

WE RENT TABLE LINENS, APRONS,  
TOWELS, MATS, AND WASHABLE  
GARMENTS FOR ALL BUSINESSES  
AND PROFESSIONS

ESTABLISHED OVER 80 YEARS • PROMPT ECONOMICAL SERVICE

**RECEIVED**

2:18 pm, May 16, 2007

Alameda County  
Environmental Health

May 9, 2007

Mr. Barney Chan  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

SUBJECT: WELL INSTALLATION REPORT (MW4 THROUGH MW6)  
CERTIFICATION  
Fuel Leak Case RO0000337  
California Linen Rental Company  
989 41<sup>st</sup> Street  
Oakland, CA

Dear Mr. Chan:

You will find enclosed one copy of the following document prepared by RGA Environmental, Inc.

- Well Installation Report (MW4 Through MW6) dated April 24, 2007 (document 0304.R8).

I declare, under penalty of perjury, that the information and/or recommendations contained in the above-mentioned report for the subject site is true and correct to the best of my knowledge.

Please direct all future correspondence to:

California Linen Supply Co., Inc.  
c/o Donald J. Miller, President  
2104 Magnolia Way  
Walnut Creek, CA 94595

Should you have any questions, please do not hesitate to call me at (925) 938-2491.

Cordially,  
California Linen Supply Co.

  
Donald J. Miller  
President

cc: LeRoy Griffin, Oakland Fire Department, Office of Emergency Services, 250 Frank Ogawa  
Plaza, Suite 3341, Oakland, CA 94612

0304.L59



April 24, 2007  
Report 0304.R8  
RGA Job # CLR14700

Mr. Don Miller  
California Linen Rental Company  
989 41<sup>st</sup> Street  
Oakland, CA 94608

SUBJECT: WELL INSTALLATION REPORT (MW4 THROUGH MW6)  
Fuel Leak Case RO0000337  
California Linen Rental Company  
989 41<sup>st</sup> Street  
Oakland, CA

Dear Mr. Pitney:

RGA Environmental, Inc. (RGA) is pleased to present this report documenting the installation of groundwater monitoring wells MW4, MW5, and MW6 on February 22, 2007 at the subject site. These wells were installed to augment existing wells for groundwater flow determination, and to further evaluate the presence of petroleum hydrocarbons in groundwater at the subject site at locations where the highest concentrations of diesel-range and oil-range petroleum hydrocarbons had been detected during previous investigations. A Site Location Map (Figure 1) and a Site Vicinity Map showing the well locations (Figure 2) are attached with this report.

All work was performed under the direct supervision of an appropriately registered professional. This investigation was performed in accordance with guidelines set forth in the document "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites" dated August 10, 1990 and "Appendix A - Workplan for Initial Subsurface Investigation" dated August 20, 1991.

#### BACKGROUND

The site is currently used as a linen cleaning facility. Review of available documents for the site show that on February 6 through 8, 1989 three Underground Storage Tanks (USTs) were removed from the site by Miller Environmental Company (MEC). The tanks consisted of one 10,000 gallon tank containing gasoline, one 550 gallon tank containing gasoline, and one 2,500 gallon capacity tank containing #5 fuel oil. Each tank was in a separate pit. Petroleum hydrocarbons were detected in each of the pits at the time of tank removal. Figure 2 shows the tank locations at the site. A UST Unauthorized Release Site Report was completed by Mr. Gil Wistar of the ACDEH dated February 9, 1989. In a letter dated February 23, 1989 the ACDEH requested a preliminary assessment of the site. In a letter dated July 7, 1989 the ACDEH approved a revised work plan for subsurface investigation at the site that included installation of three groundwater monitoring wells.

Three monitoring wells, designated as MW1, MW2, and MW3 were installed at the site by MEC on September 25, 1989. One well was installed adjacent to each of the tank pits. Soil samples were collected for laboratory analysis from the boreholes for the monitoring wells at depths of 4 and 8 feet below the ground surface. The samples were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G), Total Petroleum Hydrocarbons as Diesel (TPH-D), Total Petroleum Hydrocarbons as Motor Oil (TPH-MO) and for benzene, toluene, ethylbenzene, and xylenes (BTEX). All target analytes were detected in the soil sample from the borehole for MW1 at a depth of 4 feet below the ground surface. None of the analytes were detected in the other soil samples from the monitoring well boreholes, except for 190 mg/kg oil in the sample from MW2 collected at a depth of 4 feet.

