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By Alameda County Environmental Health at 3:48 pm, Dec 11, 2013



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Ms. Dilan Roe, P.E.  
Hazardous Materials Specialist  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502

ENVIRONMENT

Subject:

**Site Conceptual Model  
UPS Oakland Hub**

8400 Pardee Drive  
Oakland, California 94621

Date:  
December 6, 2013

Dear Ms. Roe:

Contact:  
Hollis Phillips

ARCADIS U.S., Inc (ARCADIS) has prepared this report on behalf of UPS Oakland Hub

Phone:  
415.432.6903

<u>UPS Oakland Hub</u>	<u>ACEH Site No.</u>	<u>Location</u>
	RO00000315	8400 Pardee Drive Oakland, California

Email:  
[hollis.phillips@arcadis-us.com](mailto:hollis.phillips@arcadis-us.com)

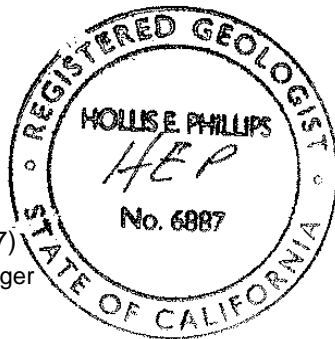
I declare, to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct. If you have any questions or comments regarding the content of this report, please contact Hollis Phillips by telephone at 415.432.6903 or by e-mail at [hollis.phillips@arcadis-us.com](mailto:hollis.phillips@arcadis-us.com).

Our ref:  
B0038398.0017

Sincerely,

ARCADIS U.S., Inc.

Hollis E. Phillips, P.G. (No. 6887)  
Principal Geologist/Project Manager



Copies:

Paul Harper, United Parcel Service  
GeoTracker upload

Imagine the result



**CSM Table**

**Table 1**  
**Site Conceptual Model**  
**UPS Oakland Hub**  
**8400 Pardee Drive, Oakland, California 94621**  
**ACEH Case #R0000315**

SCM Element	SCM Sub-Element	Description	Potential Data Gaps	How To Address	References
Geology and Hydrology	Regional	<p><b>Geology:</b> According to the East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 feet deep. Quaternary age bay mud composed of unconsolidated plastic clay and silty clay rich in organic material with some lenses of silt and sand overlay the alluvial fans.</p> <p><b>Hydrology:</b> Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of ground-water flow is from east to west or from the Hayward Fault to the San Francisco Bay. Ground-water flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. In the southern end of the study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, the small set of water level measurements available seemed to show that the ground water in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north.</p>	None	NA	ARCADIS U.S. Inc. 2011. <i>Corrective Action Plan, United Parcel Service, 8400 Pardee Drive, Oakland, California</i> . October 8. San Francisco Regional Water Quality Control Board (SF-RWQCB). 1999. <i>East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA</i> . June.
	Site	<p><b>Geology:</b> The area in which the Site located is underlain by artificial fill over San Francisco Bay Mud. Soils encountered during the 2013 and previous investigations were artificial fill composed of gravel, sand and silty sand to depths of 5 feet to approximately 10 feet below ground surface (bgs) underlain by native bay muds (clay) to maximum depths of investigation (<b>Appendix A</b>).</p> <p><b>Hydrology:</b> Groundwater has typically been encountered at the site from approximately 1.5 to 9 feet bgs. Resulting groundwater elevations have varied from approximately 0.5 feet above mean sea level (ft AMSL) to 11 ft AMSL. Depth to water measurements in the most recent sampling event (July 2013) ranged from 3.90 ft below top of casing (bTOC) at MW-8 to 8.31 ft bTOC at MW-10. Resulting groundwater surface elevations on-site ranged from 1.37 ft AMSL at MW-10 to 8.50 ft AMSL at MW-9.</p> <p>Groundwater flow at the Site has historically been reported to the south and more recently to the southeast. Groundwater gradient at the Site during the most recent groundwater monitoring event (July 23, 2013) is 0.05 foot per feet (ft/ft) (<b>Appendix B</b>).</p>	None	NA	ARCADIS U.S. Inc. 2011. <i>Corrective Action Plan, United Parcel Service, 8400 Pardee Drive, Oakland, California</i> . October 8.  ARCADIS U.S. Inc. 2013. <i>Groundwater Monitoring Report and High-Vacuum Extraction Report, UPS Oakland Hub, 8400 Pardee Drive, Oakland, California</i> . September 30.
Surface Water Bodies and other potential receptors	--	The closest surface water body is San Leandro Channel, located approximately 150 feet from the eastern property boundary and flows in a northwesterly direction toward San Leandro Bay ( <b>Appendix C</b> )	None	NA	SF-RWQCB. 1999. <i>East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA</i> . June.
Nearby Wells	--	In November of 2013, ARCADIS conducted a sensitive receptors survey of active and inactive water supply wells within a 1-mile radius of the Site by obtaining data from the California Department of Water Resources (DWR) and the GeoTracker Groundwater Ambient Monitoring & Assessment (GAMA) Program website. This survey concluded that four possible water supply wells may exist within this radius. From the well completion reports completed after installation, the wells may still exist at approximately 1,700 feet east (installed in 1977), 3,000 feet southeast (installed in 1988), and 3,700 feet northeast (installed in 1952) of the Site. The fourth well is listed as being on Edes Avenue, but no specific address is given, nor is a date of installation. Edes Avenue lies east of the Site by approximately 3,400 feet at its closest point.  Due to the distance and low permeability of the natural sediments and extremely low hydraulic gradient, these possible water supply wells are not considered a risk. There are no private water supply wells located within 1,000 feet of the Site.	None	NA	ARCADIS U.S. Inc. 2011. <i>Corrective Action Plan, United Parcel Service, 8400 Pardee Drive, Oakland, California</i> . October 8.
Beneficial Uses	--	According to the East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, the City of Oakland does not have "any plans to develop local groundwater resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity." However, the California Regional Water Quality Control Board – San Francisco Bay Region's Basin Plan denotes existing beneficial uses of municipal and domestic supply, industrial process supply, industrial service supply, and agricultural supply for the East Bay Plain ground-water basin.	None	NA	SF-RWQCB. 1999. <i>East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA</i> . June.
Local Water Supply	--	Local water is supplied by the East Bay Municipal Water District (EBMUD). The supplier's primary water source is the Sierra Nevada Mountains. EBMUD obtains most of its water from the Mokelumne River's watershed. Pardee Reservoir is where EBMUD's water supply begin its journey through the Mokelumne and Bay Area aqueducts. The current water supply management plan for EBMUD indicates potential use of the East Bay Plain Basin for temporary storage of drinking water in wet years for eventual extraction; however, planned injection and extraction wells are located 5 miles south the Site and will be screened	None	NA	East Bay Municipal Utility District. <i>2012 Water Supply Management Program 2040 Plan</i> . April.
Constituents of Potential Concern	--	<b>Soil:</b> The constituents of potential concern (COPCs) in soil at the Site include Total Petroleum Hydrocarbons as Gasoline Range Organics (TPH-GRO), Total Petroleum Hydrocarbons as Diesel Range Organics (TPH-DRO), benzene, toluene, ethylbenzene, and xylenes (collectively BTEX), and methyl tertiary butyl ether (MTBE).	None	NA	ARCADIS U.S., Inc. 2012. <i>Revised Summary of Soil and Groundwater Investigation Activities, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i> . August 17.
		<b>Groundwater:</b> The COPCs in groundwater at the Site include TPH-GRO, TPH-DRO, BTEX, and MTBE.	None	NA	ARCADIS U.S. Inc. 2013. <i>Groundwater Monitoring Report and High-Vacuum Extraction Report, UPS Oakland Hub, 8400 Pardee Drive, Oakland, California</i> . September 30.
Potential Sources	--	Concentrations of petroleum hydrocarbons were observed in exploratory borings installed in the vicinity of the former underground storage tank (UST) complex located in the southeastern portion of the Site. Concentrations of petroleum hydrocarbons have also been detected in shallow soils beneath the former product lines and fuel dispensing islands during removal in 1990.	None	NA	Geraghty & Miller, Inc. 1990. <i>Results of Soil and Ground-Water Assessment Activities, United Parcel Service Inc. Facility, 8400 Pardee Drive, Oakland, California</i> . October 31.
Potential Sources	--	In March and April 2009, three 10,000-gallon diesel USTs were removed onsite and the tank pit overexcavated. Petroleum hydrocarbon impacts were observed in the tank pit and in the excavated soil. Separate phase hydrocarbons (SPH) was observed in the tank pit floating on water that seeped into the excavation pit. Approximately 625 tons of soil and 11,160 gallons water and SPH was removed from the excavation pit and disposed offsite.	None	NA	ARCADIS U.S., Inc. 2009. <i>Tank Closure Assessment Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i> . June 4.

**Table 1  
Site Conceptual Model  
UPS Oakland Hub  
8400 Pardee Drive, Oakland, California 94621  
ACEH Case #RO000315**

SCM Element	SCM Sub-Element	Description	Potential Data Gaps	How To Address	References
Nature and Extent of Environmental Impacts	COPC Extent in Soil	<p>Petroleum-hydrocarbon affected soil has been encountered during removal of USTs, excavation activities, and soil boring and monitoring well installation events at the Site. Laboratory analysis of soil samples collected from soil borings confirmed the presence of petroleum hydrocarbons in soils beneath the Site at concentrations exceeding SF-RWQCB Environmental Screening Levels (ESLs) for TPH-GRO and BTEX constituents.</p> <p>Elevated petroleum hydrocarbon concentrations were primarily detected in soil samples collected from 4.5 to 7.5 feet bgs from soil borings installed in the vicinity of the UST complex and dispenser islands. The maximum concentrations of COPCs were detected in sample collected from soil boring locations SB-01 and SB-05 at 4.5 - 5.0 feet bgs. Concentrations exceeded the ESL for TPH-DRO at both locations (5,000 mg/kg in both locations). Elevated concentrations of TPH-DRO (greater than 1,000 mg/kg) were also observed at boring location SB-02 at 7.0 - 7.5 feet bgs.</p> <p>Soil analytical data were collected during the monitoring well installation activities in 1990 by Geraghty &amp; Miller, Inc. and during subsurface investigations in 2010 and 2013 by ARCADIS (cone penetrometer test/ultraviolet screening tool (CPT/UVOST) investigation). Results indicate that the lateral extent of COPCs in the vicinity of the USTs have been delineated. The UVOST detected SPH in CPT-4 and SB-5 soil sample concentrations are indicative of SPH, however CPT-3 and MW-14 located west and east of SB-05 and CPT-4, respectively, did not indicate the presence of SPH (<b>Appendix D</b>). A Geoprobe investigation conducted on Comcast property immediately south of the former UST pit did not indicate the presence of elevated COPCs in grab groundwater samples.</p> <p>At boring locations CPT-5 through CPT-8, the UVOST system indicated interference between approximately 5 and 10 feet bgs, however, the signals do not appear to be indicative of SPH; both the fluorescence and the profiles are different. ARCADIS has investigated other sites where similar fluorescence/profiles were detected which were the result of carbonates. From grade to approximately 10 feet below ground surface is fill so it is unknown if the interference is carbonates or SPH (<b>Appendix A</b>).</p>	Presence of SPH in vicinity of MW-12 and IW-1	GeoProbe Investigation	<p>ARCADIS U.S., Inc. 2012. <i>Revised Summary of Soil and Groundwater Investigation Activities, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. August 17.</p> <p>San Francisco Regional Water Quality Control Board (SF-RWQCB). 2013. <i>Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater</i>. Interim Final – May.</p> <p>ARCADIS U.S., Inc. 2013. <i>Field Investigation Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. December 6.</p>
	COPCs Extent in Groundwater	<p>The site specific clean up limits used are based on SF-RWQCB ESLs for TPH-GRO and TPH-DRO (100 µg/L), benzene (1 µg/L), toluene (40 µg/L), ethylbenzene (30 µg/L), total xylenes (20 µg/L) and MTBE (5 µg/L) for drinking water standards (Table F-1A) and TPH-GRO and TPH-DRO (210 µg/L), benzene (27 µg/L), toluene (130 µg/L), ethylbenzene (43 µg/L), total xylenes (100 µg/L) and MTBE (1,800 µg/L) for non-drinking water standards (Table F-1B).</p> <p>Groundwater has been sampled and analyzed for fuel hydrocarbons and oxygenates on a quarterly or semi-annual basis since 1990. Historically, analytes detected above ESLs in groundwater include TPH-DRO and TPH-GRO. Historical and recent groundwater data indicates that groundwater impacts are limited to the vicinity of the former USTs and to an area approximately 50 feet north of the former USTs (in the vicinity of MW-12). Maximum TPH-DRO and TPH-GRO concentrations were detected at wells MW-1, MW-2, MW-3, OW-1, IW-4, IW-5 and IW-6 in the immediate vicinity of the former USTs. Data collected during the most recent groundwater sampling event (July 2013) indicate that TPH-DRO is still above screening levels in wells MW-3, MW-4, IW-2, IW-5 and IW-6. TPH-GRO is above screening levels in well IW-5. Monitoring wells MW-2, OW-1, and IW-4 (adjacent to the former USTs) and IW-1 and MW-12 (located 50 feet north of the former USTs) were not sampled due to the presence of SPH.</p> <p>A recent CPT/UVOST indicated SPH was not detected in CPT-1 through CPT-3 located on the east and north sides of the former UST pit. SPH was detected in CPT-04 located adjacent to the former USTs on the east side. MW-14 located approximately 25 east of CPT-4 and does not contain SPH. A Geoprobe investigation conducted on Comcast property immediately south of the former UST pit did not indicate the presence of elevated COCs in grab groundwater samples.</p> <p>At boring locations CPT-5 through CPT-8, the UVOST system indicated interference between approximately 5 and 10 feet bgs, however the signals do not appear to be indicative of SPH; both the fluorescence and the profiles are different. ARCADIS has investigated other sites where similar fluorescence/profiles were detected which were the result of carbonates. From grade to approximately 10 feet bgs is fill so it is unknown if the interference is carbonates or SPH.</p> <p>The nature and extent of COPCs exceeding ESLs at the site is discussed below by analyte (<b>Appendices E and F</b>).</p>	Presence of SPH in vicinity of MW-12 and IW-1	GeoProbe Investigation	<p>ARCADIS U.S., Inc. 2013. <i>Groundwater Monitoring and HVE Events Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. September 30.</p> <p>SF-RWQCB. 2013. <i>Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater</i>. Interim Final – May.</p> <p>ARCADIS U.S., Inc. 2013. <i>Field Investigation Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. December 6.</p>
Nature and Extent of Environmental Impacts	OPC Extent in Groundwater (by analyte)	<p><b>TPH-DRO:</b> The historical maximum concentration of 34,000,000 µg/L was detected in a groundwater sample collected on June 23, 1993 from well OW-1, located at the eastern extent of the former UST pit. The most recently observed concentration at OW-1 was 75,000 µg/L in August 2012. During the most recent sampling event on July 22, 2013, OW-1 was not sampled due to the presence of SPH. Concentrations of TPH-DRO above the ESLs (drinking water) during the July 22, 2013 sampling event have been observed at wells MW-3, MW-4, MW-8, IW-2, IW-5 and IW-6. Samples were not collected from monitoring wells MW-2, OW-1, and IW-4 (adjacent to the former USTs) and MW-12 and IW-1 (located 50 feet north of the former USTs) due to the presence of free product; however the TPH-DRO concentrations in the most recently collected samples exceeded ESLs from these wells: (38,000 µg/L at MW-2; 24,000 µg/L at MW-12; 75,000 µg/L at OW-1; 59,000 µg/L at IW-1; 34,000 µg/L at IW-4). TPH-DRO was not detected in elevated concentrations in the grab groundwater samples collected to the south of the former UST pit on the Comcast property.</p> <p><b>TPH-GRO:</b> The historical maximum concentration of 17,000 µg/L was detected in a groundwater sample collected on September 27, 2002 from well MW-2, located at the western vicinity of the former UST pit. The most recently observed concentration at MW-2 was 910 µg/L in February 2013. SPH was observed at MW-2 during the most recent groundwater sampling event conducted on July 22, 2013. Concentrations of TPH-GRO above ESLs during the July 22, 2013 event are at wells MW-3, IW-5 and IW-6 located on the eastern edge of the former USTs. Samples were not collected from monitoring wells MW-2, MW-12, OW-1, IW-1, and IW-4 due to the presence of free product; however the TPH-GRO concentrations in the most recently collected samples exceeded ESLs from these wells (910 µg/L at MW-2; 2,500 µg/L at MW-12; 510 µg/L at OW-1; 32,000 µg/L at IW-1; 5,600 µg/L at IW-4). TPH-GRO was not detected in elevated concentrations in the grab groundwater samples collected to the south of the former UST pit on the Comcast property.</p> <p><b>Benzene:</b> The historical maximum concentration of 180 µg/L was detected in a groundwater sample collected on August 26, 1991 from well MW-1, located north of the former UST pit. MW-1 was abandoned in 2009 however, concentrations of benzene on September 30, 2008 were non detect. Benzene was not detected in any of the wells during the most recent groundwater monitoring event on July 22, 2013. Concentrations of benzene have not been historically detected in wells MW-4, MW-8, MW-9 through MW-14.</p> <p><b>Toluene:</b> The historical maximum concentration of 530 µg/L was detected in a groundwater sample collected on September 25, 2003 from well OW-1, located on the western corner of the former UST pit. SPH was present in OW-1 during the last two groundwater monitoring events. However, toluene has not been detected since September 25, 2003 at OW-1. Toluene was not detected in any of the wells during the most recent groundwater monitoring event on July 22, 2013. Concentrations of toluene have not been historically detected in wells MW-4, MW-8, MW-9 through MW-14 and IW-1 through IW-6.</p> <p><b>Ethylbenzene:</b> The historical maximum concentration of 500 µg/L was detected in a groundwater sample collected on September 25, 2003 from well OW-1, located on the western corner of the former UST pit. SPH was present in OW-1 during the last two groundwater monitoring events. However, ethylbenzene has not been detected since September 25, 2003 at OW-1. Ethylbenzene was not detected in any of the wells during the most recent groundwater monitoring event on July 22, 2013. Concentrations of ethylbenzene have not been historically detected in wells MW-4, MW-8, MW-9 through MW-14 and IW-1 through IW-6.</p>	Presence of SPH in vicinity of MW-12 and IW-1	NA	<p>ARCADIS U.S., Inc. 2013. <i>Groundwater Monitoring and HVE Events Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. September 30.</p> <p>SF-RWQCB. 2013. <i>Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater</i>. Interim Final – May.</p>



**Table 1**  
**Site Conceptual Model**  
**UPS Oakland Hub**  
**8400 Pardee Drive, Oakland, California 94621**  
**ACEH Case #RO000315**

SCM Element	SCM Sub-Element	Description	Potential Data Gaps	How To Address	References
		<p><b>Total Xylenes:</b> The historical maximum concentration of 6,200 µg/L was detected in a groundwater sample collected on September 25, 2003 from well OW-1, located on the western corner of the former UST pit. SPH was present in OW-1 during the last two groundwater monitoring events. However, total xylenes has not been detected since September 25, 2003 at OW-1. Total Xylenes was not detected in any of the wells during the most recent groundwater monitoring event on July 22, 2013. Concentrations of total xylenes have not been historically detected in wells MW-4, MW-8, MW-9 through MW-14 and IW-1 through IW-6.</p> <p><b>MTBE:</b> The historical maximum concentration of 2.1 µg/L was detected in a groundwater sample collected on September 29, 2004 from well MW-1, located north of the former UST pit. MW-1 was abandoned in 2009 however, concentrations of MTBE on September 30, 2008 were non detect. MTBE was not detected in any of the wells during the most recent groundwater monitoring event on July 22, 2013. Concentrations of MTBE have not been historically detected in any of the wells other than MW-1.</p>			
Nature and Extent of Environmental Impacts	SPH Extent in Soil	<p>In 2010 SPH was observed in shallow soils in soil borings SB-05 and SB-07. No SPH was observed in the grab groundwater sample at SB-07 and soil boring SB-05 was dry. The Geoprobe investigation conducted in 2013 south of the former UST tank pit did not indicate the presence of SPH in soil.</p> <p>Results of a CPT/UVOST investigation conducted in 2013 indicate that the lateral extent of COPCs in the vicinity of the USTs have been delineated. The UVOST detected SPH in CPT-4 and SB-5 concentrations are indicative of SPH, however CPT-3 and MW-14 located west and east of SB-05 and CPT-4, respectively did not indicate the presence of SPH.</p> <p>At boring locations CPT-5 through CPT-8, the UVOST system indicated interference between approximately 5 and 10 feet bgs, however the signals do not appear to be indicative of SPH; both the fluorescence and the profiles are different. ARCADIS has investigated other sites where similar fluorescence/profiles were detected which were the result of carbonates. From grade to approximately 10 feet bgs is fill so it is unknown if the interference is carbonates or SPH (<b>Appendices A and D</b>).</p>	Presence of SPH in vicinity of MW-12 and IW-1	Geoprobe Investigation	<p>ARCADIS U.S., Inc. 2012. <i>Revised Summary of Soil and Groundwater Investigation Activities, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. August 17.</p> <p>ARCADIS U.S., Inc. 2013. <i>Field Investigation Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. December 6.</p>
Nature and Extent of Environmental Impacts	SPH Extent in Groundwater	<p>SPH was first detected in on-site monitoring well MW-2 in 1992. In 2013, SPH has been detected in on-site wells MW-2, MW-3, MW-4, OW-1 and IW-4, all directly adjacent to the former UST pit and MW-12 and IW-1 located approximately 50 feet north of the former USTs. SPH had not previously been detected in MW-3, however, the Enhanced Fluid Recovery (EFR) pilot testing conducted in April 2010 may have mobilized the SPH at the Site.</p> <p>Results of a CPT/UVOST investigation conducted in 2013 indicate that the lateral extent of COPCs in the vicinity of the USTs have been delineated. The UVOST detected SPH in CPT-4 and SB-5 concentrations are indicative of SPH, however CPT-3 and MW-14 located west and east of SB-05 and CPT-4, respectively did not indicate the presence of SPH.</p> <p>At boring locations CPT-5 through CPT-8, the UVOST system indicated interference between approximately 5 and 10 feet bgs, however the signals do not appear to be indicative of SPH; both the fluorescence and the profiles are different. ARCADIS has investigated other sites where similar fluorescence/profiles were detected which were the result of carbonates. From grade to approximately 10 feet below ground surface is fill so it is unknown if the interference is carbonates or SPH (<b>Appendices A and E</b>).</p> <p>SPH is gauged on a monthly basis and has been removed by the use of skimmers in OW-1, MW-2, MW-3, MW-12, and IW-1. Additionally high vacuum extraction events have been conducted onsite. Approximately 3,100 gallons of TPH-DRO impacted groundwater has been removed (<b>Appendix E</b>).</p> <p>SPH mobility was measured by conducting bail-down testing of the SPH at wells MW-12 and IW-1 which was conducted on April 4, 2013. Bail-down testing consisted of SPH removal, followed by monitoring of SPH recovery in each well over time immediately following removal (similar to a traditional aquifer slug test). Evaluation of data collected from the bail-downtests indicated transmissivity ranged from 0.20 square feet per day (ft<sup>2</sup>/day) to 0.52 ft<sup>2</sup>/day, which falls within the Interstate Technology and Regulatory Council (ITRC) suggested range of 0.1 to 0.8 ft<sup>2</sup>/day as the lower limit of practicable recoverability. However, it should be noted that American Society for Testing and Materials (ASTM) standards do not recommend analyzing bail-down data when the initial product thickness is less than 0.50 feet, which it was in all events except one (0.84 ft in IW-1 during the initial test).</p>	Presence of SPH in vicinity of MW-12 and IW-1	Geoprobe Investigation	<p>ARCADIS U.S., Inc. 2012. <i>Revised Summary of Soil and Groundwater Investigation Activities, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. August 17.</p> <p>ARCADIS U.S., Inc. 2013. <i>Field Investigation Report, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i>. December 6.</p>
Migration Pathways	Potential Conduits	<p>On April 1, 2010, ARCADIS performed a utility survey on-site and at the northern portion of the adjacent Comcast property using a private utility locator. Onsite subsurface utilities include sanitary sewer lines, a water line, electrical lines and storm drains. The electrical and sewer lines are in the immediate vicinity of the former UST area. Depths of the subsurface utilities are not available. ARCADIS attempted to contact local utility companies directly to request documentation and drawings showing the locations of potential subsurface pathways and utilities at the Site. However, only PG&amp;E responded to the request and they do not have any utilities in vicinity of the Site. Although historically, groundwater has been encountered as shallow as 1.37 feet bgs, groundwater has generally been encountered 4 to 9 feet bgs. Based on data from the monitoring well network and the location of the utilities it does not appear they are acting as conduits for migration.</p>	None	NA	ARCADIS U.S., Inc. 2012. <i>Revised Summary of Soil and Groundwater Investigation Activities, UPS - Oakland Hub, 8400 Pardee Drive, Oakland, California</i> . August 17.
Potential Release Mechanisms and Exposure Pathways	Volatilization	<p>A potential release mechanism at the Site may include volatilization of COPCs in subsurface soil to indoor air of current and future onsite commercial buildings, outdoor air, or air within a trench used by a future onsite utility worker. Another potential release mechanism at the Site may include volatilization of COPCs in groundwater to indoor air of current and future onsite commercial buildings, outdoor air, and/or indoor air of offsite commercial buildings or future offsite residences, or air within a trench used by a future onsite utility worker.</p> <p>Petroleum vapors migrating to outdoor air is unlikely given the entire site is paved. In general, exposure to petroleum vapors migrating from soil or groundwater to indoor air may pose unacceptable human health risks. However, in many petroleum release cases, potential human exposures to vapors are mitigated by bioattenuation processes as vapors migrate toward the ground surface. Additionally, exposures to volatile petroleum hydrocarbon constituents associated with historical fuel system releases are insignificant relative to typical exposures from surface spills and fugitive vapors at active fueling stations. Additionally, DRO, which does not comprise volatile constituents but is rather a highly weathered diesel fuel, is the main constituent in the plume. Thus, the plume is not a source of VOCs to the vadose zone. The groundwater monitoring data indicates VOC concentrations are either below analytical reporting limits or below ESLs, and thus vapor intrusion from groundwater is not a concern. Therefore, the exposure pathway for inhalation of indoor air from possible volatilization of site-related soil and groundwater constituents is potentially complete but insignificant for current and future onsite service station workers. However, to support risk-based decision making for the Site, it is assumed that COPCs in groundwater may volatilize into current and future offsite buildings. The nearest offsite building is located approximately 200 feet from the plume and new development of the area is not anticipated so this scenario is complete but considered insignificant.</p> <p>Although the COPCs may volatilize from subsurface soil and/or groundwater to outdoor air or air within a utility trench and may be inhaled by onsite or offsite potential receptors, this exposure pathway is considered to be insignificant given the atmospheric dilution effects from wind (<b>Appendix G</b>).</p>	None	NA	

**Table 1**  
**Site Conceptual Model**  
**UPS Oakland Hub**  
**8400 Pardee Drive, Oakland, California 94621**  
**ACEH Case #RO0000315**

SCM Element	SCM Sub-Element	Description	Potential Data Gaps	How To Address	References
	Leaching to Groundwater	Petroleum hydrocarbons released from USTs and associated piping and dispensers also may leach from soil to groundwater. This release mechanism is likely responsible for the majority of historical groundwater impacts. However this release mechanism has likely been partially mitigated through the removal of impacted soil, weathering, remediation, and natural attenuation. Current leaching to groundwater risks are due to the presence of free product in wells MW-2, MW-12, OW-1, IW-1 and IW-4. Historical and recent LNAPL removal activities have removed a significant fraction of recoverable LNAPL. Residual LNAPL may serve as a source to groundwater; however, downgradient concentrations at the adjacent Comcast site indicate that impacts to groundwater are limited in extent and are not migrating off-site ( <b>Appendix G</b> ).	None	NA	
	Direct Contact with Groundwater	As described previously, groundwater at the Site is not used as a potable source at this time and is not expected to be used as a drinking water source in the near future. No water wells are located within a 1,000-foot radius of the Site. Therefore, potential direct contact exposures to COPCs in groundwater, such as tap water ingestion, dermal contact with tap water and inhalation of volatile organic compounds (VOCs) released from tap water, are not expected to occur for current and future onsite commercial workers, and current and future offsite commercial workers. In the future, onsite construction workers may be directly exposed to groundwater while performing routine utility activities in subsurface trenches. Typical utility trenches are located at a depth no greater than 8 feet bgs. During the July 2013 groundwater monitoring event, groundwater was encountered at depths ranging from approximately 4 to 8.5 feet bgs. Typically at construction sites when groundwater is exposed, dewatering occurs or workers are not required to work in standing water. Thus, it is unlikely that future onsite utility trench workers will be directly exposed to constituents in groundwater ( <b>Appendix G</b> ).	None	NA	
Potential Release Mechanisms and Exposure Pathways	Direct Contact with Soil	Constituents adhered onto dust particles may migrate from exposed subsurface soil by wind erosion to outdoor air and be breathed by potential onsite and offsite receptors. This transport mechanism is unlikely given that re-development of the Site is not planned, and the Site is either covered with a building, asphalt, or pavement and soil is not exposed at the surface. However, potential receptors including future onsite construction/utility trench workers may be directly exposed to constituents in surface and subsurface soil via incidental ingestion, dermal contact and inhalation of dust particles in trench air. If subsurface work is conducted at the Site, monitoring may be required during excavation ( <b>Appendix G</b> ).	None	NA	
Potential Receptors	Potential Ecological Receptors	Since the Site is devoid of ecological habitat and surface water is absent, it is reasonable to assume that ecological receptors are absent from the Site and will also not be present in the future. As discussed previously, the Site is located approximately 150 feet east of San Leandro Channel which is the nearest surface water body to the Site. Based on the approximate groundwater flow direction at the Site (southwest), it is not possible that groundwater from the Site may migrate towards the surface water receptor, with subsequent exposures to aquatic organisms. Additionally, given the sizable distance to the creek and the potential for COPCs to bioattenuate and dilute, this transport mechanism is considered insignificant. Based on this analysis, potential exposure pathways for ecological receptors are incomplete. Potentially complete exposure pathways for human receptors are presented in the following section.	None	NA	
	On-site and Off-site	Potential receptors were identified based on current and future land use(s) at the Site. Current and reasonably anticipated future land use at the Site are commercial (i.e., continued operation as a UPS Hub). Potential current and future human receptors at the Site include: <ul style="list-style-type: none"> <li>• on-site commercial workers,</li> <li>• off-site commercial workers on adjacent, downgradient properties, and</li> <li>• future on-site construction/utility workers.</li> </ul>	None	NA	
Exposure Pathway Evaluation	Current and Future On-site Commercial Workers	<ul style="list-style-type: none"> <li>• No complete exposure pathways</li> </ul> <p>The COPCs may volatilize from soil and groundwater to soil gas and migrate to the indoor air of on-site building structures. Inhalation of volatile COPCs in indoor air by on-site commercial workers at this site may be a potentially complete exposure pathway. However, the potential vapor migration exposure pathway for current and future onsite indoor UPS workers is likely to be insignificant compared to routine exposures associated with the profession (vapors from semi-trucks driving around site and fueling). The workplace vapor concentrations are routinely much higher than any levels expected from vapor migration from the subsurface. Given the presence of indoor and exterior building sources of petroleum hydrocarbons, and the fact that fuel operations are currently conducted at the Site and that operations at the Site are likely to remain the same in the future, subsurface residual impacts are unlikely to contribute significantly to indoor VOC levels. Additionally, DRO, which does not comprise volatile constituents but is rather a highly weathered diesel fuel, is the main constituent in the plume. Thus, the plume is not a source of VOCs to the vadose zone. The groundwater monitoring data indicates VOC concentrations are either below analytical reporting limits or below ESLs, and thus vapor intrusion from groundwater is not a concern. Thus, inhalation of volatile COPCs in indoor air by current and future on-site commercial workers is not a significant exposure pathway. In addition, the largest onsite building has opening and no closed doors. Thus they are exposed to outside air at all times.</p>	None	NA	
	Current and Future Off-Site Commercial Workers	<ul style="list-style-type: none"> <li>• Groundwater transport off-site and vapor migration into indoor air</li> </ul> <p>The COPCs may volatilize from groundwater to soil gas and migrate to the indoor air of off-site building structures. Inhalation of volatile COPCs in indoor air by current and future off-site commercial workers is a potentially complete exposure pathway. However, since off-site concentrations of COPCs in groundwater and soil do not exceed ESLs, completion of this pathway is unlikely.</p> <p>Direct-contact exposure pathways (i.e., ingestion, dermal contact, and inhalation of volatile emissions from tap water) from groundwater are currently incomplete, since the community uses municipal-supplied water for potable uses. It is assumed that current land and beneficial water uses will continue in the foreseeable future. Therefore, these pathways are also assumed to be incomplete in the reasonably foreseeable future for off-site commercial workers located on downgradient, adjacent properties.</p>	None	NA	
Exposure Pathway Evaluation	Future On-Site Construction/ Utility Workers	<ul style="list-style-type: none"> <li>• Inhalation (outdoor air) of vapors</li> <li>• Inhalation (outdoor air) of dust particles</li> <li>• Incidental ingestion of surface and subsurface soil</li> <li>• Dermal contact with surface and subsurface soil</li> </ul> <p>Potential future on-site utility trench workers may be directly exposed to COPCs in surface and subsurface soil via incidental ingestion, dermal contact and inhalation of dust particles in trench air. Since soil data indicates that the Site satisfies the Direct Contact and Outdoor Air Exposure – Utility Worker (soil: 0 to 10 feet bgs) criteria stated in the State Water Resources Control Board (SWRCB) Low Threat Closure (LTC) Policy, these pathways are also assumed to be incomplete in the reasonably foreseeable future for utility workers located on onsite.</p>	None	NA	State Water Resources Control Board (SWRCB). 2012. <i>Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure</i> . Viewed online on November 15, 2013: <a href="http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf">http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf</a>

**Table 1**  
**Site Conceptual Model**  
**UPS Oakland Hub**  
**8400 Pardee Drive, Oakland, California 94621**  
**ACEH Case #RO0000315**

SCM Element	SCM Sub-Element	Description	Potential Data Gaps	How To Address	References
	Current and Future Hypothetical Off-Site Residents	<ul style="list-style-type: none"> <li>Groundwater transport off-site and vapor migration into indoor air</li> </ul> <p>The COPCs may volatilize from groundwater to soil gas and migrate to the indoor air of off-site building structures. Inhalation of volatile COPCs in indoor air by current and future off-site residents is a potentially complete exposure pathway. The adjacent downgradient property is operated by Comcast and it is likely to remain commercial use in the future, completion of the exposure pathway is unlikely.</p>	None	NA	
<b>Abbreviations</b>					
bgs = below ground surface					
msl = mean sea level					
ft/ft = feet per foot					
mg/kg = milligrams per kilogram					
µg/L = micrograms per liter					
ACEH = Alameda County Environmental Health					
BTEX = benzene, toluene, ethylbenzene and total xylenes					
bTOC = below top of casing					
COPCs = constituents of potential concern					
EBMUD = East Bay Municipal Utility District					
ESLs = environmental screening levels					
LTC = Low-Threat Closure					
LUFT = leaking underground fuel tank					
MTBE = methyl tertiary-butyl ether					
TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics					
TPH-DRO = Total Petroleum Hydrocarbons as Diesel Range Organics					
SPH = separate phase hydrocarbons					
SF-RWQCB = San Francisco Bay Regional Water Quality Control Board					
SWRCB = State Water Resources Control Board					
USTs = underground storage tanks					
VOCs = volatile organic compounds					
LNAPL = Light Non-Aqueous Phase Liquids					
EFR = Enhanced Fluid Recovery					
CTP/LIVOST = cone penetrometer test/ultraviolet screening tool					
ITRC = Interstate Technology and Regulatory Council					
ASTM = American Society for Testing and Materials					
ft <sup>2</sup> /day = square feet per day					
ft AMSL = feet above mean sea level					
DWR = California Department of Water Resources					
GAMA = Groundwater Ambient Monitoring & Assessment					
<b>List of Appendices</b>					
Appendix A - Well Construction Table, Soil Boring Logs and Cross Sections					
Appendix B - Groundwater Flow Direction and Rose Diagram					
Appendix C - Site Location					
Appendix D - Historical Soil Data and Figures					
Appendix E - Groundwater Data and Figures					
Appendix F - Concentration vs. Time Graphs					
Appendix G - Exposure Pathway Summary					

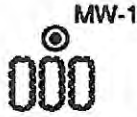


**Appendix A Well  
Construction Table, Soil Boring  
Logs and Cross Sections**

UPS Building



**LOG OF MW-1**  
**United Parcel Service**  
**8400 Pardee Dr.**  
**Oakland, California**



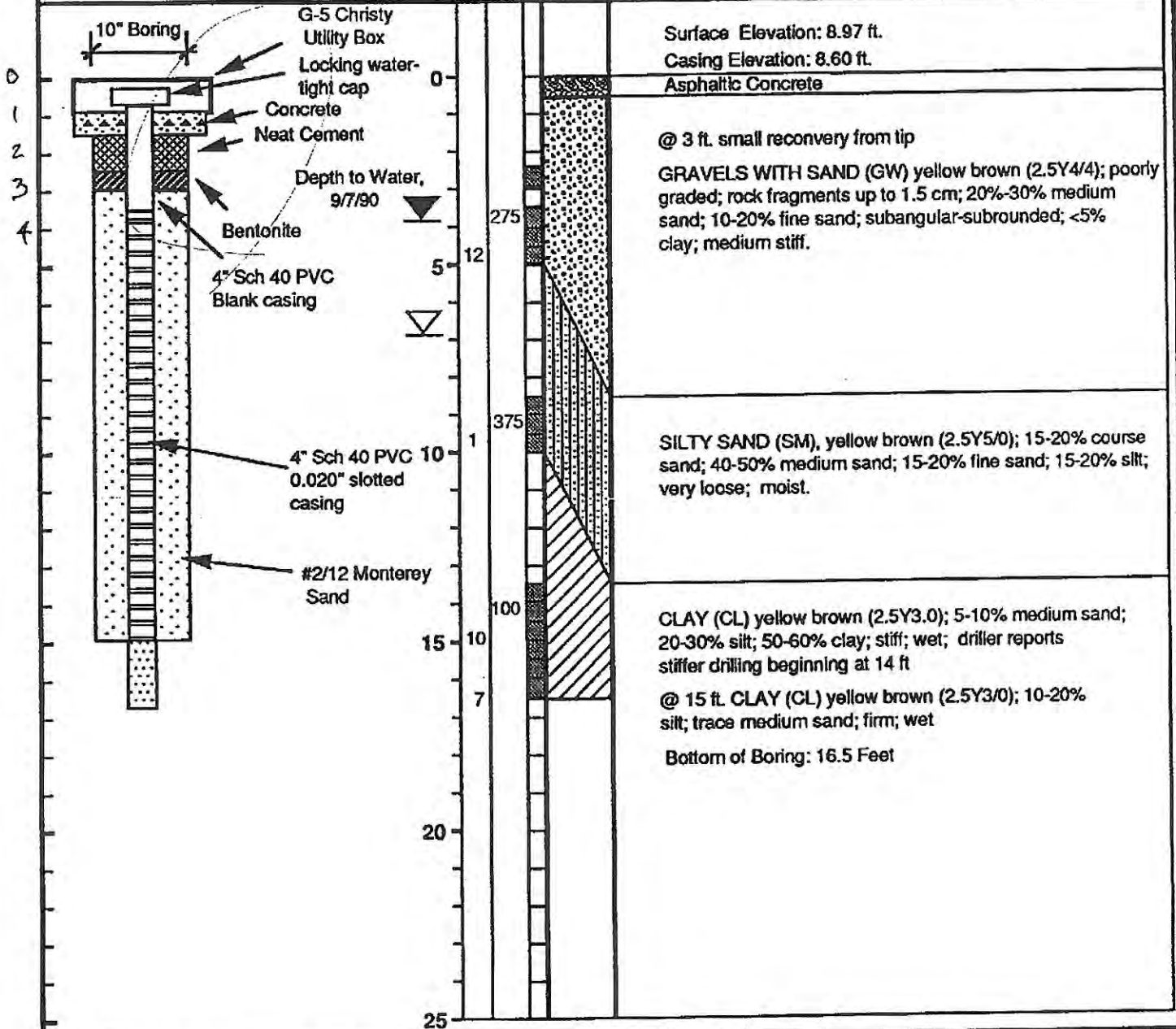
Project No.: RC02704  
 Logged By: Kent O'Brien  
 Drilling Co.: Bay Land  
 Driller: Tom Schmidt

Date Drilled: August 22, 1990  
 Drilling Method: 10" Hollow-Stem Auger  
 Sampling Method: 2" Split spoon  
 Inclination: Vertical

**WELL CONSTRUCTION**

Depth (ft.)  
 Blows/ft.  
 EXP  
 Samples  
 Graphic

**DESCRIPTION**



UPS Building



# LOG OF MW-2

United Parcel Service  
8400 Pardee Dr.  
Oakland, California

MW-2  
① 000

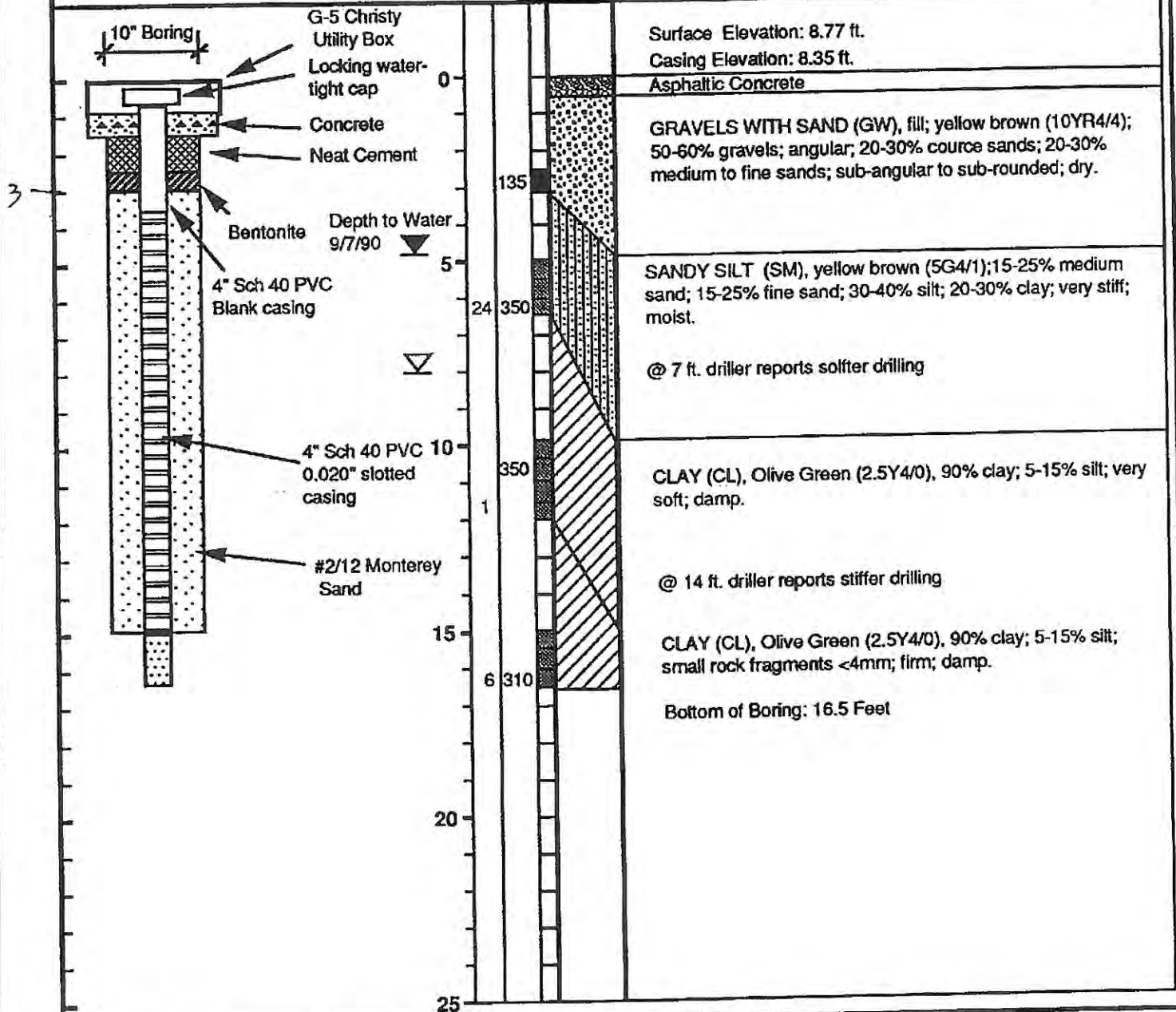
Project No.: RC02704  
Logged By: Kent O'Brien  
Drilling Co.: Bay Land  
Driller: Tom Schmidt

Date Drilled: August 22, 1990  
Drilling Method: 10" Hollow-Stem Auger  
Sampling Method: 2" Split spoon  
Inclination: Vertical

## WELL CONSTRUCTION

Depth (ft.)  
Blows/ft.  
EXP  
Samples  
Graphic

## DESCRIPTION



PROJECT NAME UPS Oakland Hub

CLIENT United Parcel Service, Inc.

