, LLC
1125 Miller Avenue, Oakland, CA
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)	1,2,4-TMB (mg/kg)	Napthalene (mg/kg)
Shallow Soil ESL for Residential/ Commercial Use				85	83	0.044	2.9	2.3/ 3.3	2.3	0.023	-	1.3/ 2.8
Deep Soil ESL for Residential/ Commercial Use				83	83	0.044	2.9	3.3	2.3	0.023	-	3
S1	S1-9	9	12/01/1998	ND	NA	ND	ND	ND	ND	ND	NA	NA
S2	S2-9	9	12/01/1998	1,800	NA	ND	ND	ND	0.51	ND	NA	NA
S3	S3-9	9	12/01/1998	ND	NA	ND	ND	ND	ND	ND	NA	NA
S4	S4-9	9	12/01/1998	ND	NA	ND	ND	ND	ND	ND	NA	NA
TW2	TW2-16.5	16.5	10/24/2000	4,200	NA	1.4	ND	ND	ND	ND	NA	NA
TW3	TW3-17	17	10/24/2000	2,700	NA	ND	ND	ND	ND	ND	NA	NA
D1	D1-3	3	10/24/2000	3,400	NA	ND	ND	ND	ND	ND	NA	NA
D1	D1-8	8	10/24/2000	34	NA	ND	ND	ND	ND	ND	NA	NA
S5	S5-5	5	11/16/2005	14 ^A	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S5	S5-10	10	11/16/2005	610	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S5	S5-15	15	11/16/2005	620	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S5	S5-20	20	11/16/2005	5.8	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S6	S6-6	6	11/16/2005	1,800 ^A	NA	NA ^B	NA ^B	NA ^B	NA ^B	NA ^C	NA	NA
S7	S7-5	5	11/16/2005	150 ^A	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S7	S7-10	10	11/16/2005	32 ^A	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S7	S7-15	15	11/16/2005	1,200	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S7	S7-20	20	11/16/2005	300	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S8	S8-4	4	11/16/2005	92	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S9	S9.4.0	4	11/15/2006	7,500	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S10	S10.4.0	4	11/15/2006	930	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S11	S11.4.0	4	11/15/2006	21	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S12	B12-18	18	11/28/2011	8.6 ^D	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S13	B13-11	11	11/28/2011	740	7.0	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S13	B13-14	14	11/28/2011	1,900	65	<0.025	<0.025	<0.025	<0.025	NA ^C	NA	NA
S13	B13-19	19	11/28/2011	4.4 ^D	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S13	B13-23.5	23.5	11/28/2011	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
S14	B14-19	19	11/28/2011	1.0 ^D	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA ^C	NA	NA
CS-1	CS-1	2.5	10/16/2012	730 ^E	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015 ^F	0.072 ^E
CS-2	CS-2	2	10/16/2012	14,000 ^E	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050 ^F	<0.0050 ^E
CS-3	CS-3	1	10/16/2012	7,600 ^E	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0067 ^F	0.042 ^E
CS-4	CS-4	0.5	10/16/2012	9,800 ^E	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050 ^F	<0.0050 ^E
CS-5	CS-5	0.5	10/16/2012	8,000 ^E	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050 ^F	<0.0050 ^E
CS-6	CS-6-Comp 3 Drums	0 ^G	10/16/2012	7,400 ^E	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050 ^F	0.0074 ^F

Notes:

ESL's Environmental Screening Levels for Shallow Soils (<3 meters below ground surface) and Deep Soils (>3 meters below ground surface) where Groundwater is a Current or Potential Source of Drinking Water, Residential and Commercial/Industrial Land Use (separated by a slash respectively when different); from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, available from www.waterboards.ca.gov/sanfranciscobay/water_issues/available_documents/ESL_May_2008.pdf - Obtained on January 6, 2012

- No ESL listed.

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

1,2,4-TMB 1,2,4-Trimethylbenzene 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

bold Contamination in the sample exceeded Environmental Screening Levels.

Footnote A Concentration reported is atypical for diesel, these hydrocarbons have a higher boiling point

Footnote B Analysis not performed due to lack of sample volume.

Footnote C Analysis of MTBE not required by ACEH.

Footnote D Laboratory Note: Discrete peaks in Diesel range, atypical for Diesel Fuel.

Footnote E Laboratory Note: Matrix Spike/Matrix Spike Duplicate results were affected by the analyte concentrations already present in the un-spiked sample.

Footnote F 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 flagged.

Footnote G Composite sample collected from disposal materials.