On October 2, 1989, the three monitoring wells at the subject site were sampled by MEC personnel, and the water samples were analyzed for the same compounds as the borehole soil samples. All analytes except oil were detected in the groundwater sample from MW1. None of the analytes were detected in the groundwater samples from the other two monitoring wells. Groundwater was encountered in the wells at depths ranging from 7.00 to 9.25 feet, and the groundwater flow direction at the site was calculated to be to the north-northwest. Documentation of the installation of the three monitoring wells, and soil and groundwater sample results from the well installation and subsequent well sampling is presented in MEC's Preliminary Subsurface Investigation Report dated November 3, 1989. Due to earthquake-related issues, the Regional Water Quality Control Board (RWQCB) was unavailable to comment on the report.

Following five quarterly monitoring and sampling events for the three wells, MEC recommended that well MW3 be destroyed. MEC concluded that petroleum hydrocarbons had not been detected in wells MW2 and MW3, and had only been detected in well MW1. MEC identified the petroleum hydrocarbons in well MW1 as gasoline, and stated that MW1 is downgradient of a former gasoline tank. MEC also stated that the groundwater flow direction was consistently to the north-northwest at the site, and that the three wells were located downgradient from each of the tank pits. MEC stated that well MW2 is downgradient of well MW1 and would effectively detect any migration of petroleum hydrocarbons from the vicinity of well MW1. Documentation of the quarterly monitoring and sampling results and associated recommendations is presented in a letter report from MEC dated March 7, 1991.

In a letter dated April 15, 1991 the ACDEH approved destruction of well MW3, and required continuation of the quarterly monitoring and sampling of wells MW1 and MW2. On July 19, 1991, well MW3 was destroyed by overdrilling. Quarterly reports documenting monitoring and sampling of the two wells were subsequently prepared by MEC.

In a November 6, 1992 letter report, MEC presented the results for quarterly monitoring and sampling through October 17, 1992. The results show that no petroleum hydrocarbons were detected in well MW2 with the exception of 0.05 mg/L TPH-D on August 15, 1991 and 1.1 µg/L toluene and 3.3 µg/L xylenes on March 18, 1992. In well MW1, TPH and BTEX concentrations appear relatively unchanged with the exception of the March 18 and October 17, 1992 sampling events, which showed increases in benzene and toluene concentrations.

Sample results for samples collected on June 10, 1993 by the Grow Group as part of a cooperative monitoring event for investigation of nearby sites showed no detectable concentrations of EPA Method 8240 compounds in well MW2, and BTEX concentrations in MW1 consistent with concentrations encountered in well MW1 prior to the March 18 and October 17, 1992 sampling events. Review of 1998 correspondence suggests that additional cooperative sampling of the wells was performed, however the sample results were not available for review.

In a letter dated January 2, 2003, the ACDEH requested a work plan for investigation of contamination at the subject site. Following receipt of the ACDEH work plan request letter, the two existing wells, designated as MW1 and MW2 were monitored and sampled on April 2, 2003 by RGA personnel. No sheen or free product was detected in either of the wells. Ether oxygenates and lead scavengers were not detected in either of the wells. TPH-G and BTEX were detected in well MW1, and no analytes were detected in well MW2 with the exception of 0.74 ug/L xylenes. The measured depths to water and the sample results were consistent with historic results obtained for the wells. The relative absence of petroleum hydrocarbons in well MW2 suggests that petroleum hydrocarbons had not migrated beyond well MW2 as of April 2, 2003. *Monitoring and sampling of wells MW1 and MW2 are reported in RGA's Groundwater Monitoring and Sampling Report (document 0304.R1) dated May 1, 2003.*

RGA submitted an On- and Off-Site Utilities Investigation and Off-Site Groundwater Investigation Work Plan (0304.W1) dated May 1, 2003, which the ACDEH commented upon in a letter dated May 9, 2003. In response, RGA submitted a Work Plan Addendum (document 0304.L3) dated June 9, 2003. The ACDEH approved the work plan and work plan addendum in a letter dated June 19, 2003.