**WELL NUMBER MW-8**

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Hollow Stem Auger

LOCATION Approximately 250 feet north of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

Latitude: 37.7330044  
Longitude: -122.2012886

GROUND ELEVATION 8.72 feet MSL HOLE DIAMETER 8 in

TOP OF CASING ELEVATION 8.22 ft HOLE DEPTH 12.0 feet

∇ FIRST ENCOUNTERED WATER 8.5 feet / Elev 0.2 feet

∇ STABILIZED WATER 3.1 feet / Elev 5.6 feet

LOGGED BY Morgan Jones DATE 04/21/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	WELL DIAGRAM	DEPTH (feet)
					0.5	Asphalt, base rock	8.2		
			ML		1.5	SANDY SILT (ML), Dark Brown (10YR 3/3), damp, firm, non-plastic, fine-grained sand, with fine subround gravel and clay, (20,25,40,15)	7.2		
			SW		3.5	GRAVELLY SAND (SW), Greenish Black (Gley 1, 2.5/5GY), moist, loose, well graded, fine- to coarse-grained, fine subangular gravel, trace silt, (35,60,5,0)			
5						SILTY CLAY (CL), Black (5Y 2.5/1), moist, firm, medium plasticity, trace coarse-grained sand, brick fragments and refuse observed, no odor, greenish mottling, (0,5,25,70) increasing fine-grained sand below approximately 4.5 feet bgs	5.2		
			CL						
					7.5	Pulverized concrete in core from approximately 7 to 7.5 feet bgs	1.2		
			OH		9.0	SILTY CLAY (CL), Black (5Y 2.5/1), moist, soft, high plasticity, high organic content, (0,0,25,75) Greenish Black (Gley 1, 2.5/10Y) below approximately 8 feet bgs	-0.3		
10						Wet, very soft below approximately 8.5 feet bgs No recovery			
					12.0	Bottom of boring at approximately 12 feet bgs. Monitoring well MW-8 constructed with screen interval from approximately 2 to 12 feet bgs.	-3.3		

BORING+WELL 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





UPS Building



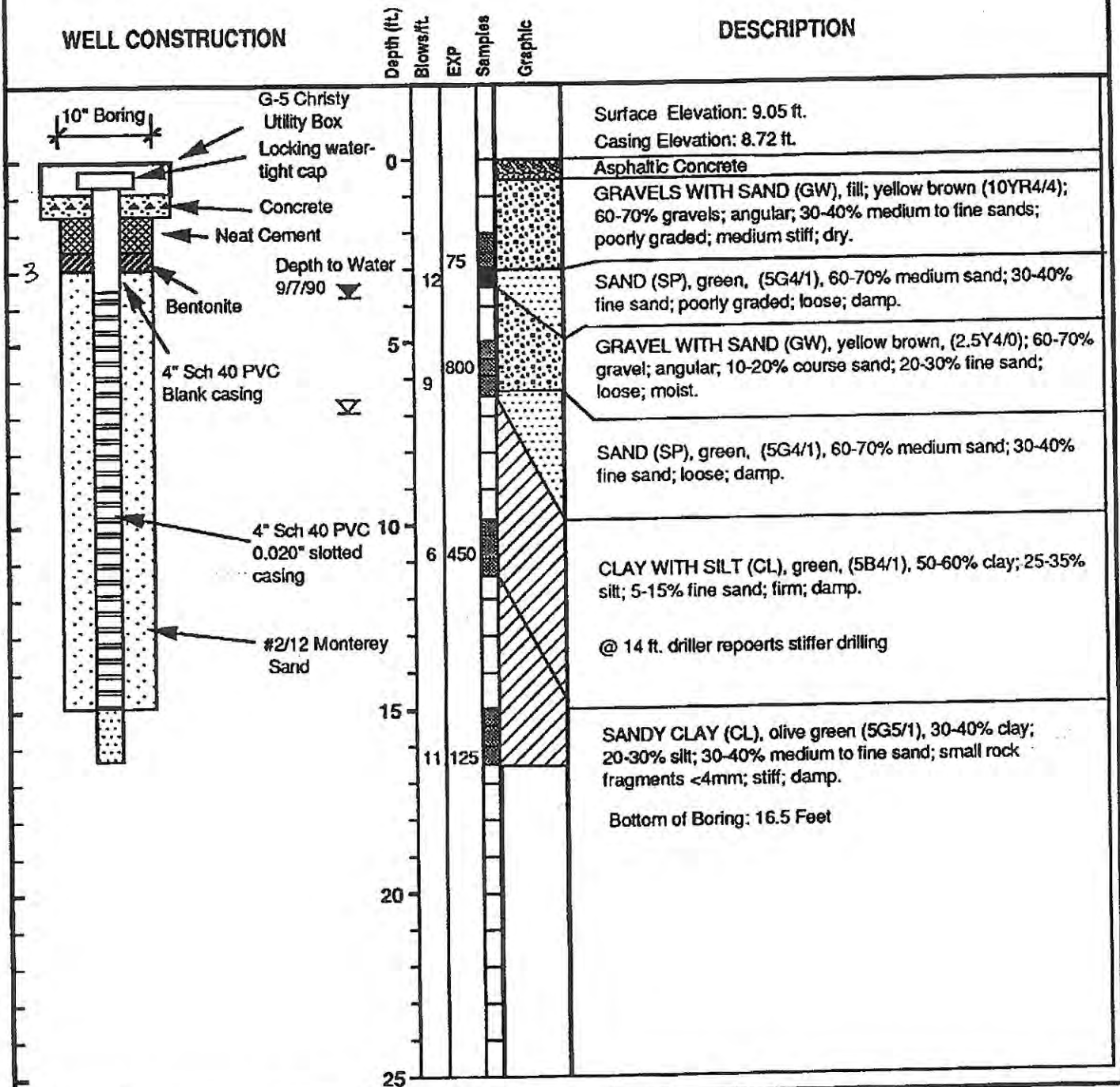
# LOG OF MW-3

United Parcel Service  
8400 Pardee Dr.  
Oakland, California

000 MW-3

Project No.: RC02704  
Logged By: Kent O'Brien  
Drilling Co.: Bay Land  
Driller: Tom Schmidt

Date Drilled: August 23, 1990  
Drilling Method: 10" Hollow-Stem Auger.  
Sampling Method: 2" Split spoon  
Inclination: Vertical





PROJECT NAME UPS Oakland Hub

**WELL NUMBER MW-9**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Hollow Stem Auger

LOCATION Approximately 45 feet west of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

Latitude: 37.7326216  
Longitude: -122.2018663

GROUND ELEVATION 14.97 feet MSL HOLE DIAMETER 8 in

TOP OF CASING ELEVATION 14.63 ft HOLE DEPTH 13.0 feet

▽ FIRST ENCOUNTERED WATER 6.0 feet / Elev 9.0 feet

▽ STABILIZED WATER 6.6 feet / Elev 8.4 feet

LOGGED BY Morgan Jones DATE 04/21/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	WELL DIAGRAM	DEPTH (feet)
					1.0	Asphalt	14.0	Portland Type II/IV Cement Grout	
	Hand Auger		ML		3.0	SILT (ML), Dark Yellowish Brown (10YR 4/6), dry, with fine-grained sand	12.0	Hydrated bentonite chips	
5					5.0	Driller reported coarse gravel and cobbles encountered at 3 feet bgs, refusal. Advanced to drill rods to 5 feet bgs, no recovery.	10.0		5
			SW		6.5	GRAVELLY SAND (SW), Dark Greenish Gray (Gley 1, 4/10Y), damp, medium dense, well graded, fine- to coarse-grained, fine to coarse subangular to angular gravel, trace silt, (30,65,5,0)	8.5	#2/12 Sand Filter Pack	
			CL		7.5	Dark Yellowish Brown (10YR 4/4), wet, with increasing fines, decreasing fine-grained sand below approximately 6 feet bgs SILTY CLAY (CL), Very Dark Greenish Gray (Gley 1, 3/10Y), soft, moist, medium plasticity, with fine- to coarse-grained sand, trace fine subangular gravel, (10,15,20,55) No recovery	7.5	PVC 2-inch 0.020 slot Schedule 40	
10			CL		10.0		5.0		10
			OH		10.5	SILTY CLAY (CL), Very Dark Greenish Gray (Gley 1, 3/10Y), firm, moist, medium plasticity, with fine- to coarse-grained sand, trace fine subangular gravel, (10,15,20,55) CLAY (OH), Black (Gley 1, 2.5/N), moist, soft, high plasticity, high organic content, sulfur-like organic odor, (0,0,0,100) Dark Greenish Gray (Gley 1, 4/10Y), with 20% silt, strong organic odor below approximately 11.5 feet bgs	4.5		
					13.0		2.0	Threaded end cap	
						Bottom of boring at approximately 13 feet bgs. Constructed monitoring well MW-9 with screen interval from approximately 3 to 13 feet bgs.			

BORING+WELL: 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**WELL NUMBER MW-10**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Hollow Stem Auger

LOCATION 8470 Pardee Drive, approximately 45 feet south of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

Latitude: 37.7323398  
Longitude: -122.2015743

GROUND ELEVATION 10.11 feet MSL HOLE DIAMETER 8 in

TOP OF CASING ELEVATION 9.68 ft HOLE DEPTH 12.0 feet

▽ FIRST ENCOUNTERED WATER 9.0 feet / Elev 1.1 feet

▽ STABILIZED WATER 8.7 feet / Elev 1.4 feet

LOGGED BY Morgan Jones DATE 04/22/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	WELL DIAGRAM	DEPTH (feet)
					0.5	Asphalt	9.6			
	Hand Auger		SM		2.0	SILTY SAND (SM), Dark Brown (10YR 3/3), damp, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel, (20,45,30,0)	8.1	2.4		
			CL		3.0	CLAY (CL), Very Dark Gray (10YR 3/1), damp, firm, low plasticity, with fine- to coarse-grained sand and fine to coarse gravel and refuse, no odor, (20,20,0,60)	7.1	0.1		
			SW		5.0	SAND (SW), Dark Olive Gray (5Y 3/2), damp, loose, well graded, fine- to coarse-grained, with fine to coarse subround to subangular gravel, trace silt, (25,50,5,20)	5.1	1.5		
5						Moist, decreasing coarse gravel, decreasing clay below approximately 3.5 feet bgs		1.4		
						No recovery				
			CL		7.5	SILTY CLAY (CL), Greenish Black (Gley 1, 2.5/10Y), moist, very soft, medium plasticity, with medium- to coarse-grained sand and fine to coarse angular gravel, (15,20,30,35)	2.6	0.0		
			SP		8.5	SAND (SP), Black (Gley 1, 2.5/N), moist, medium dense, poorly graded, fine-grained, charcoal-like odor, (0,100,0,0)	1.6	0.0		
10					9.0	GRAVELLY CLAY (CL), Greenish Black (Gley 1, 2.5/10Y), wet, very soft, low plasticity, fine to coarse angular gravel, with fine- to coarse-grained sand, trace silt, (30,25,5,40)	1.1			
			CL		12.0	Moist, decreasing sand and gravel below approximately 10.5 feet bgs				
						Bottom of boring at approximately 12 feet bgs. Monitoring well MW-10 constructed with screen interval from approximately 2 to 12 feet bgs.	-1.9	0.0		

BORING+WELL\_2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT\_08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub

**WELL NUMBER MW-11**

CLIENT United Parcel Service, Inc.

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Hollow Stem Auger

LOCATION Approximately 110 feet southwest of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

Latitude: 37.7322421  
Longitude: -122.2019319

GROUND ELEVATION 10.09 feet MSL HOLE DIAMETER 8 in

TOP OF CASING ELEVATION 9.49 ft HOLE DEPTH 13.0 feet

FIRST ENCOUNTERED WATER ---

STABILIZED WATER 7.8 feet / Elev 2.3 feet

LOGGED BY Morgan Jones DATE 04/21/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	WELL DIAGRAM	DEPTH (feet)
					0.5	Asphalt	9.6			
	Hand Auger		SW		2.0	GRAVELLY SAND (SW), Dark Yellowish Brown (10YR 3/6), damp, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel, trace silt, (40,50,10,0)	8.1			
			CL		2.5	Moist, with increasing clay below approximately 1 foot bgs	7.6			
			SW		5.0	SANDY CLAY (CL), Dark Brown (10YR 3/3), damp, soft, medium plasticity, fine- to coarse-grained sand, with fine angular gravel, trace silt, (15,25,10,50)				
5						5.0	SAND (SW), Dark Greenish Gray (Gley 1, 4/10Y), damp, loose, well graded, fine- to coarse-grained, trace silt and fine gravel, (10,80,10,0)	5.1		
						No recovery				
					7.0		3.1	0.0		
			SC		7.5	CLAYEY SAND (SC), Dark Yellowish Brown (10YR 3/4), moist, dense, well graded, fine- to coarse-grained, with fine to coarse gravel, (20,45,0,35)	2.6	0.1		
			SM		8.0	SILTY SAND (SM), Dark Greenish Gray (Gley 1, 3/10Y), damp, dense, well graded, fine- to coarse-grained, with fine to coarse subangular gravel, trace silt, (20,55,25,0)	2.1	5.5		
						SILTY CLAY (CL), Black (10YR 2/1), moist, soft, low plasticity, with fine- to coarse-grained sand and fine gravel, mild organic odor		0.9		
10			CL			With refuse and organic material below approximately 10 feet bgs	0.0	1.2		
						Greenish Black (Gley 1, 2.5/5GY), very soft, medium plasticity, decreasing gravel below approximately 10.5 feet bgs	0.0	0.0		
					13.0	Firm, with high organic content below approximately 12.5 feet bgs	-2.9	0.3		
						Bottom of wellbore at approximately 13 feet bgs. Monitoring well MW-11 constructed with screen interval from approximately 3 to 13 feet bgs.				

BORING+WELL 2006 UPS-OAKLAND SOIL GW APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





Boring No.: MW-12

# Soil Boring Log

Sheet : 1 of 1

Project Name: <u>UPS- Oakland Hub</u>	Date Started: <u>27-Jan-12</u>	Logger: <u>K. Firich</u>
Project Number: <u>B0038398.0013</u>	Date Completed: <u>27-Jan-12</u>	Editor: <u>K. Murrietta</u>
Project Location: <u>Oakland, CA</u>	Weather Conditions: _____	

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Pavement	
2						Fill Material (Hand Auger) - Dry, dusty, loose rocks, brownish grey, silty clay, dark greenish grey, moist	
3							
4							
5							
6							
7						Clay with gravels, dark grey, black, moist, medium gravels	
8							
9							
10							

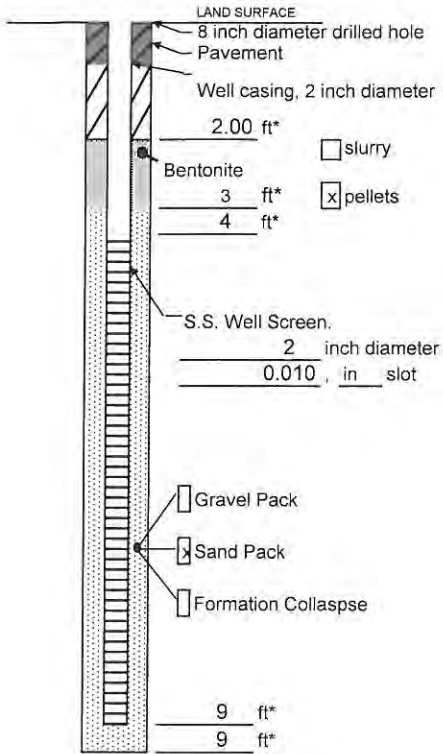
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes  No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_

**ARCADIS**

**Well Construction Log**

(Unconsolidated)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Project UPS-Oakland Hub Well MW-12

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0065

Installation Date(s) 1-27-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s) \_\_\_\_\_

Surge and purge 5 well volumes with bailer, 1/27/12

\_\_\_\_\_

\_\_\_\_\_



Boring No.: MW-13

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub Date Started: 27-Jan-12 Logger: K. Firich  
 Project Number: B0038398.0013 Date Completed: 27-Jan-12 Editor: K. Murrietta  
 Project Location: Oakland, CA Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Pavement	
2						Fill Material (Hand Auger) - Dry, dusty, loose rocks, brownish grey, silty clay, dark greenish grey, moist	
3							
4						Clay with gravels, dark grey, black, moist, medium gravels	
5							
6							
7							
8							
9							
10							

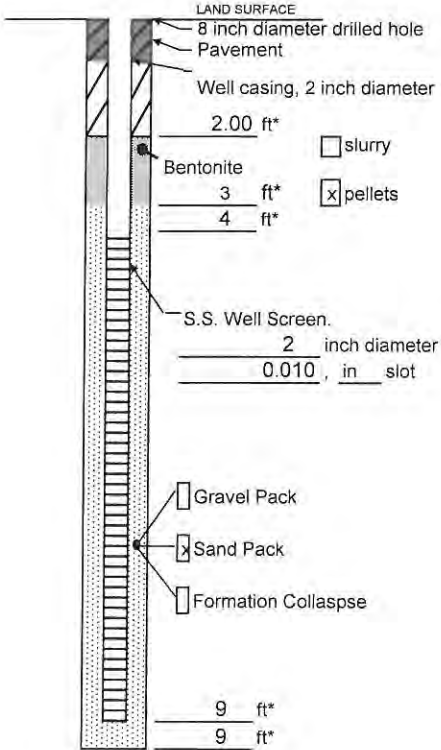
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes  No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_

**ARCADIS**

**Well Construction Log**

(Unconsolidated)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Project UPS-Oakland Hub Well MW-13

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0066

Installation Date(s) 1-27-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s)

Surge and purge 5 well volumes with bailer, 1/27/12

\_\_\_\_\_

\_\_\_\_\_





Boring No.: MW-14

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub Date Started: 26-Jan-12 Logger: K. Firich  
 Project Number: B0038398.0013 Date Completed: 26-Jan-12 Editor: K. Murrietta  
 Project Location: Oakland, CA Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Fill Material - Hand Auger	
2							
3							
4						Dark grey/black clay, medium gravels, moist to wet	
5							
6							
7							
8							
9							

Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

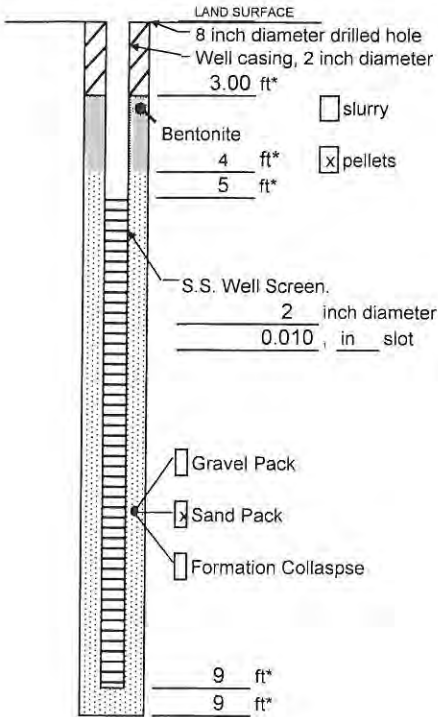
Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes  No  
 Surface Elev: \_\_\_\_\_  
 North Coord: \_\_\_\_\_  
 East Coord: \_\_\_\_\_



ARCADIS

**Well Construction Log**

(Unconsolidated)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Project UPS-Oakland Hub Well MW-14

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0067

Installation Date(s) 1-26-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s) \_\_\_\_\_

Surge and purge 5 well volumes with bailer, 1/26/12

\_\_\_\_\_

\_\_\_\_\_



Boring No.: IW-1

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub      Date Started: 27-Jan-12      Logger: K.Firich  
 Project Number: B0038398.0013      Date Completed: 27-Jan-12      Editor: K. Murrietta  
 Project Location: Oakland, CA      Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Fill Material ( Hand Auger)	
2							
3							
4						Clay - dark brown, black, strong odor, moist, silts, low plasticity	
5							
6							
7							
8							
9							

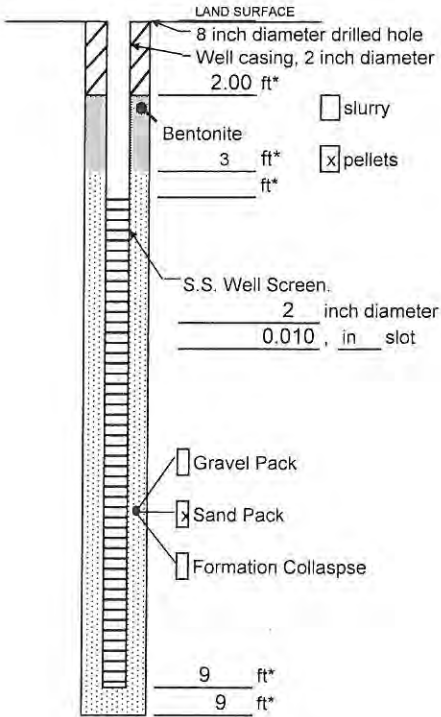
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes       No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_

ARCADIS

**Well Construction Log**

(Unconsolidated)



Project UPS-Oakland Hub Well IW-1

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0064

Installation Date(s) 1-27-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s) \_\_\_\_\_

Surge and purge 5 well volumes with bailer, 1/27/12

Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface



Boring No.: IW-2

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub      Date Started: 27-Jan-12      Logger: K. Firich  
 Project Number: B0038398.0013      Date Completed: 27-Jan-12      Editor: K. Murrietta  
 Project Location: Oakland, CA      Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Fill Material (Hand Auger) - Strong Odor	
2							
3							
4						Clay - dark brown, black, strong odor, moist, silts, low plasticity	
5							
6							
7							
8							
9							

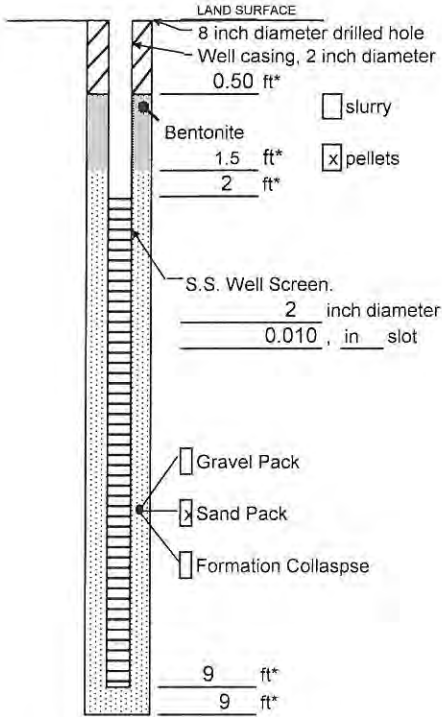
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes     No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_

ARCADIS

**Well Construction Log**

(Unconsolidated)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Project UPS-Oakland Hub Well IW-2

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0068

Installation Date(s) 1-27-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s)

Surge and purge 5 well volumes with bailer, 1/27/12



Boring No.: IW-3

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub Date Started: 27-Jan-12 Logger: K. Firich  
 Project Number: B0038398.0013 Date Completed: 27-Jan-12 Editor: K. Murrietta  
 Project Location: Oakland, CA Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Hand Auger	
2							
3							
4						Clay with gravels, odor, wet/moist, dark black grey, plastic, similar to IW-1	
5							
6							
7							
8							
9							

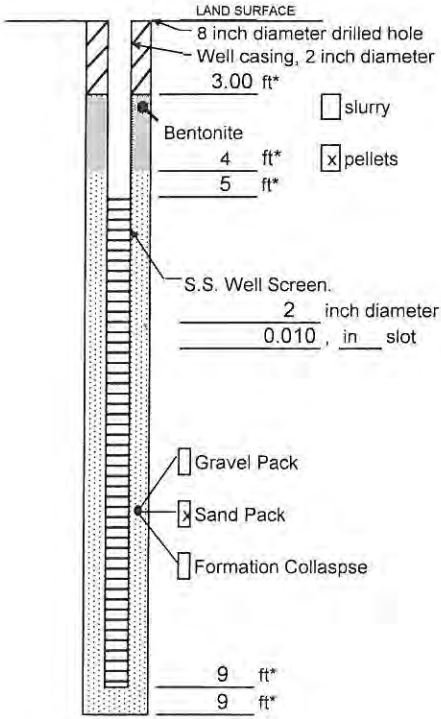
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes  No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Project UPS-Oakland Hub Well IW-3

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0068

Installation Date(s) 1-27-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s)

Surge and purge 5 well volumes with bailer, 1/27/12



Boring No.: IW-4

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub      Date Started: 26-Jan-12      Logger: K. Firich  
 Project Number: B0038398.0013      Date Completed: 26-Jan-12      Editor: K. Murrietta  
 Project Location: Oakland, CA      Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Pavement	
2						Fill Material - Very compacted - Brown, sandy, fine, loose, small gravels	
3							
4							
5							
6						Clayey Gravel	
7							
8						Gravelly clay, wet, strong odor, medium gravels, greyish green - some sheen, sands, coarse grained	
9							
10							

Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

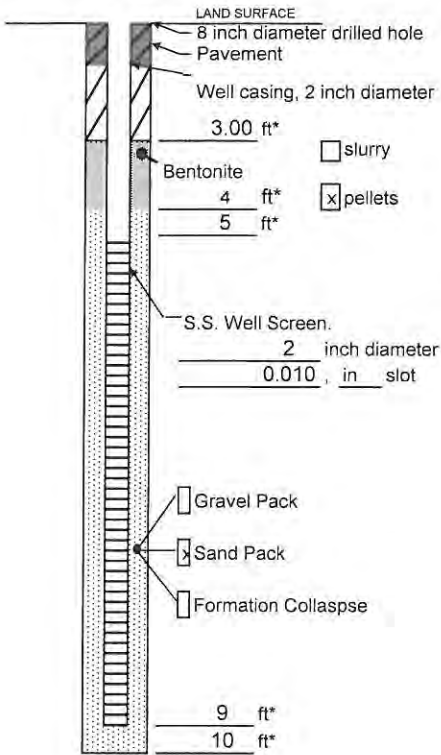
Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes       No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_



ARCADIS

**Well Construction Log**

(Unconsolidated)



Project UPS-Oakland Hub Well IW-4

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0068

Installation Date(s) 1-26-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s) \_\_\_\_\_

Surge and purge 5 well volumes with bailer, 1/26/12

Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Boring No.: IW-5

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub Date Started: 26-Jan-12 Logger: K. Firich  
 Project Number: B0038398.0013 Date Completed: 26-Jan-12 Editor: K. Murrietta  
 Project Location: Oakland, CA Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Pavement	
2						Fill Material - Compacted, brownish sand, fine grained	
3							
4							
5						No recovery from soil cuttings - Gravely clay, moist/wet, strong odor, greyish green	
6							
7							
8							
9							
10							

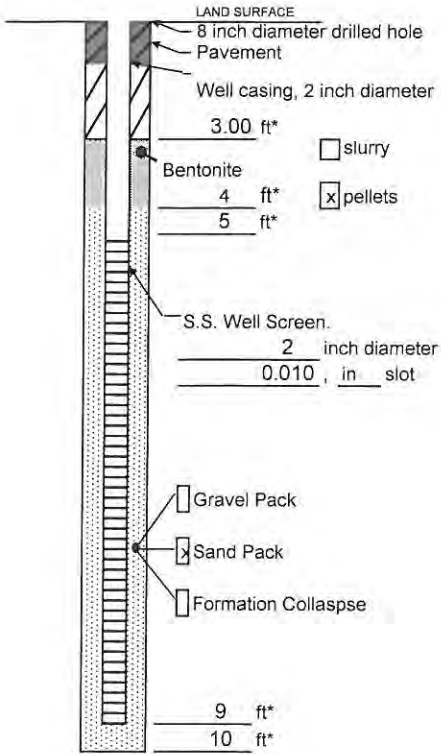
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes  No  
 Surface Elev: \_\_\_\_\_  
 North Coor: \_\_\_\_\_  
 East Coor: \_\_\_\_\_

ARCADIS

### Well Construction Log

(Unconsolidated)



Project UPS-Oakland Hub Well IW-5

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0068

Installation Date(s) 1-26-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s) \_\_\_\_\_

Surge and purge 5 well volumes with bailer, 1/26/12

Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface



Boring No.: IW-6

# Soil Boring Log

Sheet : 1 of 1

Project Name: UPS- Oakland Hub      Date Started: 26-Jan-12      Logger: K. Firich  
 Project Number: B0038398.0013      Date Completed: 26-Jan-12      Editor: K. Murrietta  
 Project Location: Oakland, CA      Weather Conditions: \_\_\_\_\_

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						Pavement	
2						Fill Material - Very compacted - Brown, sandy, fine, loose, small gravels	
3							
4							
5						Clay with silts and some gravels, some mulch, dark grey, stiff to moist, some reddish/greenish colors, strong odor.	
6							
7							
8							
9							
10							

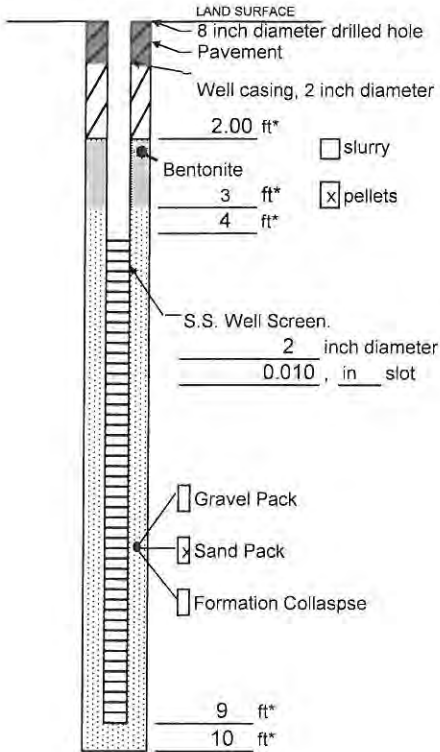
Drilling Co.: Cascade  
 Driller: Jorge  
 Drilling Method: Hollow Stem Auger  
 Drilling Fluid: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

Sampling Method: \_\_\_\_\_  
 Sampling Interval: \_\_\_\_\_  
 Water Level Start: \_\_\_\_\_  
 Water Level Finish: \_\_\_\_\_  
 Converted to Well:  Yes       No  
 Surface Elev: \_\_\_\_\_  
 North Coord: \_\_\_\_\_  
 East Coord: \_\_\_\_\_

**ARCADIS**

**Well Construction Log**

(Unconsolidated)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\* Depth Below Land Surface

Project UPS-Oakland Hub Well IW-6

Town/City Oakland, CA

County Alameda State CA

Permit No. W2012-0068

Installation Date(s) 1-26-12

Drilling Method Hollow Stem Auger

Drilling Contractor Cascade

Drilling Fluid \_\_\_\_\_

Development Technique(s) and Date(s) \_\_\_\_\_

Surge and purge 5 well volumes with bailer, 1/26/12

\_\_\_\_\_

\_\_\_\_\_

PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-01**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 3 feet southeast of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 15.0 feet

∇ FIRST ENCOUNTERED WATER 2.0 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/08/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
			SW		1.0	SAND (SW), Dark Yellowish Brown (10YR 4/4), damp, loose, well graded, fine- to coarse-grained, with fine to coarse subround to angular gravel, trace silt, (25,65,10,0)	0.5		
			CL		1.5	SANDY CLAY (CL), Dark Olive Gray (5Y 3/2), moist, soft, medium plasticity, fine- to coarse-grained sand, with silt and fine to coarse subangular gravel, (15,25,15,45)	1.0		
			GW		2.0	Hand auger refusal encountered at approximately 1.5 feet bgs. Used star bit to pulverize cobbles from 1.5 to 2 feet bgs, no sample recovery.	1.9		
			SP		2.5	SAND (SP), Dark Yellowish Brown (10YR 4/4), wet, loose, poorly graded, medium-grained, trace fine gravel and fine-grained sand, (5,95,0,0)	24.0		
			CL		3.5	SANDY CLAY (CL), Dark Olive Gray (5Y 3/2), moist, soft, medium plasticity, fine- to coarse-grained sand, with silt and fine to coarse subangular gravel, (15,25,15,45)	68.3		
			GW		5.0	SANDY GRAVEL (GW), Dark Greenish Gray (Gley 1, 3/10Y), moist, loose, well graded, fine to coarse, subangular to angular, with fine- to coarse-grained sand, hydrocarbon odor, (65,25,10,0)	98.2		
5	SB-01 4.5-5.0						96.7		5
			CL		8.5	CLAY (CL), Greenish Black (Gley 1, 2.5/10Y), moist, soft, medium plasticity, with fine- to coarse-grained sand, trace silt and fine to coarse gravel, moderate hydrocarbon odor, (10,15,10,65) Free product observed in soil pore spaces from approximately 6 to 6.5 feet bgs Damp, firm below approximately 6.5 feet bgs Soft below approximately 7 feet bgs, with brick fragments and refuse; free product observed in soil pore spaces from approximately 7 to 7.5 feet bgs	77.9		
						No recovery	64.6		
							40.9		
							45.0		
10			CL		10.0	CLAY (CL), Greenish Black (Gley 1, 2.5/10Y), moist, soft, medium plasticity, trace silt, fine- to coarse-grained sand, and fine to coarse gravel, brick fragments and refuse, moderate hydrocarbon odor, (10,10,10,70)	30.4		10
							15.2		
			OH		11.5	CLAY (OH), Greenish Black (Gley 1, 2.5/10Y), moist, soft, high plasticity, high organic content, plant material, sulfur-like odor, (0,0,0,100)	12.1		
							11.9		
							2.3		
							3.3		
							2.8		
							2.1		
15	SB-01 12-13				15.0	With coarse angular gravel and silt, no odor below approximately 14.0 feet bgs	4.3		15
						Bottom of boring at approximately 15.0 feet bgs. Tremie grouted borehole to surface			

BORING+WELL\_2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





**PROJECT NAME** UPS Oakland Hub **BORING NUMBER SB-02**  
**CLIENT** United Parcel Service, Inc. PAGE 1 OF 1  
**PROJECT LOCATION** 8400 Pardee Drive, Oakland, California **DRILLING CONTRACTOR** Cascade Drilling, LP  
**PROJECT NUMBER** B0038398.0002.00200 **DRILLING METHOD** Direct Push with Macrocore  
**LOCATION** Approximately 25 feet northeast of former UST cavity **STAMP (IF APPLICABLE) AND/OR NOTES**  
**OVA EQUIPMENT** Photoionization Detector  
**GROUND ELEVATION** --- **HOLE DIAMETER** 2 1/4 in  
**TOP OF CASING ELEVATION** NA **HOLE DEPTH** 13.0 feet  
**FIRST ENCOUNTERED WATER** ---  
**STABILIZED WATER** ---  
**LOGGED BY** Morgan Jones **DATE** 04/08/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
	Hand Auger		SW		0.5	SAND (SW), Dark Yellowish Brown (10YR 4/4), damp, loose, well graded, fine- to coarse-grained, with fine to coarse subround to angular gravel, trace silt, (25,65,10,0)	0.0		
			SP		1.5	SAND (SP), Dark Yellowish Brown (10YR 4/4), wet, loose, poorly graded, medium-grained, trace fine gravel and fine-grained sand, (5,95,0,0)	0.1		
			GW		2.0	Hand auger refusal encountered at approximately 2 feet bgs. Used star bit to pulverize cobbles from 2 to 2.5 feet bgs, no sample recovery.	1.7		
			SP		2.5	SAND (SP), Dark Yellowish Brown (10YR 4/4), wet, loose, poorly graded, medium-grained, trace fine gravel and fine-grained sand, (5,95,0,0)	0.1		
5			GW		4.5	Hand auger refusal encountered at approximately 4.5 feet bgs. Used solid tip to drive from 4.5 to 6 feet bgs, no sample recovery.	0.0		5
	SB-02 7.0-7.5		SW		6.0	SAND (SW), Very Dark Gray (10YR 3/1), moist, loose, well graded, fine- to coarse-grained, with silt, trace clay	11.7		
			CL		7.0	Brick fragments from approximately 6.5 to 7 feet bgs	8.6		
			CL		8.5	CLAY (CL), Greenish Black (Gley 1, 2.5/10Y), moist, soft, medium plasticity, trace silt, fine- to coarse-grained sand, and fine to coarse gravel, brick fragments and refuse, hydrocarbon odor, (10,10,10,70)	42.0		
10	SB-02 9.5-10		OH		8.5	CLAY (OH), Greenish Black (Gley 1, 2.5/10Y), moist, soft, with coarse angular gravel, trace fine- to medium-grained sand, high plasticity, high organic content, plant material, (20,10,0,70)	13.4		
					10	Sulfur-like odor, no coarse-grained soils below approximately 10 feet bgs	3.5		10
								1.6	
								2.6	
							2.0		
							2.0		
							2.3		
							2.3		
							1.0		
					13.0	Bottom of boring at approximately 13 feet bgs. Collected grab groundwater sample TW-02. Tremie grouted borehole to surface.			

BORING+WELL 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-03**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 60 feet southwest of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 10.0 feet

▽ FIRST ENCOUNTERED WATER 4.5 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/08/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
	Hand Auger SB-03 4.0-4.5		SW		2.0	GRAVELLY SAND (SW), Dark Yellowish Brown (10YR 3/6), damp, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel, trace silt, (40,50,10,0) Moist, with increasing clay below approximately 1 foot bgs	6.0 2.0 0.6		
			CL		2.5	SANDY CLAY (CL), Dark Brown (10YR 3/3), damp, soft, medium plasticity, fine- to coarse-grained sand, with fine angular gravel, trace silt, (15,25,10,50)	1.9 0.5		
			SW		▽	SAND (SW), Dark Greenish Gray (Gley 1, 4/10Y), damp, loose, well graded, fine- to coarse-grained, trace silt and fine gravel, (10,80,10,0) Moist, with increasing coarse-grained sand and fine gravel below approximately 3 feet bgs With increasing clay below approximately 3.5 feet bgs	0.2 0.6 0.3		
5					▽	Wet below approximately 4.5 feet bgs			5
	SB-03 7.5-8.0		CL		5.5	CLAY (CL), Black (10YR 2/1), moist, soft, medium plasticity, trace silt, with fine- to coarse-grained sand, (0,15,0,85)	0.2		
			SW		6.0	GRAVELLY SAND (SW), Black (10YR 2/1), wet, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel, trace silt, (30,65,5,0)	0.3		
			CL		6.5	CLAY (CL), Very Dark Gray (5Y 3/1), damp, soft, medium plasticity, with fine- to coarse-grained sand, and fine to coarse angular gravel, (15,15,0,70)	0.3		
			OH		8.0	CLAY (OH), Dark Greenish Gray (Gley 1, 4/10Y), damp, firm, high plasticity, (0,0,0,100)	0.2		
10					10.0	Black, soft, with high organic content, increasing silt below approximately 9.5 feet bgs	0.2		10
						Bottom of boring at approximately 10 feet bgs. Placed temporary well screen from approximately 5 to 10 feet bgs, and collected grab groundwater sample TW-03. Tremie grouted borehole to surface.	0.2		

BORING+WELL\_2005 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-04**

CLIENT United Parcel Service, Inc.

PAGE 1 OF 3

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 200 feet northeast of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION -- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 10.0 feet

∇ FIRST ENCOUNTERED WATER 3.5 feet

STABILIZED WATER --

LOGGED BY Morgan Jones DATE 04/08/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
			SW		1.0	SAND (SW), Dark Yellowish Brown (10YR 4/4), damp, loose, well graded, fine- to coarse-grained, with fine to coarse subround to angular gravel, trace silt, (25,65,10,0)	1.4		
			CL		2.0	SANDY CLAY (CL), Dark Olive Gray (5Y 3/2), damp, soft, medium plasticity, fine- to coarse-grained sand, with silt and fine to coarse subangular gravel, no odor, (15,25,15,45)	0.9		
	Hand Auger		SC		2.0	CLAYEY SAND (SC), Very Dark Greenish Gray (Gley 1, 3/10Y), moist, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel, (15,60,0,25)	0.0		
					∇	Wet below approximately 3.5 feet bgs	0.0		
5					5.0		0.0		5
			CL		6.0	CLAY (CL), Greenish Black (Gley 1, 2.5/10Y), moist, soft, medium plasticity fine- to coarse-grained sand, with fine to coarse angular gravel, (20,15,0,65)	0.0		
					6.0	Decreasing gravel, with organic material observed below approximately 5.5 feet bgs	0.0		
						SILTY CLAY (CL), Very Dark Gray (10YR 3/1), damp, firm, medium plasticity, with trace coarse-grained sand, and fine to coarse angular gravel, refuse, (20,10,25,45)	0.0		
						Organic odor below approximately 7 feet bgs	0.0		
			CL			Greenish Black (Gley 1, 2.5/10Y), moist, soft, high organic content, trace fine-grained sand, no other coarse-grained materials below approximately 8 feet bgs	0.0		
10					10.0		0.0		10
						Bottom of boring at approximately 10 feet bgs. Placed temporary well screen from approximately 5 to 10 feet bgs, removed drill rods, and collected grab groundwater sample TW-04. Tremie grouted borehole to surface.	0.0		

BORING+WELL\_2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT DB/02/10

(Continued Next Page)

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-05**

CLIENT United Parcel Service, Inc.

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 5 feet north of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

▽ FIRST ENCOUNTERED WATER 4.5 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/09/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.8	Asphalt			
			SM		2.0	SILTY SAND (SM), Dark Brown (10YR 3/3), damp, loose, well graded, fine- to coarse-grained, with fine to coarse subangular to angular gravel, (25,45,30,0) With cobbles below approximately 1.5 feet bgs	2.5 1.5		
	Hand Auger		SW		5.0	GRAVELLY SAND (SW), Dark Greenish Gray (Gley 1, 4/10Y), damp, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, with clay, trace silt, (30,35,10,25) Moist, decreasing coarse gravel, hydrocarbon odor below approximately 3 feet bgs	11.2 90.3 151 103		
5	SB-05 4.5-5.0				5.0	Wet, free product observed in pore spaces below approximately 4.5 feet bgs	136		5
			CL		9.5	SILTY CLAY (CL), Dark Greenish Gray (Gley 1, 4/10Y), damp, firm, medium plasticity, trace coarse-grained sand, (0,10,25,65) Olive (5Y 4/4) below approximately 5.5 feet bgs  With fine to coarse angular gravel below approximately 6.5 feet bgs  Increasing sand and fine gravel below approxiamtely 8.5 feet bgs	79.5 55.0 44.0 17.4 7.7 10.1		
10	SB-05 10.0-10.5		OH		12.0	CLAY (OH), Greenish Black (Gley 1, 2.5/10Y), moist, soft, high plasticity, high organic content, plant material, organic odor, (0,0,0,100) Black (Gley 1, 2.5/N) below approximately 10.5 feet bgs	4.2 3.0 2.4 1.4 3.0		10
						Bottom of boring at approximately 12 feet bgs. Tremie grouted borehole to surface.			

BORING+WELL 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-06**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 80 feet north-northwest of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 15.0 feet

∇ FIRST ENCOUNTERED WATER 7.0 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/09/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
			SM		1.5	SILTY SAND (SM), Dark Yellowish Brown (10YR 4/4), damp, loose, well graded, fine- to coarse-grained, with clay and fine to coarse subround to angular gravel, (20,35,30,15)	9.2		
	Hand Auger					SANDY CLAY (CL), Very Dark Grayish Brown (10YR 3/2), moist, soft, medium plasticity, fine- to coarse-grained sand, with fine to coarse subangular gravel, (25,30,0,45)	1.5		
						Dark Olive Brown (5Y 3/2), decreasing clay, no odor below approximately 3 feet bgs	2.2		
			CL				2.3		
						Increasing coarse angular gravel below approximately 4.5 feet bgs	1.9		
5							1.4		
							0.8		5
					6.5		0.7		
			GW		7.0	SANDY GRAVEL (GW), Black (10YR 2/1), moist, medium dense, coarse, fine- to medium-grained sand	0.7		
	SB-06 7.0-7.5		SC		7.5	CLAYEY SAND (SC), Very Dark Greenish Gray (Gley 1, 3/10Y), wet, medium dense, well graded, fine- to coarse-grained, with fine gravel, organic odor	55.0		
			CL		8.5	SILTY CLAY (CL), Very Dark Gray (10YR 3/1), damp, hard, medium plasticity, trace fine-grained sand, (0,10,25,65)	8.2		
						Firm below approximately 8 feet bgs No recovery			
10					10.0				10
			CL			SILTY CLAY (CL), Very Dark Gray (10YR 3/1), damp, soft, medium plasticity, with fine- to coarse-grained sand, (0,20,20,60)	3.3		
							2.6		
							2.3		
			CL		12.0	SANDY CLAY (CL), Olive (5Y 4/3), wet, very soft, with fine- to coarse-grained angular gravel, (25,30,0,45)	0.8		
			CL		13.0	SILTY CLAY (CL), Black (10YR 2/1), moist, firm, medium plasticity, trace medium- to coarse-grained sand, brick fragments and refuse observed, (0,0,0,100)	1.2		
							1.6		
15					15.0		1.4		15
						Bottom of boring at approximately 15 feet bgs. Set temporary well screen from 5 to 15 feet bgs, removed drill rods, and collected grab groundwater sample TW-06. Tremie grouted borehole to surface.			

BORING+WELL 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-07**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 100 feet north-northeast of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

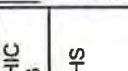






GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 11.0 feet

FIRST ENCOUNTERED WATER 3.0 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/09/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.8	Asphalt		4.3	
			SC		2.0	CLAYEY SAND (SM), Dark Brown (10YR 3/3), moist, loose, well graded, fine- to coarse-grained, with fine angular gravel, organic material, (15,60,0,25)		2.4	
	Hand Auger				2.0			1.4	
			SW		3.0	GRAVELLY SAND (SW), Greenish Gray (Gley 1, 2.5/5GY), moist, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, trace silt, (30,65,5,0)		2.9	
					3.0	Wet below approximately 3 feet bgs		0.7	
					4.0			1.2	
5	SB-07 4.5-5.0		CL		4.0	SILTY CLAY (CL), Very Dark Grayish Brown (10YR 2/2), moist, firm, medium plasticity, trace coarse-grained sand and fine gravel, (5,5,25,65) Free product observed in pore spaces from approximately 4.5 to 5 feet bgs		4.0	
					5.0			31.5	
			CL		5.0			11.9	5
					6.0			5.6	
					7.0	Free product observed in pore spaces from approximately 6.5 to 7 feet bgs		20.6	
			SW		7.0	GRAVELLY SAND (SW), Gray (10YR 6/1), dry, medium dense, appearance of pulverized concrete		50.9	
					8.0			12.7	
			CL		8.0	SANDY CLAY (CL), Black (10YR 2/1), moist, firm, low plasticity, fine- to coarse-grained sand, with silt, (0,20,15,65)		5.6	
10					10.0	Wet, soft, with fine angular gravel, organic odor, below approximately 10 feet bgs		4.6	10
					11.0			4.1	
					11.0	Bottom of boring at approximately 11 feet bgs. Hole collapsed to a depth of 8.5 feet bgs. Set temporary well screen from 3.5 to 8.5 feet bgs, removed drill rods, and collected grab groundwater sample TW-07 and duplicate TW-07D. Tremie grouted borehole to surface.			

BORING-WELL\_2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-08**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 350 feet north of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 10.0 feet

FIRST ENCOUNTERED WATER ---

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/09/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
			SW		1.0	SAND (SW), Dark Yellowish Brown (10YR 4/4), damp, loose, well graded, fine- to coarse-grained, with fine to coarse subround to angular gravel, trace silt, (25,65,10,0)	0.9		
			CL		2.0	SANDY CLAY (CL), Dark Yellowish Brown (10YR 3/6), moist, soft, low plasticity, fine- to coarse-grained sand, with silt and fine to coarse angular gravel, organic material, (25,30,10,35)	1.2		
			CL		2.0	Dark Brown (10YR 3/3), increasing fines, decreasing sand and gravel below approximately 1.5 feet bgs	2.0		
			CL		0.9	Very Dark Gray (10YR 3/1), firm, medium plasticity, increasing clay, trace coarse-grained sand, no gravel below approximately 2 feet bgs	0.9		
			CL		1.1	Increasing plasticity, increasing silt below approximately 2.5 feet bgs	1.1		
			CL		1.7	With fine angular gravel, refuse, mild organic odor below approximately 3 feet bgs	1.7		
			SW		1.7	Black (10YR 2/1), with coarse angular gravel below approximately 3.5 feet bgs	1.4		
			SW		1.4	GRAVELLY SAND (SW), Black (10YR 2/1), moist, loose, moderately graded, fine- to medium-grained, fine to coarse angular gravel, trace coarse-grained sand, trace refuse			
5	SB-08 4.5-5.0				5.0				5
			CL		0.7	SANDY CLAY (CL), Black (10YR 2/1), moist, soft, medium plasticity, (0,20,10,70)	0.7		
			CL		0.8	Organic material, strong sulfur-like odor below approximately 5.5 feet bgs	0.8		
			CL		0.6	Greenish Black (Gley 1, 2.5/10Y), with organic material, no coarse grained soils below approximately 6.5 feet bgs	0.6		
			CL		4.2		4.2		
			CL		0.7		0.7		
			CL		12.7		12.7		
					8.0	No recovery			
10					10.0				10
						Bottom of boring at approximately 10 feet bgs. Set temporary well screen from 5 to 10 feet bgs, removed drill rods. No water measured in hole, secured borehole at surface and returned 4/13/10, collected grab groundwater sample TVW-08. Tremie grouted borehole to surface.			