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

Table 2
Cumulative Groundwater Sample Analytical Results

P & D 23rd Avenue Associates LLC
1125 Miller Avenue, Oakland, CA
Clearwater Project No. CB018H

Sample Point Location	Sample ID	Sampling Date	Depth (feet bgs)	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
Environmental Screening Levels in µg/L ^A				100	100	1.0	40	30	20	5.0
Low Threat Closure Thresholds ^{A, B}				Criterion 4 ^C		1,000	-	-	-	1,000
TW2	TW2	10/24/2000	16'	660	NA	65	2.4	<0.5	3.2	<2.5
TW3	TW3	10/24/2000	17'	800	NA	0.9	<0.5	<0.5	<1.5	<2.5
S5	S5	11/16/2005	17'	890	NA	<0.50	<0.50	<0.50	<0.50	NA
S12	S-12	11/28/2011	11-15'	1,300 ^D	<50	<0.50	<0.50	<0.50	<0.50	NA
S13	S-13	11/28/2011	11-15'	36,000	200	<0.50	<0.50	<0.50	<0.50	NA
S14	S-14	11/28/2011	11-15'	290 ^D	<50	<0.50	<0.50	<0.50	<0.50	NA

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
- µg/L Micrograms per liter (approximately equal to parts per billion: ppb)
- NA Not analyzed
- <### 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 residential values from Table 1 (page 8) of *Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure*, April 19, 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 removal has been addressed 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 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.
- Footnote D Laboratory notes: Discrete peaks, higher boiling hydrocarbons present, atypical for Diesel Fuel.

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

TABLE 3

Soil Vapor Sample Analytical Results - Results Compared to Low-Threat UST Case Closure Policy Thresholds With No Bioattenuation Zone¹
 P & D 23rd Avenue Associates LLC
 1125 Miller Avenue, Oakland, CA
 Clearwater Project No. CB018H

Sample (ID)	Sampling Date	Analytical Method	TPH-d (µg/m³)	Naphthalene (µg/m³)	1-Methyl naphthalene (µg/m³)	2-Methyl naphthalene (µg/m³)	TPH-g (µg/m³)	B (µg/m³)	T (µg/m³)	E (µg/m³)	X ² (µg/m³)	MTBE (µg/m³)	TBA (µg/m³)	DIPE (µg/m³)	ETBE (µg/m³)	Propane (µg/m³)
Low-Threat Soil Gas Criteria - Bioattenuation Zone -																
Residential/Commercial ¹																
CHHSLs, Commercial ¹																
ESLs, Lowest Residential ^A																
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 IL	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 IL	11/15/2006	NIOSH 1550	710,000													
V2.2 4L	11/15/2006	NIOSH 1550	180,000													
V2.4 IL	11/15/2006	NIOSH 1550	280,000													
V2.4 4L	11/15/2006	NIOSH 1550	700,000													
V3.4 IL	11/15/2006	NIOSH 1550	7,500,000													
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	<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	
SS-2	06/17/2010	8260B/ 8015M ^C	<50,000	<100			<10,000	<100	<200	<100	<200	<100	<1,000	<100	<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	<5.2	<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	
SS-3	06/17/2010	8260B/ 8015M ^C	<50,000	<100			37,000	<100	2,600	2,000	6,050	<100	<1,000	<100	<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	<100	
SS-3	11/04/2010	TO-17/TO-15 ^B	5,800	8.0	24	36	13,000	<8.2	60	560	2,940	<9.2	<31	<43 ^D	<2.5	
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	3.8	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	12,000	<2.5	3.8	19	119	<2.8	<9.6	<13	<7.8	
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	<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	
SS-5	06/17/2010	8260B/ 8015M ^C	<50,000	<100			<10,000	<100	<200	<100	<200	<100	<1,000	<100	<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	

TABLE 3
Soil Vapor Sample Analytical Results - Results Compared to Low-Threat UST Case Closure Policy Thresholds With No Bioattenuation Zone¹
 P & D 23rd Avenue Associates LLC
 1125 Miller Avenue, Oakland, CA
 Clearwater Project No. CB018H