From July 20 through 23, 2004 groundwater grab samples were collected from boreholes B1 through B3 and soil gas samples were collected from boreholes SG1 through SG3. In addition, RGA evaluated the locations of buried utilities in the vicinity of the subject site. No soil samples were collected. The results are presented in RGA's Subsurface Investigation (B1 to B3, SG1 to SG3) and Preferential Pathway Evaluation Report dated February 22, 2005 (document 0304.R2).

Following review of the subsurface investigation report, the ACDEH requested that a work plan for further investigation be submitted. RGA subsequently submitted Subsurface Investigation Work Plan (B4 to B9) dated May 25, 2005 (document 0304.W2). The work plan included documentation and results for monitoring of wells MW1 and MW2 and sampling of well MW1 on May 17, 2005. The work plan was approved in a letter from the ACDEH dated July 18, 2005. The July 18, 2005 ACDEH letter requested that the proposed borehole locations be adjusted in consideration of the narrow plumes encountered at neighboring sites. Samples were collected from adjusted locations for boreholes B4 through B6 on September 13 and 14, 2005.

During the drilling of boreholes B4 through B6 at the adjusted locations strong solvent odors were encountered in borehole B6. Laboratory results for the groundwater sample collected from borehole B6 identified the presence of Stoddard solvent in the sample. In an effort to identify potential sources for the Stoddard solvent, RGA submitted a Subsurface Investigation Work Plan Addendum dated October 5, 2005 (document 0304.W2A) for the drilling of boreholes B7 through B12. The locations of boreholes B7 through B9 in the Work Plan Addendum superseded

the respective borehole locations in the May 25, 2005 Work Plan. Samples were collected from boreholes B7 through B12 on October 10 through 12, 2005. Documentation of the drilling of borings B4 through B12 is presented in RGA's report titled Subsurface Investigation (B4 through B12), dated November 22, 2005 (document 0304.R3).

RGA proposed boreholes B13 through B16 in the report titled Subsurface Investigation (B4 through B12), dated November 22, 2005 (document 0304.R3). The proposed boring locations, methods, sampling frequency and sample analysis were conditionally approved by the ACDEH in a December 5, 2005 letter with the provision that one additional boring (B17) be located approximately 30 feet south of well MW1. This boring was to be drilled and sampled using the same methods and procedures as the other proposed boreholes.

On January 11 and 12, 2006 RGA personnel oversaw the drilling and collection of samples from boreholes B13 through B17. Documentation of the drilling of borings B13 through B17 is presented in RGA's Subsurface Investigation Report (B13 through B17), dated March 24, 2006 (document 0304.R4). Please note that the location of borehole B15 shown in documents prior to 2007 was not accurate. The location shown in documents prior to 2007 was the proposed location, not the actual location where the borehole was drilled. The location of B15 shown in this report shows the location where the borehole was drilled.

Following review of the March 2006 report, the ACDEH requested additional investigation in a letter dated April 26, 2006. RGA submitted Subsurface Investigation Work Plan (B18 through B32) dated June 26, 2006 (document 0304.W3), and the work plan was approved in a letter from the ACDEH dated July 13, 2006.

Documentation of the implementation of the approved work plan is provided in RGA's Subsurface Investigation and Well Installation Report (Borings B18 Through B27, B29 Through B48, and Wells E1, E2, E3, E6, E7, I1 and I2). The locations of the boreholes and wells are shown in Figure 2, attached. TPH-D concentrations in groundwater grab samples are shown in Figure 3, and TPH-MO concentrations in groundwater grab samples are shown in Figure 4, attached.

The reported concentrations of TPH in the grab-groundwater samples generally exceeded the expected effective solubility of weathered fuel oil or motor oil sources (especially at B-13, B-15, B-21, B-29 and B-37), which indicated that these samples were not representative of dissolved-phase petroleum hydrocarbons in groundwater. The groundwater grab samples were turbid and soil in this vicinity contains petroleum hydrocarbons. Therefore monitoring wells were installed so that low-turbidity samples could be collected at these locations to better characterize site groundwater conditions.