BORING+WELL 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-09**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION 8470 Pardee Drive, approximately 50 feet southeast of UST pit

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

FIRST ENCOUNTERED WATER ---

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/12/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					1.5	Asphalt			
			SC		2.0	CLAYEY SAND (SC), Black (5Y 2.5/2), damp, medium dense, moderately graded, fine- to medium-grained, with fine to coarse subround to angular gravel, with silt, (20,35,15,30)	1.4		
			CL		3.5	SANDY CLAY (CL), Black (5Y 2.5/2), damp, firm, low plasticity, with silt and fine to coarse gravel Decreasing silt and coarse gravel below approximately 2.5 feet bgs	2.5		1.9
			SW		4.5	GRAVELLY SAND (SW), Olive Brown (2.5Y 4/4), moist, loose, well graded, fine- to coarse-grained, fine to coarse subround to angular gravel, trace coarse-grained sand, trace silt, (25,65,10,0)	2.1		
5	SB-09 5.0-5.5		CL		5.5	SILTY CLAY (CL), Brown (10YR 4/3), moist, firm, medium plasticity, with fine- to medium-grained sand, trace fine angular gravel, (5,15,25,55)	1.2		
					6.0	Very Dark Grayish Brown (5Y 3/2) below approximately 6 feet bgs	1.3		5
			CL		7.0	CLAY (CL), Dark Yellowish Brown (10YR 4/4), moist, firm, high plasticity, trace coarse-grained sand, (0,5,0,95)	0.0		
			CL		8.0	Dark Gray (5Y 4/1), with increasing fine- to coarse-grained sand below approximately 7.5 feet bgs	0.0		
			SW		9.5	SAND (SW), Black (10YR 2/1), moist, medium dense, moderately graded, fine- to medium-grained, trace clay, (0,95,0,5) Damp, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel below approximately 8.5 feet bgs	0.0		
10	SB-09 9.5-10.0		CL		10.0	SILTY CLAY (CL), Dark Gray (Gley 1, 2.5/5GY), moist, soft, medium plasticity, high organic content, mild sulfur-like odor, (0,0,25,75)	0.0		10
					12.0	Bottom of boring at approximately 12 feet bgs. Set temporary well screen from 7 to 12 feet bgs, removed drill rods, and collected grab groundwater sample TW-09. Tremie grouted borehole to surface.	0.0		

BORING+WELL: 2006 UPS-OAKLAND\_SOIL\_GW: APR2010.GPJ LFR SEPT 2006: GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub **BORING NUMBER SB-10**  
 CLIENT United Parcel Service, Inc. PAGE 1 OF 1  
 PROJECT LOCATION 8400 Pardee Drive, Oakland, California DRILLING CONTRACTOR Cascade Drilling, LP  
 PROJECT NUMBER B0038398.0002.00200 DRILLING METHOD Direct Push with Macrocore  
 LOCATION 8470 Pardee Drive, approximately 80 feet east of former UST STAMP (IF APPLICABLE) AND/OR NOTES  
 OVA EQUIPMENT Photoionization Detector  
 GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in  
 TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet  
 FIRST ENCOUNTERED WATER ---  
 STABILIZED WATER ---  
 LOGGED BY Morgan Jones DATE 04/12/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					1.5	Asphalt, base rock			
	Hand Auger		SW		2.0	GRAVELLY SAND (SW), Dark Brown (10YR 3/3), damp, loose, well graded, fine- to coarse-grained, with fine to coarse angular gravel, with silt and clay, (25,35,20,20)	3.4		
			ML		3.0	SANDY SILT (ML), Dark Brown (10YR 3/3), damp, soft, non-plastic, fine-grained sand, with fine angular gravel, trace coarse sand, (15,25,60,0)	0.7		
					3.0	Increasing coarse angular gravel below approximately 2.5 feet bgs	0.4		
				SM		5.0	SILTY SAND (SM), Dark Brown (10YR 3/3), moist, medium dense, moderately graded, fine- to medium-grained, with fine gravel, (15,60,25,0)	2.7	
5					5.0	Olive Gray (5Y 4/2), decreasing gravel below approximately 4 feet bgs	0.9		
					5.0		0.8		5
					5.0		0.0		
	SB-10 7.0-7.5		SW		6.0	GRAVELLY SAND (SW), Dark Brown (10YR 3/3), moist, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, with silt and clay, (25,55,10,10)	0.0		
				CL		6.0	Decreasing brick and refuse below approximately 5.5 feet bgs	0.0	
					7.5	SANDY CLAY (CL), Brown (10YR 4/3), damp, firm, low plasticity, fine- to coarse-grained sand and fine angular gravel	0.0		
					7.5		0.0		
					7.5	GRAVELLY SAND (SW), Dark Greenish Gray (Gley 1, 2.5/10), damp, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, trace silt and clay, (25,55,10,10)	0.0		
					9.0		0.0		
	SB-10 9.5-10.0		SW		9.0		0.0		
					9.0	SILTY CLAY (CL), Dark Gray (Gley 1, 2.5/5GY), moist, soft, medium plasticity, high organic content, sulfur-like odor, (0,0,25,75)	0.0		
10					9.0		0.0		
					12.0		0.0		10
					12.0		0.0		
					12.0	Bottom of boring at approximately 12 feet bgs. Set temporary well screen from 7 to 12 feet bgs, removed drill rods, and collected grab groundwater sample TW-10. Tremie grouted borehole to surface.			

BORING+WELL\_2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-11**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 250 feet north of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 10.0 feet

∇ FIRST ENCOUNTERED WATER 2.5 feet

STABILIZED WATER ---

LOGGED BY Morqan Jones DATE 04/12/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt, base rock			
	Hand Auger SB-11 3.0-3.5		ML		1.5	SANDY SILT (ML), Dark Brown (10YR 3/3), damp, firm, non-plastic, fine-grained sand, with fine subround gravel and clay, (20,25,40,15)	7.0		
								2.6	
			SW		∇ 3.5	GRAVELLY SAND (SW), Greenish Black (Gley 1, 2.5/5GY), moist, loose, well graded, fine- to coarse-grained, fine subangular gravel, trace silt, (35,60,5,0)  Wet, with coarse angular gravel below approximately 2.5 feet bgs	0.0		
							0.0		
5						SILTY CLAY (CL), Black (5Y 2.5/1), moist, firm, medium plasticity, trace coarse-grained sand, brick fragments and refuse observed, no odor, greenish mottling, (0,5,25,70)  Increasing fine-grained sand below approximately 4.5 feet bgs	0.5		5
			CL				0.0		
							0.0		
							0.1		
					7.5	Pulverized concrete in core from approximately 7 to 7.5 feet bgs	0.0		
							0.0		
			OH			SILTY CLAY (CL), Black (5Y 2.5/1), moist, soft, high plasticity, high organic content, (0,0,25,75) Greenish Black (Gley 1, 2.5/10Y) below approximately 8 feet bgs	0.0		
					9.0	Wet, very soft below approximately 8.5 feet bgs	0.0		
							0.0		
						No recovery			
10					10.0				10
						Bottom of boring at approximately 10 feet bgs. Set temporary well screen from 5 to 10 feet bgs, removed drill rods, and collected grab groundwater sample TW-11. Tremie grouted borehole to surface.			
							0.5		
							0.4		
							0.4		

BORING+WELL\_2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-12**

CLIENT United Parcel Service, Inc.

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Approximately 40 feet west of former UST cavity

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 13.0 feet

∇ FIRST ENCOUNTERED WATER 6.0 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/12/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					1.0	Asphalt			
	Hand Auger		ML		3.0	SILT (ML), Dark Yellowish Brown (10YR 4/6), dry, with fine-grained sand	5.8 5.4 2.3 0.7		
					5.0	Driller reported coarse gravel and cobbles encountered at 3 feet bgs, refusal. Advanced to drill rods to 5 feet bgs, no recovery.			5
	SB-12 6.0-6.5		SW		6.5	GRAVELLY SAND (SW), Dark Greenish Gray (Gley 1, 4/10Y), damp, medium dense, well graded, fine- to coarse-grained, fine to coarse subangular to angular gravel, trace silt, (30,65,5,0) Dark Yellowish Brown (10YR 4/4), wet, with increasing fines, decreasing fine-grained sand below approximately 6 feet bgs	0.0 0.0 0.3 0.3		
			CL		7.5	SILTY CLAY (CL), Very Dark Greenish Gray (Gley 1, 3/10Y), soft, moist, medium plasticity, with fine- to coarse-grained sand, trace fine subangular gravel, (10,15,20,55)	0.4 0.3		
						No recovery			
			CL		10.0				10
			OH		10.5	SILTY CLAY (CL), Very Dark Greenish Gray (Gley 1, 3/10Y), firm, moist, medium plasticity, with fine- to coarse-grained sand, trace fine subangular gravel, (10,15,20,55) CLAY (OH), Black (Gley 1, 2.5/N), moist, soft, high plasticity, high organic content, sulfur-like organic odor, (0,0,0,100) Dark Greenish Gray (Gley 1, 4/10Y), with 20% silt, strong organic odor below approximately 11.5 feet bgs	0.3 0.3 0.3 0.3		
					13.0	Bottom of boring at approximately 13 feet bgs. Set temporary well screen from 8 to 13 feet bgs, removed drill rods, and collected grab groundwater sample TW-12. Tremie grouted borehole to surface.			

BORING+WELL 2006 UPS-OAKLAND SOIL GW APR2010.GPJ LFR SEPT 2006.GDT 06/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-13**

CLIENT United Parcel Service, Inc.

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Center of former UST cavity, approximately 7 feet northwest of MW-4 STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION -- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

▽ FIRST ENCOUNTERED WATER 6.0 feet

STABILIZED WATER --

LOGGED BY Morgan Jones DATE 04/15/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
						Base rock, coarse gravel and cobbles			
			GW		1.5		5.0		
						SANDY SILT (ML), with gravel, pulverized asphalt and cobbles	20.8		
			ML		3.0				
						No recovery			
5					5.0		1.5		5
			SC		6.0	CLAYEY SAND (SC), Dark Olive Gray (10YR 3/2), moist, medium dense, well graded, fine- to coarse-grained, fine to coarse angular to subangular gravel, (25,45,0,30)	1.4		
					6.0	▽	9.8		
			GP			PEA GRAVEL (GP), Olive Gray (5Y 4/2), wet, fine, round to subround, with fine- to coarse-sand, trace silt, (80,15,5,0)	19.8		
					8.0		7.2		
			SP		8.5	SAND (SP), Olive Gray (5Y 4/2), wet, medium dense, moderately graded, fine- to medium-grained, strong hydrocarbon odor, (0,100,0,0)	4.2		
						No recovery	15.2		
10									10
					11.5				
			GP		12.0	PEA GRAVEL (GP), Olive Gray (5Y 4/2), wet, fine, round to subround, with fine- to coarse-sand, trace silt, (80,15,5,0)			
						Encountered refusal at approximately 12 feet bgs, unable to advance drill rods. Bottom of boring at 12 feet bgs, tremie grouted borehole to surface.			

BORING-WELL: 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-13A**

CLIENT United Parcel Service, Inc.

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Center of former UST cavity, approximately 10 feet northeast of MW-4 **STAMP (IF APPLICABLE) AND/OR NOTES**

OVA EQUIPMENT Photoionization Detector






GROUND ELEVATION -- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

FIRST ENCOUNTERED WATER 6.0 feet

STABILIZED WATER --

LOGGED BY Morgan Jones DATE 04/15/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	DEPTH (feet)
					0.5	Asphalt			
						No recovery			
5					5.0				5
			SC		6.0	CLAYEY SAND (SC), Dark Olive Gray (10YR 3/2), moist, medium dense, well graded, fine- to coarse-grained, fine to coarse angular to subangular gravel, (25,45,0,30)	1.3		
			GP		6.0	PEA GRAVEL (GP), Olive Gray (5Y 4/2), wet, fine, round to subround, with fine- to coarse-sand, trace silt, (80,15,5,0)	17.7		
			SP		8.0	SAND (SP), Olive Gray (5Y 4/2), wet, medium dense, moderately graded, fine- to medium-grained, hydrocarbon odor, (0,100,0,0)			
					8.5	No recovery			
10					11.5				10
			GP		12.0	PEA GRAVEL (GP), Olive Gray (5Y 4/2), wet, fine, round to subround, with fine- to coarse-sand, trace silt, (80,15,5,0)			
						Encountered refusal at approximately 12 feet bgs, unable to advance drill rods. Bottom of boring at 12 feet bgs, tremie grouted borehole to surface.			

BORING+WELL: 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006 GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub

**BORING NUMBER SB-13B**

CLIENT United Parcel Service, Inc.

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct Push with Macrocore

LOCATION Center of former UST cavity, approximately 2 feet southeast of MW-4 STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 2 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

∇ FIRST ENCOUNTERED WATER 6.0 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/15/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	DEPTH (feet)
					0.5	Asphalt No recovery		
5					5.0	CLAYEY SAND (SC), Dark Olive Gray (10YR 3/2), moist, medium dense, well graded, fine- to coarse-grained, fine to coarse angular to subangular gravel, (25,45,0,30)		5
			SC		6.0 ∇	PEA GRAVEL (GP), Olive Gray (5Y 4/2), wet, fine, round to subround, with fine- to coarse-sand, trace silt, (80,15,5,0)		
			GP		8.0			
			SP		8.5	SAND (SP), Olive Gray (5Y 4/2), wet, medium dense, moderately graded, fine- to medium-grained, hydrocarbon odor, (0,100,0,0) No recovery		10
10					11.5			
			GP		12.0	PEA GRAVEL (GP), Olive Gray (5Y 4/2), wet, fine, round to subround, with fine- to coarse-sand, trace silt, (80,15,5,0) Encountered refusal at approximately 12 feet bgs, unable to advance drill rods. Bottom of boring at 12 feet bgs, tremie grouted borehole to surface.		

BORING-WELL: 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ\_LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub

CLIENT United Parcel Service, Inc.

**WELL NUMBER VT-1A**

PAGE 1 OF 1

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct push with Dual-tube

LOCATION Approximately 10 feet northeast of well OW-1

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION -- HOLE DIAMETER 3 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

▽ FIRST ENCOUNTERED WATER 4.0 feet

▽ STABILIZED WATER 2.8 feet

LOGGED BY Morgan Jones DATE 04/13/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	WELL DIAGRAM	DEPTH (feet)
					0.5	Asphalt				
	Hand Auger		SW			GRAVELLY SAND (SW), Dark Yellowish Brown (10YR 3/4), damp, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, with clay				
					3.0	Greenish Black (Gley 1, 2.5/5GY), below approximately 2 feet bgs		0.7		
				CL		4.0	SANDY CLAY (CL), Greensih Black (Gley 1, 2.5/5GY), moist, soft, low plasticity, fine- to coarse-grained sand, with fine to coarse angular gravel			1.7
5				SW		5.0	GRAVELLY SAND (SW), Dark Yellowish Brown (10YR 3/4), wet, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, with clay, mild hydrocarbon odor			2.2
						No recovery Increasing sand, decreasing clay below approximately 5.5 feet bgs				
10					9.5	CLAY (CL), Black (Gley 1, 2.5/N), damp, firm, medium plasticity, with silt, brick fragments and refuse observed, trace free product in pore spaces		16.7		
					10.5	Soft, with coarse angular gravel below approximately 10 feet bgs		3.8		
					12.0	CLAY (OH), Black (Gley 1, 2.5/N), moist, soft, high plasticity, high organic content, strong sulfur-like odor, (0,0,0,100)		3.3		
						Bottom of boring at approximately 12 feet bgs. Set temporary well point and annular seal. Well subsequently abandoned 4/15/10, following enhanced fluid recovery test conducted 4/14/10.				

BORING+WELL 2006 UPS-OAKLAND SOIL\_GW\_APR2010.GPJ LFR SEPT 2006 GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub  
 CLIENT United Parcel Service, Inc.

**WELL NUMBER VT-1B**

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct push with Dual-tube

LOCATION Approximately 20 feet northeast of well OW-1

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 3 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 15.0 feet

▽ FIRST ENCOUNTERED WATER 5.0 feet

▽ STABILIZED WATER 2.5 feet

LOGGED BY Morgan Jones DATE 04/13/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	WELL DIAGRAM	DEPTH (feet)
					0.5	Asphalt				
			ML			SILT (ML), Olive (5Y 4/4), damp, with fine-grained sand and fine gravel	1.1			
						With clay below approximately 2 feet bgs	1.7			
			CL		3.0		2.4			
						SANDY CLAY (CL), Yellowish Brown (10YR 5/6), moist, soft, low plasticity, fine- to coarse-grained sand, with fine to coarse angular gravel, (20,25,0,55) Dark Greenish Gray (Gley 1, 4/10Y), increasing coarse gravel below approximately 4 feet bgs	5.2			
5			SC		5.0		26.6			
						CLAYEY SAND (SC), Black (10YR 2/1), wet, medium dense, moderately graded, fine- to coarse-grained, fine to coarse angular gravel	13.1			
			CL		6.0		5.3			
						CLAY (CL), Black (Gley 1, 2.5/N), damp, firm, medium plasticity, with silt, brick fragments and refuse observed	2.2			
			OH		9.5		0.9			
10						CLAY (OH), Black (Gley 1, 2.5/N), moist, soft, high plasticity, high organic content, (0,0,0,100)	0.1			
							1.1			
15					15.0					
						Bottom of boring at approximately 15 feet bgs. Backfilled boring with #3 sand to 12 feet bgs and set temporary well point and annular seal. Well subsequently abandoned 4/15/10, following enhanced fluid recovery test conducted 4/14/10.				

BORING+WELL 2006 UPS-OAKLAND\_SOIL\_GW\_APR2010.GPJ LFR SEPT 2006 GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





PROJECT NAME UPS Oakland Hub  
 CLIENT United Parcel Service, Inc.

**WELL NUMBER VT-2A**

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct push with Dual-tube

LOCATION Approximately 10 feet west of well MW-2

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION --- HOLE DIAMETER 3 1/4 in

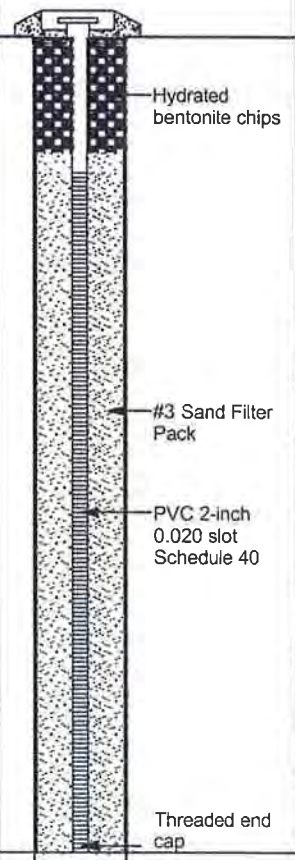
TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

∇ FIRST ENCOUNTERED WATER 4.5 feet

STABILIZED WATER ---

LOGGED BY Morgan Jones DATE 04/13/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	WELL DIAGRAM	DEPTH (feet)
					0.5	Asphalt				
	Hand Auger		SW			GRAVELLY SAND (SW), Dark Yellowish Brown (10YR 3/4), damp, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, with clay				
5					5.0	Wet, mild hydrocarbon odor below approximately 4.5 feet bgs	16.7			5
			CL			SILTY CLAY (CL), Black (Gley 1, 2.5/N), damp, hard, medium plasticity, with fine- to coarse-grained sand	0.5			
						Increasing coarse angular gravel, sulfur-like odor below approximately 6.5 feet bgs	0.4			
10						Greenish Black (Gley 1, 2.5/10Y), sulfur-like odor, no coarse-grained material below approximately 9.5 feet bgs	0.4			10
					12.0	Bottom of boring at approximately 12 feet bgs. Set temporary well point and annular seal. Well subsequently abandoned 4/15/10, following enhanced fluid recovery test conducted 4/14/10.	0.3			



BORING+WELL 2006 UPS-OAKLAND SOIL GW APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



PROJECT NAME UPS Oakland Hub  
 CLIENT United Parcel Service, Inc.

**WELL NUMBER VT-2B**

PROJECT LOCATION 8400 Pardee Drive, Oakland, California

DRILLING CONTRACTOR Cascade Drilling, LP

PROJECT NUMBER B0038398.0002.00200

DRILLING METHOD Direct push with Dual-tube

LOCATION Approximately 20 feet west of well MW-2

STAMP (IF APPLICABLE) AND/OR NOTES

OVA EQUIPMENT Photoionization Detector

GROUND ELEVATION -- HOLE DIAMETER 3 1/4 in

TOP OF CASING ELEVATION NA HOLE DEPTH 12.0 feet

▽ FIRST ENCOUNTERED WATER 3.0 feet

▽ STABILIZED WATER 3.8 feet

LOGGED BY Morgan Jones DATE 04/13/10

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	ELEVATIONS	PID (ppm)	WELL DIAGRAM	DEPTH (feet)
0.5				Asphalt	0.5					
5.0	Hand Auger	SW		GRAVELLY SAND (SW), Dark Yellowish Brown (10YR 3/4), damp, loose, well graded, fine- to coarse-grained, fine to coarse angular gravel, with clay	5.0					
5.0				Wet below approximately 3 feet bgs						
6.5			CL	CLAY (CL), Black (Gley 1, 2.5/N), moist, firm, high plasticity, with silt, trace fine-grained sand and fine gravel, refuse	6.5		14.7			
6.5			CL	SANDY CLAY (CL), Black (Gley 1, 2.5/N), wet, soft, low plasticity, with silt, fine- to coarse-sand and fine gravel, organic material, refuse, (15,30,20,35) With coarse angular gravel below approximately 7 feet bgs	6.5		9.2			
9.0			CL		9.0		14.4			
9.0			OH	CLAY (OH), Greenish Black (Gley 1, 2.5/10Y), damp, firm, high plasticity, sulfur-like odor	9.0		5.1			
10.2					10.2		10.2			
12.0					12.0		8.5			
12.0					12.0	Bottom of boring at approximately 12 feet bgs. Set temporary well point and annular seal. Well subsequently abandoned 4/15/10, following enhanced fluid recovery test conducted 4/14/10.	0.0			

BORING+WELL 2006 UPS-OAKLAND SOIL GW APR2010.GPJ LFR SEPT 2006.GDT 08/02/10

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





EXPLORATORY BORING LOG

project no: B0038398.0017 date: 10-11-13 boring number: SB-13  
 client: UPS  
 location: Oakland, CA  
 logged by: Miljan Draganic  
 driller/helper: Gregg Drilling

page 1 of 1

field location of boring: Comcast property (planter)  
 drilling method: Geoprobe Direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

ground elevation: \_\_\_\_\_ datum: \_\_\_\_\_

boring/well construction	headspace: gaseous (PID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level	
							time	date
Abandoned by backfilling with gravel	0.1			1		Sm	Silty sand with gravel; no strength and soft; dry; dark olive brown color 2.5Y 3/3; Gravels throughout, subrounded, up to 1 inch diameter; sand ranges from fine to coarse moderately graded;  Becoming harder with depth starting at 4'; with few interbedded clay layers.  Around 7.5', around 3" thick black layer of fine grained sand/silt mixture (Sm/mu); dry and soft; looks glossy. At 8', the color has changed again to yellowish brown 10YR 5/6; The geology at 8' is consistent of sandy gravels (sw), well sorted, hard, and dry.  No recovery 8'-10'.  Sandy gravels with some silts; dry and hard; well sorted, dark grayish brown color 2.5Y 4/2 gravels up to 1" diameter, sand is fine to coarse. Clay present through bottom 6 inches.  Thick clay; dry; color change to very dark greenish gray Gley 2.3/5BG; overall the clay is hard but it is softer on top and gets harder with depth.  End boring at 15'  No groundwater.	
	0.2			2				
	0.2			3				
	0.2			4				
	0.2			5				
	0.1			6				
	0.1			7				
	0.2	SB-13-SS-7'-8' @1330		8				
	0.0			9				
	0.0			10				
	0.2			11				
	0.2			12				
	0.1			13				
	0.0			14				
	0.0			15				
			16					
			17					
			18					
			19					
			20					

hand augered

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture.

EXPLORATORY BORING LOG

project no: B0038398.0017 date: 10-11-13 boring number: SB-14  
 client: UPS  
 location: Oakland, CA  
 logged by: Miljan Draganic  
 driller/helper: Gregg Drilling

field location of boring: Comcast Property (planter)  
 drilling method: Geoprobe direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

ground elevation: \_\_\_\_\_ datum: recovery

boring/well construction	headspace: gastect(FID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level				
							time	date			
Abandoned by backfilling with grout	0.1			1		Sm	Top soil; Silty Sand with gravels throughout; moderately graded; no strength and soft; Dry; overall color is dark olive brown				
	0.0			2			2.54 3/3. Few pockets of harder and slightly darker clay present starting at ~3 feet lgs. Sand ranges from fine to coarse grained and is well sorted. No gravel past 3; down to ~4.5'				
	0.2			3							
	0.2			4		Sm	Silty sand with some small gravels. poorly graded, and hard; dry; very dark grayish brown color 2.54 3/2. Contains clay between 6'-7'; (some);				
	1.7			5							
				6							
				7			At ~7.5' there is a two inch thick layer of black fine graine/silt mixture (ml); dry; soft.				
			SB-14-SS-7'-8' @ 1230		8			Color changes again to yellowish brown (10 YR 5/6) from the thin layer above down to 8'. Hard layer.			
					9	no recovery		No recovery 8'-11'			
		0.0			10		SM	Silty sands with gravels, color changed to dark grayish brown 2.54 4/2; hard and dry. sand is fine-coarse grained, subrounded gravels, moderately graded. Clayey on bottom			
		0.0			11			Clay; very thick, soft at 13' with high plasticity, but gets harder with depth - non plastic and hard at 15'. Dry. color is very dark greenish gray Gley 2 3/5BG.			
		0.1			12			CL	End boring at 15' (Color changed at 13')		
					13						
					14						
					15			No Groundwater.			
				16							
				17							
				18							
				19							
				20							

hard augered

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture.

EXPLORATORY BORING LOG

project no: B0038398-0017 date: 10-11-13 boring number: SB-15  
 client: UPS Oakland  
 location: Oakland, CA  
 logged by: Milan Draganic  
 driller/helper: Gregg Drilling

page 1 of 1

field location of boring:  
Comcast property  
(planter)

drilling method: Geoprobe direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

ground elevation:

datum:

boring/well construction	headspace: gastech (PID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level	time	date
Abandoned by backfilling grout	0.0			1		SM			
				2					
	0.2			3					
				4					
	0.1			5		CL			
				6					
	0.3			7					
				8					
	0.2	SB-15-55-8'-9' @ 0945		9		SP			
				10					
				11					
	0.0			12					
				13					
				14					
				15					

hand augered

Top Soil: Silty sand with some gravel; Moderately graded; dry; no strength/soft; sand ranges from fine to coarse grained; Thin and hard layer of clay ~ 2.5 ft L (1 inch); well sorted sand - Overall dark olive brown color 2.5Y 3/3. Clay layer is thick and hard, very dark gray color 2.5Y 3/1.

Silty Clay, with some fine-coarse sand (~15%); color change to very dark greenish gray Gley 1 3/5G4; dry and has medium plasticity; moderately hard

7.15' Dry

Poorly graded, fine to medium grained sand; trace amount of coarse sand; no strength; moist from 8'-9'. Color is very dark greenish gray Gley 1 3/10 G4; poorly sorted

No recovery 9'-13'

Recovered bottom 1" at 13'; and it is the sand above (same) but wet.

SP(?)

No recovery 13'-15'; wet.

End boring at 15'

GW Sample collected @ 1040  
 Screened 0'-11' (bottom collapsed)

GW: pH = 7.02  
 Temp. = 21.79°C  
 Cond. = 3,903 µS/cm°C  
 DO = 0.84 mg/L  
 ORP = -76.3 mV

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture. Turb = 12.5 NTU

EXPLORATORY BORING LOG

project no: B0038398-0017 date: 10-11-13 boring number: SB-16  
 client: UPS  
 location: Oakland, CA  
 logged by: Miljan Draganic  
 driller/helper: Gregg Drilling

page 1 of 1

field location of boring: Comcast Property (planter)  
 drilling method: Geoprobe direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

ground elevation: \_\_\_\_\_ datum: \_\_\_\_\_

boring/well construction	headspace: gastech (PID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level		
							time	date	
Abandoned by back-filling with grout	0.2			1		SM	Silty sand, with some gravels throughout, up to 1" diameter; moderately graded unit, soft, with no strength; and dry; Dark olive brown color 2.5Y 3/3; sand ranges from fine to coarse grained.		
	0.0			2					
	0.1			3			Trace clay towards the bottom.		
	0.0			4					
	0.1			5		CL	Silty clay, with some sand; dry, with low plasticity, and moderately hard; dark greenish gray color Gley 1 3/5 G7; sand is mostly medium grained.		
	0.0			6					
	0.2	SB-16-SS-7'-8' @ 1500			7				
					8	7.43'	SP	Sand; poorly graded; fine to medium grained, with trace coarse, no strength, moist 7'-8'. Very dark greenish gray color Gley 1 3/10 G7;	
					9		SP		
					10		SP(?)	No recovery 8'-12'	
					11		SP		
	0.0				12		SP	Same sand as above, wet	
					13		SP(?)	No recovery 12'-14.5'	
	0.0				14		SP	Same sand as above, wet.	
					15		SP	End boring at 15'	

hand augered

GW Sample collected @ 1540 & duplicate @ 1550. → both field filtered screened 0'-12' (bottom collapsed)

GW: pH=7.09  
 Temp=21.61 °C  
 Cond.=4,730 us/cm<sup>2</sup>  
 DO=1.14 mg/L  
 ORP=-58.5 mV  
 Turb=8.61 NTU

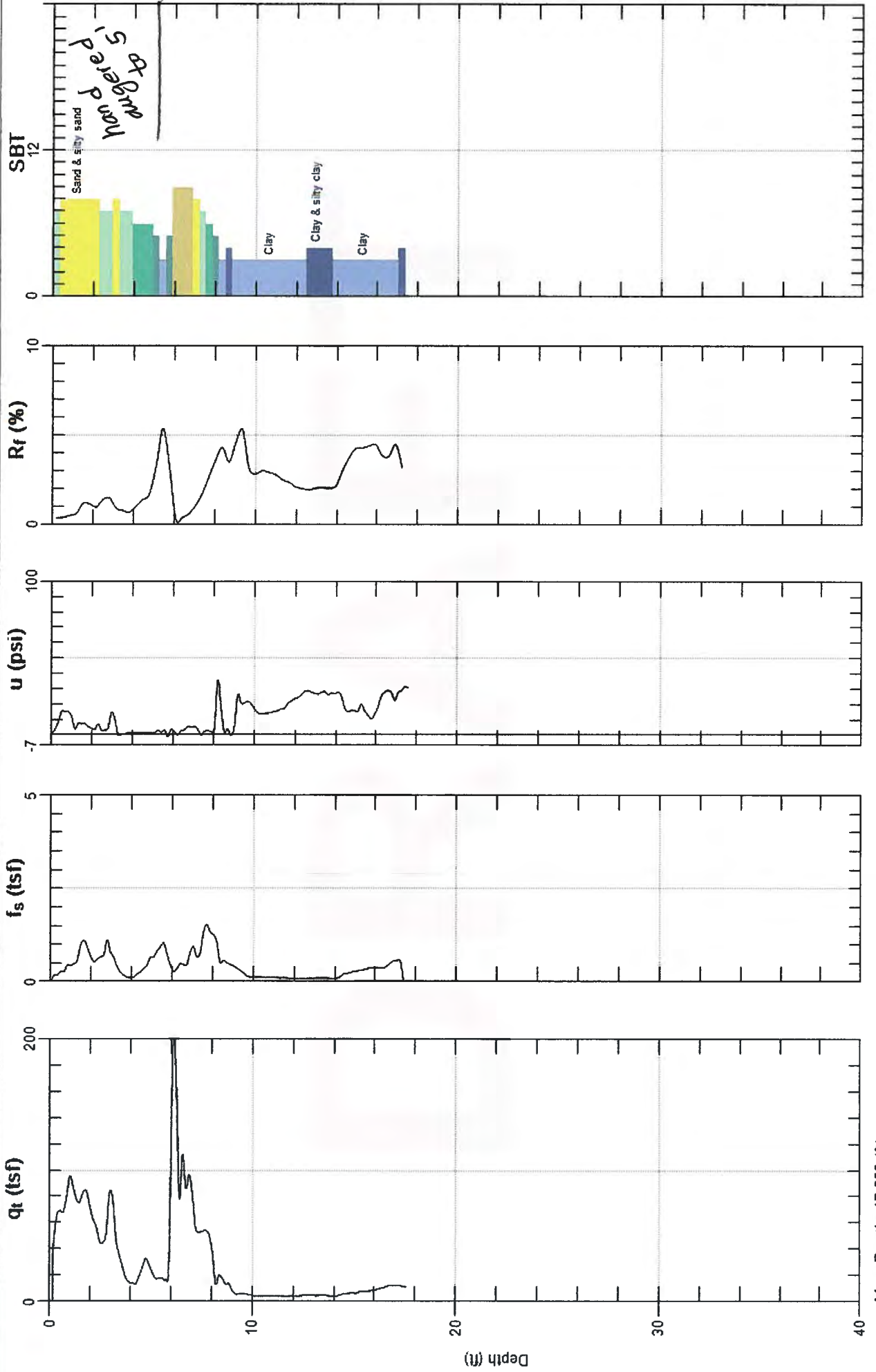
USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture.



Arcadis

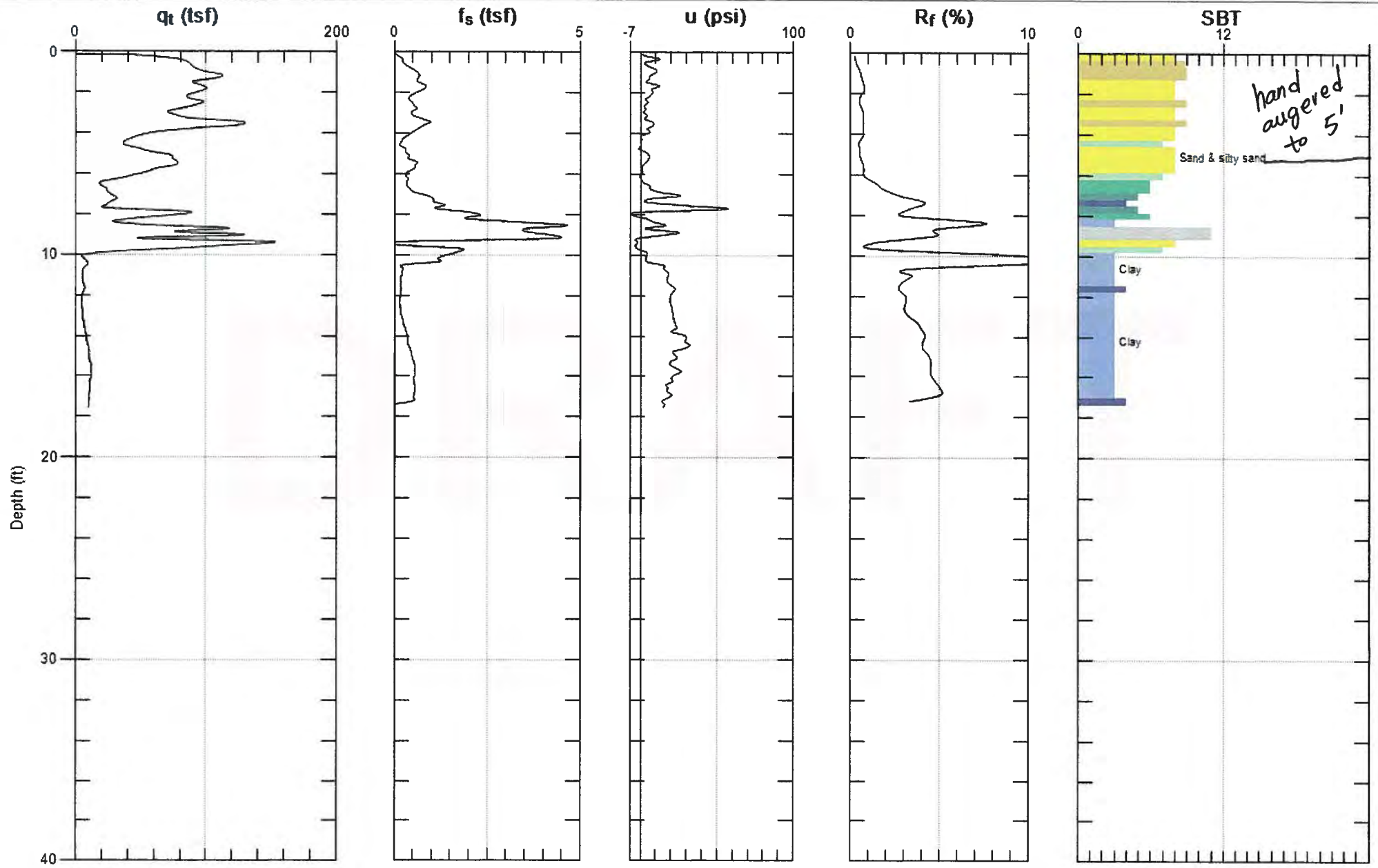
Site: UPS Oakland HUB  
Sounding: CPT-01

Engineer: Mijlan Draganic  
Date: 10/10/2013 02:18



Max Depth: 17.552 (ft)  
Avg Interval: 0.328 (ft)

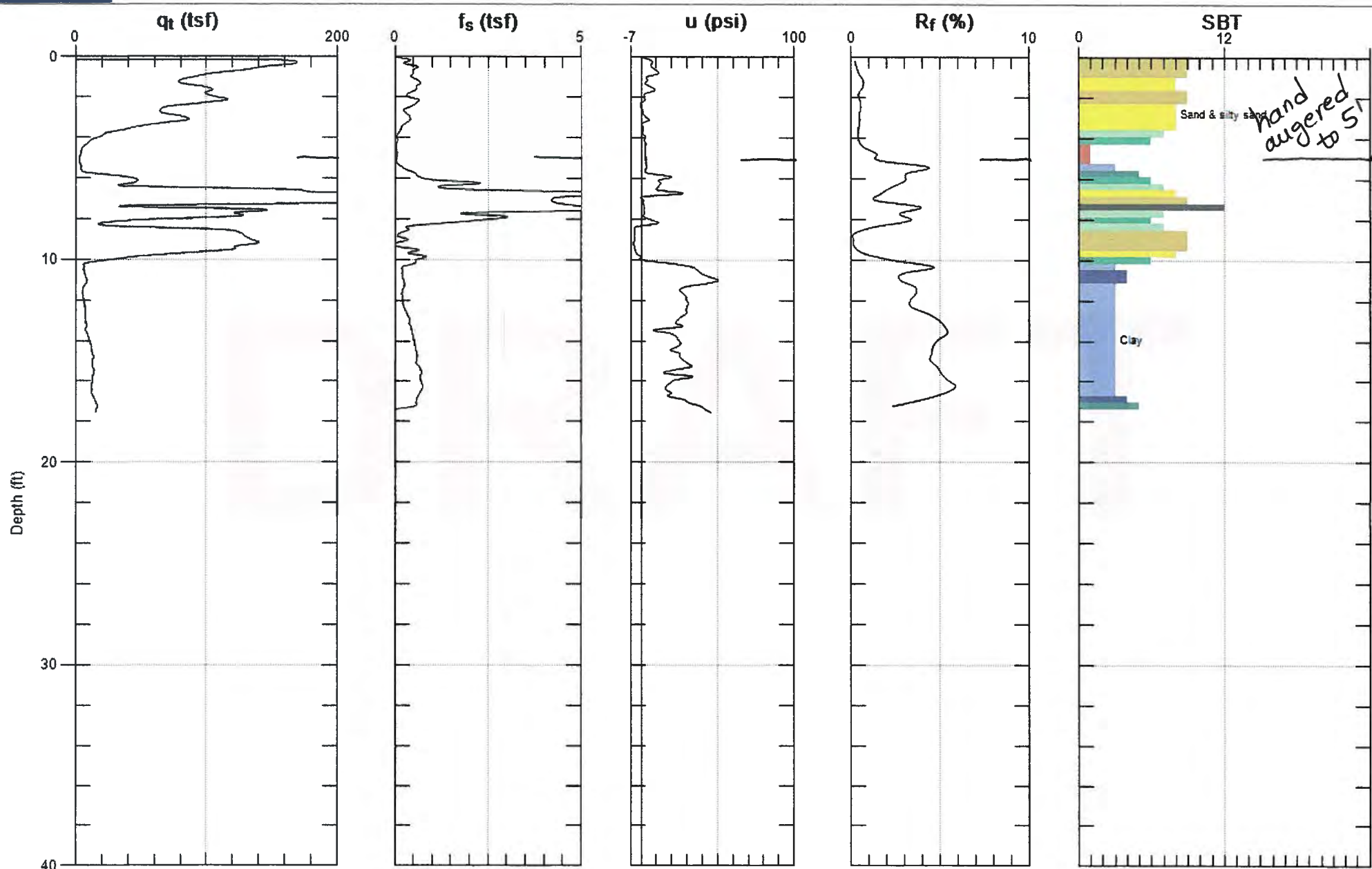
SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 17.552 (ft)  
 Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)





Max. Depth: 17.552 (ft)  
 Avg. Interval: 0.328 (ft)

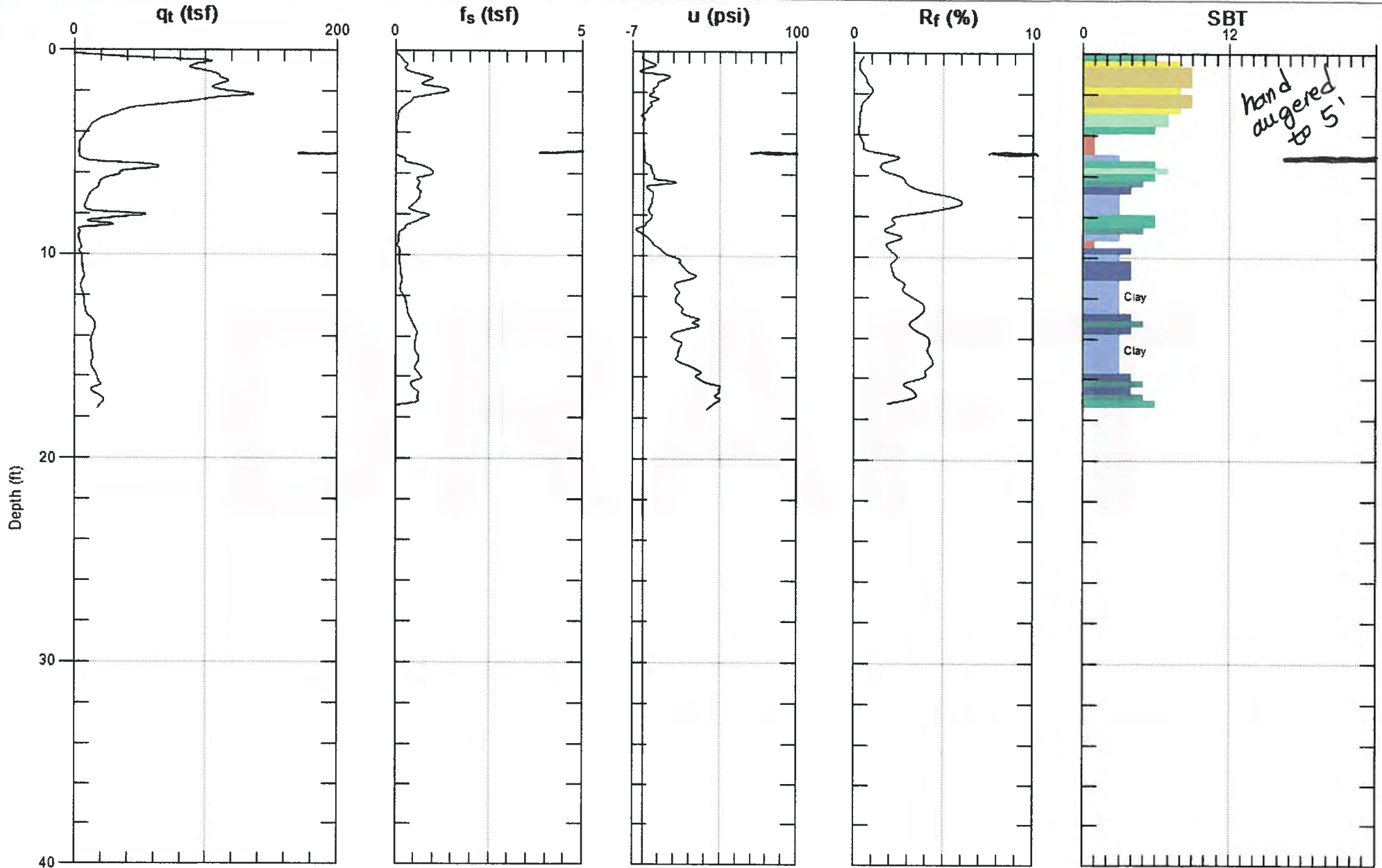
SBT: Soil Behavior Type (Robertson 1990)



Arcadis

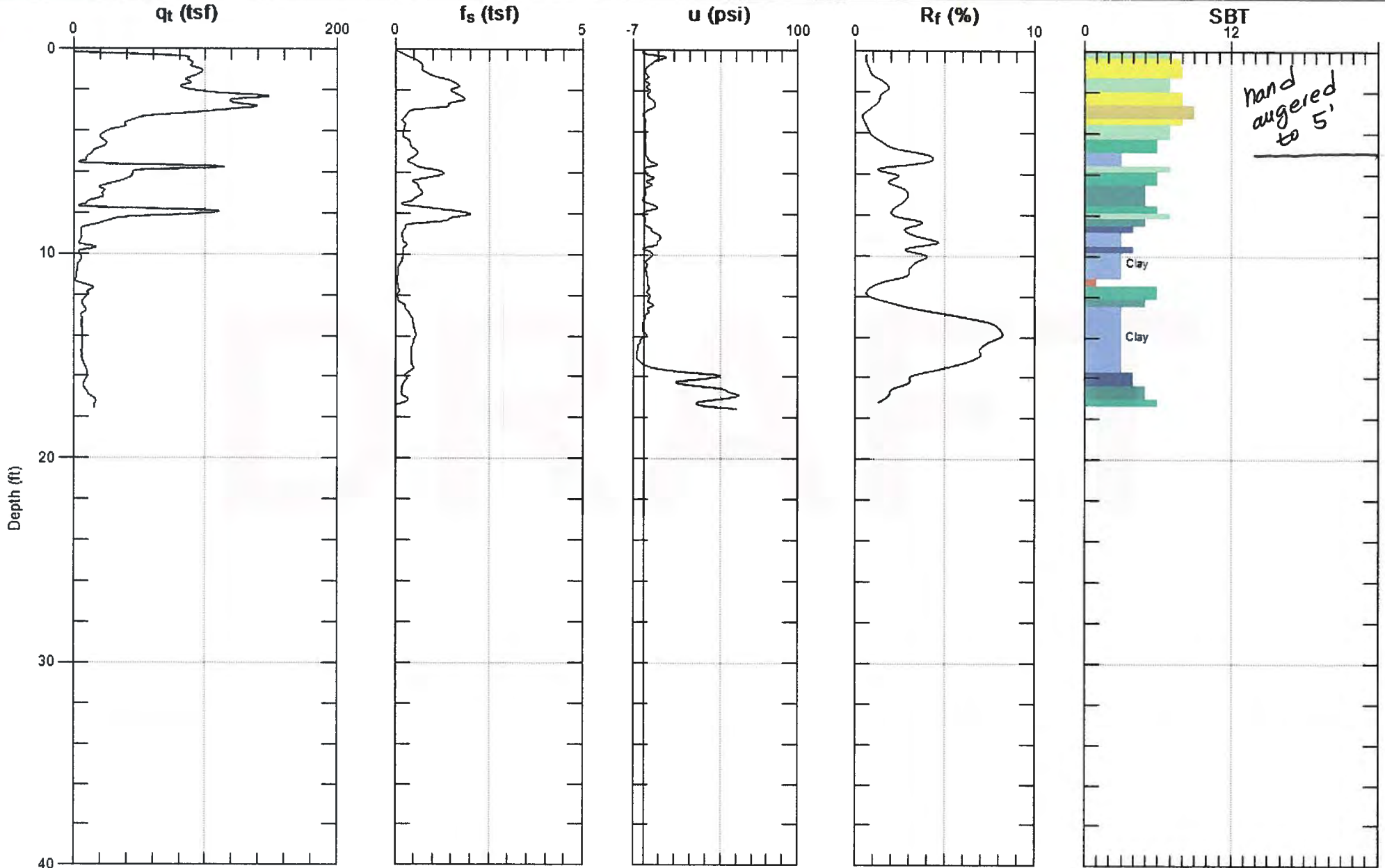
Site: UPS Oakland Hub  
Sounding: UCPT-04