Sample (ID)	Sampling Date	Analytical Method	TPH-d (µg/m ³)	Naphthalene (µg/m ³)	1-Methyl naphthalene (µg/m ³)	2-Methyl naphthalene (µg/m ³)	TPH-g (µg/m ³)	B (µg/m ³)	T (µg/m ³)	E (µg/m ³)	X ^F (µg/m ³)	MTBE (µg/m ³)	TBA (µg/m ³)	ETBE		Propane
														DIPE (µg/m ³)	TAME (µg/m ³)	
Low-Threat Soil Gas Criteria - No Bioattenuation Zone - Residential/Commercial¹																
Low-Threat Soil Gas Criteria - Bioattenuation Zone - Residential/Commercial ¹			93													
CHSLS, Commercial ¹			85													
ESLs, Lowest Residential ^A			1,100													
SS-5 (IPA)	11/04/2010	Modified TO-15 GC/MS	85,000													
SS-5	04/01/2011	TO-17/TO-15 ^B	NE	32	NE	NE	NE	36	140,000	420	320,000	4	NE	NE	NE	NE
SS-5	12/08/2011	TO-15	10,000	72	NE	NE	10,000	84	63,000	980	21,000	9,400	NE	NE	NE	NE
SS-6	06/17/2010	8260B/8015M ^C	<100	<100	<100	<100	<100	<100	<200	<100	<200	<100	<1,000	<100	<100	<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	<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	<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	<7.8
SS-7 (IPA)	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	93,000
SS-7	04/01/2011	TO-15	<5,000	<2.5	<2.5	<2.5	520 ^F	<2.5	<2.9	<3.4	<3.4	<2.8	<9.4	<13	<7.6	<7.6
SS-7 (IPA)	12/09/2011	TO-15	<5,000	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	20,000 ^H
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	<8.1
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	<7.9
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	<7.5

Notes:
 ESL 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
 MTBE Methyl-t-butyl ether
 ETBE Ethyl-t
 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 environmental screening limits.
 NE Standard Not Established

TABLE 3

Soil Vapor Sample Analytical Results - Results Compared to Low-Threat UST Case Closure Policy Thresholds With No Bioattenuation Zone¹

P & D 23rd Avenue Associates LLC
1125 Miller Avenue, Oakland, CA
Clearwater Project No. CB018H

Sample (ID)	Sampling Date	Analytical Method	TPH-d (µg/m ³)	Naphthalene (µg/m ³)	1-Methyl naphthalene (µg/m ³)	2-Methyl naphthalene (µg/m ³)	TPH-g (µg/m ³)	B (µg/m ³)	T (µg/m ³)	E (µg/m ³)	X ^z (µg/m ³)	MTBE (µg/m ³)	TBA (µg/m ³)	DIPE (µg/m ³)	ETBE (µg/m ³)	2-Propanol (µg/m ³)	Propane (µg/m ³)
Low-Threat Soil Gas Criteria - No Bioattenuation Zone - Residential/Commercial ²																	
Low-Threat Soil Gas Criteria - Bioattenuation Zone - Residential/Commercial ³																	
CHHSLs, Commercial ⁴			93,000				85,000										
ESLs, Lowest Residential ⁵			NE	32	NE	NE	36	140,000	420	320,000	4	NE	NE	NE	NE	NE	NE
(ID)			10,000	72	NE	NE	84	63,000	980	21,000	9,400	NE	NE	NE	NE	NE	NE

Identification
California Human Health Screening Level

Footnote A Environmental Screening Levels (ESLs), Lowest Residential, from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Revised by May 2008*, Table E-2 Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion concerns available from www.waterboards.ca.gov/sanfrancisco/water_issues/available_documents/ESL_May_2008.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 Gravel

Footnote J Bio-attenuation zone as defined by the Water Control Policy for the Low-Threat Underground Storage Tank Closure. A determination regarding the presence of a bioattenuation zone will be made after final acceptance of the Low-Threat UST Case Closure Policy.

V2.2 Summa (200 mL/min*30 min) 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 (200 mL/min*30 min) 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.

> # (\$) 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.

Site Name:
 Site Address:

Site meets the criteria of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.¹

<p><u>General Criteria</u> General criteria that must be satisfied by all candidate sites:</p> <p>Is the unauthorized release located within the service area of a public water system? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Does the unauthorized release consist only of petroleum? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has the unauthorized ("primary") release from the UST system been stopped? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has free product been removed to the maximum extent practicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has secondary source been removed to the extent practicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Does nuisance as defined by Water Code section 13050 exist at the site? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	
<p><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>1. Groundwater: 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:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA Unknown</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p>If YES, check applicable class: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p>	

¹ Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

Site Name:
 Site Address:

<p>For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.</p> <p>Is the site an active commercial petroleum fueling facility? Exception: 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.</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 4</p> <p>b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p>← ?</p>
<p>3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for <u>direct</u> contact and <u>outdoor air exposure</u> if site-specific conditions satisfy one of the three classes of sites (a through c).</p> <p>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)? NA PAH₅</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p>b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p>←</p> <p>←</p> <p>←</p>