Two subsurface investigations related to petroleum distillates (paint thinner) are presently ongoing in the immediate vicinity of the site, with groundwater monitoring wells located approximately 250 feet to the west and slightly north of the subject site. The investigations are for the Kozel property (located to the north of 41<sup>st</sup> Street) and the Dunne Paints property (located to the south of 41<sup>st</sup> Street). In addition, a third subsurface investigation related to petroleum hydrocarbons is located at the Fidelity Roof facility approximately 250 feet to the south of the subject site.

## FIELD ACTIVITIES

Prior to drilling, permits were obtained from the Alameda County Public Works Agency. In addition, the drilling locations were marked with white paint, Underground Service Alert was notified for underground utility location, and a health and safety plan was prepared.

On February 22, 2007, RGA personnel oversaw the drilling of boreholes MW4, MW5, and MW6. The boreholes were drilled by Vironex, Inc. of Pacheco, California, using a Geoprobe 6610 DT drill rig. Boreholes MW4, MW5, and MW6 were drilled to total depths of 30.0, 27.2, and 25.1 feet below the ground surface, respectively, using a dual tube sampling system consisting of a 3.25-inch outside diameter outer casing and a 2.5-inch outside diameter sampling barrel lined with cellulose acetate sleeves. Each borehole was continuously cored in 5-foot intervals, with the exception of the last interval for borehole MW5. Once the boreholes were drilled to the terminal depth, a 1.5-inch diameter Schedule 40 PVC pipe was placed in each borehole with the lowermost 5 feet of the pipe consisting of 0.010 factory slotted pipe surrounded by a #20/40 pre-packed filter sand. A pre-assembled bentonite packer measuring two feet in length was installed in the borehole directly above the filter pack. Following hydration of the bentonite packer, the remaining borehole annular space was filled with a neat cement grout. The tops of the wells were covered with traffic-rated well covers, and an expandable locking plug was placed in the top of each well. The locations of the wells are shown on Figure 2.

The continuous core from the boreholes was logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System (USCS). In addition, the soil from each borehole was evaluated with a Photoionization Detector (PID) equipped with a 10.3 electron volt ultraviolet lamp and calibrated using a 100 part per million (ppm) isobutylene standard. No petroleum hydrocarbon odors were detected in boreholes MW4 and MW5. In borehole MW6, strong petroleum hydrocarbon odors were detected between the depths of approximately 3.0 and 5.1 feet below the ground surface, and weak petroleum hydrocarbon odors were detected between depths of approximately 6.6 and 12.0 feet below the ground surface. Organic vapors were detected with the PID only in borehole MW6, where a PID value of 9 ppm was recorded at a depth of approximately 3.0 feet below the ground surface. No soil samples were retained from the boreholes for laboratory analysis. Copies of the boring logs are attached with this report.

All drilling and sampling equipment was either previously unused clean material, or was cleaned with an Alconox solution followed by a clean water rinse prior to use in each borehole. All of the well construction materials consisted of new, unused materials. Soil generated during drilling was stored in drums at the site pending characterization and disposal.

### Well Development

On February 26, 2007 wells MW4, MW5, and MW6 were developed by surging and over-pumping until the water discharged from the wells was relatively clear. Prior to development, the wells were monitored for depth to water using an electric water level indicator with an accuracy of 0.01 feet, and for the presence of free product and sheen using a transparent bailer. Water removed from the wells during development was added to the influent stream of the onsite temporary groundwater treatment system.

### Groundwater Sample Collection

The depth to water in groundwater monitoring wells MW4, MW5, and MW6 was measured on February 28, 2007 prior to the collection of groundwater samples. The measured depth to water in the groundwater monitoring wells was 18.96, 7.95, and 7.40 feet, respectively.

On February 28 and March 1, 2007 groundwater samples were collected from wells MW4, MW5, and MW6 for laboratory analysis. Prior to sampling, the monitoring wells were purged of a minimum of three casing volumes of water (or until the well was purged dry for well MW4). During purging operations, the field parameters of electrical conductivity, temperature and pH were monitored. Once the field parameters were observed to stabilize, and a minimum of three casing volumes had been purged (or the well was purged dry), a water sample was collected using clean polyethylene tubing equipped with a stainless steel check valve. No sheen or odor were observed or detected in the purge water for any of the wells. Turbidity was recorded on the Groundwater Monitoring/Well Purging Data Sheet for well MW5. Records of the field parameters measured during well purging are attached with this report on the Groundwater Monitoring/Well Purging Data Sheets.