Engineer: Miljan Draganic  
Date: 10/10/2013 08:51

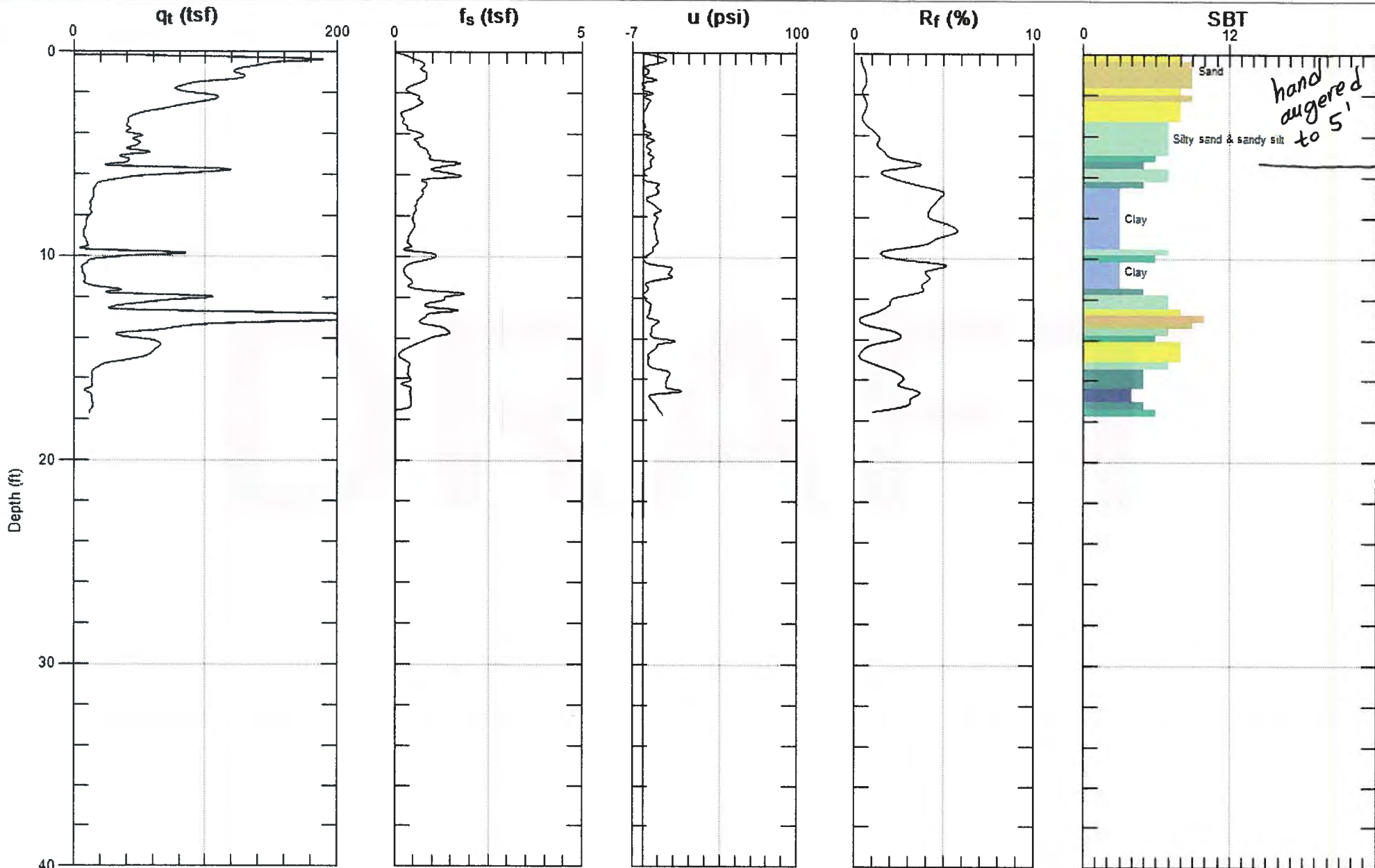


Max. Depth: 17.552 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

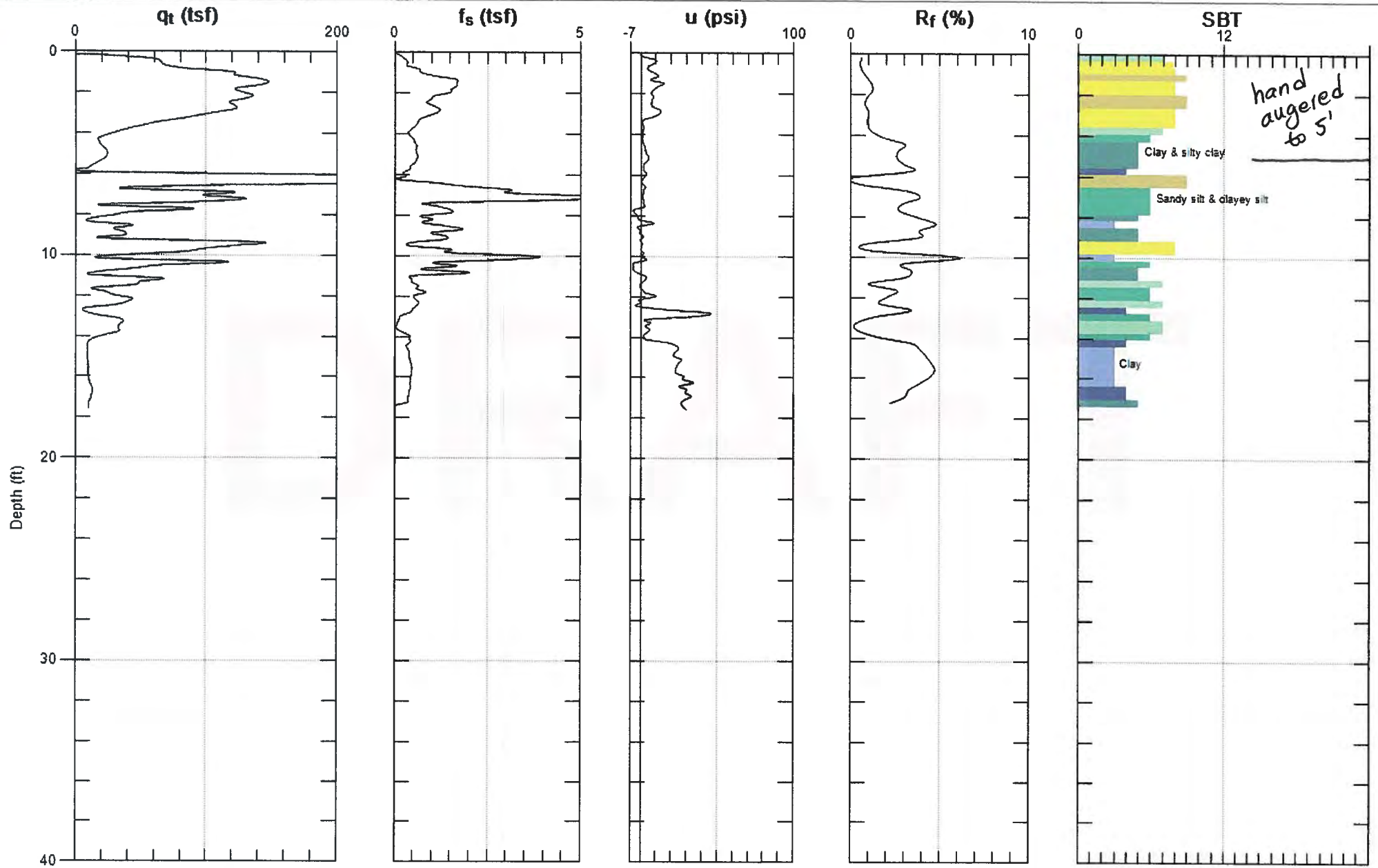


SBT: Soil Behavior Type (Robertson 1990)



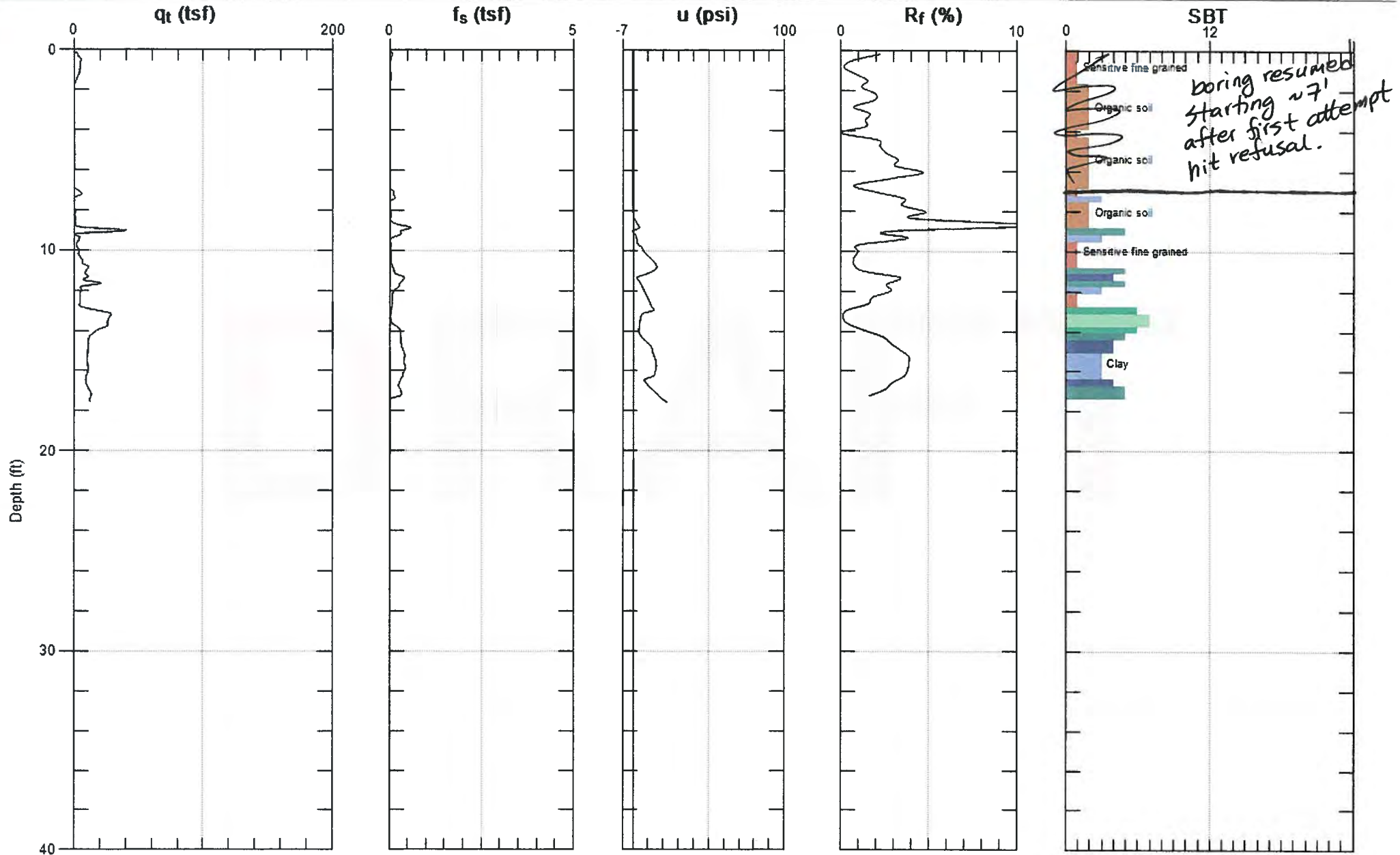
Max. Depth: 17.717 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 17.552 (ft)  
Avg. Interval: 0.328 (ft)

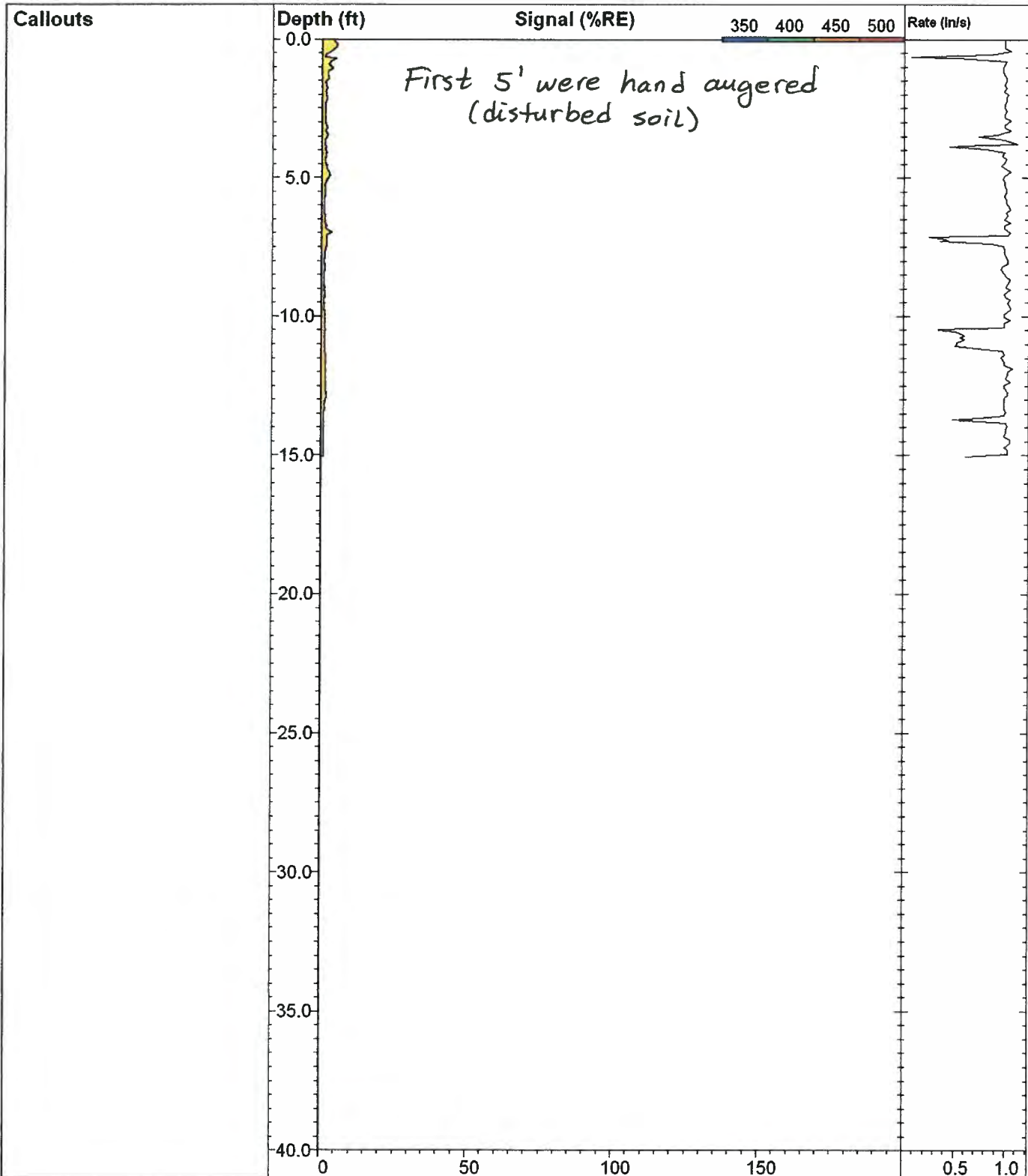
SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 17.552 (ft)  
 Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)





www.greggdrilling.com

**CPT-01**

**UVOST By Dakota**

www.DakotaTechnologies.com

Site:  
UPS Oakland Hub

Latitude / Datum:  
Unavailable / NA

Final depth:  
15.05 ft

Client:  
Arcadis

Longitude / Fix:  
Unavailable / NA

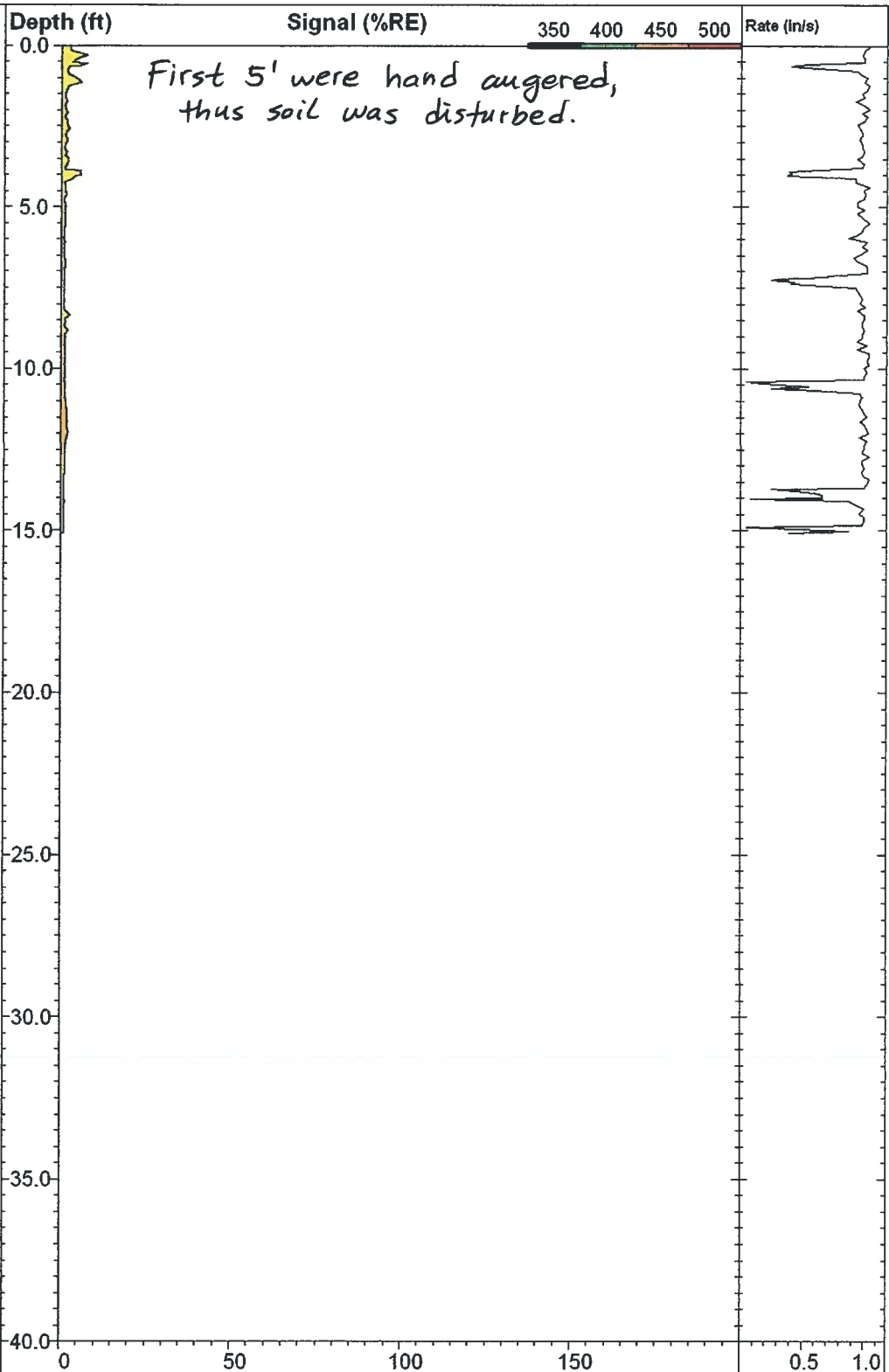
Max signal:  
5.2 % @ 0.20 ft

Job:  
B0038398.0017

Operator/Unit:  
John Hancock/UVOST100

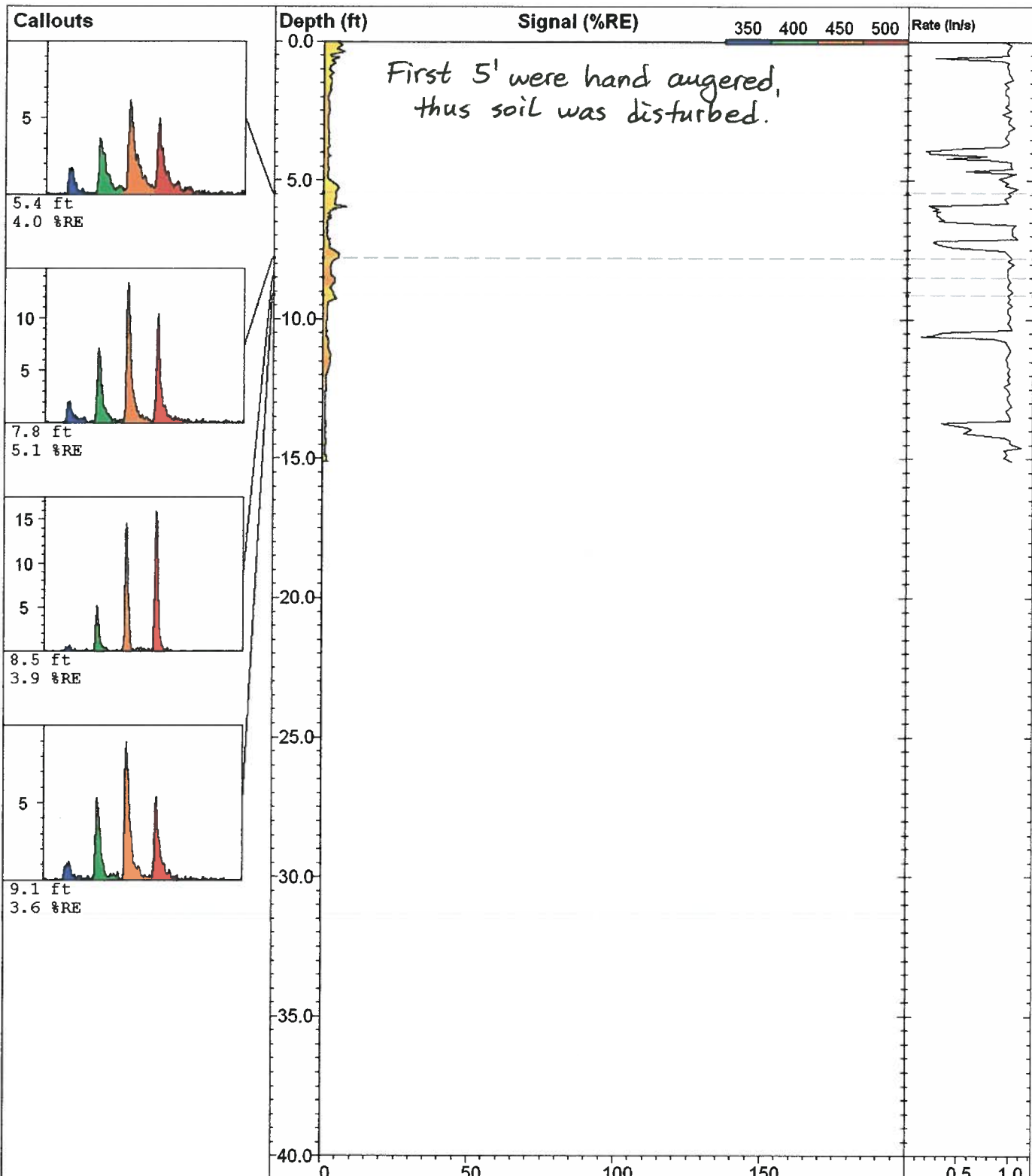
Date & Time:  
2013-10-10 14:24 PDT


**Callouts**



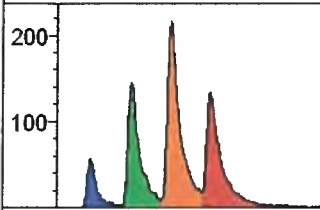
[www.greggdrilling.com](http://www.greggdrilling.com)

<b>CPT-02</b>		<b>UVOST By Dakota</b> <small>www.DakotaTechnologies.com</small>
Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.08 ft
Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 7.6 % @ 0.30 ft
Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 13:15 PDT

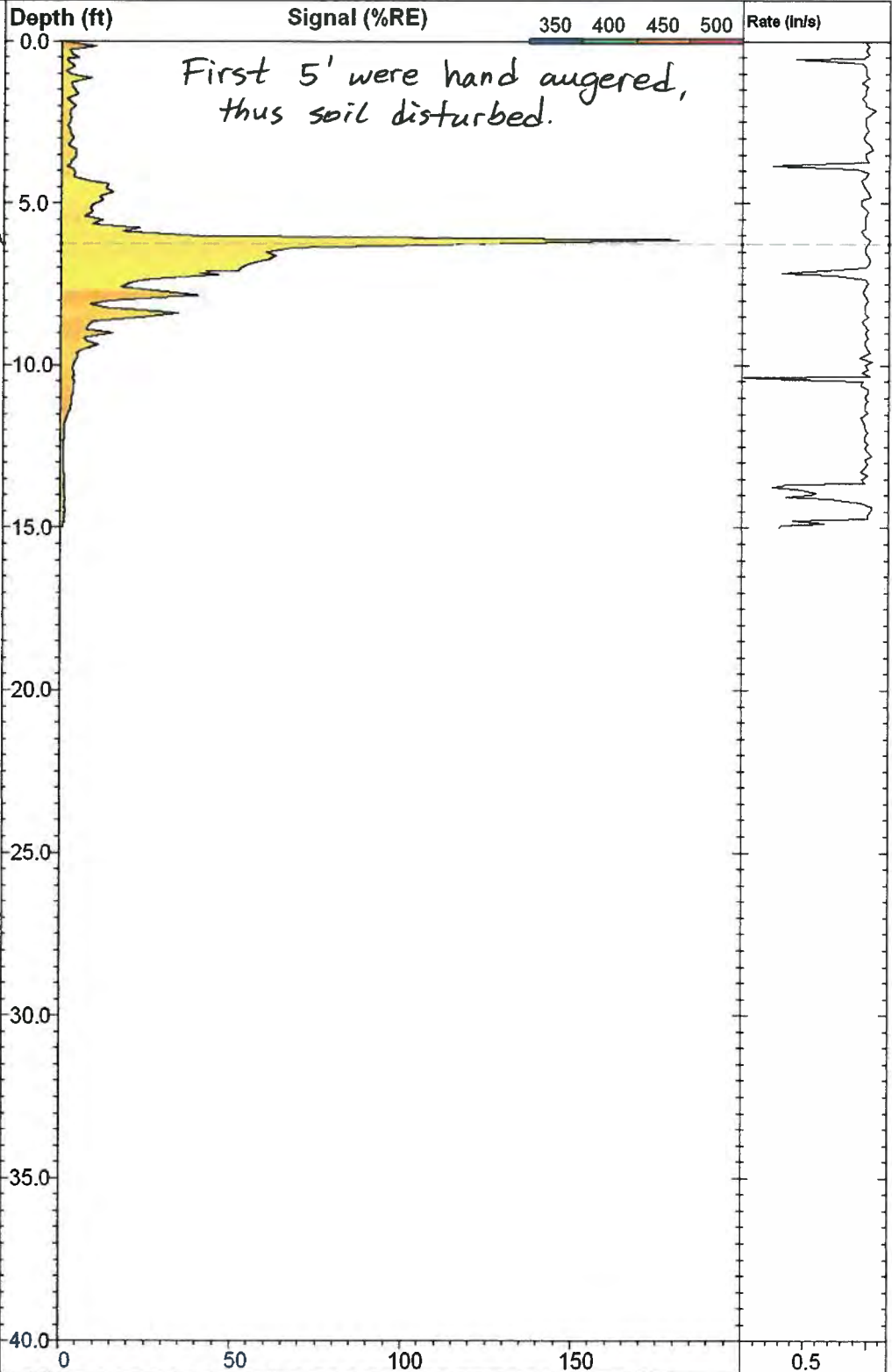


 <a href="http://www.greggdrilling.com">www.greggdrilling.com</a>	<b>CPT-03</b>		<b>UVOST By Dakota</b> <a href="http://www.DakotaTechnologies.com">www.DakotaTechnologies.com</a>
	Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.11 ft
	Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 7.7 % @ 5.95 ft
	Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 11:34 PDT

**Callouts**

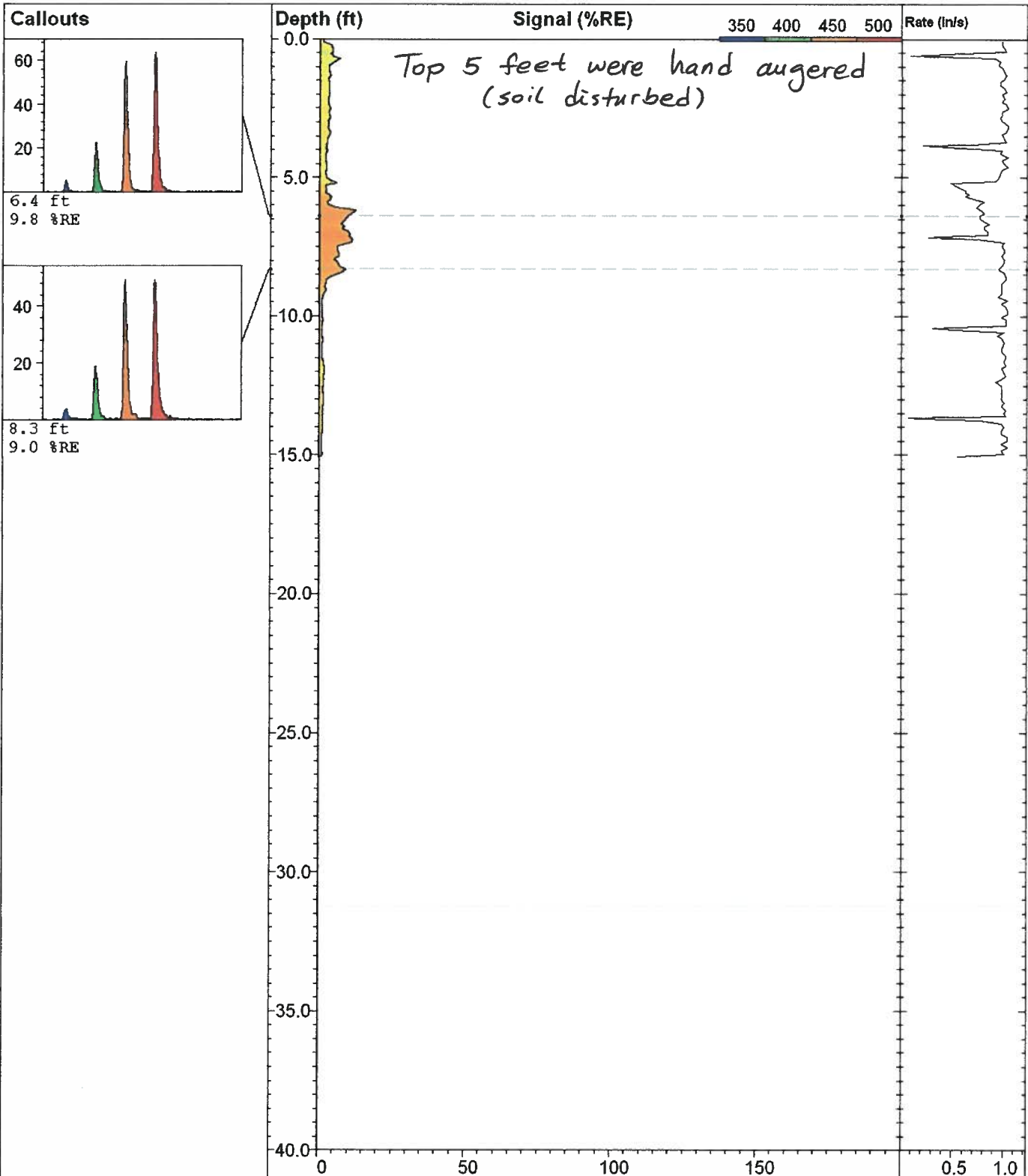


6.3 ft  
120.0 %RE

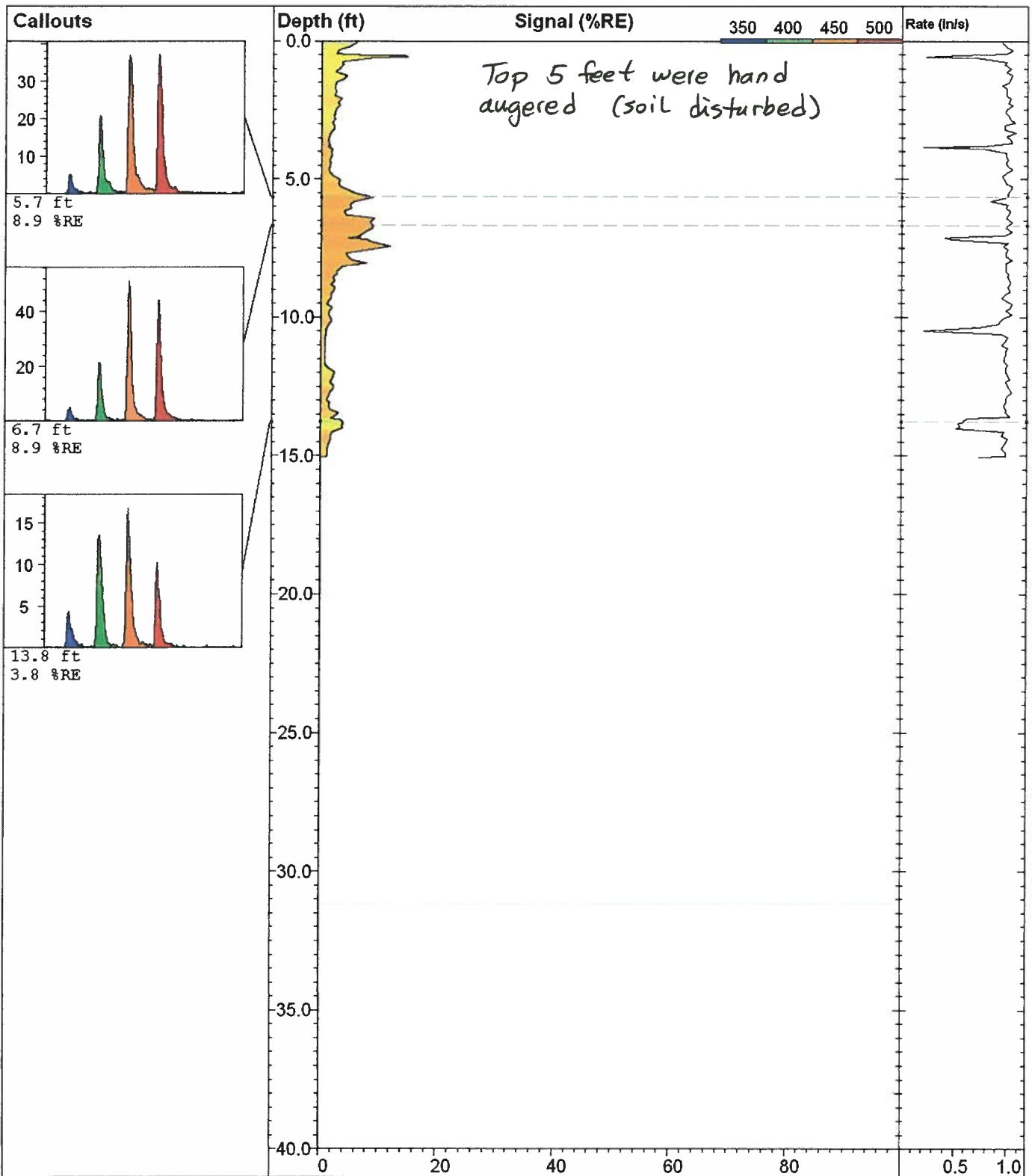



[www.greggdrilling.com](http://www.greggdrilling.com)

<b>CPT-04</b>		<b>UVOST By Dakota</b> <small>www.DakotaTechnologies.com</small>
Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.00 ft
Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 181.7 % @ 6.13 ft
Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 09:00 PDT

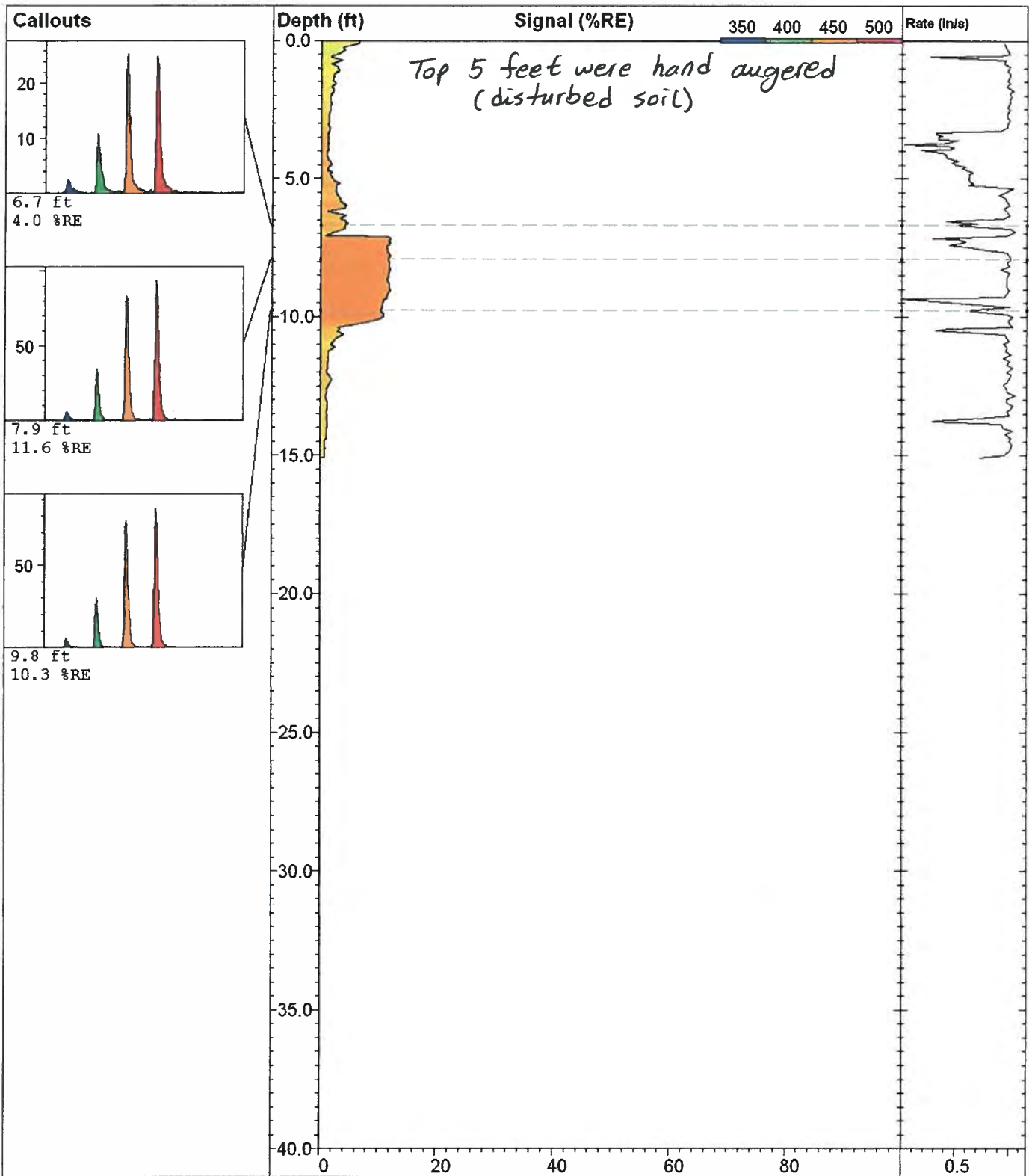



<b>CPT-05</b>		<b>UVOST By Dakota</b> www.DakotaTechnologies.com
Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.05 ft
Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 12.5 % @ 6.19 ft
Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 15:20 PDT

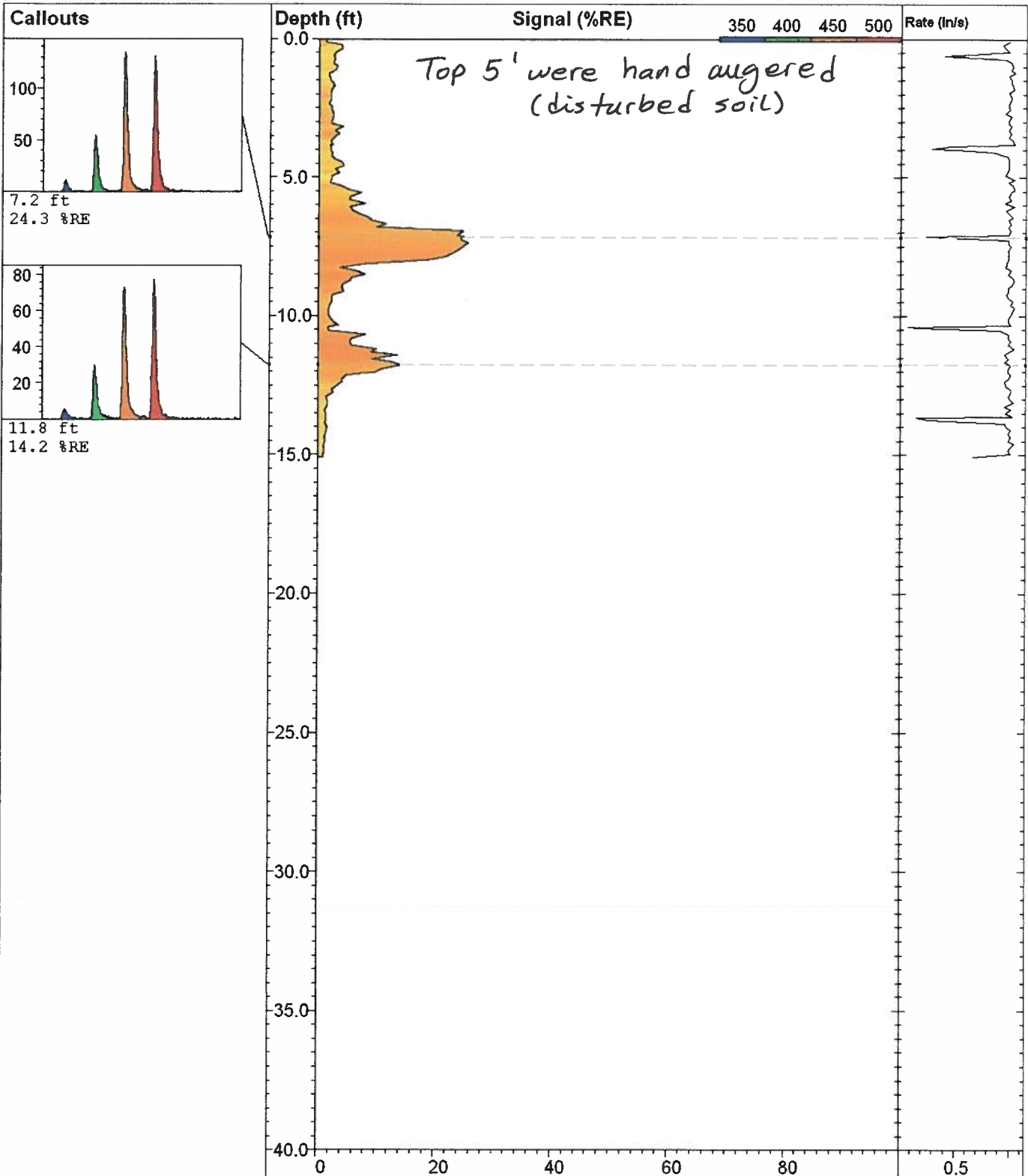


 <a href="http://www.greggdrilling.com">www.greggdrilling.com</a>	<b>CPT-06</b>		<b>UVOST By Dakota</b> <a href="http://www.DakotaTechnologies.com">www.DakotaTechnologies.com</a>
	Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.05 ft
	Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 14.7 % @ 0.58 ft
	Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 16:32 PDT





 <a href="http://www.greggdrilling.com">www.greggdrilling.com</a>	<b>CPT-07</b>		<b>UVOST By Dakota</b> <a href="http://www.DakotaTechnologies.com">www.DakotaTechnologies.com</a>
	Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.08 ft
	Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 12.0 % @ 7.80 ft
	Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 17:23 PDT



<b>CPT-08a</b>		<b>UVOST By Dakota</b> www.DakotaTechnologies.com
Site: UPS Oakland Hub	Latitude / Datum: Unavailable / NA	Final depth: 15.08 ft
Client: Arcadis	Longitude / Fix: Unavailable / NA	Max signal: 25.6 % @ 7.37 ft
Job: B0038398.0017	Operator/Unit: John Hancock/UVOST100	Date & Time: 2013-10-10 18:48 PDT

EXPLORATORY BORING LOG

project no: B0038398.0017 date: 10-11-13 boring number: SB-13  
 client: UPS  
 location: Oakland, CA  
 logged by: Miljan Draganic  
 driller/helper: Gregg Drilling

page 1 of 1

field location of boring: Comcast property (planter)  
 drilling method: Geoprobe Direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

ground elevation: \_\_\_\_\_ datum: \_\_\_\_\_

boring/well construction	headspace: gaseous (PID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level	
							time	date
Abandoned by backfilling with gravel	0.1			1		Sm	Silty sand with gravel; no strength and soft; dry; dark olive brown color 2.5Y 3/3; Gravels throughout, subrounded, up to 1 inch diameter; sand ranges from fine to coarse moderately graded;  Becoming harder with depth starting at 4'; with few interbedded clay layers.  Around 7.5', around 3" thick black layer of fine grained sand/silt mixture (Sm/mu); dry and soft; looks glossy. At 8', the color has changed again to yellowish brown 10YR 5/6; The geology at 8' is consistent of sandy gravels (sw), well sorted, hard, and dry.  No recovery 8'-10'.  Sandy gravels with some silts; dry and hard; well sorted, dark grayish brown color 2.5Y 4/2 gravels up to 1" diameter, sand is fine to coarse. Clay present through bottom 6 inches.  Thick clay; dry; color change to very dark greenish gray Gley 2.3/5Bg; overall the clay is hard but it is softer on top and gets harder with depth.  End boring at 15'  No groundwater.	
	0.2			2				
	0.2			3				
	0.2			4				
	0.2			5				
	0.1			6				
	0.2	SB-13-SS-7'-8' @1330		7				
	0.0			8				
	0.2			9				
	0.0			10				
	0.2			11				
	0.1			12				
	0.0			13				
				14				
				15				
			16					
			17					
			18					
			19					
			20					

hand augered

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture.

EXPLORATORY BORING LOG

project no: B0038398.0017 date: 10-11-13 boring number: SB-14  
 client: UPS  
 location: Oakland, CA  
 logged by: Miljan Draganic  
 driller/helper: Gregg Drilling

field location of boring: Comcast Property (planter)  
 drilling method: Geoprobe direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

ground elevation: \_\_\_\_\_ datum: recovery

boring/well construction	headspace: gastect(FID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level			
							time			
							date			
Abandoned by backfilling with grout	0.1			1		Sm	<p>Top soil; Silty Sand with gravels throughout; moderately graded; no strength and soft; Dry; overall color is dark olive brown 2.5Y 3/3. Few pockets of harder and slightly darker clay present starting at ~3 feet lgs. Sand ranges from fine to coarse grained and is well sorted. No gravel past 3; down to ~4.5'</p> <p>Silty sand with some small gravels. poorly graded, and hard; dry; very dark grayish brown color 2.5Y 3/2. Contains clay between 6'-7'; (some);</p> <p>At ~7.5' there is a two inch thick layer of black fine graine/silt mixture (ml); dry; soft.</p> <p>Color changes again to yellowish brown (10YR 5/6) from the thin layer above down to 8'. Hard layer.</p> <p>No recovery 8'-11'</p> <p>Silty sands with gravels, color changed to dark grayish brown 2.5Y 4/2; hard and dry. sand is fine-coarse grained, subrounded gravels, moderately graded. Clayey on bottom</p> <p>Clay; very thick, soft at 13' with high plasticity, but gets harder with depth - non plastic and hard at 15'. Dry. color is very dark greenish gray Gley 2 3/5BG. End boring at 15' (Color changed at 13')</p> <p>No Groundwater.</p>			
	0.0			2						
	0.0			3						
	0.2			4						
	0.2			5						
	1.7			6						
				7						
				8						
				9	no recovery					
				10						
	0.0			11						
	0.0			12						
	0.0			13						
	0.1			14						
				15						
			16							
			17							
			18							
			19							
			20							

hard augered

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture.

EXPLORATORY BORING LOG

project no: B0038398-0017 date: 10-11-13 boring number: SB-15  
 client: UPS Oakland  
 location: Oakland, CA  
 logged by: Milan Draganic  
 driller/helper: Gregg Drilling

page 1 of 1

field location of boring:  
Comcast property  
(planter)

ground elevation: \_\_\_\_\_ datum: \_\_\_\_\_

drilling method: Geoprobe direct push  
 hole diameter: 2"  
 casing diameter: n/a  
 well completion data: n/a

boring/well construction	headspace: gastech (PID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level	time	date
Abandoned by backfilling grout	0.0			1		SM			
	0.2			2					
	0.1			3					
	0.3			4					
	0.1			5		CL			
	0.3			6					
				7					
				8					
	0.2	SB-15-55-8'-9' @ 0945		9		SP			
				10					
				11					
	0.0			12					
				13					
				14					
				15					

Top Soil: Silty sand with some gravel; Moderately graded; dry; no strength/soft; sand ranges from fine to coarse grained; Thin and hard layer of clay ~ 2.5 ft L (1 inch); well sorted sand - Overall dark olive brown color 2.5Y 3/3. Clay layer is thick and hard, very dark gray color 2.5Y 3/1.