The water samples were transferred to 40-milliliter glass Volatile Organic Analysis (VOA) vials and 1-liter amber glass bottles and sealed with Teflon-lined screw caps. The VOA vials were overturned and tapped to ensure that no air bubbles were present. The VOA vials and bottles were transferred to a cooler with ice pending transportation to the laboratory. Chain of custody documentation accompanied the samples to the laboratory.

### GEOLOGY AND HYDROGEOLOGY

Based on review of regional geologic maps from U. S. Geological Survey Professional Paper 943, "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning," by E. J. Helley and K. R. Lajoie, 1979, the subject site is at the interface of underlying materials consisting of Late Pleistocene alluvium (Qpa) and Medium-Grained Alluvium (Qham). Late Pleistocene alluvium is described as weakly consolidated, slightly weathered, poorly sorted, irregularly interbedded clay, silt, sand, and gravel. Medium-Grained Alluvium is described as unconsolidated, moderately sorted, permeable fine sand, silt, and clayey silt with a few thin beds of coarse sand.

The measured depth to water in wells MW4, MW5, and MW6 on February 28, 2007 prior to groundwater sample collection was 18.96, 7.95, and 7.40 feet, respectively.

The surface elevation at the site is between 40 and 60 feet above Mean Sea Level. Review of Figure 1 shows that the topography in the site vicinity gently slopes to the west, and that San Francisco Bay is located approximately one mile west of the site. Based on the surface topography, the regional groundwater flow direction is assumed to be westerly.

Review of an August 11, 2004 Quarterly Groundwater Monitoring Report prepared by Aqua Science Engineers, Inc. for the Kozel property located at 1001 42<sup>nd</sup> Street in Oakland (located across Linden Street and immediately to the northwest of the subject site) shows that the June

2004 groundwater flow direction was calculated to be to the southwest, based on water level information from 10 groundwater monitoring wells located at and near the Kozel property.

### LABORATORY RESULTS

The groundwater samples were analyzed at McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California. McCampbell is a State-accredited hazardous waste testing laboratory.

Groundwater samples from wells MW4, MW5, and MW6 were analyzed for TPH-G, TPH-D, and TPH-MO (TPH-Multirange) using EPA Method 5030B in conjunction with modified EPA Method 8015C. In an effort to insure that entrained sheen or petroleum impacted sediments were not included in the analyzed portion of the sample, protocols for preparing the samples using gravity separation techniques and performing a silica gel cleanup prior to analysis were provided to the analytical laboratory. Following discussions with the laboratory, a copy of the protocol was attached with the chain of custody when the samples were submitted to the laboratory. Nonetheless the laboratory did not use the requested protocol that had been attached to the chain of custody and instead the samples were prepared using standard laboratory procedures. The groundwater sample results are summarized in Table 1. Copies of the laboratory analytical reports and chain of custody documentation are attached with this report.

Review of the groundwater sample results show that TPH-G and TPH-MO were not detected in any of the samples. Only TPH-D was detected at a concentration of 140 µg/L in the sample well MW6. Review of the laboratory analytical report shows that the laboratory identified the TPH-D results as kerosene or kerosene-range compounds.

### DISCUSSION AND CONCLUSIONS

Review of Figures 3 and 4 shows that wells MW4 and MW5 were installed at the locations where the highest concentrations of TPH-D and TPH-MO compounds were encountered in borehole groundwater grab samples during previous investigations. Well MW6 was installed at a location where kerosene-range compounds were detected in soil.

Review of Table 1 shows that TPHg and TPHmo were not detected in any of the samples, and that TPHd was not detected in two of the three samples. TPH-D was detected only in well MW6, at a concentration of 140 ug/L. Review of the laboratory analytical report shows that the laboratory identified the TPH-D results as kerosene or kerosene-range compounds.

Comparison of the borehole groundwater grab sample results with the well sample results confirms that petroleum-affected turbidity in the groundwater grab samples contributed significantly to the reported concentrations of petroleum hydrocarbons in the groundwater grab samples, and that the minimization of turbidity provided by the well filter packs and well development resulted in more representative concentrations of dissolved petroleum hydrocarbons in groundwater at these locations. Based on these monitoring well data, site groundwater is not significantly impacted by dissolved gasoline-range petroleum hydrocarbons except for in the immediate vicinity of the former gasoline UST located near the loading dock.



The wells will be surveyed in accordance with GeoTracker requirements when the other recently-installed wells at the site are surveyed.

### DISTRIBUTION

A copy of this report will be uploaded to the ACDEH website, in accordance with ACDEH requirements. In addition, a copy of this report will be uploaded to the GeoTracker database.

### LIMITATIONS

This report was prepared solely for the use of California Linen Rental Company. The content and conclusions provided by RGA in this assessment are based on information collected during our investigation, which may include, but not be limited to, visual site inspections; interviews with the site owner, regulatory agencies and other pertinent individuals; review of available public documents; subsurface exploration and our professional judgment based on said information at the time of preparation of this document. Any subsurface sample results and observations presented herein are considered to be representative of the area of investigation; however, geological conditions may vary between borings and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which vary from these findings, the newly revealed conditions must be evaluated and may invalidate the findings of this report.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the owner to properly dispose of any hazardous materials or hazardous wastes left onsite, in accordance with existing laws and regulations.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. RGA is not responsible for the accuracy or completeness of information provided by other individuals or entities which is used in this report. This report presents our professional judgment based upon data and findings identified in this report and interpretation of such data based upon our experience and background, and no warranty, either express or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

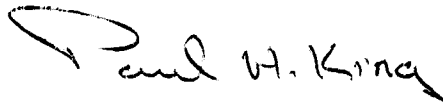
April 24, 2007  
Report 0304.R8

Should you have any questions or comments, please do not hesitate to contact us at (510) 547-7771.

Sincerely,

RGA Environmental, Inc.

Karin Schroeter  
Project Manager



Paul H. King  
Professional Geologist #5901  
Expires: 12/31/07



**Attachments:**

**Table 1- Summary of Laboratory Analytical Results - Groundwater Samples**  
**Figure 1- Site Location Map**  
**Figure 2- Site Vicinity Map Showing Borehole and Well Locations**  
**Figure 3- Site Vicinity Map Showing TPH-D in Groundwater**  
**Figure 4- Site Vicinity Map Showing TPH-MO in Groundwater**  
**Boring Logs**  
**Well Construction Diagrams**  
**Groundwater Monitoring/Well Purging Data Sheets**  
**Laboratory Analytical Report and Chain of Custody Documentation**  
**Sample Preparation Protocol**

PHK/dmg  
0304.R8

# **TABLES**

TABLE 1  
SUMMARY OF LABORATORY ANALYTICAL RESULTS  
GROUNDWATER SAMPLES  
(Samples Collected on February 28 and March 1, 2007)

Sample No.	TPH-G	TPH-D	TPH-MO
MW4	ND< 50	ND< 50	ND< 250
MW5	ND< 50, a	ND< 50, a	ND< 250
MW6	ND< 50	140, b	ND< 250

Notes:

TPH-G = Total Petroleum Hydrocarbons as Gasoline

TPH-D = Total Petroleum Hydrocarbons as Diesel.

TPH-MO = Total Petroleum Hydrocarbons as Motor Oil

ND = Not detected.

a = Laboratory report note: liquid sample that contains greater than ~1 vol. % sediment.

b = Laboratory report note: kerosene/ kerosene range.

Results are in micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise noted.

TABLE 1  
SUMMARY OF LABORATORY ANALYTICAL RESULTS  
GROUNDWATER SAMPLES  
(Samples Collected on February 28 and March 1, 2007)

Sample No.	TPH-G	TPH-D	TPH-MO
MW4	ND< 50	ND< 50	ND< 250
MW5	ND< 50, a	ND< 50, a	ND< 250
MW6	ND< 50	140, b	ND< 250

Notes:

TPH-G = Total Petroleum Hydrocarbons as Gasoline

TPH-D = Total Petroleum Hydrocarbons as Diesel.

TPH-MO = Total Petroleum Hydrocarbons as Motor Oil

ND = Not detected.

a = Laboratory report note: liquid sample that contains greater than ~1 vol. % sediment.

b = Laboratory report note: kerosene/ kerosene range.

Results are in micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise noted.