Silty Clay, with some fine-coarse sand (~15%); color change to very dark greenish gray Gley 1 3/5G4; dry and has medium plasticity; moderately hard

7.15' Dry

Poorly graded, fine to medium grained sand; trace amount of coarse sand; no strength; moist from 8'-9'. Color is very dark greenish gray Gley 1 3/10 G4; poorly sorted

No recovery 9'-13'

Recovered bottom 1" at 13'; and it is the sand above (same) but wet.

SP(?)

No recovery 13'-15'; wet.

End boring at 15'

GW Sample collected @ 1040  
 Screened 0'-11' (bottom collapsed)

hand augered

GW: pH = 7.02  
 Temp. = 21.79 °C  
 Cond. = 3,903 µS/cm  
 DO = 0.84 mg/L  
 ORP = -76.3 mV

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture. Turb = 12.5 NTU

EXPLORATORY BORING LOG

project no: <u>B0038398-0017</u>	date: <u>10-11-13</u>	boring number: <b>SB-16</b>
client: <u>UPS</u>		
location: <u>Oakland, CA</u>		
logged by: <u>Miljan Draganic</u>		
driller/helper: <u>Gregg Drilling</u>		page 1 of 1

field location of boring: <b>Comcast Property (planter)</b>	drilling method: <u>Geoprobe direct push</u>
	hole diameter: <u>2"</u>
	casing diameter: <u>n/a</u>
	well completion data: <u>n/a</u>

ground elevation:	datum:
boring/well construction	water level
headsace: gastect (PID) FID ppm	time
sample number	date
blows per foot or pressure in psi	

headsace: gastect (PID) FID ppm	sample number	blows per foot or pressure in psi	depth	sample recovery	soil group symbol (USCS)	water level	time	date
0.2			1		SM	Silty sand, with some gravels throughout, up to 1" diameter; moderately graded unit, soft, with no strength; and dry; Dark olive brown color 2.5Y 3/3; sand ranges from fine to coarse grained.  Trace clay towards the bottom.		
0.0		2						
		3						
		4						
0.1			5		CL	Silty clay, with some sand; dry, with low plasticity, and moderately hard; dark greenish gray color 6.5Y 1 3/5 GY; sand is mostly medium grained.		
0.0		6						
		7						
0.2	SB-16-SS-7'-8' @ 1500		8	7.43'	SP	Sand; poorly graded; fine to medium grained, with trace coarse, no strength, moist 7'-8'. Very dark greenish gray color 6.5Y 1 3/10 GY;		
			9					
			10		SP(?)	No recovery 8'-12'		
			11		SP	Same sand as above, wet		
0.0			12		SP(?)	No recovery 12'-14.5'		
			13			Same sand as above, wet.		
0.0			14		SP	End boring at 15'		
			15					
			16					
			17					
			18					
			19					
			20					

Abandoned by back-filling with grout

hand augered

GW Sample collected @ 1540  
 & duplicate @ 1550.  
 → both field filtered  
 screened 0'-12'  
 (bottom collapsed)

GW: pH=7.09  
 Temp=21.61 °C  
 Cond.=4,730 us/cm<sup>2</sup>  
 DO=1.14 mg/L  
 ORP=-58.5 mV  
 Turb=8.61 NTU

USCS lithology; Munsell color; sorting; grain size; lith. %s; modifiers; consistency; moisture.

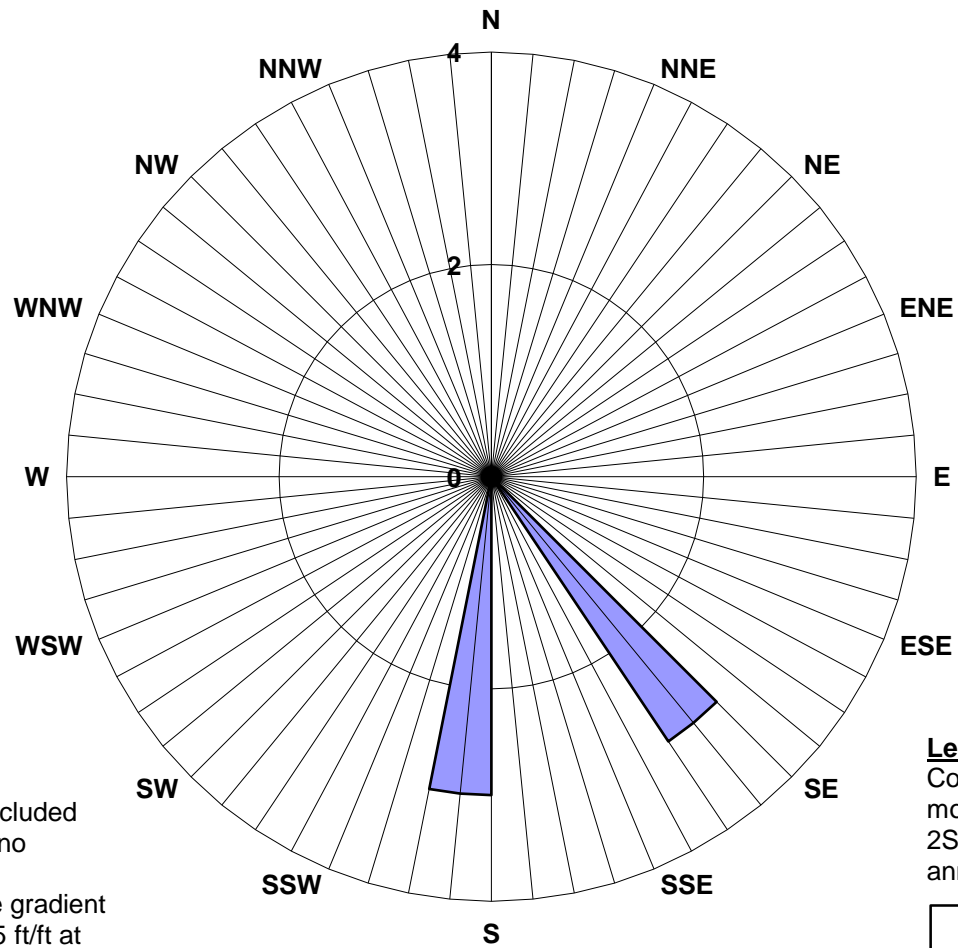




**Appendix B  
Groundwater Flow Direction  
and Rose Diagram Sections**

**APPENDIX B  
FIGURE 1  
GROUNDWATER FLOW DIRECTION ROSE DIAGRAM**

United Parcel Service  
8400 Pardee Drive  
Oakland, California



**Note**

Groundwater gradient was not included for all of the events. There were no groundwater monitoring reports between 2SA08 and 2SA12. The gradient during the 2SA13 event was 0.05 ft/ft at the Site.

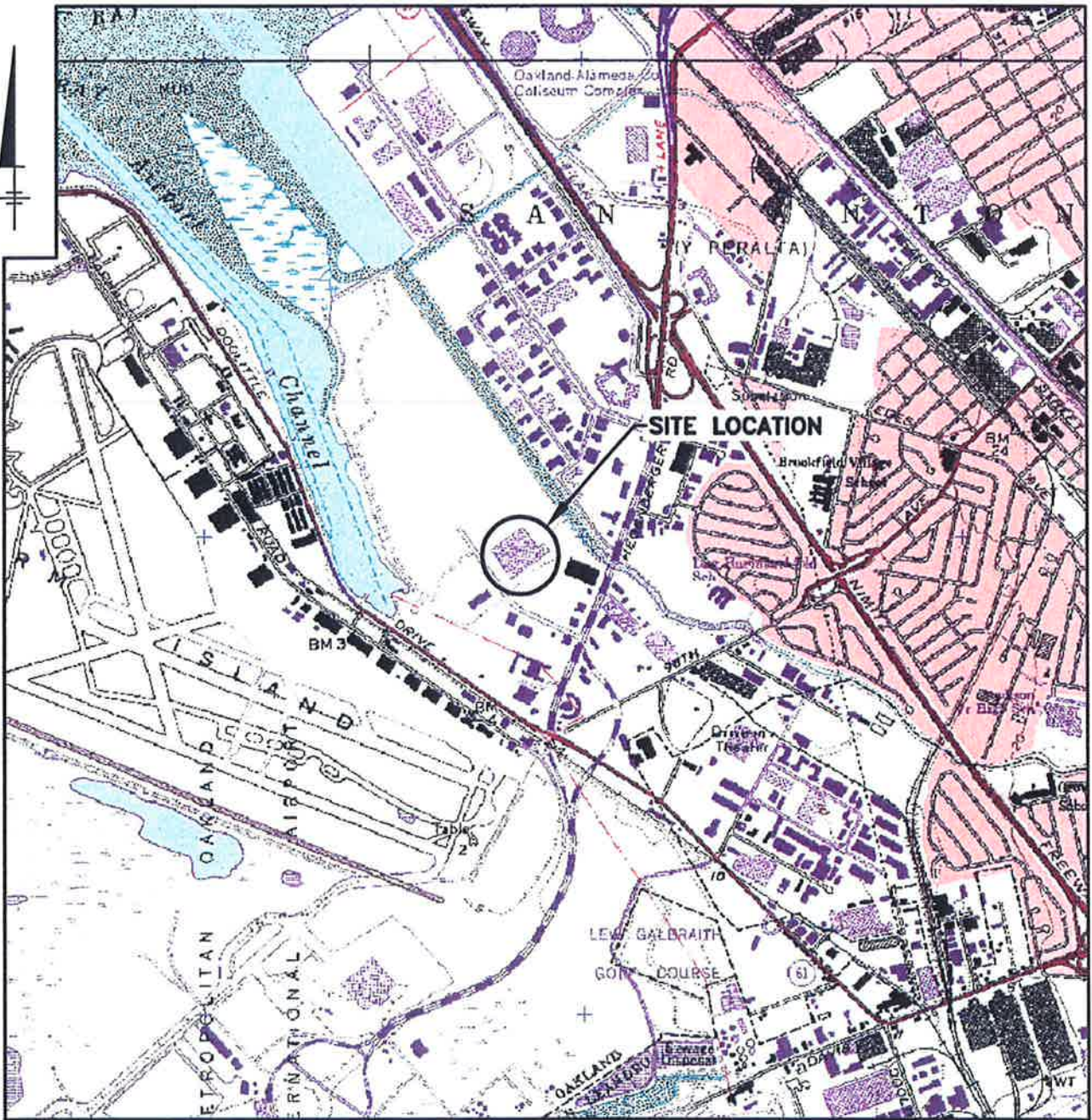
**Legend**

Concentric circles represent monitoring events beginning 2SA07 through 2SA13 semi-annual monitoring event.

■ Groundwater Flow Direction



**Appendix C  
Site Location**



**NOTES:**

1. Base Map Source: USGS 7.5 Min. Topo. Quad., San Leandro, Calif.(1993)
2. Property Location is Approximate Only.



UPS-OAKLAND HUB  
 8400 PARDEE DRIVE, OAKLAND, CALIFORNIA  
**SITE CONCEPTUAL MODEL**

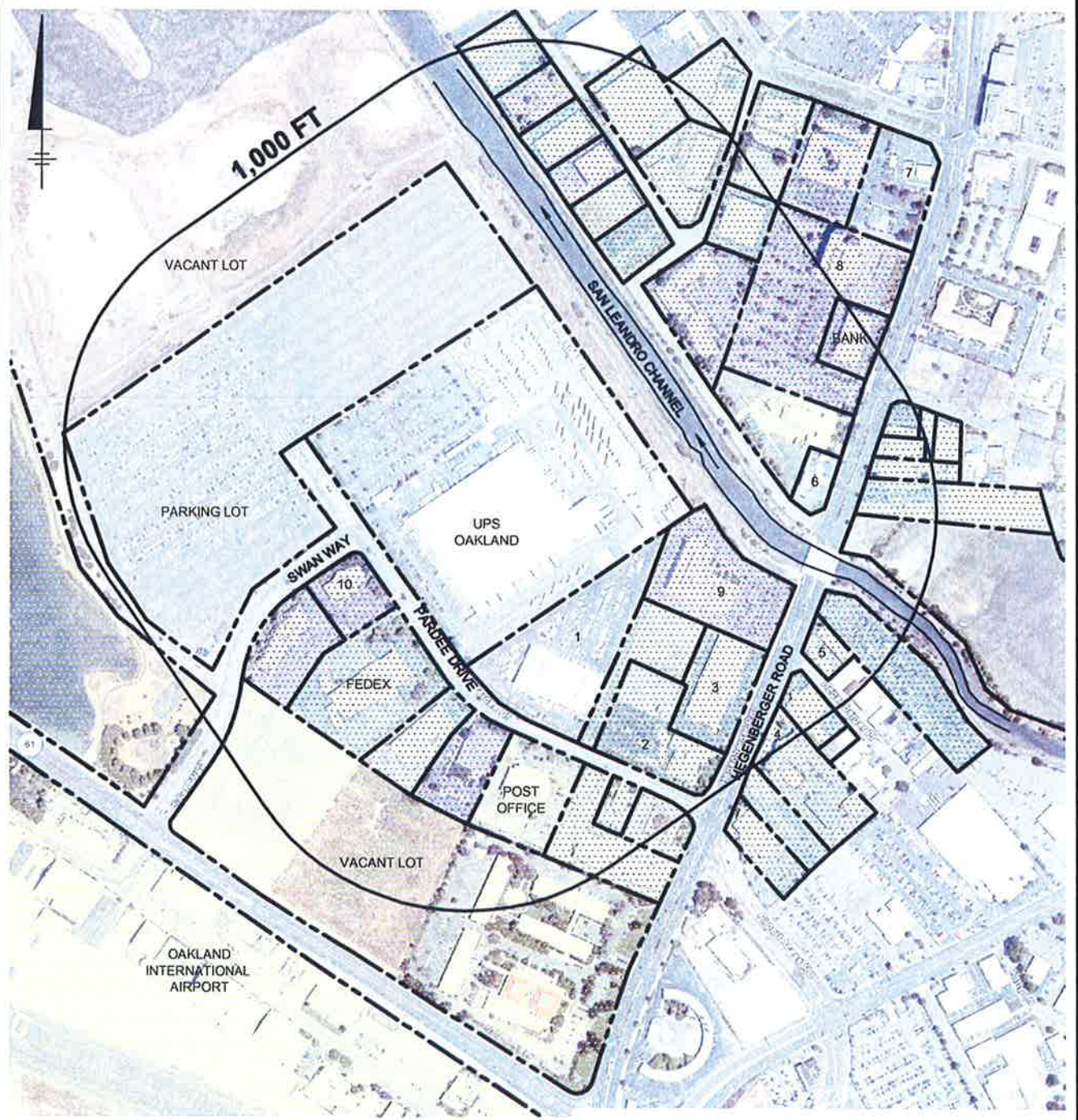
**SITE LOCATION MAP**



FIGURE  
**1**



CITY TAMPA DIV/GRP ENV-141 DR/JAR LD/OPD PIC/OPD PM/REQD TM/OPD LVR/OPION+ OFF=REF-  
G:\ENV\CDT\mapx-81AC\1800383890003000100100SCM\2010B\008389002.dwg LAYOUT: 25AVED 9/17/2010 9:40 AM ACADVER 18.0S (LMS TECH) PAGESETUP PDF-APPLOTSTYLETABLE PLT\FULLCTB.PLOTTED 9/17/2010 9:49 AM BY: RICHARDS, JIM  
XREFS: IMAGES: PROJECTNAME AREA MAP IP5



LEGEND

1. COMCAST
2. FRANCESLO'S RESTAURANT
3. HARLEY DAVIDSON DEALERSHIP
4. PARK PLACE PLAZA HOTEL
5. BRUCE'S TIRE INC.
6. SHELL SERVICE STATION
7. 76 SERVICE STATION
8. ALAMEDA COUNTY VOCATIONAL
9. CARPENTER FUND ADMINISTRATION OFFICE
10. INDEPENDANT INSTITUTE

-  OFFICE BUILDING
-  PUBLIC AGENCY
-  INDUSTRIAL LIGHT/MANUFACTURING, COMMERCIAL, WAREHOUSE



APPROXIMATE GRAPHIC SCALE

UPS-OAKLAND HUB  
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA  
SITE CONCEPTUAL MODEL

SURROUNDING PROPERTIES MAP



FIGURE  
2





**Appendix D  
Historical Soil Data  
and Figures**

Table 2 - Soil Analytical Results  
 UPS, 8400 Pardee Drive, Oakland, California.

Boring	Date	Depth (feet)	TPH		Benzene (B) (mg/kg)	Toluene (B) (mg/kg)	Ethyl- benzene (B) (mg/kg)	Xylenes (B) (mg/kg)
			Gasoline (A) (mg/kg)	Diesel (A) (mg/kg)				
MW-2	22-Aug-90	3	ND (<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
MW-3	23-Aug-90	3.5	91	2,300	0.02	0.036	0.089	0.49
MW-4	23-Aug-90	3	ND (<1)	ND (<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
MW-5	23-Aug-90	4	ND (<1)	ND (<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
B-1	25-Aug-90	3.5	10	21	0.062	ND (<.003)	0.004	0.036
B-2	25-Aug-90	3.5	ND (<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
B-3	25-Aug-90	3.5	ND (<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)

**Notes:**

(A) Total petroleum hydrocarbons analyzed by USEPA Method 8015, modified.

(B) Analyzed by USEPA Method 8020.

( ) - Detection limit

ND- Not Detected

Analysis by Superior Analytical Laboratories, Inc. Martinez, California.

RC02703 and RC02704

**TABLE 4A**  
**HISTORICAL SOIL ANALYTICAL RESULTS SUMMARY**

**UPS-OAKLAND HUB**  
**8400 PARDEE DRIVE, OAKLAND, CALIFORNIA**  
**STATE ID # 583**

Sample ID	Sample Date	Sample Depth (feet bgs)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)
		ESL - drinking water	83	83	0.044	2.9	2.3	2.3	0.023
		ESL - non-drinking water	100	100	0.12	9.3	2.3	11	8.4
SB-01 4.5-5.0	4/8/2010	4.5 - 5.0	<b>5,000</b>	82	<0.0039	<0.0039	<0.0039	<0.0077	<0.0039
SB-01 12-13	4/8/2010	12.0 - 13.0	8.7	<0.25	<0.0050	<0.0050	<0.0050	<0.010	<0.0050
SB-02 7.0-7.5	4/8/2010	7.0 - 7.5	<b>1,400</b>	1.8	<0.0041	<0.0041	0.0043	<0.0083	<0.0041
SB-02 9.5-10	4/8/2010	9.5 - 10.0	4.2	<0.32	<0.0064	<0.0064	<0.0064	<0.013	<0.0064
SB-03 4.0-4.5	4/8/2010	4.0 - 4.5	<1.0	<0.19	<0.0039	<0.0039	<0.0039	<0.0078	<0.0039
SB-03 7.5-8.0	4/8/2010	7.5 - 8.0	25	NA	NA	NA	NA	NA	NA
SB-05 4.5-5.0	4/9/2010	4.5 - 5.0	<b>5,000</b>	53	<0.0037	<0.0037	<0.0037	<0.0075	<0.0037
SB-05 10.0-10.5	4/9/2010	10.0 - 10.5	<0.99	<0.33	<0.0066	<0.0066	<0.0066	<0.013	<0.0066
SB-06 7.0-7.5	4/9/2010	7.0 - 7.5	<b>990</b>	NA	NA	NA	NA	NA	NA
SB-07 4.5-5.0	4/9/2010	4.5 - 5.0	<b>340</b>	NA	NA	NA	NA	NA	NA
SB-07D <sup>a</sup>	4/9/2010	4.5 - 5.0	<b>670</b>	NA	NA	NA	NA	NA	NA
SB-08 4.5-5.0	4/9/2010	4.5 - 5.0	66	NA	NA	NA	NA	NA	NA
SB-09 5.0-5.5	4/12/2010	5.0 - 5.5	5.3	<0.20	<0.0041	<0.0041	<0.0041	<0.0081	<0.0041
SB-09 9.5-10.0	4/12/2010	9.5 - 10.0	<1.0	<0.26	<0.0053	<0.0053	<0.0053	<0.011	<0.0053
SB-10 7.0-7.5	4/12/2010	7.0 - 7.5	31	<0.20	<0.0040	<0.0040	<0.0040	<0.0081	<0.0040
SB-10 9.5-10.0	4/12/2010	9.5 - 10.0	1.0	<0.24	<0.0047	<0.0047	<0.0047	<0.0095	<0.0047
SB-11 3.0-3.5	4/12/2010	3.0 - 3.5	<0.99	NA	NA	NA	NA	NA	NA
SB-12 6.0-6.5	4/13/2010	6.0 - 6.5	<1.0	<0.19	<0.0038	<0.0038	<0.0038	<0.0076	<0.0038

**Abbreviations:**

bgs = below ground surface

mg/kg = milligrams per kilogram

TPH-DRO = total petroleum hydrocarbons as diesel range organics

TPH-GRO = total petroleum hydrocarbons as gasoline range organics

MTBE = methyl tertiary-butyl ether

< = analyte not detected at or above the noted laboratory method detection limit

ESL = San Francisco Bay Regional Water Quality Control Board. Environmental Screening Levels, Interim Final - November 2007 (Revised May 2008).

Table A, for Shallow Soils, Commercial/Industrial Land Use, Groundwater is current of potential source of drinking water.

Table B, for Shallow Soils, Commercial/Industrial Land Use, Groundwater is not current of potential source of drinking water.

**Notes:**

Bold = concentration is above one or more of the respective screening levels.

a = duplicate sample

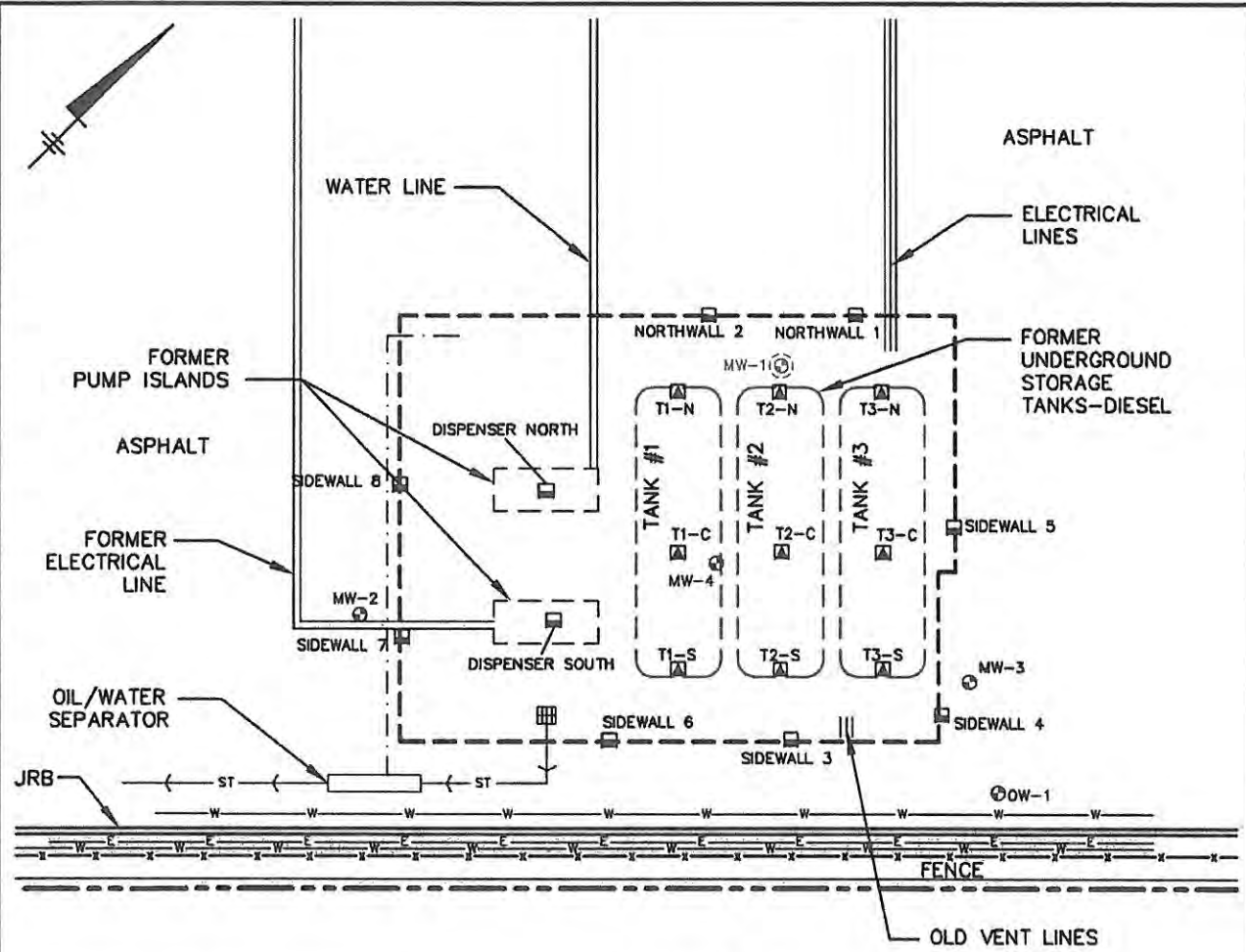
TABLE 4B

HISTORICAL SOIL ANALYTICAL RESULTS SUMMARY (PAHs)

UPS-OAKLAND HUB  
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA  
STATE ID # 583

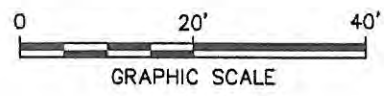
Sample ID		Date Collected	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo[a]anthracene (mg/kg)	Benzo[a]pyrene (mg/kg)	Benzo[b]fluoranthene (mg/kg)	Benzo[g,h,i]perylene (mg/kg)	Benzo[k]fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenz[a,h]anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno[1,2,3-cd]pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
RWQCB Environmental Screening Levels (ESLs)	Shallow Soil (≤3 m-bgs)	Residential	16	13	2.8	0.38	0.038	0.38	27	0.38	23	0.062	40	8.9	0.62	1.3	11	85
		Com./Ind.	16	13	2.8	1.3	0.13	1.3	27	1.3	23	0.21	40	8.9	2.1	2.8	11	85
	Deep Soil (>3 m-bgs)	Residential	16	13	2.8	12	1.5	15	27	2.7	23	2.4	60	8.9	13	3.4	11	85
		Com./Ind.	16	13	2.8	12	1.5	15	27	2.7	23	2.4	60	8.9	13	3.4	11	85
Low-Threat Standards	0-5'	--	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	13	NE	NE
	5-10'	--	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	1500	NE	NE
SB-01-02-AUG1111	8	8/11/2011	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	0.032	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
SB-01-08--AUG1111	8	8/11/2011	0.023	0.047	< 0.01	< 0.01	< 0.01	0.015	< 0.01	< 0.01	< 0.01	< 0.01	0.015	0.16	< 0.01	0.012	0.24	0.019
SB-01-08-DUP-AUG1111	8	8/11/2011	0.02	0.016	0.014	0.011	0.011	0.026	0.0067	0.0078	0.016	< 0.005	0.022	0.057	0.0052	0.035	0.098	0.03
SB-02-02-AUG1111	2	8/11/2011	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SB-02-08-AUG1111	8	8/11/2011	0.061	0.15	0.11	< 0.025	0.04	0.089	0.025	0.026	0.04	< 0.025	< 0.025	0.5	< 0.025	0.68	0.89	0.029
SB-03-02-AUG1111	2	8/11/2011	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	0.014	0.013	< 0.01	0.012	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099
SB-03-08-AUG1111	8	8/11/2011	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.073	0.052	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.056	0.05
SB-04-02-AUG1111	2	8/11/2011	< 0.0099	< 0.0099	< 0.0099	< 0.0099	0.012	0.016	0.011	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099
SB-04-08-AUG1111	8	8/11/2011	< 0.005	0.064	0.21	0.51	0.4	0.53	0.21	< 0.16	0.49	0.087	1.1	< 0.05	0.18	< 0.05	0.74	1.1
SB-05-02-AUG1111	2	8/11/2011	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.059	< 0.05	< 0.05	0.081	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
SB-05-08-AUG1111	8	8/11/2011	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	0.052	< 0.025	< 0.025	0.027	< 0.025	0.034	< 0.025	< 0.025	< 0.025	0.037	0.045
SB-06-02-AUG1111	2	8/11/2011	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.029	< 0.01	< 0.01	0.032	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.022	0.021
SB-06-08-AUG1111	8	8/11/2011	< 0.0099	0.014	0.013	0.044	0.043	0.074	0.035	0.022	0.051	0.011	0.079	0.019	0.029	0.21	0.047	0.12
SB-07-02-AUG1111	2	8/11/2011	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	0.2	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	0.14	< 0.12
SB-07-08-AUG1111	8	8/11/2011	< 0.025	< 0.025	< 0.025	0.049	0.047	0.085	0.041	< 0.025	0.085	< 0.025	0.11	< 0.025	0.029	0.25	0.11	0.11
SB-12-02-AUG1111	2	8/11/2011	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049	0.059	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049	< 0.049
SB-12-08-AUG1111	8	8/11/2011	< 0.05	< 0.05	< 0.05	0.066	0.08	0.099	0.062	< 0.05	0.065	< 0.05	0.12	< 0.05	< 0.05	< 0.05	0.093	0.16
SB-13-02-AUG1111	2	8/11/2011	0.44	< 0.099	0.27	0.85	0.75	1.3	0.3	0.48	0.97	0.11	2.2	0.2	0.28	< 0.099	1.7	2
SB-13-08-AUG1111	8	8/11/2011	< 0.005	0.01	0.0053	0.043	0.061	0.097	0.037	0.036	0.055	0.013	0.096	0.02	0.034	< 0.005	0.029	0.099
SB-13A-02-AUG1111	2	8/11/2011	0.55	< 0.049	0.17	0.51	0.45	0.87	0.16	0.26	0.62	0.063	1.1	0.28	0.14	< 0.049	0.97	1.2

CITY: TAMPA DW: CROPP, JENNY, L1 DB: JAR, LD: (O) PIC: (O) PM: (S) TR: (O) LY: 2/10/2008 OFF: REF  
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 XREFS: PROJECTNAME: OAKLAND EXCAVATION\_001.dwg  
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**LEGEND:**

- PROPERTY LINE
- ⊙ MONITORING WELL
- ⊙ ABANDONED MONITORING WELL
- STORM DRAIN/CATCH BASIN
- W — FIRE HYDRANT AND HIGH PRESSURE WATER LINE
- W — WATER LINE
- ST — STORM DRAIN LINE
- E — UNDERGROUND ELECTRICAL LINE
- EXTENT OF EXCAVATION
- SOIL SAMPLE
- ▲ SOIL SAMPLE COLLECTED FOR OAKLAND FIRE DEPARTMENT



UPS-OAKLAND HUB  
 8400 PARDEE DRIVE, OAKLAND, CALIFORNIA  
**TANK CLOSURE ASSESSMENT REPORT**

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**UST PIT WITH  
 SOIL SAMPLING LOCATIONS**

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**ARCADIS** | **FIGURE 4**



UPS-Oakland Hub  
8400 Pardee Drive  
Oakland, California 94612  
Global ID T0600100939

Table 1: Soil Analytical Data: April 2009

Sample ID	Date	US EPA Method 8280B (mg/kg)						TPH-GRO	TPH-DRO	US EPA Method 8015
		Benzene	Toluene	Ethylbenzene	Xylenes	MTBE				
T1-N*	4/2/2009	<0.0045	<0.0045	<0.0045	<0.0090	<0.0045	1.3	580		
T2-N*	4/2/2009	<0.0045	<0.0045	<0.0045	<0.0089	<0.0045	1.6	290		
T3-N*	4/2/2009	<0.73	<0.73	<0.73	<1.5	<0.73	62	1,200		
T3-C*	4/2/2009	<1.1	<1.1	<1.1	<2.2	<1.1	88	1,600		
T3-S*	4/2/2009	<1.0	<1.0	<1.0	<2.1	<1.0	160	2,400		
T2-S*	4/2/2009	<0.94	<0.94	<0.94	<1.9	<0.94	100	1,600		
T2-C*	4/2/2009	<1.1	<1.1	<1.1	<2.2	<1.1	<55	1,100		
T1-S*	4/2/2009	<1.2	<1.2	<1.2	<2.3	<1.2	<58	260		
T1-C*	4/2/2009	<1.2	<1.2	<1.2	<2.4	<1.2	170	2,200		
Dispenser South*	4/2/2009	<0.87	<0.87	<0.87	<1.7	<0.87	67	1.5		
Dispenser North*	4/2/2009	<0.0043	<0.0043	<0.0043	<0.0085	<0.0043	<0.21	850		
North Wall 1	4/2/2009	NA	NA	NA	NA	NA	7.0	1,100		
North Wall 2**	4/2/2009	NA	NA	NA	NA	NA	<0.29	24		
Sidewall 3	4/3/2009	NA	NA	NA	NA	NA	400	11,000		
Sidewall 4	4/3/2009	NA	NA	NA	NA	NA	540	17,000		
Sidewall 5	4/3/2009	NA	NA	NA	NA	NA	220	2,900		
Sidewall 6	4/3/2009	NA	NA	NA	NA	NA	680	29,000		
Sidewall 7	4/3/2009	NA	NA	NA	NA	NA	240	360		
Sidewall 8	4/3/2009	NA	NA	NA	NA	NA	56	1,400		
ESLs Shallow Soil Non-Drinking water (mg/kg)		<b>0.38</b>	<b>9.3</b>	<b>32</b>	<b>11</b>	<b>5.6</b>	<b>500</b>	<b>400</b>		
ESLs Shallow Soil Drinking water (mg/kg)		<b>0.044</b>	<b>2.9</b>	<b>3.3</b>	<b>2.3</b>	<b>0.023</b>	<b>100</b>	<b>100</b>		

Notes:

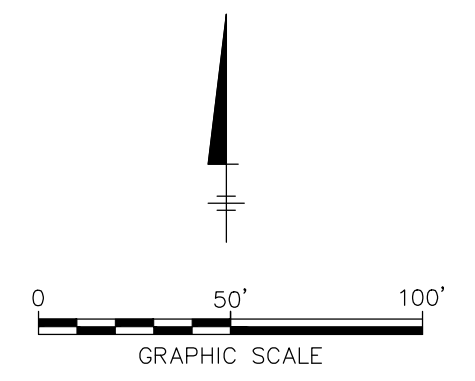
1. MTBE = Methyl tert-butyl ether
2. TBA = Tert-butyl alcohol
3. ETBE = Ether Tert-butyl ether
4. TPH-G = Total Petroleum Hydrocarbons - gasoline
5. TPH-D = Total Petroleum Hydrocarbons - diesel
6. DIPE = Di-isopropyl ether
7. TAME = Tert-amyl methyl ether
8. Concentrations are in mg/kg (milligrams per kilogram)
9. < = analyzed constituent was not detected above the laboratory detection limits
10. Bolded values are above the ESLs Shallow Soil Non-Drinking Water Standard
11. *Italic* values are above the ESLs Shallow Soil Drinking Water Standards
12. ESL = Environmental Screening Levels per the San Francisco Bay Regional Water Quality Control Board; ESLs are for shallow soil,
13. NA = No ESL is on file for the specific constituent
14. NS = Constituent not sampled for
15. \* represents samples of soil that was excavated during tank removal activities
16. \*\* represents native material



CITY:TAMPA DIV:GROUP:85 DB:JAR LD:(Ort) PIC:(Ort) PM:(Reqd) TM:(Ort) LVR:(Ort)ONL="OFF"=REF\*  
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 XREFS: IMAGES: PROJECTNAME: AREA MAP.jpg UPSOakland.jpg



- LEGEND**
- MONITORING WELL
  - ▣ TEMPORARY VACUUM TEST WELL
  - ⊙ PHASE I INJECTION WELL
  - ⊕ ABANDONED MONITORING WELL
  - PROPERTY BOUNDARY
  - UNDERGROUND ELECTRICAL LINE
  - STORM WATER/SEWER LINE
  - WATER/FIRE SERVICE/IRRIGATION
  - ELECTRIC/WATER LINE
  - ▣ CATCH BASIN/STORM DRAIN
  - ⊕ LIGHT POST/ POWER POLE
  - A-A' CROSS SECTION LOCATION



UPS-OAKLAND HUB  
 8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

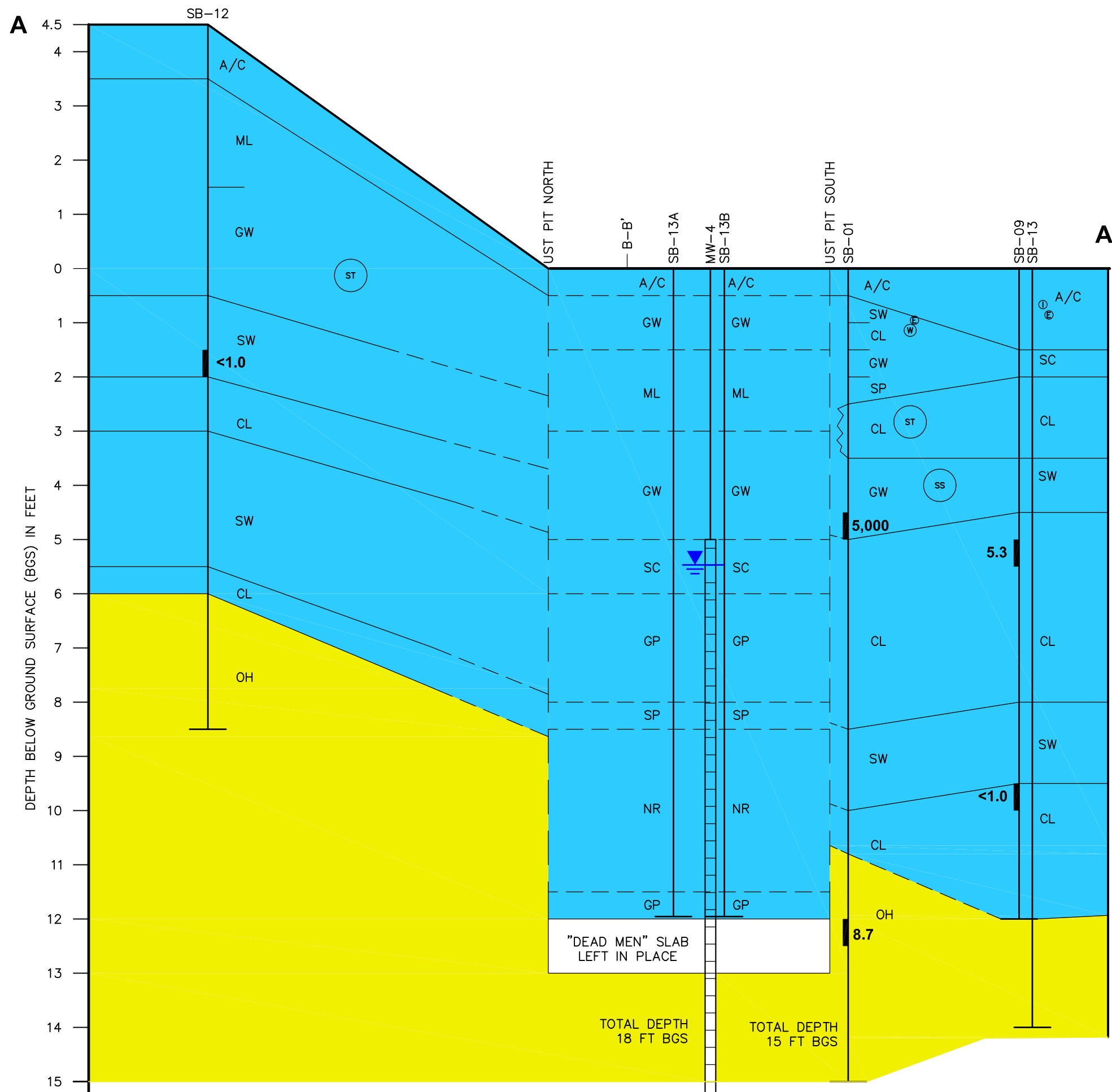
**SITE MAP SHOWING  
 CROSS SECTION LOCATIONS**

**ARCADIS**

APPENDIX  
**D-1**

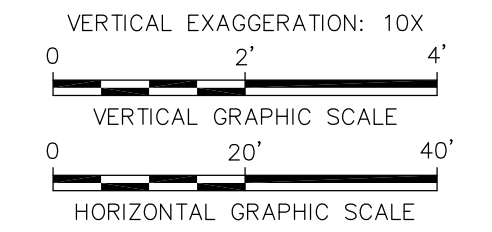


CITY:TAMPA DIV:GROUP:85 DE:JAR LD:Opt) PIC:Opt) PM:Read) TM:Opt) LYS:Opt)ON:OFF=REF\*  
 GA:ENCAD1TAMPA/ACT1B0038388 UPS Oakland0017B0038388B01.dwg LAYOUT: D-2 SAVED: 11/25/2013 2:59 PM ACADVER: 18.1 S (LMS TECH) PAGES: 10 PLOT: 11/25/2013 3:01 PM BY: RICHARDS, JIM  
 XREFS: IMAGES: PROJECTNAME: --  
 AREA: MAP.jpg  
 UPSOakland.jpg



**LEGEND**

- BORING/WELL CASING
- SOIL SAMPLE INTERVAL
- WELL SCREEN INTERVAL
- BOTTOM OF BORING
- 5.3** TPH-DRO CONCENTRATION IN SOIL (mg/kg)
- DEPTH TO WATER (7/22/13)
- SOIL INTERFACE (DASHED WHERE INFERRED)
- SC, CL ETC. SOIL USCS SOIL TYPE CLASSIFICATION
- A/C ASPHALT/CONCRETE
- NR NO SAMPLE RECOVERY
- (ST) SUBSURFACE CONDUIT CROSS SECTION
- SS SANITARY SEWER LINE
- ST STORM SEWER LINE
- W WATER/FIRE SERIVE
- E ELECTRICAL LINE
- I IRRIGATION PIPING
- FILL MATERIAL
- NATIVE SOIL (BAY MUD)

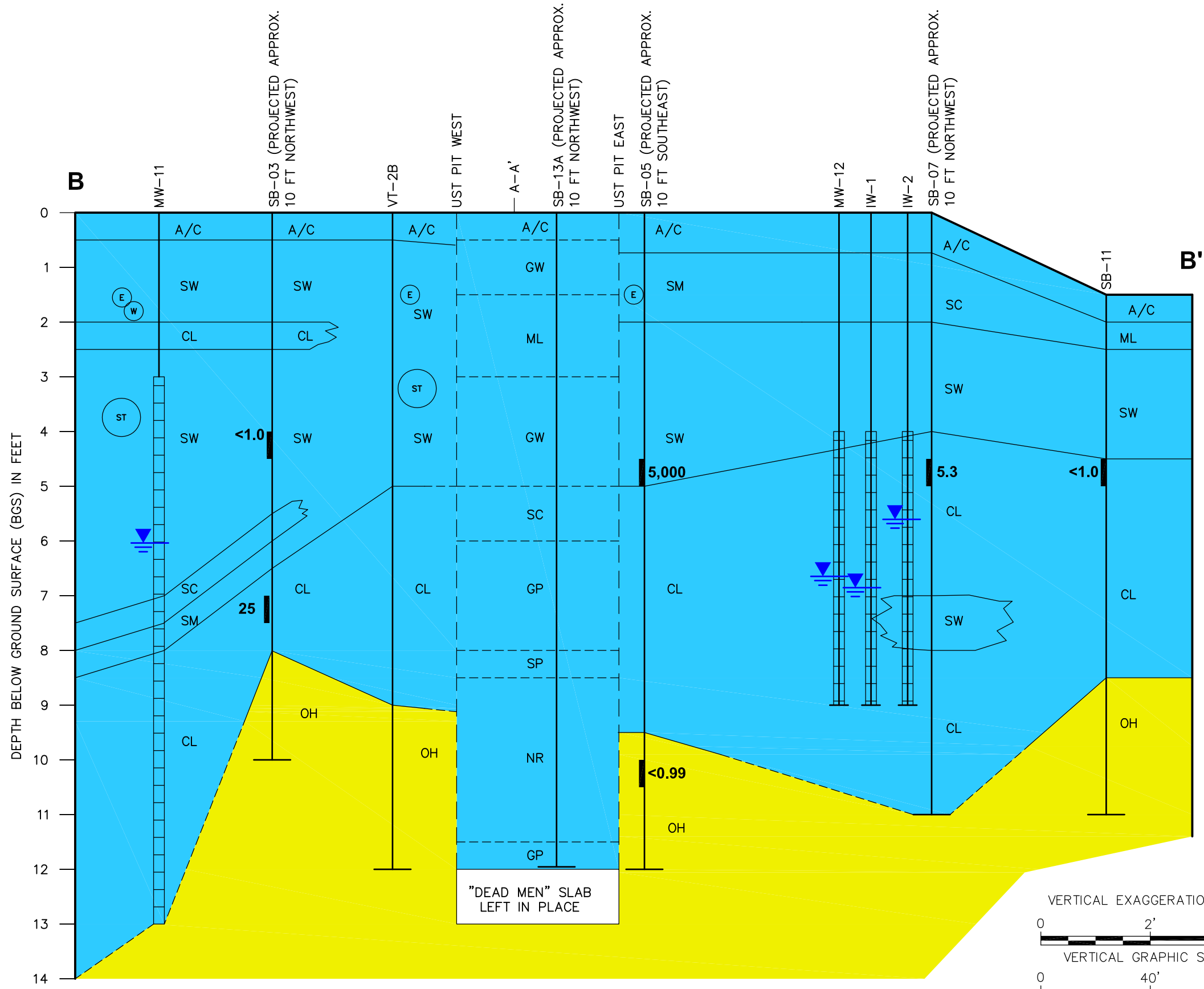


UPS-OAKLAND HUB  
 8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

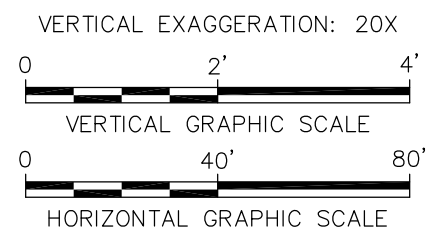
**CROSS SECTION A -A'**

APPENDIX  
**D-2**

CITY:TAMPA DIV:GROUP:85 DE:JAR LD:(Opt) PIC:(Opt) PM:(Read) TM:(Opt) LYS:(Opt)ON#:"OFF"REF"  
 GAENVCAD1\TAMPA\ACT\B0038398 UPS Oakland\0017\B0038398B01.dwg LAYOUT: D-3 SAVED: 11/25/2013 2:59 PM ACADVER: 18.1 S (LMS TECH) PAGES: 11/25/2013 3:01 PM BY: RICHARDS, JIM  
 XREFS: IMAGES: PROJECTNAME: --  
 AREA MAP.jpg UPSOakland.jpg



- LEGEND**
- BORING/WELL CASING
  - SOIL SAMPLE INTERVAL
  - WELL SCREEN INTERVAL
  - BOTTOM OF BORING
  - 5.3** TPH-DRO CONCENTRATION IN SOIL (mg/kg)
  - DEPTH TO WATER (7/22/13)
  - SOIL INTERFACE (DASHED WHERE INFERRED)
  - SC, CL ETC. SOIL USCS SOIL TYPE CLASSIFICATION
  - A/C ASPHALT/CONCRETE
  - NR NO SAMPLE RECOVERY
  - (ST) SUBSURFACE CONDUIT CROSS SECTION
  - SS SANITARY SEWER LINE
  - ST STORM SEWER LINE
  - W WATER/FIRE SERVICE
  - E ELECTRICAL LINE
  - I IRRIGATION PIPING
  - FILL MATERIAL
  - NATIVE SOIL (BAY MUD)



UPS-OAKLAND HUB  
 8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

**CROSS SECTION B -B'**

**ARCADIS**

APPENDIX  
**D-3**



CITY:TAMPA DIV:GROUP:85 DBL:AR LD:(Opt) PIC:(Opt) PM:(Recd) TML:(Opt) LXR:(Opt)ON="OFF"REF="G:\ENV\CADTAMPA\ACT1600\38398 UPS Oakland\001760\038398B01.dwg LAYOUT: D-4 SAVED: 11/27/2013 8:07 AM ACADVER: 18.1S (LMS TECH) PAGES: 11 PLOTSTYLETABLE: PLTFULLCTB PLOTTED: 12/5/2013 9:15 AM BY: RICHARDS, JIM



SB-6		
4/9/10	7.0-7.5	990

SB-12		
4/13/10	6.0-6.5	<1.0

SB-5		
4/9/10	4.5-5.0	5,000
4/9/10	10-10.5	<0.99

SB-1		
4/8/10	4.5-5.0	5,000
4/8/10	12-13	8.7

SB-3		
4/8/10	4.0-4.5	<1.0
4/8/10	7.5-8.0	25

SB-8		
4/9/10	4.5-5.0	66

SB-11		
4/12/10	3.0-3.5	<0.99

SB-7		
4/9/13	4.5-5.0	340(670)

SB-4		
NS		

SB-2		
4/8/10	7.0-7.5	1,400
4/8/10	9.5-10	4.2

SB-15		
10/11/13	8.0-9.0	1.7

SB-14		
10/11/13	7.0-8.0	84

SB-10		
4/12/10	7.0-7.5	31
4/12/10	9.5-10	1.0

SB-16		
10/11/13	7.0-8.0	4.9

SB-13		
4/9/10	4.5-5.0	66

SB-9		
4/12/10	3.0-3.5	5.3
4/12/10	9.5-10	<1.0

**LEGEND**

- MONITORING WELL
- ▣ TEMPORARY VACUUM TEST WELL
- ⊙ PHASE I INJECTION WELL
- ⊕ CPT/UVOST BORING (2013)
- ⊗ GEOPROBE SOIL AND GRAB GROUNDWATER BORING (2013)
- ⊖ ABANDONED MONITORING WELL
- ▲ SOIL BORING LOCATION (2010)
- PROPERTY BOUNDARY
- UNDERGROUND ELECTRICAL LINE
- STORM WATER/SEWER LINE
- WATER/FIRE SERVICE/IRRIGATION
- ELECTRIC/WATER LINE
- ▣ CATCH BASIN/STORM DRAIN
- LIGHT POST/ POWER POLE

SB-2		
DATE	DEPTH	TPHD
4/8/10	7.0-7.5	4.2

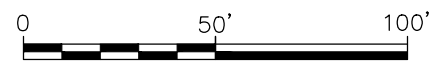
TPHD = TOTAL PETROLEUM HYDROCARBONS AS DIESEL

DEPTH IN FEET BELOW GROUND SURFACE

ALL RESULTS REPORTED IN MILLIGRAMS PER KILOGRAM (m/kg)

NS = NOT SAMPLED

340(670) = DUPLICATE SAMPLE TAKEN



GRAPHIC SCALE

UPS-OAKLAND HUB  
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

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**HISTORICAL TPH-DRO IN SOIL**

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FIGURE  
**D-4**





**Appendix E  
Groundwater Data  
and Figures**

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
MW-1	7.43	8/28/1990	3.80	3.63	0.00	NR
		9/20/1990	3.99	3.44	0.00	NR
		6/19/1991	3.47	3.96	NM	NR
		7/23/1991	3.70	3.73	NM	NR
		8/26/1991	3.92	3.51	NM	NR
		11/18/1991	4.21	3.22	NM	NR
		2/3/1992	3.99	3.44	NM	NR
		6/29/1992	3.38	4.05	NM	NR
		6/23/1993	2.72	4.71	NM	NR
		10/11/1993	3.87	3.56	NM	NR
		1/4/1994	3.34	4.09	NM	NR
		5/10/1994	2.14	5.29	NM	NR
		2/1/1995	1.84	5.59	NM	NR
		8/2/1995	3.10	4.33	NM	NR
		10/16/1995	3.75	3.68	NM	NR
		12/28/1995	3.56	3.87	NM	NR
		6/4/1997	3.16	4.27	0.00	NR
		9/30/1999	3.75	3.68	0.00	NR
		10/11/2000	3.88	3.55	0.00	NR
		9/3/2002	3.73	3.70	0.00	NR
		10/22/2002	5.11	2.32	0.05	NR
		12/23/2002	3.51	3.92	0.00	NR
		3/28/2003	3.52	3.91	0.00	NR
		5/30/2003	3.37	4.06	0.00	NR
		6/20/2003	3.50	3.93	0.00	NR
		7/14/2003	3.65	3.78	0.00	NR
		8/25/2003	3.87	3.56	0.00	NR
		9/9/2003	4.02	3.41	0.00	NR
		9/25/2003	4.10	3.33	0.00	NR
		10/28/2003	4.29	3.14	0.00	NR
		11/18/2003	4.32	3.11	0.00	NR
		12/2/2003	4.34	3.09	0.00	NR
		1/27/2004	3.88	3.55	0.00	NR
		2/24/2004	2.75	4.68	0.00	NR
		3/29/2004	3.45	3.98	0.00	NR
		4/19/2004	3.55	3.88	0.00	NR
		5/20/2004	3.69	3.74	0.00	NR
		6/22/2004	3.81	3.62	0.00	NR
		7/27/2004	3.99	3.44	0.00	NR
		8/24/2004	4.14	3.29	0.00	NR
		9/29/2004	4.32	3.11	0.00	NR
		10/25/2004	3.89	3.54	0.00	NR
		12/15/2004	3.18	4.25	0.00	NR
		1/24/2005	2.69	4.74	0.00	NR
		2/23/2005	2.48	4.95	0.00	NR
		3/23/2005	2.21	5.22	0.00	NR
		4/29/2005	2.57	4.86	0.00	NR
		5/27/2005	2.68	4.75	0.00	NR
		6/29/2005	2.97	4.46	0.00	NR
		7/20/2005	3.13	4.30	0.00	NR
8/24/2005	3.48	3.95	0.00	NR		
9/27/2005	3.69	3.74	0.00	NR		
10/19/2005	3.87	3.56	0.00	NR		
11/29/2005	3.79	3.64	0.00	NR		
12/29/2005	3.08	4.35	0.00	NR		
1/31/2006	2.91	4.52	0.00	NR		
2/28/2006	2.84	4.59	0.00	NR		
3/27/2006	2.26	5.17	0.00	NR		
4/28/2006	2.40	5.03	0.00	NR		
6/27/2006	3.09	4.34	0.00	NR		
7/31/2006	3.35	4.08	0.00	NR		
8/29/2006	3.60	3.83	0.00	NR		
9/28/2006	3.90	3.53	0.00	NR		
10/27/2006	3.97	3.46	0.00	NR		
11/22/2006	3.64	3.79	0.00	NR		
12/26/2006	3.04	4.39	0.00	NR		
1/25/2007	3.26	4.17	0.00	NR		

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)	
MW-1	7.43	2/16/2007	3.12	4.31	0.00	NR	
		3/19/2007	2.91	4.52	0.00	NR	
		4/26/2007	2.93	4.50	0.00	NR	
		5/29/2007	3.15	4.28	0.00	NR	
		6/28/2007	3.42	4.01	0.00	NR	
		7/30/2007	3.60	3.83	0.00	NR	
		8/30/2007	3.85	3.58	0.00	NR	
		9/25/2007	4.00	3.43	0.00	NR	
		10/29/2007	4.05	3.38	0.00	NR	
		11/29/2007	4.10	3.33	0.00	NR	
		12/28/2007	3.80	3.63	0.00	NR	
		1/24/2008	3.14	4.29	0.00	NR	
		2/21/2008	2.44	4.99	0.00	NR	
		3/28/2008	2.84	4.59	0.00	NR	
		4/30/2008	3.00	4.43	0.00	NR	
		5/29/2008	3.24	4.19	0.00	NR	
		6/25/2008	3.39	4.04	0.00	NR	
		7/29/2008	3.64	3.79	0.00	NR	
		8/27/2008	3.85	3.58	0.00	NR	
		9/30/2008	4.08	3.35	0.00	NR	
		10/31/2008	4.20	3.23	0.00	NR	
		11/26/2008	4.14	3.29	0.00	NR	
		12/30/2008	3.94	3.49	0.00	NR	
1/22/2009	3.93	3.50	0.00	NR			
4/3/2009	ABANDONED						
MW-2	7.15	8/28/1990	4.98	2.17	0.00	NR	
		9/20/1990	4.94	2.21	N/A	NR	
		6/19/1991	4.66	2.49	N/A	NR	
		7/23/1991	4.81	2.34	N/A	NR	
		8/26/1991	4.89	2.26	N/A	NR	
		11/18/1991	4.93	2.22	N/A	NR	
		2/3/1992	4.44	2.71	N/A	NR	
		6/29/1992	4.80	2.35	N/A	NR	
		6/23/1993	4.38	2.77	N/A	NR	
		10/11/1993	5.20	1.95	N/A	NR	
		1/4/1994	4.56	2.59	N/A	NR	
		5/10/1994	4.20	2.95	N/A	NR	
		2/1/1995	4.00	3.15	N/A	NR	
		8/2/1995	4.71	2.44	N/A	NR	
		10/16/1995	5.02	2.13	N/A	NR	
		12/28/1995	4.56	2.59	N/A	NR	
		6/12/1996	NM	--		0.25	NR
		6/4/1997	6.02	1.13	Small globules		NR
		9/30/1999	4.95	2.20	0.00		NR
		10/11/2000	4.97	2.18	0.08		NR
		2/12/2002	4.26	2.89	0.01		24.00
		9/3/2002	5.02	2.13	0.07		NR
		9/27/2002	4.89	2.26	0.09		222.30
		10/22/2002	5.11	2.04	0.05		125.00
		12/23/2002	4.25	2.90	0.04		99.00
		1/16/2003	4.28	2.87	0.02		49.00
		2/12/2003	4.26	2.89	0.01		24.00
		3/28/2003	4.35	2.80	0.01		25.00
		5/30/2003	3.60	3.55	0.02		49.00
		6/20/2003	4.55	2.60	0.01		NR
		7/14/2003	4.56	2.59	0.00		NR
		8/25/2003	4.79	2.36	0.01		25.00
		9/9/2003	4.90	2.25	0.01		NR
		9/25/2003	4.97	2.18	0.01		25.00
		10/28/2003	4.98	2.17	0.04		104.00
		11/18/2003	4.83	2.32	0.00		NR
12/3/2003	4.87	2.28	0.00		NR		
1/27/2004	7.39	-0.24	0.00		NR		
2/24/2004	4.56	2.59	0.01		NR		
3/29/2004	4.24	2.91	0.01		NR		
4/19/2004	4.50	2.65	0.01		25.00		
5/20/2004	4.53	2.62	0.00		NR		



**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
MW-2	7.15	6/22/2004	4.65	2.50	0.00	NR
		7/27/2004	4.80	2.35	0.00	NR
		8/24/2004	5.93	1.22	0.00	NR
		9/29/2004	5.00	2.15	0.02	50.00
		10/25/2004	4.68	2.47	0.00	NR
		12/15/2004	4.34	2.81	0.02	50.00
		1/24/2005	4.15	3.00	0.00	NR
		2/23/2005	4.95	2.20	0.03	74.00
		3/23/2005	4.96	2.19	0.02	49.00
		4/29/2005	4.23	2.92	0.10	246.00
		5/27/2005	4.20	2.95	0.02	50.00
		6/29/2005	4.29	2.86	0.00	NR
		7/20/2005	4.48	2.67	0.04	98.00
		8/24/2005	4.71	2.44	0.00	NR
		9/27/2005	4.98	2.17	0.03	70.00
		10/19/2005	5.08	2.07	0.00	NR
		11/29/2005	4.68	2.47	0.01	NR
		12/29/2005	4.19	2.96	0.01	NR
		1/31/2006	4.05	3.10	0.00	NR
		2/28/2006	4.16	2.99	0.00	25.00
		3/27/2006	4.11	3.04	0.01	NR
		4/28/2006	4.03	3.12	0.00	NR
		6/27/2006	4.45	2.70	0.01	NR
		7/31/2006	4.60	2.55	0.02	NR
		8/29/2006	4.84	2.31	0.01	NR
		9/28/2006	4.96	2.19	0.03	NR
		10/27/2006	4.98	2.17	0.00	NR
		11/22/2006	4.58	2.57	0.00	NR
		12/26/2006	4.22	2.93	0.02	NR
		1/25/2007	4.44	2.71	0.00	NR
		2/16/2007	4.13	3.02	0.00	NR
		3/19/2007	4.30	2.85	0.01	NR
		4/26/2007	4.17	2.98	0.03	NR
		5/29/2007	4.42	2.73	0.01	25.00
		6/28/2007	5.16	1.99	0.01	25.00
		7/30/2007	4.71	2.44	0.00	NR
		8/30/2007	4.94	2.21	0.03	NR
		9/25/2007	5.06	2.09	0.01	25.00
		10/29/2007	4.75	2.40	0.01	25.00
		11/29/2007	4.69	2.46	0.00	NR
12/28/2007	4.35	2.80	0.00	NR		
1/24/2008	4.08	3.07	0.00	NR		
2/21/2008	3.97	3.18	0.01	25.00		
3/28/2008	4.18	2.97	0.00	NR		
4/30/2008	4.40	2.75	0.00	NR		
5/29/2008	4.58	2.57	0.01	20.00		
6/25/2008	4.58	2.57	0.00	NR		
7/29/2008	4.85	2.30	0.00	NR		
8/27/2008	4.89	2.26	0.01	25.00		
9/30/2008	5.14	2.01	0.04	98.00		
10/31/2008	5.23	1.92	0.03	NR		
11/26/2008	4.74	2.41	0.04	NR		
12/30/2008	4.33	2.82	0.01	25.00		
1/22/2009	4.45	2.70	0.01	25.00		

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
MW-2	9.63	5/5/2010	4.03	5.60	0.13	NR
		10/29/2010	4.98	4.65	0.08	NR
		2/25/2011	3.73	5.90	0.00	NR
		6/14/2011	4.23	5.40	0.00	0.00
		7/19/2011	4.72	4.91	0.01	59.15
		8/18/2011	4.80	4.83	sheen	0.00
		9/1/2011	4.96	4.67	sheen	0.00
		9/20/2011	5.08	4.56	0.01	591.47
		10/19/2011	4.77	4.86	0.01	591.47
		11/22/2011	4.92	4.71	0.01	532.32
		12/26/2011	4.92	4.71	0.01	532.32
		1/23/2012	5.20	4.43	0.28	561.83
		2/15/2012	5.16	4.47	0.03	591.40
		2/29/2012	4.75	4.88	0.02	NR
		3/19/2012	4.42	5.21	0.00	NR
		5/1/2012	4.18	5.45	0.03	532.32
		6/5/2012	4.61	5.02	0.01	NR
		7/3/2012	4.91	4.72	0.03	532.32
		8/1/2012	4.93	4.70	0.01	NR
		8/3/2012	4.985	4.65	0.05	591.47
		10/25/2012	5.49	4.14	0.02	5.0
		11/19/2012	5.21	4.42	0.00	25.0
		12/20/2012	5.76	3.87	0.01	2.0
		1/24/2013	4.81	4.82	0.00	0.0
		2/25/2013	NM	--	--	--
		2/26/2013	4.73	4.90	0.00	5.0
		4/14/2013	NM	--	--	--
		4/22/2013	4.69	4.94	0.00	5.0
		5/15/2013	NM	-	-	-
		5/30/2013	4.99	4.64	0.01	5.0
6/26/2013	5.23	4.40	0.00	NR		
7/22/2013	5.15	4.48	0.06	NR		
8/12/2013	5.15	4.48	0.02	0.0		
MW-2 Product recovered prior to skimmer installation (Pre 6/14/2011):						1826.30
MW-2 Product recovered post skimmer installation (Post 6/14/2011):						5163.07
MW-2 Total product recovered:						6989.37

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
MW-3	7.42	8/28/1990	3.88	3.54	0.00	NR
		9/20/1990	3.99	3.43	0.00	NR
		6/19/1991	3.49	3.93	0.00	NR
		7/23/1991	3.71	3.71	0.00	NR
		8/26/1991	3.94	3.48	0.00	NR
		11/18/1991	4.23	3.19	0.00	NR
		2/3/1992	4.01	3.41	0.00	NR
		6/29/1992	3.40	4.02	0.00	NR
		6/23/1993	2.75	4.67	0.00	NR
		10/11/1993	3.84	3.58	0.00	NR
		1/4/1994	3.40	4.02	0.00	NR
		5/10/1994	2.25	5.17	0.00	NR
		2/1/1995	2.43	4.99	0.00	NR
		8/2/1995	3.20	4.22	0.00	NR
		10/16/1995	3.72	3.70	0.00	NR
		12/28/1995	3.56	3.86	0.00	NR
		6/4/1997	3.20	4.22	0.00	NR
		6/3/1998	NM	--	0.00	NM
		9/30/1999	3.72	3.70	0.00	NR
		10/11/2000	3.88	3.54	0.00	NR
		9/3/2002	3.75	3.67	0.00	NR
		12/23/2002	3.50	3.92	0.00	NR
		3/28/2003	3.56	3.86	0.00	NR
		5/30/2003	3.38	4.04	0.00	NR
		6/20/2003	3.52	3.90	0.00	NR
		7/14/2003	3.65	3.77	0.00	NR
		8/25/2003	3.99	3.43	0.00	NR
		9/9/2003	3.99	3.43	0.00	NR
		9/25/2003	4.06	3.36	0.00	NR
		10/28/2003	4.15	3.27	0.00	NR
		11/18/2003	4.28	3.14	0.00	NR
		12/2/2003	4.31	3.11	0.00	NR
		1/27/2004	3.85	3.57	0.00	NR
		2/24/2004	3.70	3.72	0.00	NR
		3/29/2004	3.47	3.95	0.00	NR
		4/19/2004	3.55	3.87	0.00	NR
		5/20/2004	3.65	3.77	0.00	NR
		6/22/2004	3.83	3.59	0.00	NR
		7/27/2004	3.98	3.44	0.00	NR
		8/24/2004	4.14	3.28	0.00	NR
		9/29/2004	4.30	3.12	0.00	NR
		10/25/2004	3.85	3.57	0.00	NR
		12/15/2004	3.16	4.26	0.00	NR
		1/24/2005	2.65	4.77	0.00	NR
		2/23/2005	2.50	4.92	0.00	NR
		3/23/2005	2.48	4.94	0.00	NR
		4/29/2005	2.59	4.83	0.00	NR
		5/27/2005	2.75	4.67	0.00	NR
		6/29/2005	3.05	4.37	0.00	NR
		7/20/2005	3.10	4.32	0.00	NR
8/24/2005	3.45	3.97	0.00	NR		
9/27/2005	3.71	3.71	0.00	NR		
10/19/2005	3.73	3.69	0.00	NR		
11/29/2005	3.75	3.67	0.00	NR		
12/29/2005	3.08	4.34	0.00	NR		
1/31/2006	2.99	4.43	0.00	NR		
2/28/2006	2.95	4.47	0.00	NR		
3/27/2006	2.60	4.82	0.00	NR		
4/28/2006	2.90	4.52	0.00	NR		
6/27/2006	3.01	4.41	0.00	NR		
7/31/2006	4.33	3.09	0.00	NR		
8/29/2006	3.62	3.80	0.00	NR		
9/28/2006	3.80	3.62	0.00	NR		
10/27/2006	3.90	3.52	0.00	NR		
11/22/2006	3.60	3.82	0.00	NR		
12/26/2006	3.07	4.35	0.00	NR		
1/25/2007	3.25	4.17	0.00	NR		

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
MW-3	7.42	2/16/2007	3.09	4.33	0.00	NR
		3/19/2007	2.83	4.59	0.00	NR
		4/26/2007	2.94	4.48	0.00	NR
		5/29/2007	3.18	4.24	0.00	NR
		6/28/2007	3.41	4.01	0.00	NR
		7/30/2007	3.62	3.80	0.00	NR
		8/30/2007	3.84	3.58	0.00	NR
		9/25/2007	4.03	3.39	0.00	NR
		10/29/2007	4.06	3.36	0.00	NR
		11/29/2007	4.10	3.32	0.00	NR
		12/28/2007	3.78	3.64	0.00	NR
		1/24/2008	3.16	4.27	0.00	NR
		2/21/2008	2.41	5.02	0.00	NR
		3/28/2008	2.94	4.48	0.00	NR
		4/30/2008	3.08	4.34	0.00	NR
		5/29/2008	3.24	4.18	0.00	NR
		6/25/2008	3.30	4.12	0.00	NR
		7/29/2008	3.50	3.92	0.00	NR
		8/27/2008	3.84	3.58	0.00	NR
		9/30/2008	4.03	3.39	0.00	NR
		10/31/2008	4.20	3.22	0.00	NR
		11/26/2008	4.23	3.19	0.00	NR
		12/30/2008	3.96	3.46	0.00	NR
		1/22/2009	3.96	3.46	0.00	NR
	5/5/2010	3.13	6.76	0.02	NR	
	10/29/2010	4.70	5.19	0.00	NR	
	2/25/2011	1.54	8.35	0.02	NR	
	6/14/2011	3.25	6.64	0.05	NR	
	7/19/2011	3.53	6.36	0.02	532.32	
	8/18/2011	3.98	5.91	sheen	591.47	
	9/1/2011	4.12	5.77	sheen	591.47	
	9/20/2011	4.41	5.48	sheen	591.47	
	10/19/2011	4.34	5.55	sheen	561.90	
	11/22/2011	4.75	5.14	sheen	532.32	
	12/26/2011	4.70	5.19	sheen	532.32	
	1/23/2012	4.11	5.78	0.01	532.26	
	2/15/2012	4.90	4.99	0.02	591.40	
	2/29/2012	4.14	5.75	0.03	NR	
	3/19/2012	2.98	6.91	0.00	NR	
	5/1/2012	2.91	6.98	0.01	532.32	
	6/5/2012	3.80	6.09	0.00	NR	
	7/3/2012	4.22	5.67	0.01	532.32	
	8/1/2012	4.58	5.31	0.00	NR	
8/3/2012	4.61	5.28	0.00	532.32		
10/25/2012	5.20	4.69	0.00	NR		
11/19/2012	4.90	4.99	0.00	NR		
12/20/2012	4.00	5.89	0.00	NR		
1/24/2013	3.95	5.94	0.00	NR		
2/25/2013	NM	--	--	--		
2/26/2013	4.25	5.64	0.00	NR		
4/14/2013	NM	--	--	--		
4/22/2013	4.54	5.35	0.00	10.00		
5/15/2013	NM	-	-	-		
5/30/2013	5.01	4.88	0.01	10.00		
6/26/2013	5.13	4.76	0.01	NR		
7/22/2013	5.48	4.41	0.00	NR		
8/12/2013	5.44	4.45	0.00	NR		
MW-3 Product recovered prior to skimmer installation (Pre 6/14/2011):						0.00
MW-3 Product recovered post skimmer installation (Post 6/14/2011):						6673.89
MW-3 Total product recovered:						6673.89



**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
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Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)	
MW-4	9.77	5/5/2010	2.96	6.81	0.00		
		10/29/2010	4.53	5.24	0.00	NR	
		2/25/2011	1.34	8.43	0.00	NR	
		9/1/2011	3.99	5.78	0.00	NR	
		2/29/2012	3.91	5.86	0.00	NR	
		3/19/2012	2.81	6.96	0.00	NR	
		6/5/2012	3.59	6.18	0.00	NR	
		8/1/2012	4.45	5.32	0.01	NR	
		2/25/2013	NM	--	--	--	--
		2/26/2013	4.09	5.68	0.01	NR	
		4/14/2013	NM	--	--	--	--
		5/15/2013	NM	-	-	-	-
		7/22/2013	5.10	4.67	0.00	NR	
8/12/2013	5.25	4.52	0.00	NR			
MW-8	8.22	5/5/2010	2.56	5.66	0.00	NR	
		10/29/2010	4.39	3.83	0.00	NR	
		2/25/2011	2.69	5.53	0.00	NR	
		9/1/2011	3.67	4.55	0.00	NR	
		2/29/2012	3.63	4.59	0.00	NR	
		3/19/2012	3.37	4.85	0.00	NR	
		6/5/2012	3.15	5.07	0.00	NR	
		8/1/2012	3.77	4.45	0.00	NR	
		2/25/2013	NM	--	--	--	--
		2/26/2013	3.38	4.84	0.00	NR	
		4/14/2013	NM	--	--	--	--
		5/15/2013	NM	-	-	-	-
		7/22/2013	3.90	4.32	0.00	NR	
8/12/2013	4.08	4.14	0.00	NR			
MW-9	14.63	5/5/2010	6.28	8.35	0.00	NR	
		10/29/2010	6.28	8.35	0.00	NR	
		2/25/2011	5.55	9.08	0.00	NR	
		9/1/2011	6.05	8.58	0.00	NR	
		2/29/2012	5.98	8.65	0.00	NR	
		3/19/2012	5.68	8.95	0.00	NR	
		6/5/2012	3.76	10.87	0.00	NR	
		8/1/2012	6.11	8.52	0.00	NR	
		2/25/2013	NM	--	--	--	--
		2/26/2013	5.91	8.72	0.00	NR	
		4/14/2013	NM	--	--	--	--
		5/15/2013	NM	-	-	-	-
		7/22/2013	6.13	8.50	0.00	NR	
8/12/2013	6.29	8.34	0.00	NR			
MW-10	9.68	5/5/2010	8.28	1.40	0.00	NR	
		10/29/2010	8.27	1.41	0.00	NR	
		2/25/2011	4.45	5.23	0.00	NR	
		9/1/2011	8.35	1.33	0.00	NR	
		2/29/2012	8.32	1.36	0.00	NR	
		3/19/2012	7.11	2.57	0.00	NR	
		6/5/2012	8.20	1.48	0.00	NR	
		8/1/2012	8.34	1.34	0.01	NR	
		2/25/2013	NM	--	--	--	--
		2/26/2013	8.28	1.40	0.00	NR	
		4/14/2013	NM	--	--	--	--
		5/15/2013	NM	-	-	-	-
		7/22/2013	8.31	1.37	0.00	NR	
8/12/2013	8.64	1.04	0.00	NR			

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

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Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
MW-11	9.49	5/5/2010	7.21	2.28	0.00	NR
		10/29/2010	6.83	2.66	0.00	NR
		2/25/2011	2.83	6.66	0.00	NR
		9/1/2011	6.05	3.44	0.00	NR
		2/29/2012	5.89	3.60	0.00	NR
		3/19/2012	8.88	0.61	0.00	NR
		6/5/2012	5.68	3.81	0.00	NR
		8/1/2012	6.16	3.33	0.01	NR
		2/25/2013	NM	--	--	--
		2/26/2013	5.96	3.53	0.00	NR
		4/14/2013				
		5/15/2013	NM	-	-	-
		7/22/2013	6.05	3.44	0.00	NR
8/12/2013	6.43	3.06	0.00	NR		
MW-12	9.43	3/19/2012	4.40	5.03	0.18	NR
		6/5/2012	6.31	3.12	0.72	NR
		8/1/2012	7.39	2.04	1.40	NR
		8/3/2012	7.15	2.28	1.30	NR
		10/25/2012	6.74	2.69	0.72	NR
		11/19/2012	6.45	2.98	0.80	NR
		12/20/2012	5.90	3.53	0.90	NR
		1/24/2013	6.53	2.90	1.19	725.00
		2/25/2013	6.55	2.88	1.05	ND
		2/26/2013	7.75	1.68	0.05	30.00
		4/14/2013	5.70	3.73	0.25	ND
		4/22/2013	6.27	3.16	0.46	278.00
		5/15/2013	6.51	2.92	0.42	ND
		5/30/2013	6.67	2.76	0.25	151.00
		6/26/2013	6.82	2.61	0.33	200.00
		7/22/2013	6.69	2.74	0.16	97.00
		8/12/2013	6.73	2.70	0.17	0.00
MW-12 Total product recovered:						1184.00
MW-13	9.10	3/19/2012	3.56	5.54	--	NR
		6/5/2012	4.50	4.60	0.00	NR
		8/1/2012	5.15	3.95	0.01	NR
		2/25/2013	4.61	4.49	0.00	NR
		2/26/2013	3.40	5.70	--	NR
		4/14/2013	4.88	4.22	0.00	NR
		5/15/2013	5.26	3.84	0.00	NR
		7/22/2013	5.58	3.52	0.00	NR
8/12/2013	5.69	3.41	0.00	NR		
MW-14	9.29	3/19/2012	1.86	7.43	--	NR
		6/5/2012	2.53	6.76	--	NR
		8/1/2012	3.69	5.60	0.01	NR
		2/25/2013	NM	--	--	--
		2/26/2013	2.66	6.63	--	NR
		4/14/2013	NM	--	--	--
		5/15/2012	NM	-	-	-
7/22/2013	4.56	4.73	0.00	NR		
8/12/2013	6.05	3.24	0.00	NR		
OW-1	N/A	6/4/1997	7.22	NC	0.01	NR
		9/30/1999	8.35	NC	0.01	NR
		10/11/2000	6.90	NC	0.09	NR
		2/12/2002	5.23	NC	0.01	38.00
		9/27/2002	7.02	NC	0.14	345.78
		10/22/2002	7.34	NC	0.01	40.00
		12/23/2002	5.17	NC	0.03	167.00
		1/16/2003	4.97	NC	0.01	40.00
		2/12/2003	5.23	NC	0.01	38.00
		3/28/2003	5.16	NC	0.01	25.00
		5/30/2003	4.41	NC	0.02	77.00
6/20/2003	4.93	NC	0.01	NR		

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HISTORICAL GROUNDWATER ELEVATION SUMMARY**

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STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
OW-1	N/A	7/14/2003	5.33	NC	0.00	NR
		8/25/2003	5.85	NC	0.00	NR
		9/9/2003	6.33	NC	0.00	NR
		9/25/2003	6.52	NC	0.01	25.00
		10/28/2003	7.26	NC	0.03	176.00
		11/18/2003	7.29	NC	0.00	NR
		12/2/2003	7.23	NC	0.03	NR
		1/27/2004	7.96	NC	0.01	NR
		2/24/2004	6.26	NC	0.02	NR
		3/29/2004	6.08	NC	0.02	NR
		4/19/2004	6.29	NC	0.03	116.00
		5/20/2004	6.16	NC	0.00	NR
		6/22/2004	6.37	NC	0.00	NR
		7/27/2004	5.67	NC	0.04	225.00
		8/24/2004	6.81	NC	0.00	NR
		9/29/2004	7.08	NC	0.04	153.00
		10/25/2004	6.74	NC	0.04	NR
		12/15/2004	5.33	NC	0.04	155.00
		1/24/2005	3.98	NC	0.00	NR
		2/23/2005	3.44	NC	0.01	NR <sup>5</sup>
		3/23/2005	3.34	NC	0.02	77.00
		4/29/2005	6.89	NC	0.13	501.00
		5/27/2005	7.18	NC	0.11	425.00
		6/29/2005	7.12	NC	0.10	450.00
		7/20/2005	7.20	NC	0.10	556.00
		8/24/2005	7.15	NC	0.06	249.00
		9/27/2005	7.43	NC	0.12	450.00
		10/19/2005	7.48	NC	0.11	425.00
		11/29/2005	7.00	NC	0.04	NR
		12/29/2005	5.22	NC	0.00	NR
		1/31/2006	5.64	NC	0.00	NR
		2/28/2006	6.53	NC	0.01	39.00
		3/27/2006	5.80	NC	0.01	NR
		4/28/2006	6.39	NC	0.00	NR
		6/27/2006	7.82	NC	0.06	NR
		7/31/2006	5.82	NC	0.05	NR
		8/29/2006	7.05	NC	0.07	NR
		9/28/2006	7.10	NC	0.02	NR
		10/27/2006	7.27	NC	0.02	NR
		11/22/2006	7.05	NC	0.02	NR
		12/26/2006	6.73	NC	0.03	NR
		1/25/2007	7.15	NC	0.00	NR
		2/16/2007	7.71	NC	0.01	NR
		3/19/2007	6.77	NC	0.02	NR
		4/26/2007	6.66	NC	0.01	NR
		5/29/2007	6.86	NC	0.02	76.00
		6/28/2007	6.97	NC	0.20	75.00
		7/30/2007	7.06	NC	0.01	NR
		8/30/2007	7.25	NC	0.03	NR
		9/25/2007	7.25	NC	0.03	115.00
10/29/2007	7.43	NC	0.02	78.00		
11/29/2007	7.37	NC	0.00	NR		
12/28/2007	7.28	NC	0.01	40.00		
1/24/2008	6.61	NC	0.01	38.00		
2/21/2008	6.33	NC	0.01	37.00		
3/28/2008	6.80	NC	0.01	NR		
4/30/2008	7.44	NC	0.03	166.90		
5/29/2008	7.09	NC	0.01	38.00		
6/25/2008	7.07	NC	0.02	112.00		
7/29/2008	7.34	NC	0.00	NR		
8/27/2008	7.28	NC	0.02	78.00		
9/30/2008	7.82	NC	0.03	167.00		
10/31/2008	7.31	NC	0.01	NR		
11/26/2008	6.93	NC	0.01	NR		
12/30/2008	7.25	NC	0.02	112.00		
1/22/2009	7.05	NC	0.01	56.00		

**TABLE 1  
HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
OW-1	9.55	5/5/2010	7.08	2.47	0.06	NR
		10/29/2010	7.37	2.18	0.08	NR
		2/25/2011	6.17	3.38	0.05	NR
		6/14/2011	6.78	2.77	0.08	0.00
		7/19/2011	7.30	2.25	0.20	118.29
		8/18/2011	7.35	2.20	0.03	147.87
		9/1/2011	7.35	2.20	0.03	147.87
		9/20/2011	7.41	2.14	0.04	591.47
		10/19/2011	7.42	2.13	0.03	532.32
		11/22/2011	7.09	2.46	0.03	29.57
		12/26/2011	7.32	2.23	0.02	147.87
		1/23/2012	6.90	2.65	0.30	532.26
		2/15/2012	7.32	2.23	0.02	591.40
		2/29/2012	7.54	2.01	0.08	NR
		3/19/2012	7.25	2.30	0.01	NR
		5/1/2012	7.14	2.41	0.01	532.32
		6/5/2012	8.55	1.00	0.01	NR
		7/3/2012	7.63	1.92	0.04	295.70
		8/1/2012	7.81	1.74	0.00	NR
		8/3/2012	7.50	2.05	0.14	591.47
		10/25/2012	7.34	2.21	0.02	5.0
		11/19/2012	7.26	2.29	0.20	10.0
		12/20/2012	6.93	2.62	0.03	5.0
		1/24/2013	6.89	2.66	0.03	10.0
		2/25/2013	NM	--	--	--
		2/26/2013	7.72	1.83	0.03	15.0
		4/14/2013	NM	--	--	--
		4/22/2013	7.68	1.87	0.03	15.0
5/15/2013	NM	-	-	-		
5/30/2013	7.50	2.05	0.05	20.0		
6/26/2013	7.56	1.99	0.05	NR		
7/22/2013	7.84	1.71	0.10	5.0		
8/12/2013	7.55	2.00	0.01	NR		
OW-1 Product recovered prior to skimmer installation (Pre 6/14/2011):						5943.68
OW-1 Product recovered post skimmer installation (Post 6/14/2011):						4338.41
OW-1 Total product Recovered:						10282.09
IW-1	9.50	3/19/2012	4.38	5.12	0.00	NR
		6/5/2012	6.24	3.26	0.59	NR
		8/1/2012	7.29	2.21	1.23	NR
		8/3/2012	7.01	2.49	1.10	NR
		10/25/2012	7.05	2.45	1.00	NR
		11/19/2012	6.50	3.00	0.90	NR
		12/20/2012	5.85	3.65	0.74	NR
		1/24/2013	6.54	2.96	1.13	690.00
		2/25/2013	6.50	3.00	0.85	ND
		2/26/2013	8.72	0.78	0.91	550.00
		4/14/2013	5.64	3.86	0.84	ND
		4/22/2013	6.56	2.94	0.66	400.00
		5/15/2013	6.79	2.71	0.23	ND
		5/30/2013	6.93	2.57	0.47	284.00
		6/26/2013	6.98	2.52	0.54	327.00
7/22/2013	6.89	2.61	0.36	218.00		
8/12/2013	6.95	2.55	0.61	370.00		
IW-1 Total product Recovered:						1924.00



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Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
IW-2	9.02	3/19/2012	4.15	4.87	0.00	NR
		6/5/2012	4.76	4.26	0.00	NR
		8/1/2012	5.54	3.48	0.00	NR
		2/25/2013	7.04	1.98	0.00	NR
		2/26/2013	5.85	3.17	0.00	NR
		4/14/2013	5.16	3.86	0.00	NR
		5/15/2013	5.21	3.81	0.00	NR
		7/22/2013	5.60	3.42	0.00	NR
IW-3	8.93	8/12/2013	5.71	3.31	0.00	NR
		3/19/2012	4.23	4.70	0.00	NR
		6/5/2012	3.82	5.11	0.00	NR
		8/1/2012	4.77	4.16	0.00	NR
		2/25/2013	5.90	3.03	0.00	NR
		2/26/2013	4.42	4.51	0.00	NR
		4/14/2013	NM	--	--	--
		5/15/2012	NM	-	-	-
IW-4	9.96	7/22/2013	4.80	4.13	0.00	NR
		8/12/2013	5.23	3.70	0.00	NR
		3/19/2012	3.00	6.96	0.00	NR
		6/5/2012	3.77	6.19	0.00	NR
		8/1/2012	4.64	5.32	0.01	NR
		2/25/2013	NM	-	-	-
		2/26/2013	4.29	5.67	0.01	NR
		4/14/2013	NM	--	--	--
IW-5	9.88	5/15/2013	NM	-	-	-
		7/22/2013	NM	-	-	-
		8/12/2013	5.45	4.51	0.00	NR
		3/19/2012	2.92	6.96	0.00	NR
		6/5/2012	3.68	6.20	0.00	NR
		8/1/2012	4.72	5.16	0.00	NR
		2/25/2013	NM	-	-	-
		2/26/2013	4.58	5.30	0.00	NR
IW-5	9.88	4/14/2013	NM	--	--	--
		5/15/2013	NM	-	-	-
		7/22/2013	5.38	4.50	0.00	NR
		8/12/2013	5.25	4.63	0.00	NR

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HISTORICAL GROUNDWATER ELEVATION SUMMARY**

UPS-OAKLAND HUB  
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OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Reference Elevation* (ft-amsl)	Date	Depth to Groundwater (ft-btoc)	Groundwater Elevation (ft-amsl)	Product Thickness (feet)	Volume of Product Recovered (mL)
IW-6	9.67	3/19/2012	3.15	6.52	0.00	NR
		6/5/2012	3.74	5.93	0.00	NR
		8/1/2012	4.36	5.31	0.01	NR
		2/25/2013	NM	-	-	-
		2/26/2013	4.10	5.57	0.00	NR
		4/14/2013	NM	--	--	--
		5/15/2013	NM	-	-	-
		7/22/2013	5.09	4.58	0.00	NR
		8/12/2013	5.23	4.44	0.00	NR
Total product recovered from skimmers (MW-2, MW-3 and OW-1):						
Total product recovered prior to skimmer installation (mL):						7770.0
Total product recovered prior to skimmer installation (oz):						262.0
Total product recovered prior to skimmer installation (gal):						2.05
Total product recovered post skimmer installation (mL):						16175.4
Total product recovered post skimmer installation (oz):						546.0
Total product recovered post skimmer installation (gal):						4.27
Total product recovered from wells without skimmers (mL):						3108.00
Total product recovered from wells without skimmers (oz):						106.00
Total product recovered from wells without skimmers (gal):						0.83
Total product recovered (mL):						27053.4
Total product recovered (oz):						914.0
Total product recovered (gal):						7.14

Notes:

- \* Reference elevation surveyed relative to mean sea level and California State Coordinate System, Zone III (NAD83)
- 2. Sources: Geraghty and Miller, 1996; BBL
- 3. Acronyms and Abbreviations: NM = Not measured; NC = Not calculated; N/A= Not Available; NR = No Recovery
- 4. ft-btoc = feet below top of casing
- 5. ft-amsl = feet above mean sea level
- 6. NR = not recovered
- 7. mL = milliliters
- 8. oz = ounces
- 9. gal = gallons
- 10 - = no data
- 11. ND = not determined; due to the method used for HVE, a distinction could not be made between the volume and water and volume of product recovered
- 12. Volume of product recovered on 9/27/02 and 3/23/05 calculated based on measurements from field data sheets









**TABLE 2**  
**HISTORICAL GROUNDWATER MONITORING RESULTS AND BASELINE SAMPLING SUMMARY**

UPS-OAKLAND HUB  
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA  
STATE ID # 583

Monitoring Well	Date	Benzene µg/L	Toluene µg/L	Ethyl- benzene µg/L	Total Xylenes µg/L	MTBE µg/L	TPH as gasoline µg/L	TPH as diesel µg/L	D.O. (mg/L)	Temperature °C	pH	Conductivity µs	EDB µg/L	1,2-DCA µg/L	Methane µg/L	Nitrate as Nitrogen µg/L	Magnesium µg/L	Sulfate µg/L	Sulfide µg/L	Iron µg/L	Naphthalene µg/L	TDS (mg/L)
Field Analysis	--	--	--	--	--	--	--	--	--	--	--	5,000	--	--	--	--	--	--	--	--	--	3,000
ESL - Drinking Water	--	1	40	30	20	5	100	100	--	--	--	--	0.05	0.5	--	--	--	--	--	--	17	--
ESL - Non-Drinking Water	--	46	130	43	100	1800	210	210	--	--	--	--	150	200	--	--	--	--	--	--	24	--
IW-1	3/19/2012	NA	NA	NA	NA	NA	NA	16,000	NA	NM	NM	NM	NA	NA	NA	NA	97,000	4,500	NA	210,000	NA	1,500 H
	4/19/2012	NA	NA	NA	NA	NA	NA	NA	0.48	NM	NM	2,639	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2012	NS	NS	NS	NS	NS	NS	NS	NA	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/26/2013	<5.0	<5.0	<5.0	<10	<5.0	<b>32,000</b>	<b>59,000</b>	NA	18.80	7.28	2,468	NA	NA	2,500	<230	71,000	<1,000	<1,000	15,000	<b>42</b>	1,500
	7/23/2013	NS	NS	NS	NS	NS	NS	NS	NA	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IW-2	3/19/2012	NA	NA	NA	NA	NA	NA	2,500	NA	NM	NM	NM	NA	NA	NA	NA	95,000	99,000	NA	8,200	NA	3,000
	4/19/2012	NA	NA	NA	NA	NA	NA	NA	0.51	NM	NM	1,443	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2012	<5.0	<5.0	0.74	1.4	<0.50	130	3,000	NA	NM	NM	NM	NA	NA	4,500	<230	180,000	4,000	6,400	8,000	NA	2,800
	2/26/2013	<5.0	<5.0	<5.0	<10	<5.0	<500	<b>6,200</b>	NA	17.90	7.45	4,494	NA	NA	1,500	<230	150,000	<1,000	5,400	6,400	<b>480</b>	<b>3,500</b>
	7/23/2013	<5.0	<5.0	<5.0	<10	<5.0	<500	<b>3,400</b>	NA	25.28	6.46	5,531	<5.0	<5.0	3,900	<230	180,000	<1,000	3,500	13,000	<b>430</b>	<b>3,700</b>
IW-3	3/19/2012	NA	NA	NA	NA	NA	NA	2,400	NA	NM	NM	NM	NA	NA	NA	NA	110,000	43,000	NA	30,000	NA	3,100
	4/19/2012	NA	NA	NA	NA	NA	NA	NA	0.61	NM	NM	2,471	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2012	<0.50	<0.50	<0.50	<1.0	<0.50	91	650	NA	NM	NM	NM	NA	NA	3,800	<230	130,000	<1,000	2,200	16,000	NA	2,700
	2/26/2013	<0.50	<0.50	0.58	<1.0	<0.50	<50	<b>1,100</b>	NA	17.70	7.02	3,890	NA	NA	2,800	<230	140,000	<1,000	8,200	20,000	<b>430</b>	2,800
	7/23/2013	<2.5	<2.5	<2.5	<5.0	<2.5	<250	95	NA	25.56	6.79	3,475	<2.5	<2.5	4,400	<230	170,000	<1.0	5,400	15,000	<b>150</b>	2,800
IW-4	3/19/2012	NA	NA	NA	NA	NA	NA	110,000	NA	NM	NM	NM	NA	NA	NA	NA	190,000	17,000	NA	350,000	NA	1,400 H
	4/19/2012	NA	NA	NA	NA	NA	NA	NA	0.45	NM	NM	1,809	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2012	<0.50	0.76	<0.50	<1.0	<0.50	160	250,000	NA	NM	NM	NM	NA	NA	1,900	<230 H	300,000	5,300	12,000	1,700	NA	1,100
	2/26/2013	<5.0	<5.0	<5.0	<10	<5.0	<b>5,600</b>	<b>34,000</b>	NA	17.00	7.02	2,058	NA	NA	3,900	<230	53,000	5,100	1,000	3,500	<b>24</b>	1,200
	7/23/2013	NS	NS	NS	NS	NS	NS	NS	NA	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IW-5	3/19/2012	NA	NA	NA	NA	NA	NA	220,000	NA	NM	NM	NM	NA	NA	NA	NA	150,000	25,000	NA	270,000	NA	910 H
	4/19/2012	NA	NA	NA	NA	NA	NA	NA	0.70	NM	NM	1,253	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2012	<0.50	<0.50	<0.50	<1.0	<0.50	920	36,000	NA	NM	NM	NM	NA	NA	6,200	<230 H	85,000	<1,000	2,300	4,900	NA	810 H
	2/26/2013	<0.50	<0.50	<0.50	<1.0	<0.50	<b>3,200</b>	<b>25,000</b>	NA	16.10	7.17	1,469	NA	NA	3,200	<230	45,000	1,200	<1,000	6,000	3.8	730
	7/23/2013	<0.50	<0.50	<0.50	<1.0	<0.50	<b>3,500</b>	<b>35,000</b>	NA	26.06	6.75	1,316	<0.50	<0.50	13,000	<230	6,300	<1,000	5,800	7,400	5.0	830
8/12/2013	NA	NA	NA	NA	NA	NA	<b>39,000</b>	NA	NM	NM	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
IW-6	3/19/2012	NA	NA	NA	NA	NA	NA	6,100	NA	NM	NM	NM	NA	NA	NA	NA	270,000	48,000	NA	270,000	NA	6,200
	4/19/2012	NA	NA	NA	NA	NA	NA	NA	0.77	NM	NM	7,377	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2012	<0.50	<0.50	<0.50	<1.0	<0.50	280	5,600	NA	NM	NM	NM	NA	NA	2,500	<230 H	300,000	2,100	10,000	43,000	NA	8,500
	2/26/2013	0.50	<0.50	<0.50	<1.0	<0.50	120	4,800	NA	16.10	6.56	9,861	NA	NA	3,300	<230	290,000	8,100	2,200	42,000	4.4	6,600
	7/23/2013	<0.50	<0.50	<0.50	<1.0	<0.50	<b>110</b>	<b>970</b>	NA	25.17	6.48	<b>14,451</b>	<0.50	<0.50	8,200	<230	410,000	<1,000	6,200	45,000	9.9	<b>10,000</b>

- Notes:**
1. µg/L = micrograms per liter
  2. mg/L = milligrams per liter
  3. NA = Not Analyzed; NS = Not Sampled; NM = Not Measured
  4. TPH = Total petroleum hydrocarbons; MTBE = Methyl tertiary butyl ether.
  5. Title 22 of the California Code of Regulations, California Maximum Contaminant Levels (MCLs) for drinking water.
  6. -- = no data
  7. MCL = maximum concentration level
  8. µs = micro siemens
  9. TDS = total dissolved solids
  10. D.O. = Dissolved Oxygen
  11. Results collected between the dates of 8/28/90 and 12/28/95 are based on prior reporting by Geraghty & Miller, Inc. (1996).
  12. **Bold values indicate analytical detections above drinking water but below non-drinking water MCL.**
  13. **Bold and italicized values indicate analytical detections above non-drinking water MCL.**
  14. Shading = most recent groundwater monitoring data
  15. The 9/96, 10/96 BBL reports revealed concentrations reported as TPH as diesel did not resemble the diesel chromatogram standard, containing > C26.
  16. H = Sample was prepped or analyzed beyond the specified holding time
  17. J - Estimated value between Method Detection Limit and Practical Quantitation Limit.
  18. ndp - Hydrocarbon reported does not match the pattern of laboratory Diesel standard.
  19. Q2 = Quantity of unknown hydrocarbon(s) in sample based on diesel.
  20. Q1 = Quantity of unknown hydrocarbon(s) in sample based on gasoline.
  21. RWQCB ESLs = Regional Water Quality Control Board ESLs for Environmental Concerns at Sites with Contaminated Soil and Groundwater INTERIM FINAL - November 2007 (Revised May 2008) San Francisco Bay Region, CA

Table 1

United Parcel Service  
 8400 Pardee Drive  
 Oakland, California  
 Ground Water Analytical Data Summary

	Component	TPH-diesel	B	T	E	X	Other
	Method	M8015	8020	8020	8020	8020	8020
	Units	ppb	ppb	ppb	ppb	ppb	ppb
Sample	Date						
TW-1	6/12/96	2,000 YH	ND (1)	12	1.4	7.9	ND (1)
TW-2	6/12/96	11,000 YH	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
TW-4	6/13/96	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
TW-6	6/12/96	330 YZ	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
TW-7	6/12/96	130 Y	NA	NA	NA	NA	NA
TW-8	6/12/96	46,000	ND (1)	ND (1)	3	ND (1)	ND (1)
TW-9	6/12/96	2,300 YHZ	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)

ppb= parts per billion

NA = sample not analyzed for this parameter

ND ( ) = None Detected ( detection limit)

B = Benzene

T = Toluene

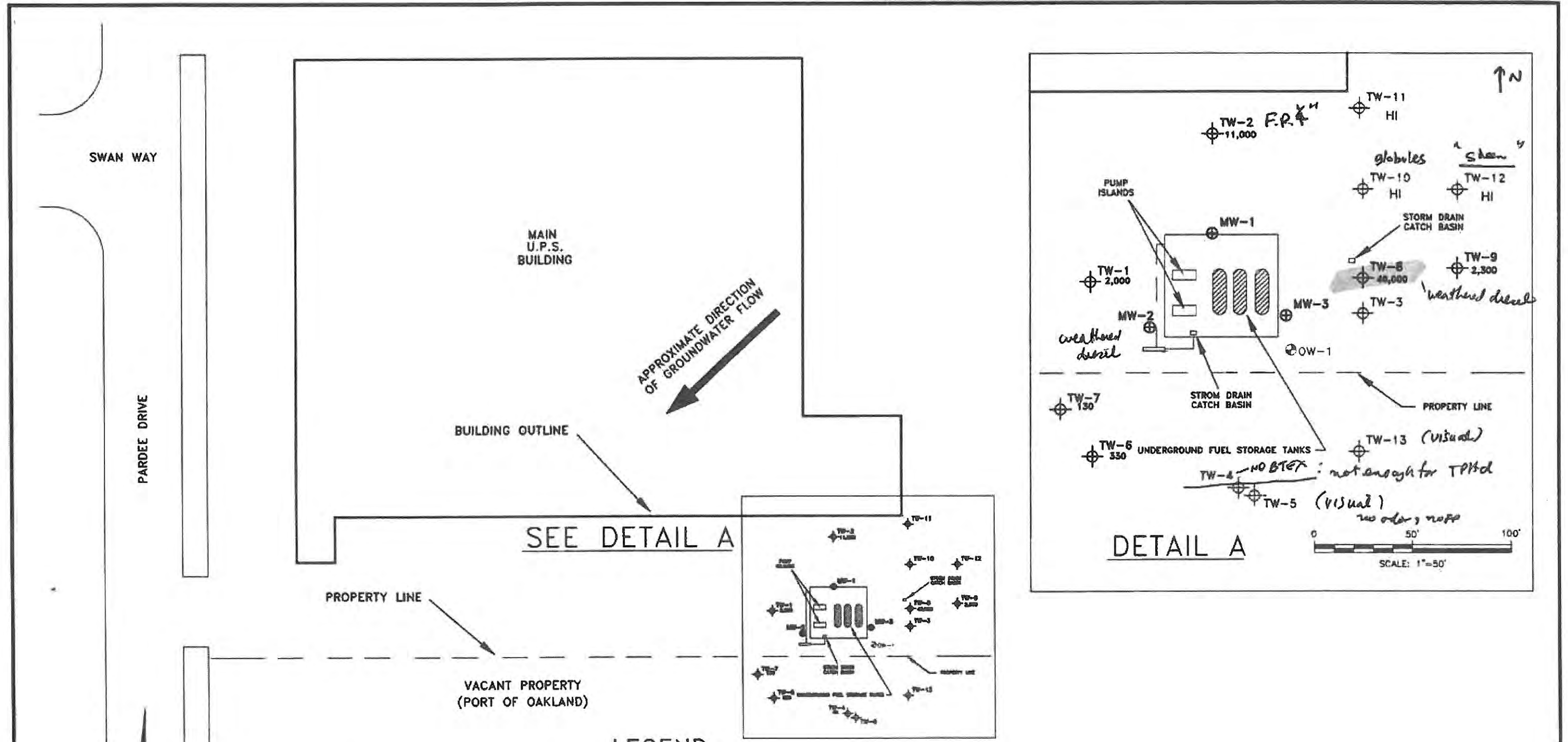
E= Ethyl Benzene

X = Total Xylenes

Y = Sample exhibits fuel pattern which does not resemble standard

Z = Sample exhibits unknown single peak or peaks

H = Heavier hydrocarbons than indicated standard



**LEGEND**

- TW-1 2,000 EXISTING GROUND-WATER SAMPLING LOCATION WITH TPHd CONCENTRATION (PPB)
- MW-7 EXISTING GROUND-WATER MONITORING WELLS INSTALLED BY OTHERS
- MW-5 EXISTING GROUND-WATER MONITORING WELLS INSTALLED BY GERAGHTY & MILLER
- BUILDING OUTLINE

- PPB = PARTS PER BILLION
- TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- NA = SAMPLE NOT ANALYZED FOR THIS PARAMETER
- HI = HYDROCARBONS INDICATED

**NOTE:**  
1. SAMPLED 6/12/96 AND 6/13/96.

UNITED PARCEL SERVICE, INC.  
8400 PARDEE DRIVE  
OAKLAND, CALIFORNIA

**GROUND-WATER SAMPLING LOCATIONS**

**BBL** BLASLAND, BOUCK & LEE, INC.  
engineers & scientists

FIGURE **1**

L: ON= DEF=REF  
P: STD-POP/BL  
7/3/96 RW-SM-AIS  
3678801R/DWSAMP01.DWG

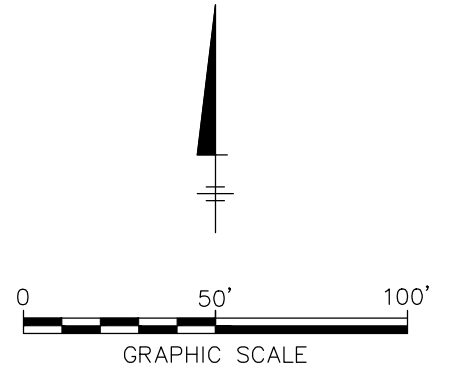


CITY:TAMPA DIV:GROUP:85 DBL:AR LD:(Opt) PIC:(Opt) PM:(Recd) TM:(Opt) LVR:(Opt)ON="OFF"REF" G:\ENV\CADTAMPA\ACT\B00\38398 UPS Oakland\0017\B0038398B01.dwg LAYOUT: E-1 SAVED: 11/27/2013 8:05 AM ACADVER: 18.1 S (LMS TECH) PAGES: 18 PAGES SETUP: - PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 11/27/2013 8:07 AM BY: RICHARDS, JIM



**LEGEND**

- MONITORING WELL
- TEMPORARY VACUUM TEST WELL
- PHASE I INJECTION WELL
- ABANDONED MONITORING WELL
- PROPERTY BOUNDARY
- UNDERGROUND ELECTRICAL LINE
- STORM WATER/SEWER LINE
- WATER/FIRE SERVICE/IRRIGATION
- ELECTRIC/WATER LINE
- CATCH BASIN/STORM DRAIN
- LIGHT POST/ POWER POLE
- WATER-TABLE ELEVATION CONTOUR  
DASHED WHERE INFERRED  
CONTOUR INTERVAL = 2.0 FEET
- (6.63) WATER-TABLE ELEVATION (FEET)
- APPARENT DIRECTION OF GROUNDWATER FLOW
- \* DATA NOT USED FOR CONTOURING



UPS-OAKLAND HUB  
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

**GROUNDWATER CONTOUR MAP**  
JULY 23, 2013

APPENDIX  
**E-1**



CITY:TAMPA DIV:GROUP:85 DBL:AR LD:(Ort) PIC:(Ort) PM:(Recd) TM:(Ort) LVR:(Ort)ON="OFF"REF=" G:\ENV\CADTAMPA\ACT1600\38388 UPS Oakland001780038388C01.dwg LAYOUT: E-2 SAVED: 11/27/2013 8:11 AM ACADVER: 18.1 S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLT\FULL.CTB PLOTTED: 11/27/2013 8:11 AM BY: RICHARDS, JIM

MW-9		IW-5		IW-6		MW-14		MW-12		IW-1		MW-8		IW-2		IW-3	
DATE	7/23/2013	DATE	7/23/2013	DATE	7/23/2013	DATE	7/23/2013	DATE	7/23/2013	DATE	7/23/2013	DATE	7/22/2013	DATE	7/23/2013	DATE	7/23/2013
B	<0.50	B	<0.50	B	<0.50	B	<0.50	B	NS	B	NS	B	<0.50	B	<5.0	B	<2.5
T	<0.50	T	<0.50	T	<0.50	T	<0.50	T	<0.50	T	NS	T	<0.50	T	<5.0	T	<2.5
E	<0.50	E	<0.50	E	<0.50	E	<0.50	E	NS	E	NS	E	<0.50	E	<5.0	E	<2.5
X	<1.0	X	<1.0	X	<1.0	X	<1.0	X	NS	X	NS	X	<1.0	X	<10	X	<5.0
M	<0.50	M	<0.50	M	<0.50	M	<0.50	M	NS	M	NS	M	<0.50	M	<5.0	M	<2.5
TPHG	<50	TPHG	3,500	TPHG	110	TPHG	<50	TPHG	NS	TPHG	NS	TPHG	<50	TPHG	<500	TPHG	<250
TPHD	<52	TPHD	35,000	TPHD	970	TPHD	<56	TPHD	NS	TPHD	NS	TPHD	170	TPHD	3,400	TPHD	95
DO	NA	DO	NA	DO	NA	DO	NA	DO	NS	DO	NS	DO	NA	DO	NA	DO	NA
COND	12,700	COND	1,316	COND	14,451	COND	5,497	COND	NS	COND	NS	COND	4,408	COND	5,531	COND	3,475
METH	5,400	METH	13,000	METH	8,200	METH	6,000	METH	NS	METH	NS	METH	5,100	METH	3,900	METH	4,400
NIT	<230	NIT	<230	NIT	<230	NIT	NA	NIT	NS	NIT	NS	NIT	<230	NIT	<230	NIT	<230
MAG	390,000	MAG	6,300	MAG	410,000	MAG	NA	MAG	NS	MAG	NS	MAG	170,000	MAG	180,000	MAG	170,000
SULF	<1,000	SULF	<1,000	SULF	<1,000	SULF	NA	SULF	NS	SULF	NS	SULF	<1,000	SULF	<1,000	SULF	<1.0
SULD	<1,000	SULD	5,800	SULD	6,200	SULD	NA	SULD	NS	SULD	NS	SULD	1,600	SULD	3,500	SULD	5,400
IRON	11,000	IRON	7,400	IRON	45,000	IRON	NA	IRON	NS	IRON	NS	IRON	2,900	IRON	13,000	IRON	15,000
NAP	<1.0	NAP	5.0	NAP	9.9	NAP	<1.0	NAP	NS	NAP	NS	NAP	2.7	NAP	430	NAP	150
TDS	16,000	TDS	830	TDS	10,000	TDS	NA	TDS	NS	TDS	NS	TDS	5,300	TDS	3,700	TDS	2,800

MW-4	
DATE	7/22/2013
B	<0.50
T	<0.50
E	<0.50
X	<1.0
M	<0.50
TPHG	85
TPHD	1,100
DO	NA
COND	1,789
METH	8,000
NIT	<230
MAG	45,000
SULF	<1.00
SULD	<1,000
IRON	3,600
NAP	<1.0
TDS	1,100

MW-2	
DATE	7/23/2013
B	NS
T	NS
E	NS
X	NS
M	NS
TPHG	NS
TPHD	NS
DO	NS
COND	NS
METH	NS
NIT	NS
MAG	NS
SULF	NS
SULD	NS
IRON	NS
NAP	NS
TDS	NS

MW-11	
DATE	7/23/2013
B	<0.50
T	<0.50
E	<0.50
X	<1.0
M	<0.50
TPHG	<50
TPHD	78
DO	NA
COND	9,905
METH	7,000
NIT	<230
MAG	180,000
SULF	<1,000
SULD	<1,000
IRON	5,900
NAP	<1.0
TDS	5,700

MW-10	
DATE	7/22/2013
B	<0.50
T	<0.50
E	<0.50
X	<1.0
M	<0.50
TPHG	<50
TPHD	62
DO	NA
COND	9,721
METH	7,700
NIT	<230
MAG	210,000
SULF	1,900
SULD	<1,000
IRON	7,700
NAP	<1.0
TDS	5,200

IW-4	
DATE	7/23/2013
B	NS
T	NS
E	NS
X	NS
M	NS
TPHG	NS
TPHD	NS
DO	NS
COND	NS
METH	NS
NIT	NS
MAG	NS
SULF	NS
SULD	NS
IRON	NS
NAP	NS
TDS	NS

OW-1	
DATE	7/23/2013 ?
B	NS
T	NS
E	NS
X	NS
M	NS
TPHG	NS
TPHD	NS
DO	NS
COND	NS
METH	NS
NIT	NS
MAG	NS
SULF	NS
SULD	NS
IRON	NS
NAP	NS
TDS	NS

MW-13	
DATE	7/23/2013
B	<0.50
T	<0.50
E	<0.50
X	<1.0
M	<0.50
TPHG	<50
TPHD	88
DO	NA
COND	2,022
METH	13,000
NIT	<230
MAG	81,000
SULF	2,100
SULD	<1,000
IRON	3,200
NAP	<1.0
TDS	1,400

MW-3	
DATE	7/23/2013
B	<0.50
T	<0.50
E	<0.50
X	<1.0
M	<0.50
TPHG	290
TPHD	7,000
DO	NA
COND	1,696
METH	8,200
NIT	<230
MAG	47,000
SULF	<1,000
SULD	<1,000
IRON	4,700
NAP	1.3
TDS	720

- LEGEND**
- MONITORING WELL
  - TEMPORARY VACUUM TEST WELL
  - PHASE I INJECTION WELL
  - ABANDONED MONITORING WELL
  - PROPERTY BOUNDARY
  - CATCH BASIN/STORM DRAIN
  - LIGHT POST/ POWER POLE

SAMPLE LOCATION	
DATE	SAMPLE DATE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
M	METHYL TERT-BUTYL ETHER
TPHG	TPH GASOLINE
TPHD	TPH DIESEL
DO	DISSOLVED OXYGEN
COND	CONDUCTIVITY
METH	METHANE
NIT	NITRATE AS NITROGEN
MAG	MAGNESIUM
SULF	SULFATE
SULD	SULFIDE
IRON	IRON
NAP	NAPHTHALENE
TDS	TOTAL DISSOLVED SOLIDS

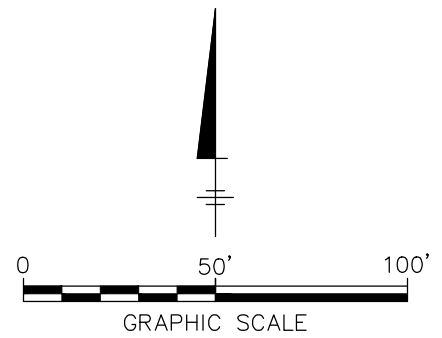
ALL RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L), D.O. AND TDS REPORTED IN MILLIGRAMS PER LITER (mg/L), CONDUCTIVITY REPORTED IN MICROSIEMENS (µS)

< = INDICATES THAT THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED

I = THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT (MDL) AND THE LABORATORY PRACTICAL QUANTITATION LIMIT (PQL)

BOLD VALUES INDICATE THE CONCENTRATION EXCEEDS THE CLEANUP TARGET LEVEL LISTED IN TABLE I OF CHAPTER 62-777 F.A.C.

NS = NOT SAMPLED



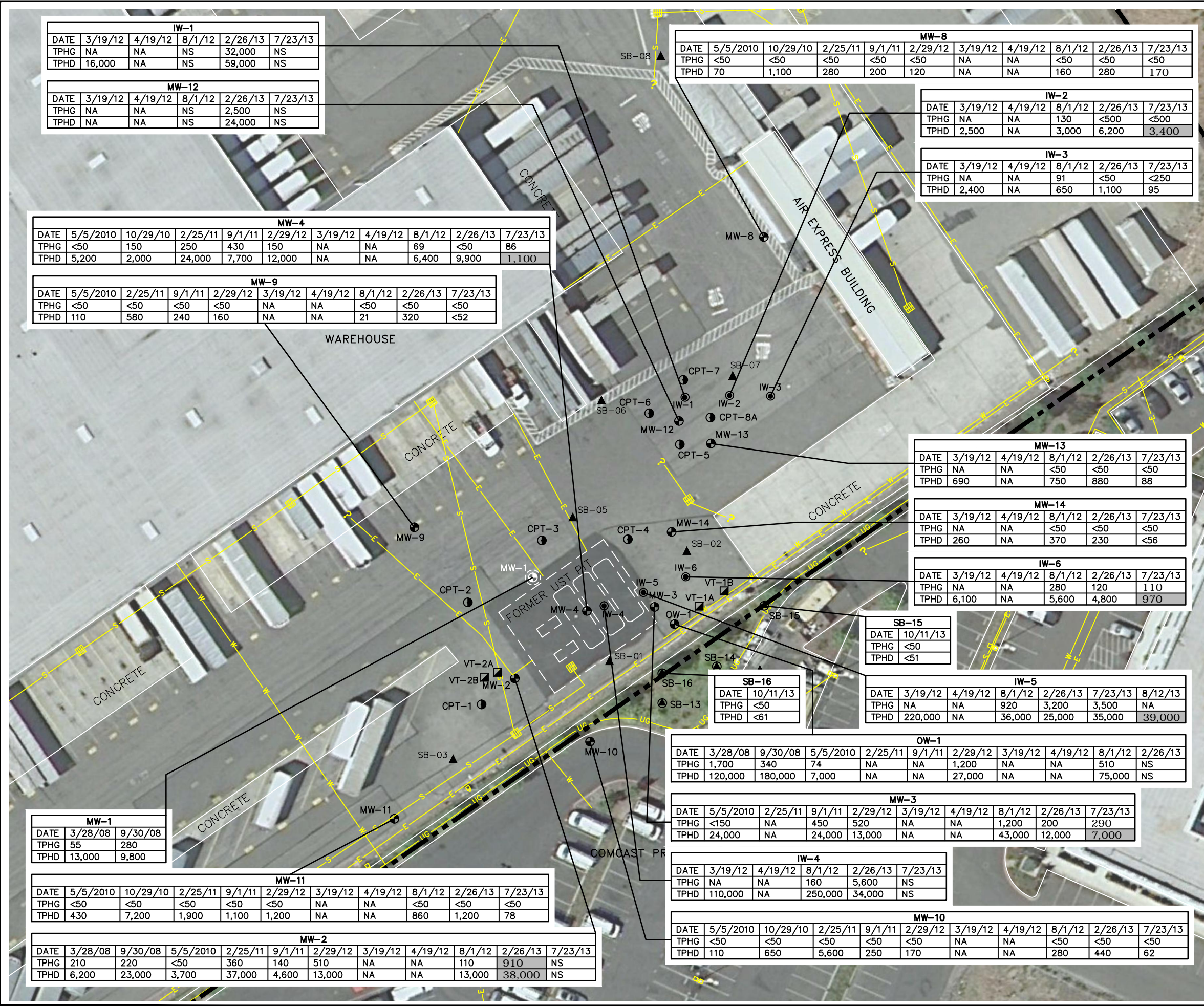
UPS-OAKLAND HUB  
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

**GROUNDWATER QUALITY MAP  
JULY 22-23, 2013**





CITY:TAMPA DIV:GROUP:85 DBL:AR, J. HARRIS LD:(Opt) PIC:(Opt) PM:(Recd) TM:(Opt) LVR:(Opt)NONL="OFF"REF" G:\ENV\CAD\TAMPA\ACT\B0038988 UPS Oakland\00171B0038988.dwg LAYOUT: E-3 SAVED: 11/27/2013 8:05 AM ACADVER: 18.1 S (LMS TECH) PAGES: 11/27/2013 8:07 AM BY: RICHARDS, JIM PLOTSTYLETABLE: PLT\FULL.CTB



IW-1					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	NS	32,000	NS
TPHD	16,000	NA	NS	59,000	NS

MW-12					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	NS	2,500	NS
TPHD	NA	NA	NS	24,000	NS

MW-8										
DATE	5/5/2010	10/29/10	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	<50	<50	<50	<50	<50	NA	NA	<50	<50	<50
TPHD	70	1,100	280	200	120	NA	NA	160	280	170

IW-2					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	130	<500	<500
TPHD	2,500	NA	3,000	6,200	3,400

IW-3					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	91	<50	<250
TPHD	2,400	NA	650	1,100	95

MW-4										
DATE	5/5/2010	10/29/10	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	<50	150	250	430	150	NA	NA	69	<50	86
TPHD	5,200	2,000	24,000	7,700	12,000	NA	NA	6,400	9,900	1,100

MW-9									
DATE	5/5/2010	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	<50	<50	<50	<50	NA	NA	<50	<50	<50
TPHD	110	580	240	160	NA	NA	21	320	<52

MW-13					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	<50	<50	<50
TPHD	690	NA	750	880	88

MW-14					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	<50	<50	<50
TPHD	260	NA	370	230	<56

IW-6					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	280	120	110
TPHD	6,100	NA	5,600	4,800	970

SB-15		
DATE	10/11/13	
TPHG	<50	
TPHD	<51	

SB-16			
DATE	10/11/13		
TPHG	<50		
TPHD	<61		

IW-5						
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13	8/12/13
TPHG	NA	NA	920	3,200	3,500	NA
TPHD	220,000	NA	36,000	25,000	35,000	39,000

OW-1										
DATE	3/28/08	9/30/08	5/5/2010	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13
TPHG	1,700	340	74	NA	NA	1,200	NA	NA	510	NS
TPHD	120,000	180,000	7,000	NA	NA	27,000	NA	NA	75,000	NS

MW-3										
DATE	5/5/2010	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13	
TPHG	<150	NA	450	520	NA	NA	1,200	200	290	
TPHD	24,000	NA	24,000	13,000	NA	NA	43,000	12,000	7,000	

IW-4					
DATE	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	NA	NA	160	5,600	NS
TPHD	110,000	NA	250,000	34,000	NS

MW-10										
DATE	5/5/2010	10/29/10	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	<50	<50	<50	<50	<50	NA	NA	<50	<50	<50
TPHD	110	650	5,600	250	170	NA	NA	280	440	62

MW-1		
DATE	3/28/08 9/30/08	
TPHG	55 280	
TPHD	13,000 9,800	

MW-11										
DATE	5/5/2010	10/29/10	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	<50	<50	<50	<50	<50	NA	NA	<50	<50	<50
TPHD	430	7,200	1,900	1,100	1,200	NA	NA	860	1,200	78

MW-2											
DATE	3/28/08	9/30/08	5/5/2010	2/25/11	9/1/11	2/29/12	3/19/12	4/19/12	8/1/12	2/26/13	7/23/13
TPHG	210	220	<50	360	140	510	NA	NA	110	910	NS
TPHD	6,200	23,000	3,700	37,000	4,600	13,000	NA	NA	13,000	38,000	NS

- LEGEND**
- MONITORING WELL
  - TEMPORARY VACUUM TEST WELL
  - ⊙ PHASE I INJECTION WELL
  - ⊕ CPT/UVOST BORING (2013)
  - ⊗ GEOPROBE SOIL AND GRAB GROUNDWATER BORING (2013)
  - ⊖ ABANDONED MONITORING WELL
  - ▲ SOIL BORING LOCATION (2010)

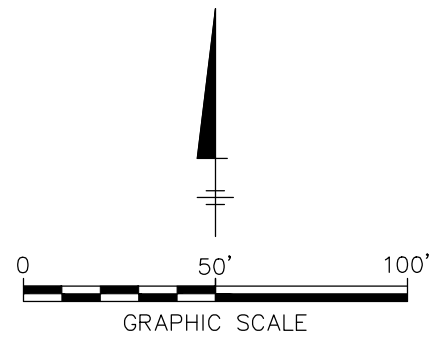
- — — — — PROPERTY BOUNDARY
- ▣ CATCH BASIN/STORM DRAIN
- ⊠ LIGHT POST/ POWER POLE

SAMPLE LOCATION	
DATE	SAMPLE DATE
TPHG	TPH GASOLINE
TPHD	TPH DIESEL

ALL RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L),  
**BOLD VALUES INDICATE THE CONCENTRATION EXCEEDS THE CLEANUP TARGET LEVEL LISTED IN TABLE I OF CHAPTER 62-777 F.A.C.**

**BOLD AND SHADED VALUES INDICATE DETECTIONS ABOVE NON-DRINKING WATER MCL.**

NA = NOT ANALYZED  
 NS = NOT SAMPLED



UPS-OAKLAND HUB  
 8400 PARDEE DRIVE, OAKLAND, CALIFORNIA

**HISTORICAL TPH-GRO AND TPH-DRO  
 IN GROUNDWATER**

**ARCADIS**

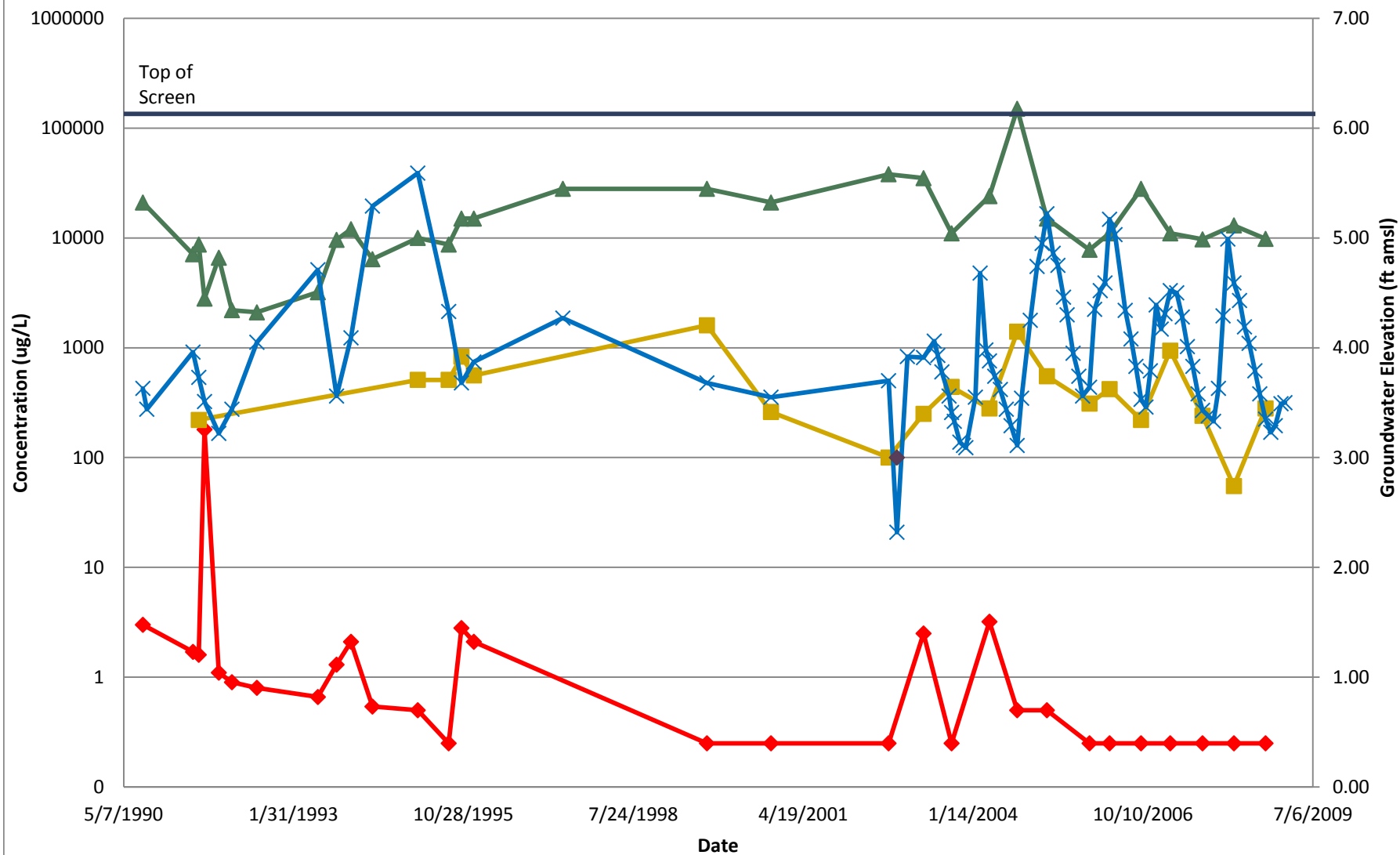
APPENDIX  
**E-3**





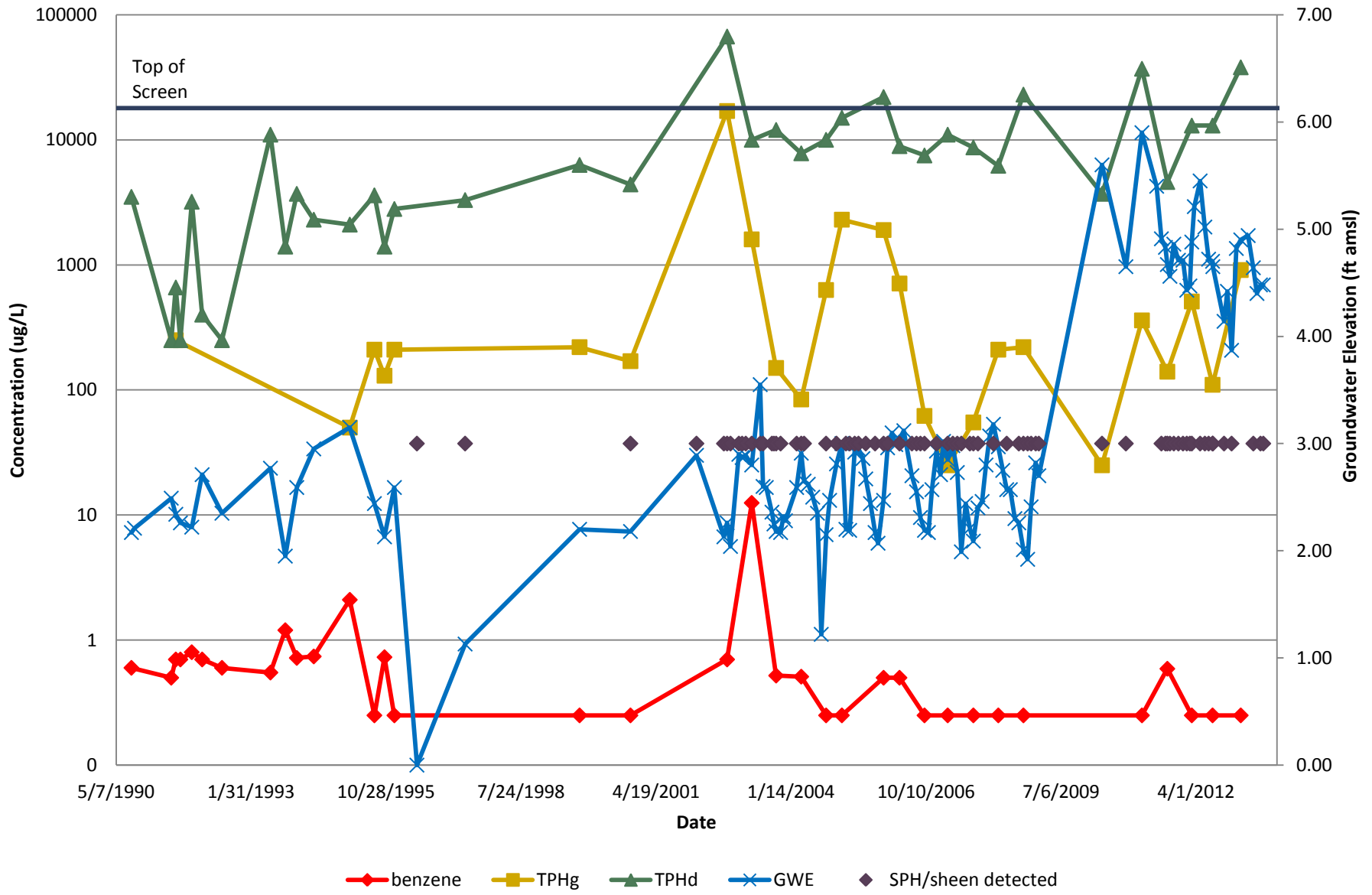
**Appendix F  
Concentration vs.  
Time Graphs**

# MW-1



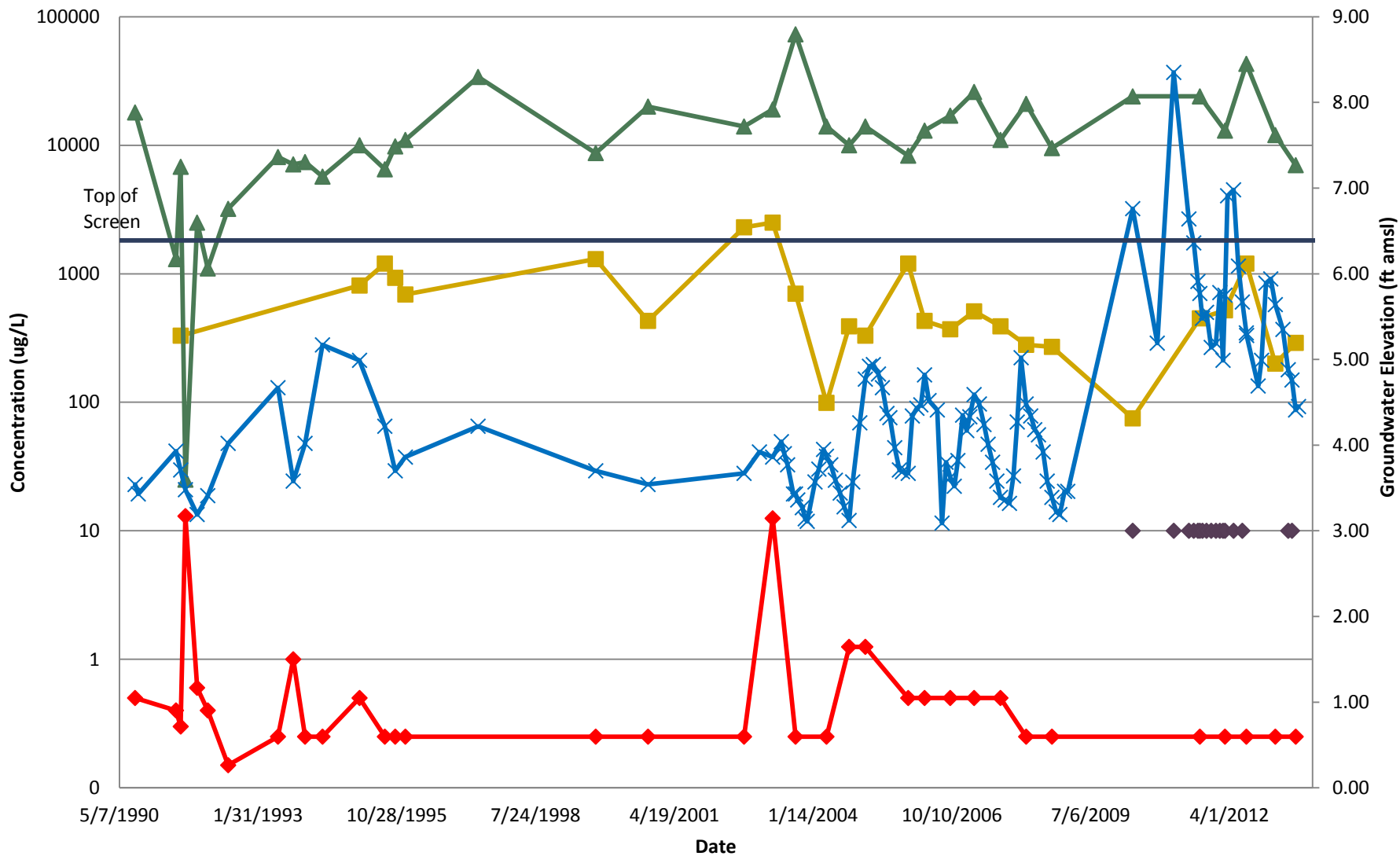
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# MW-2



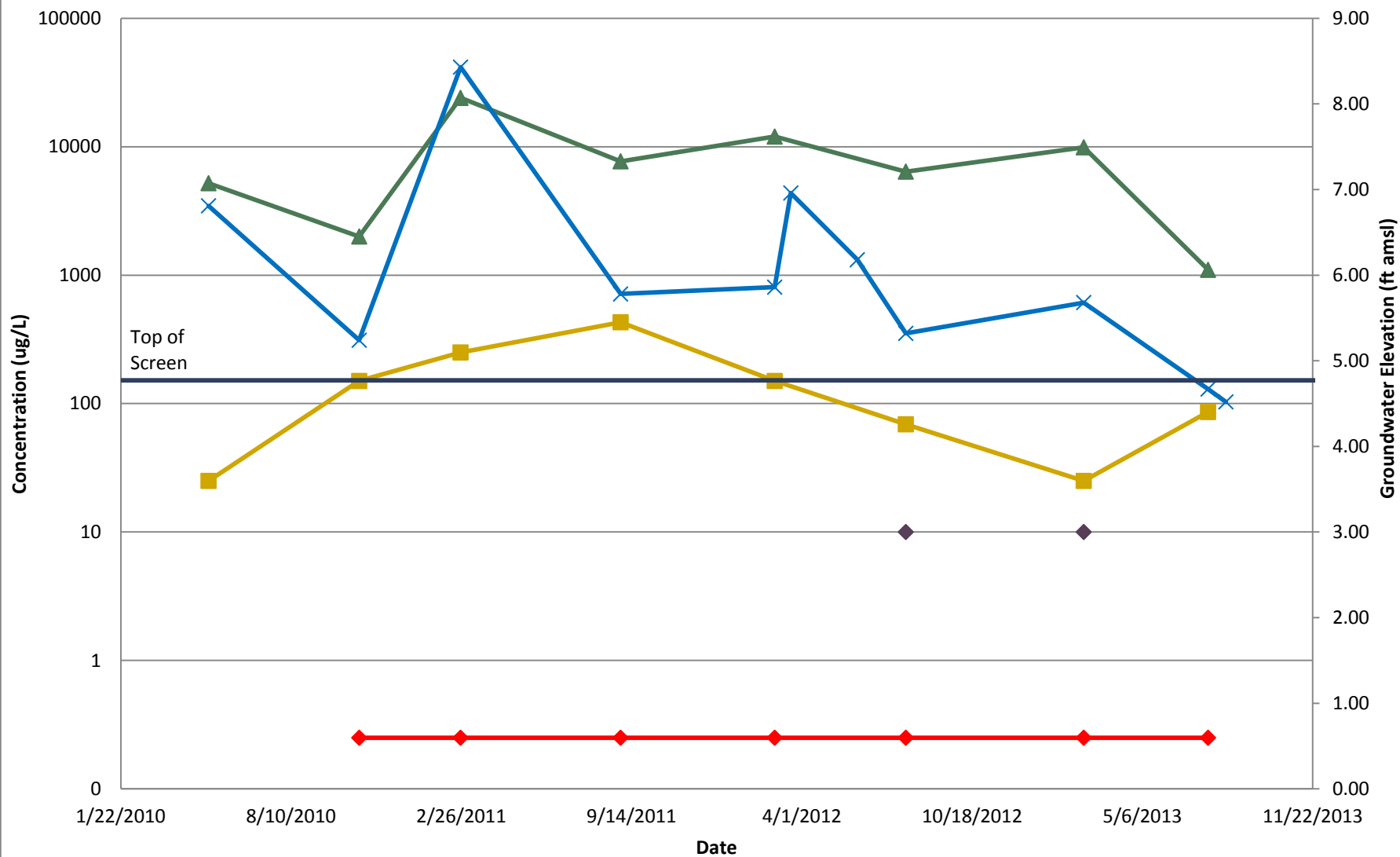


# MW-3



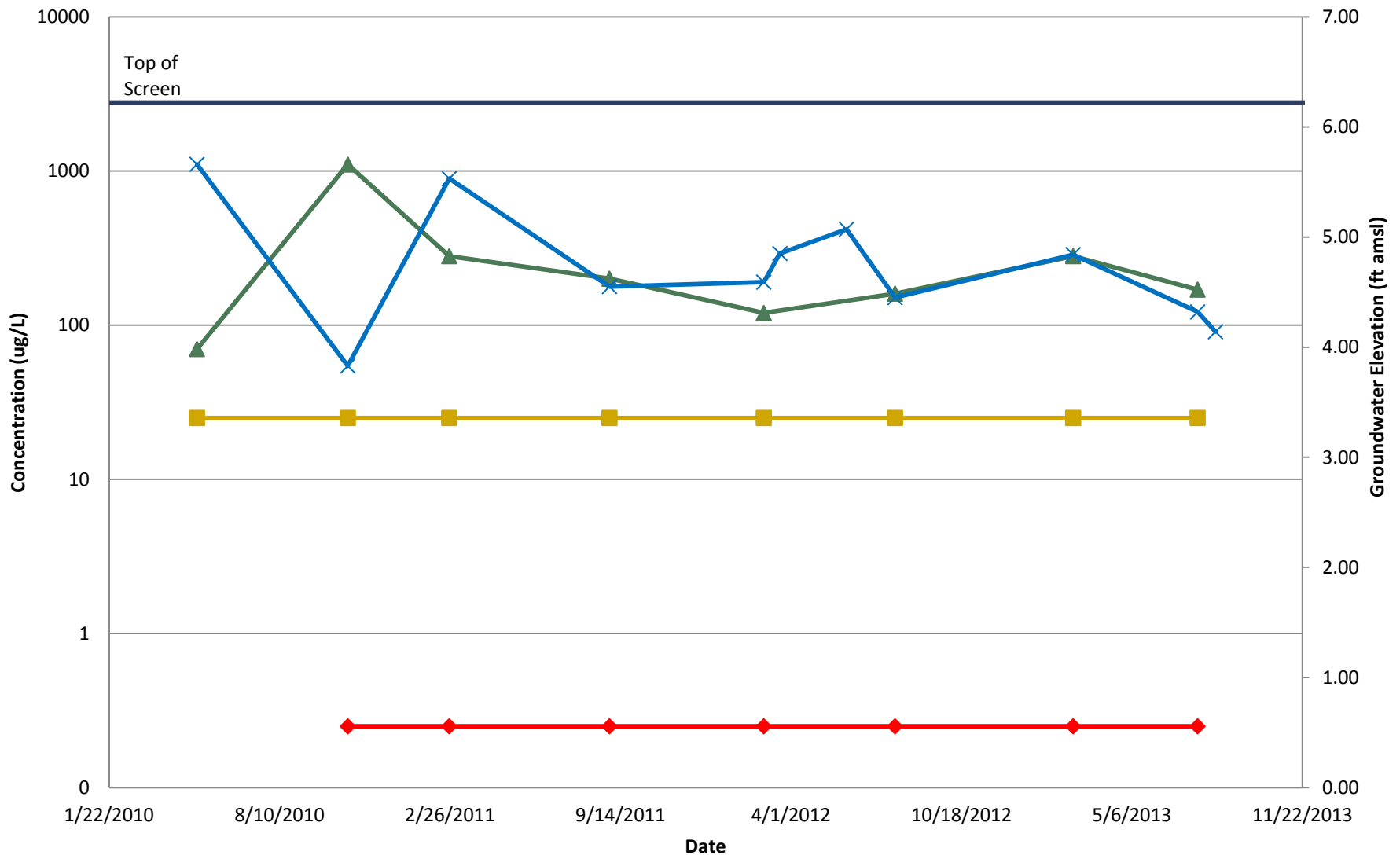
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# MW-4



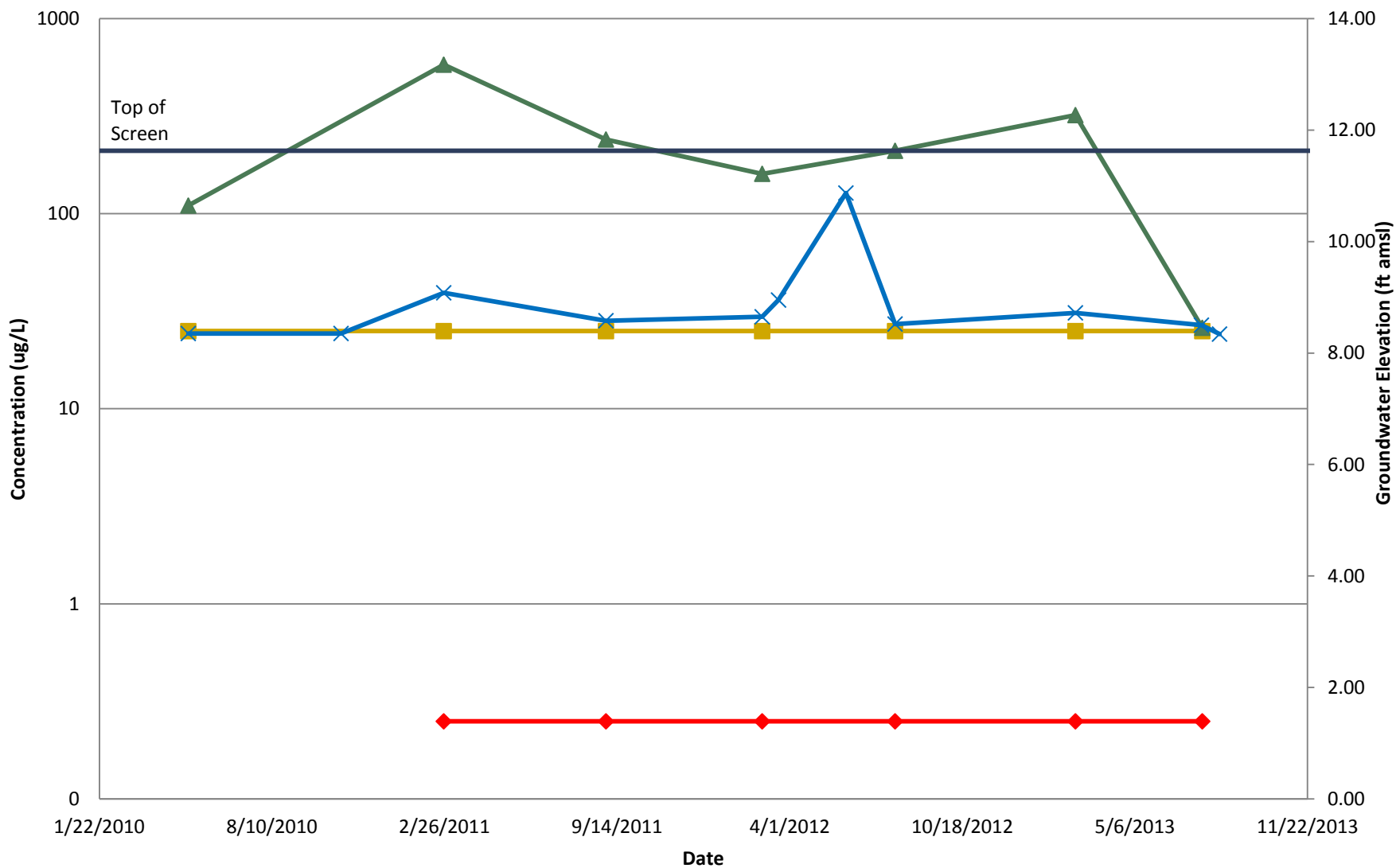
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# MW-8



◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/shen detected

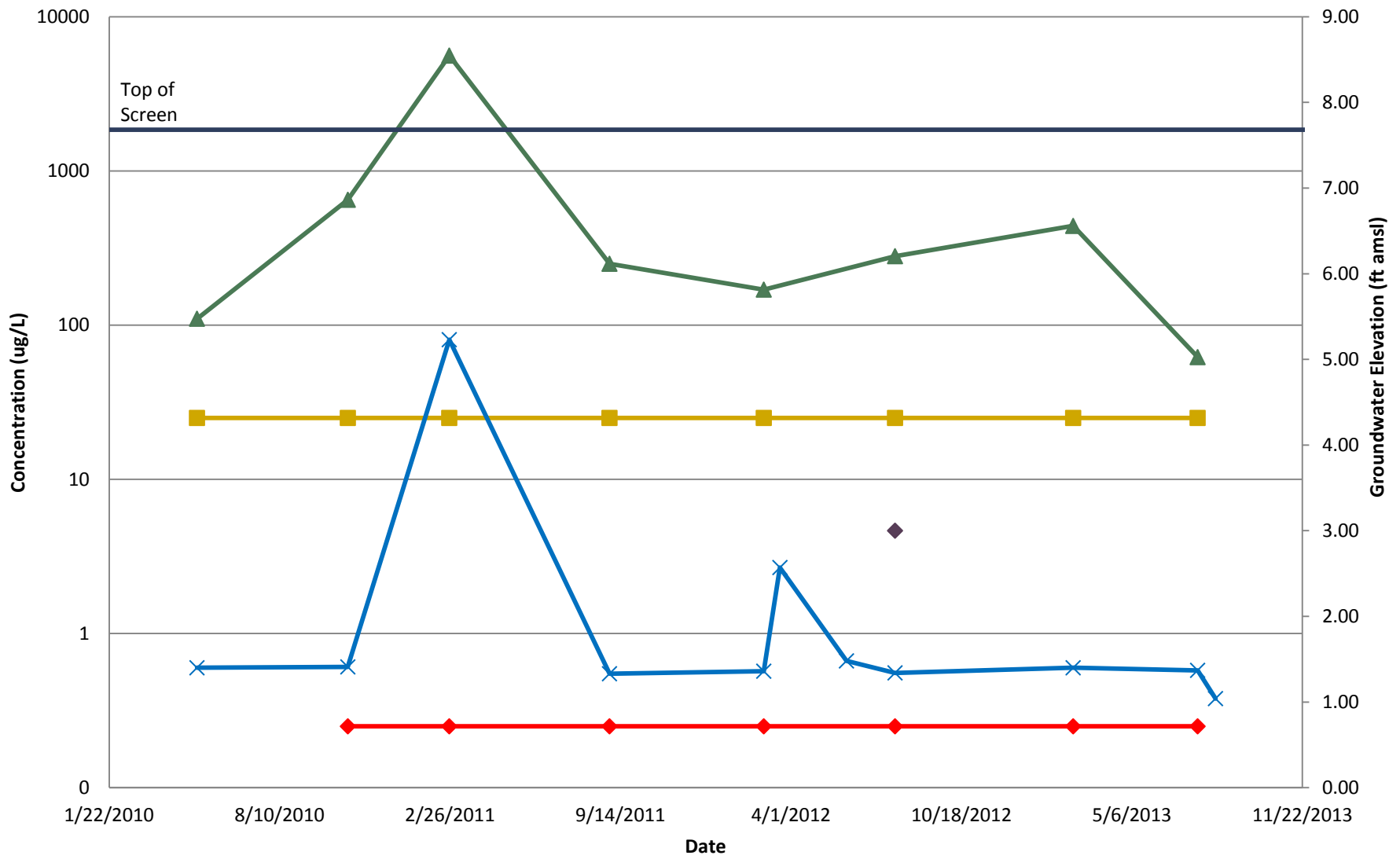
# MW-9



◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

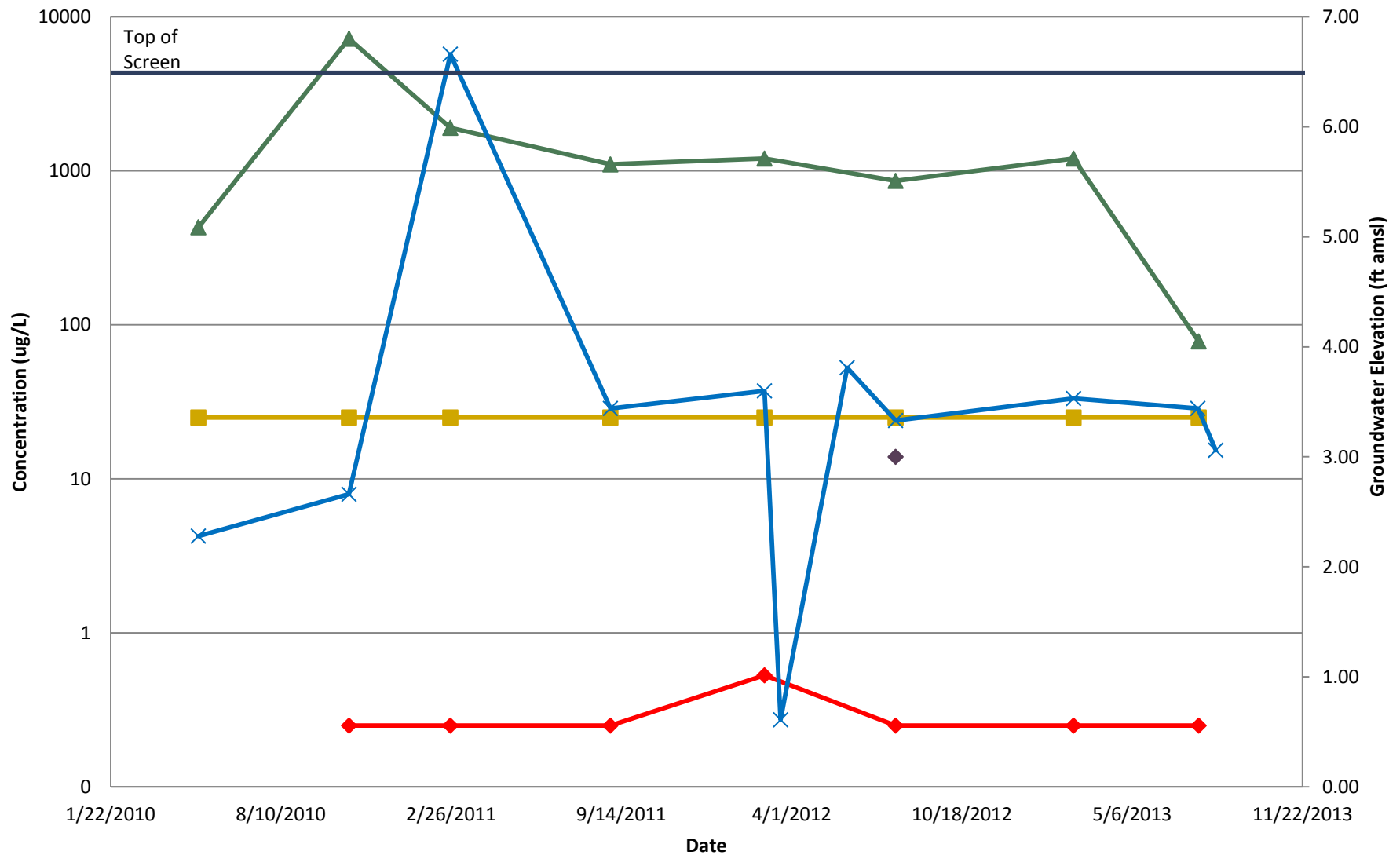


# MW-10



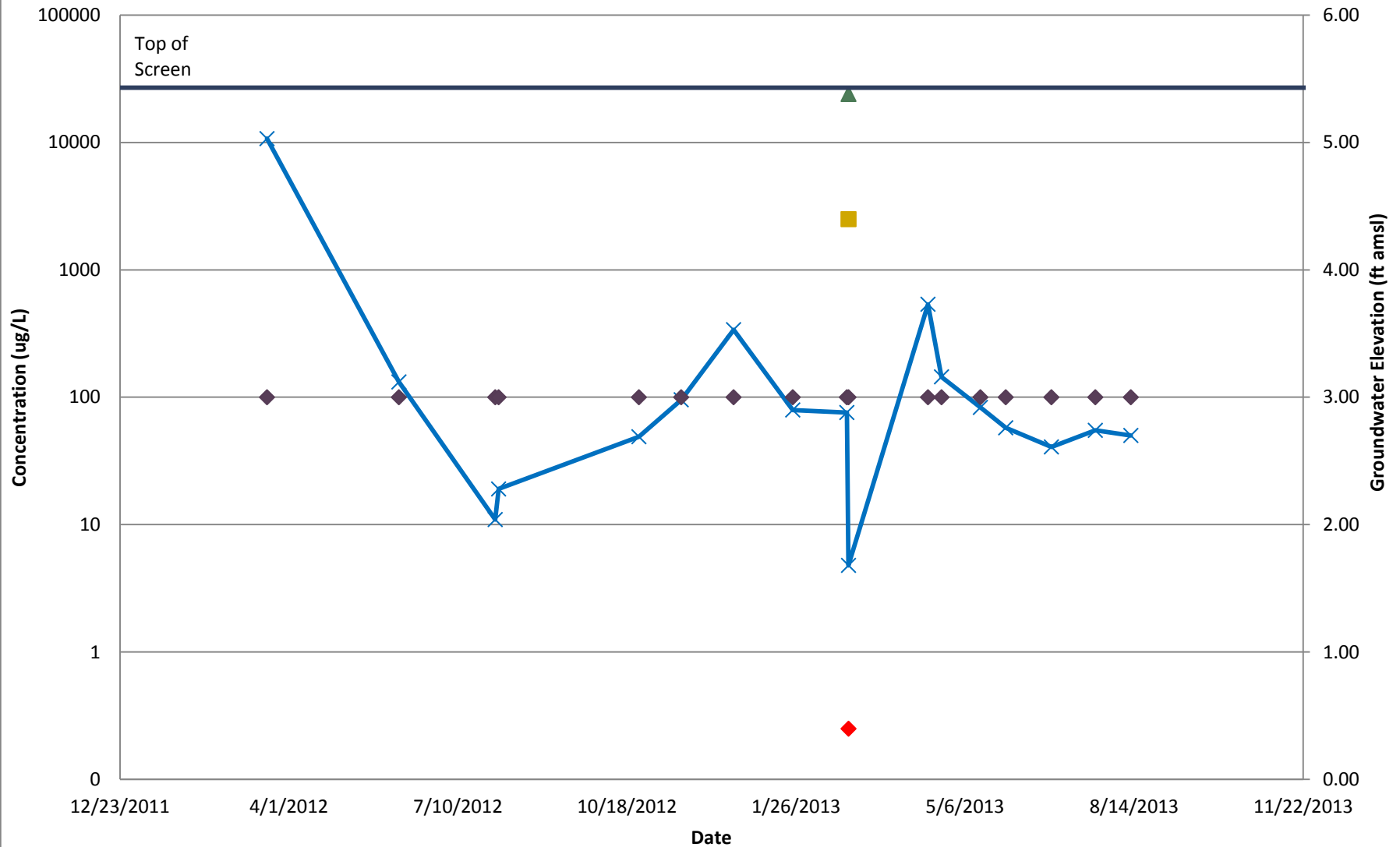
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# MW-11



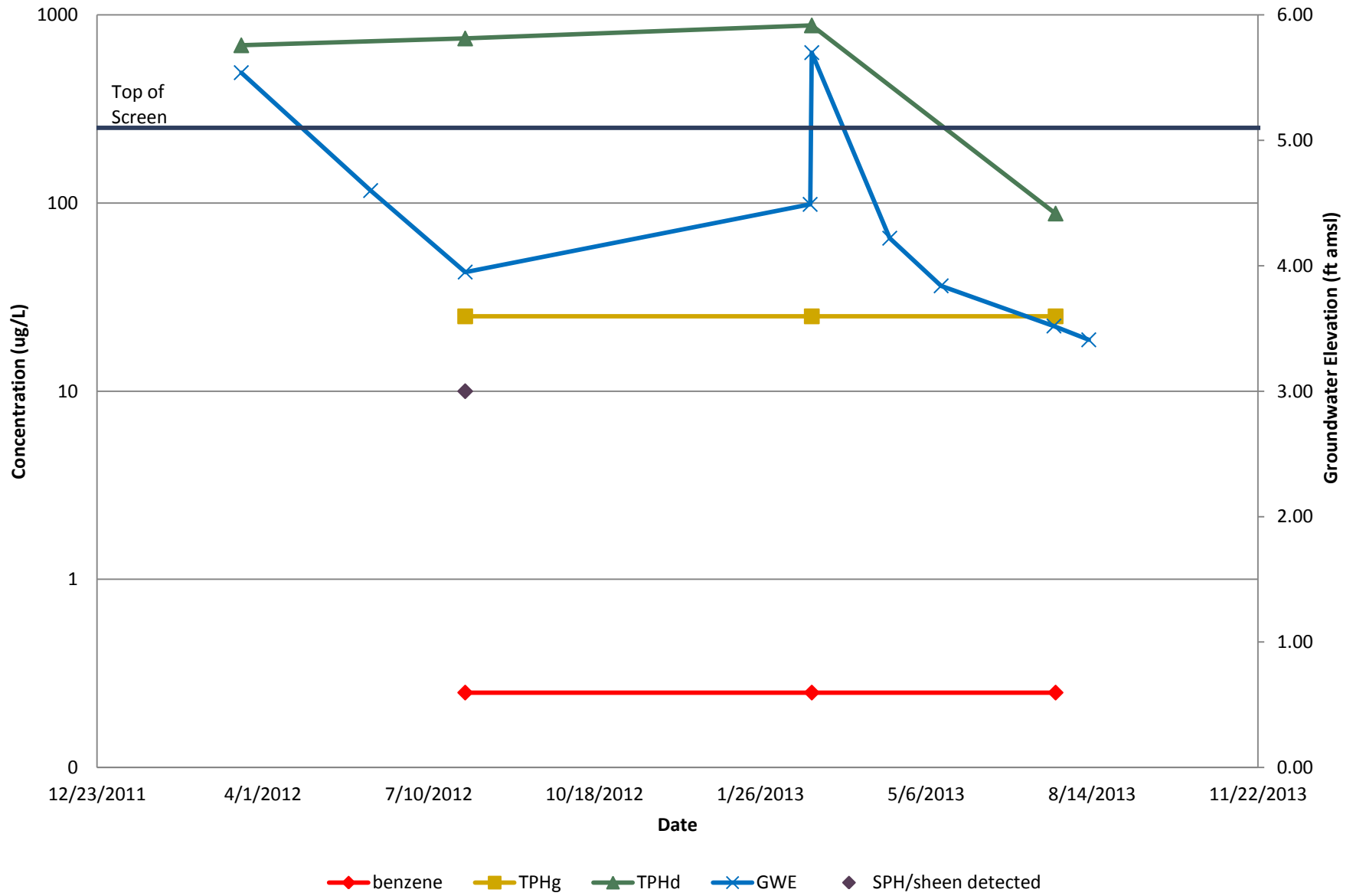
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# MW-12



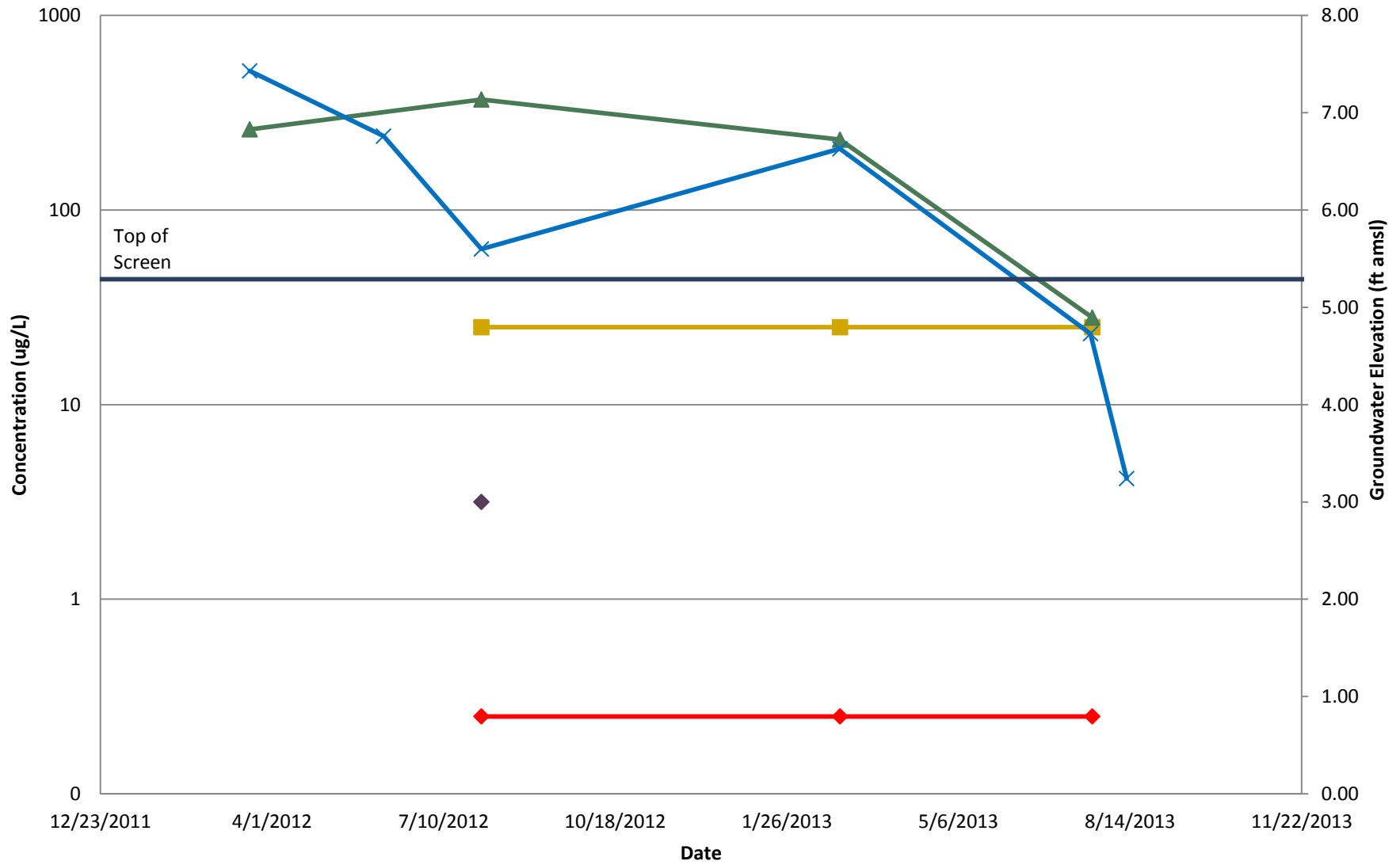
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# MW-13



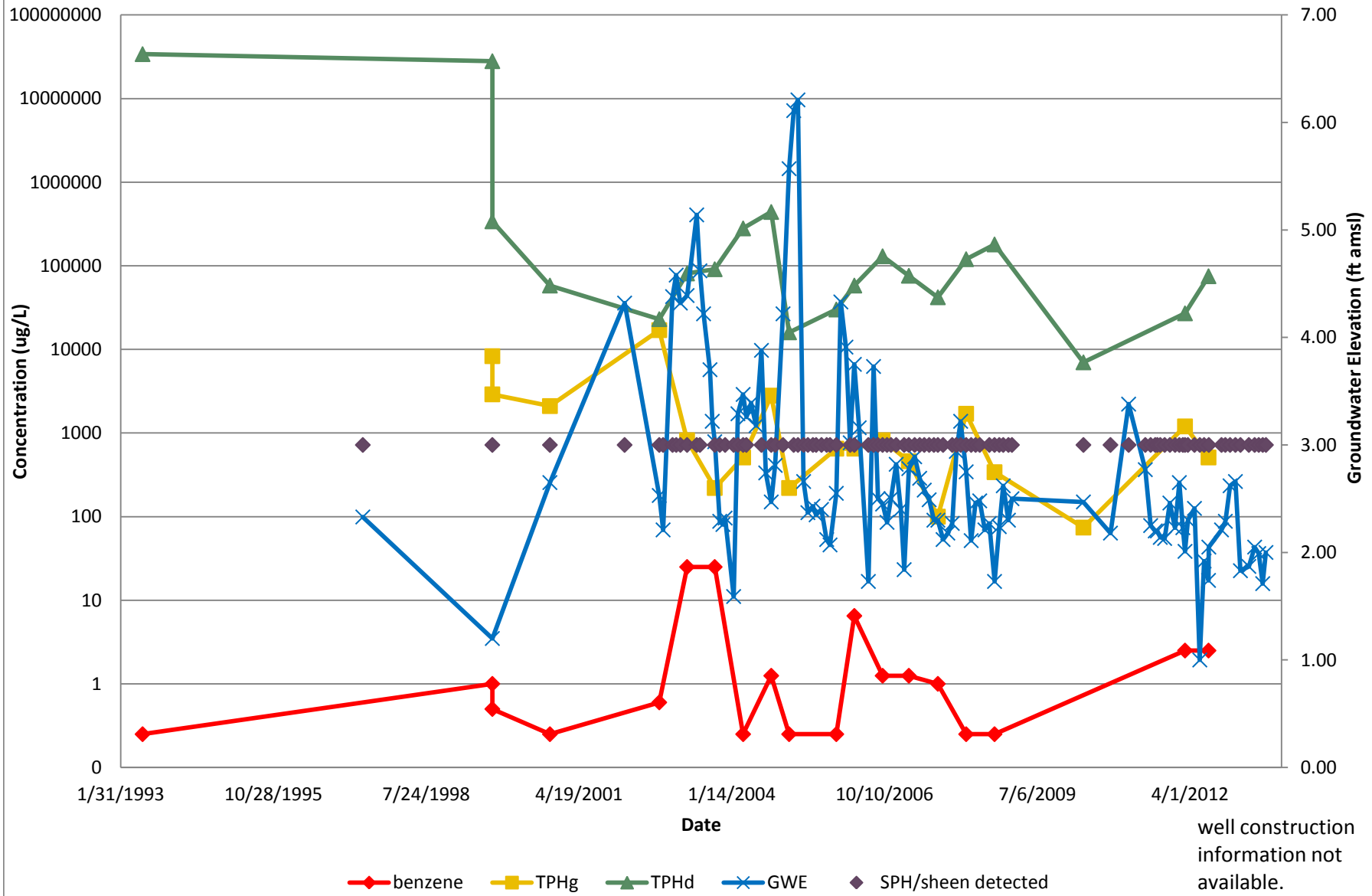


# MW-14

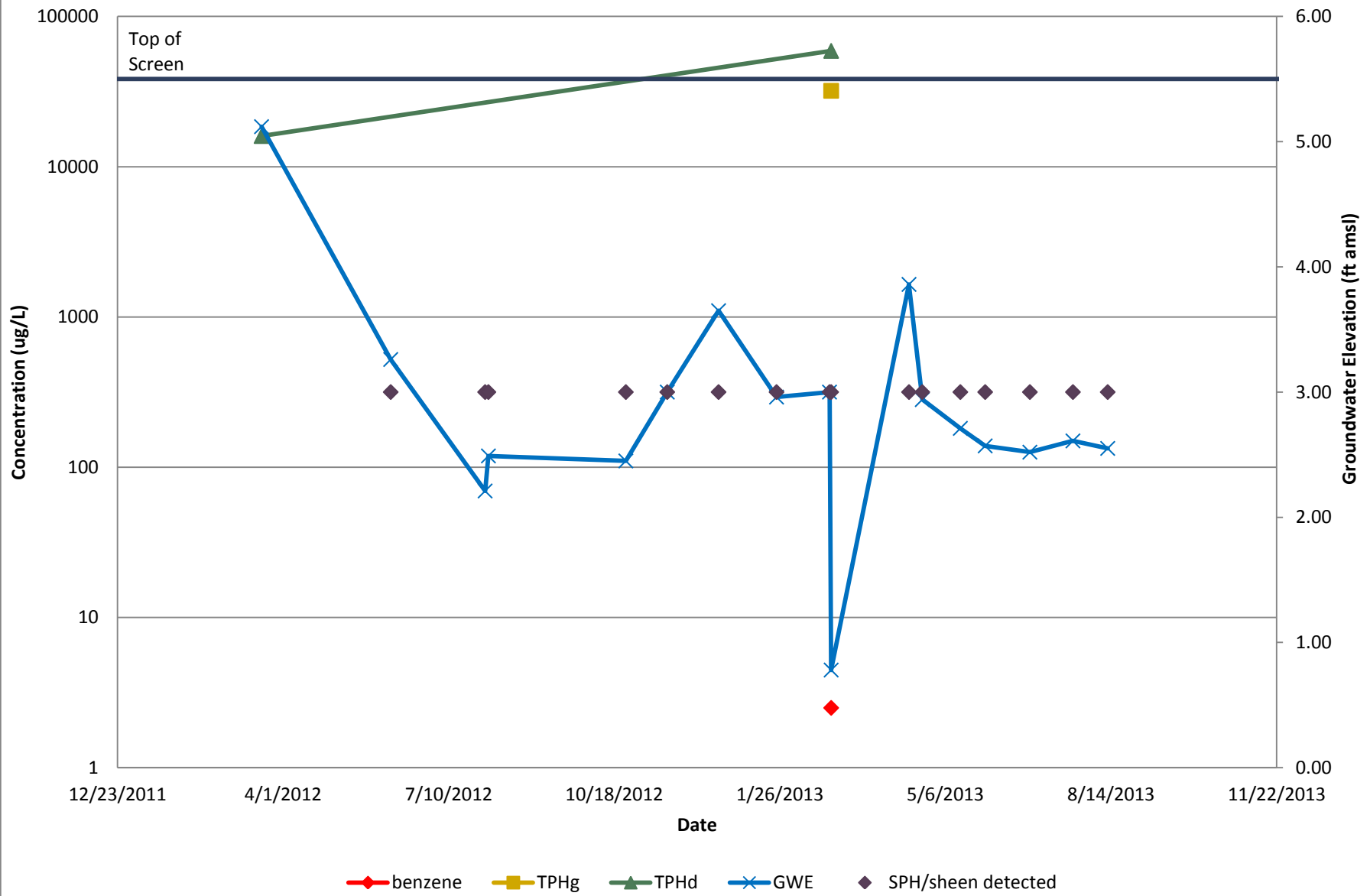


◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

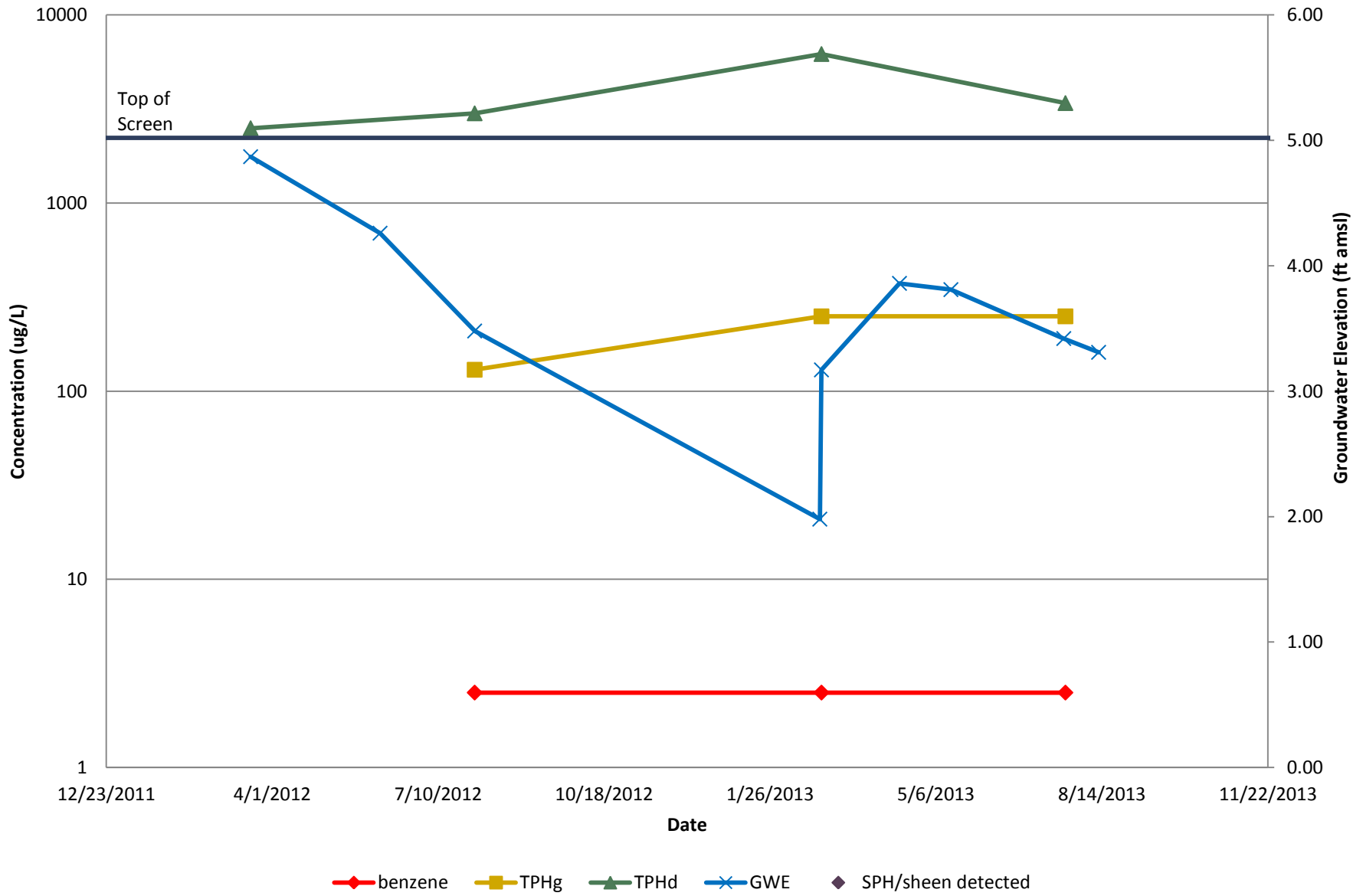
# OW-1



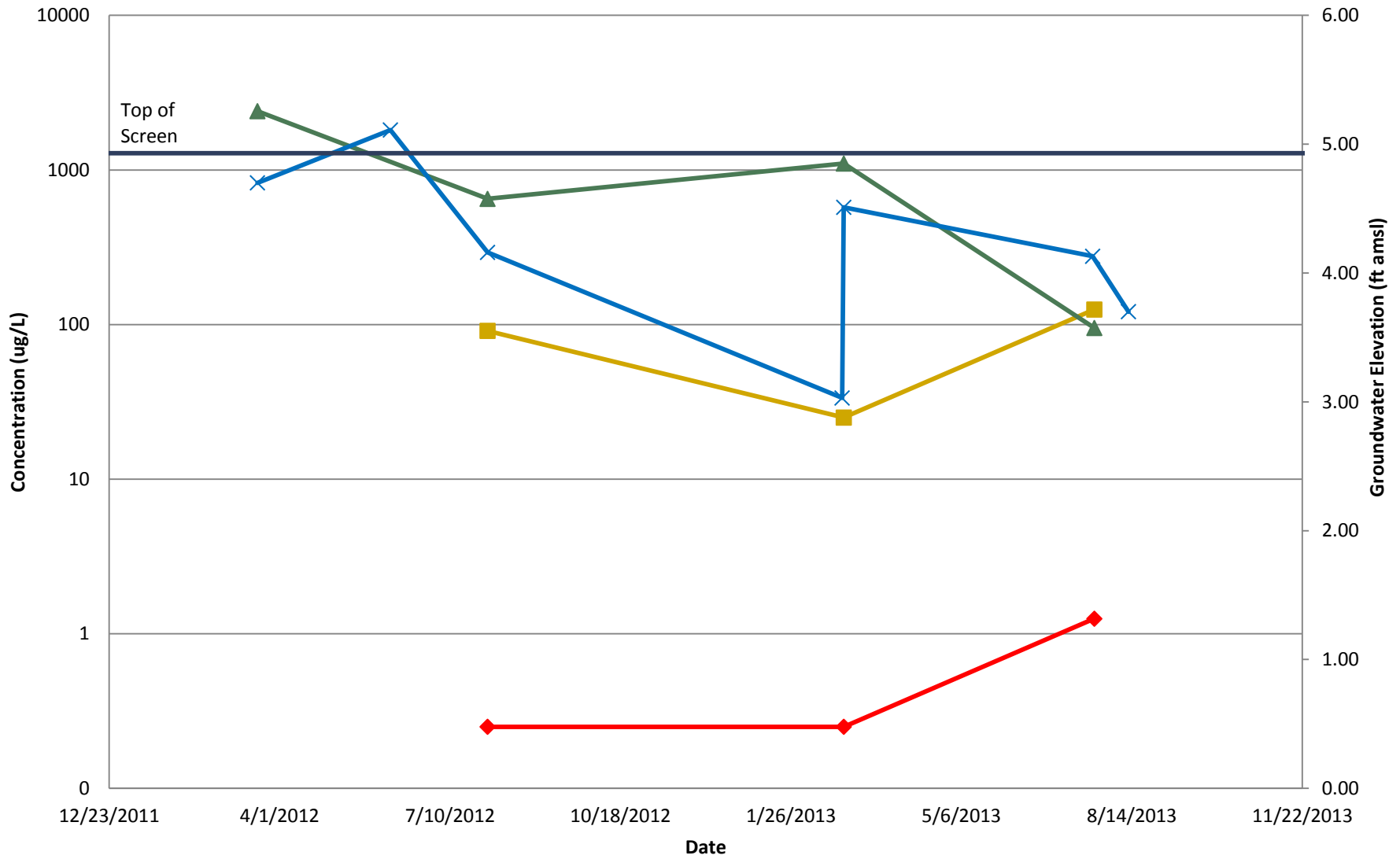
# IW-1



# IW-2



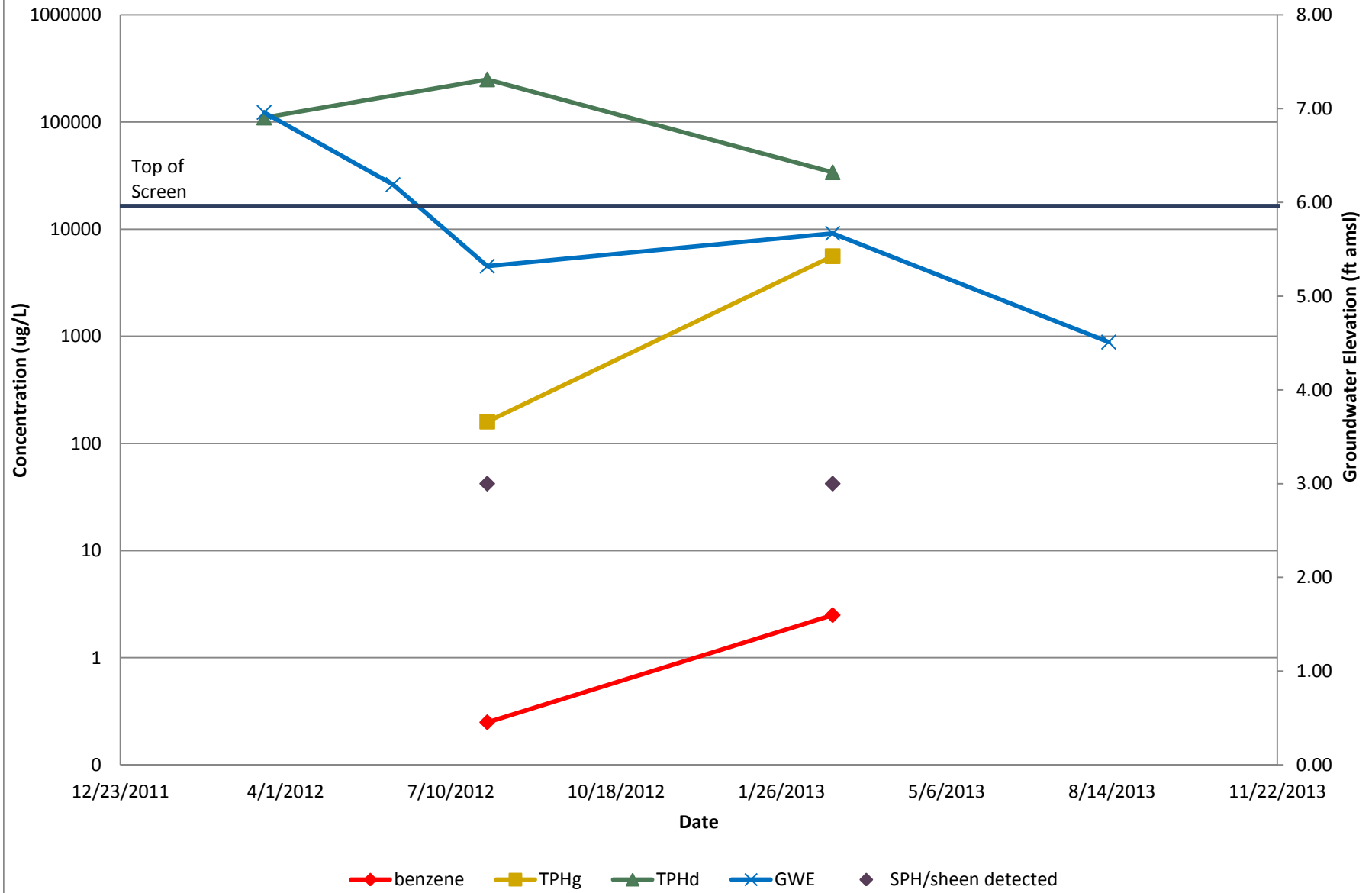
# IW-3



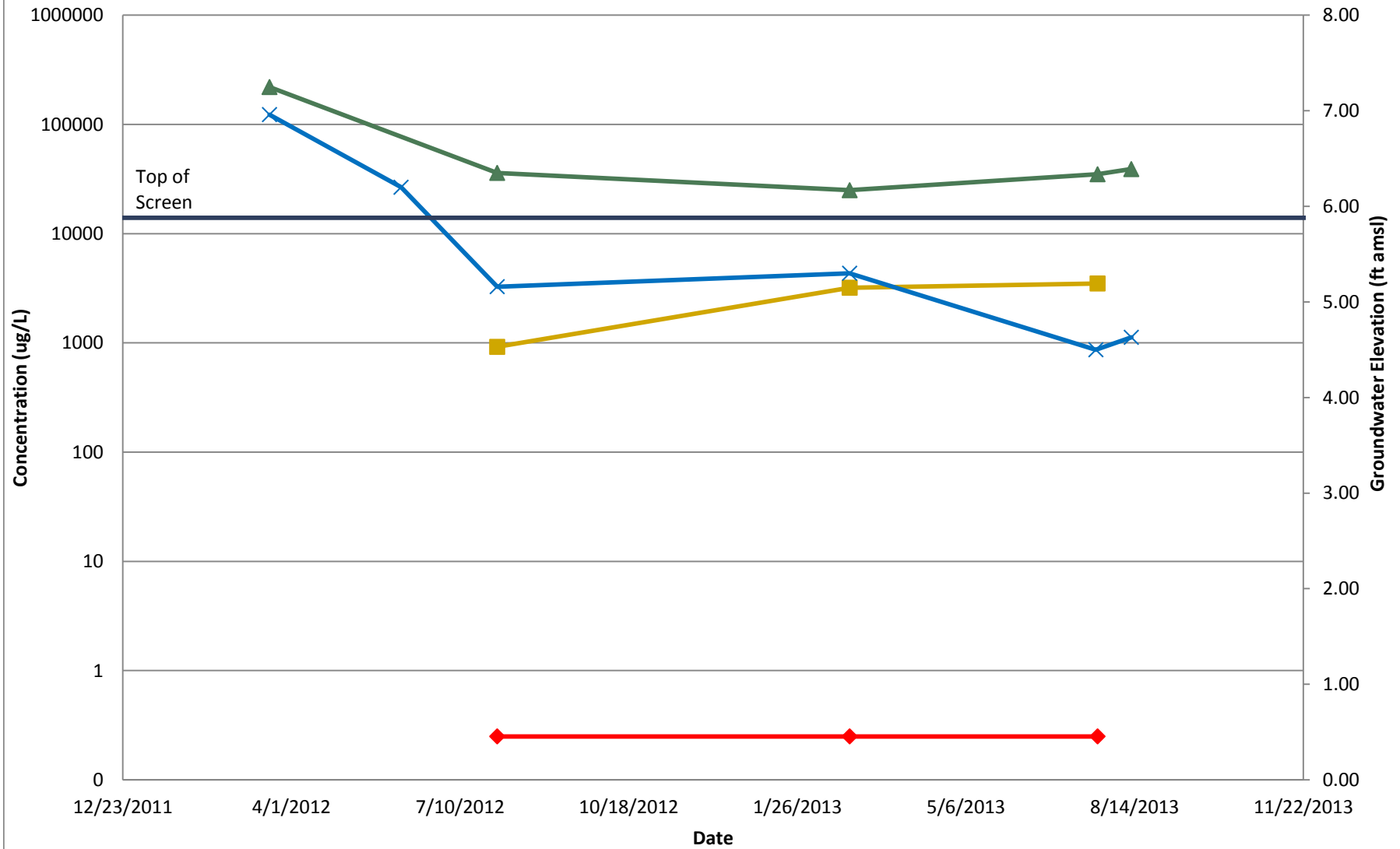
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected



# IW-4

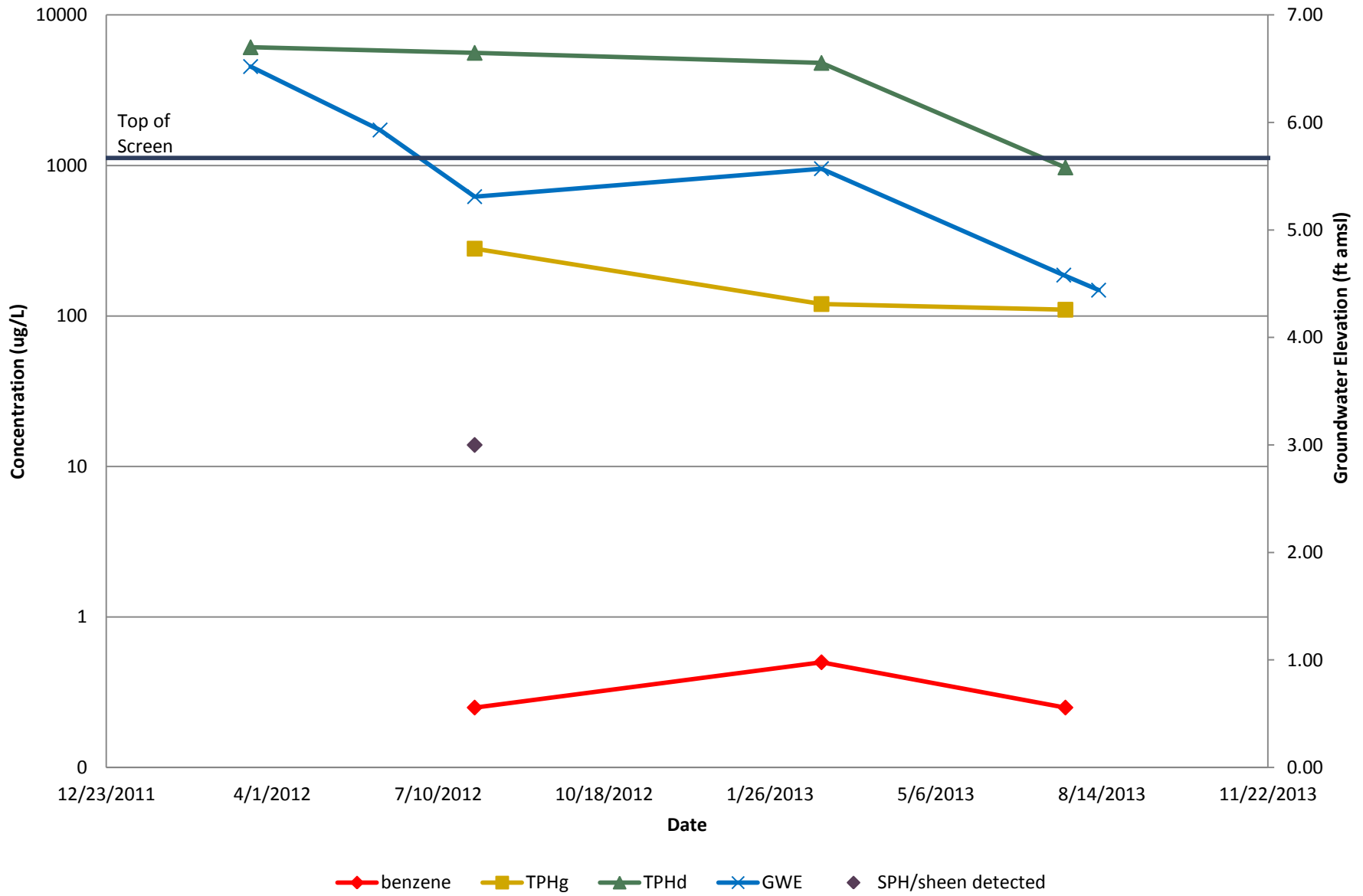


# IW-5



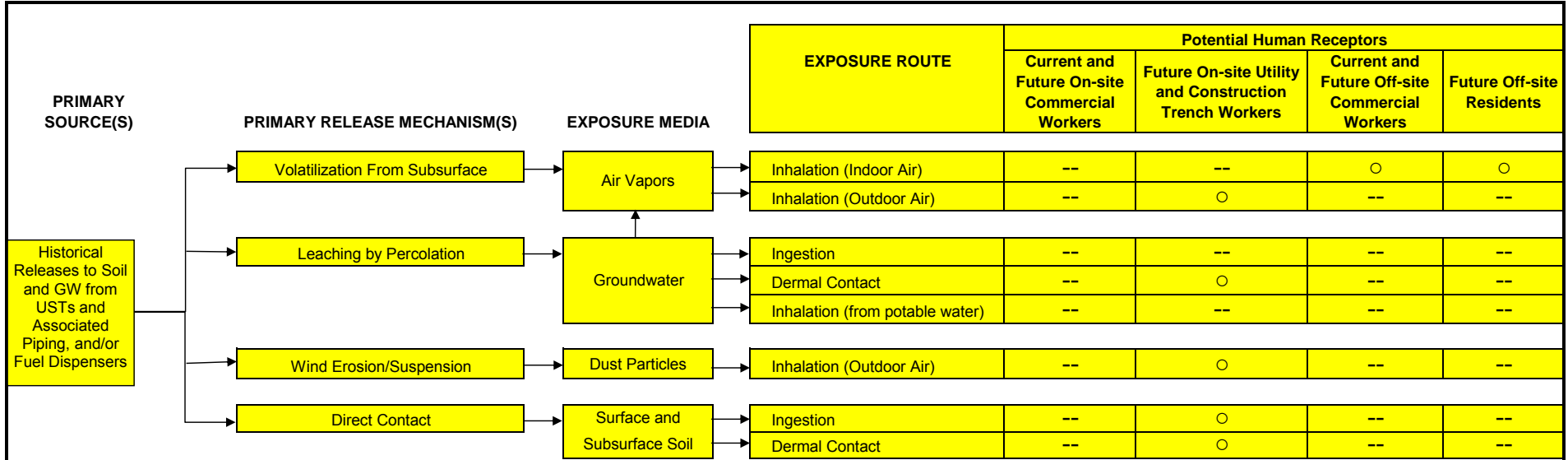
◆ benzene    ■ TPHg    ▲ TPHd    × GWE    ◆ SPH/sheen detected

# IW-6






**Appendix G  
Exposure Pathway  
Summary**



- Exposure pathway is complete or potentially complete.
- Exposure pathway is complete or potentially complete; however, exposure is not considered significant at this time.
- Incomplete exposure pathway.

UPS-OAKLAND HUB 8400 PARDEE DRIVE OAKLAND, CALIFORNIA	
<b>EXPOSURE PATHWAY SUMMARY</b>	
	<b>APPENDIX G</b>