## **FIGURES**

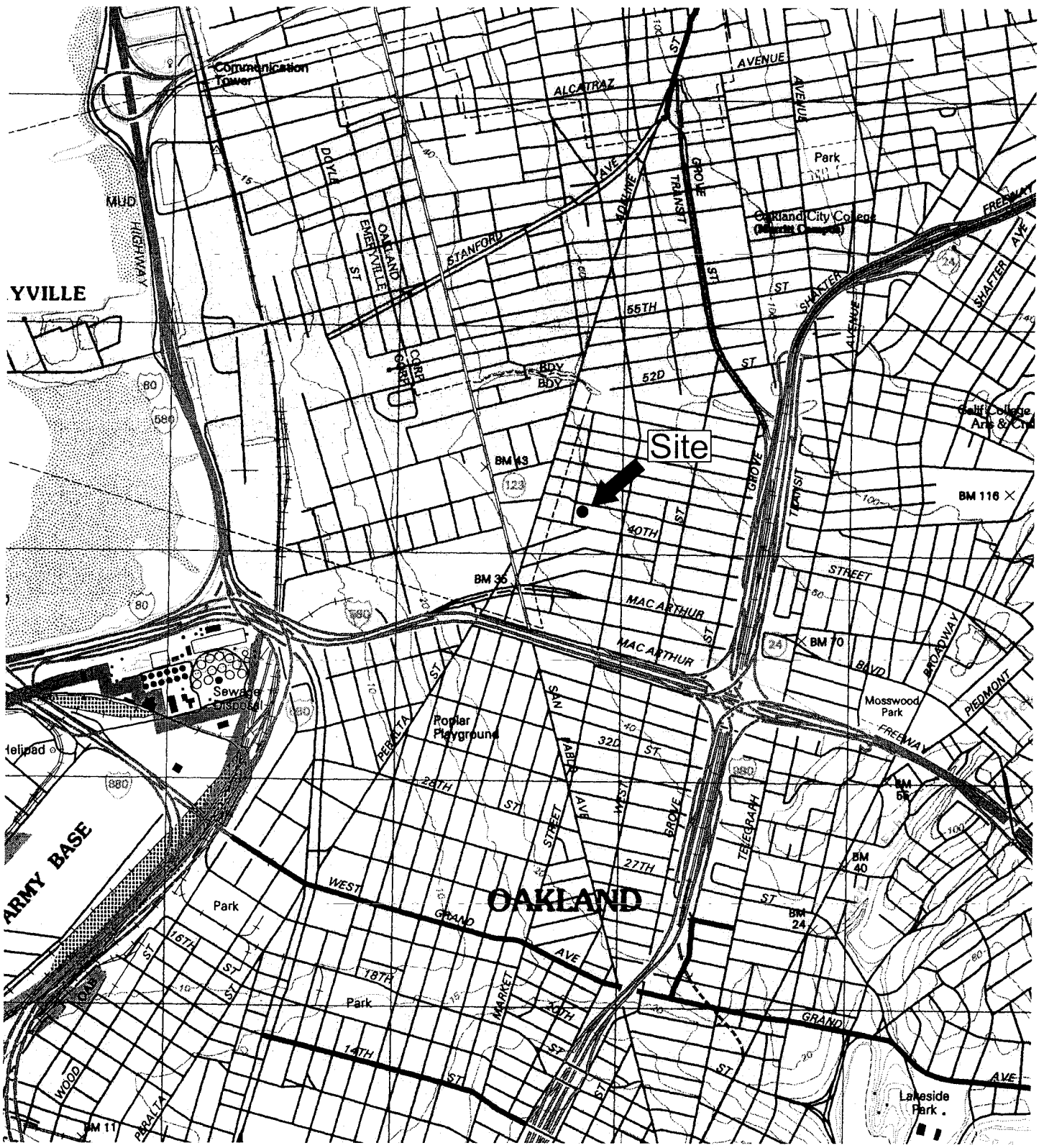
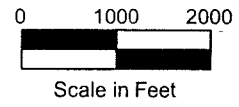


Figure 1  
 Site Location Map  
 California Linen Rental Company  
 989 41st Street  
 Oakland, California



Base Map From:  
 US Geological Survey  
 Oakland West, California  
 7.5 Minute Quadrangle  
 Photorevised 1996

RGA Environmental, Inc.  
 1466 66th Street  
 Emeryville, Ca 94608



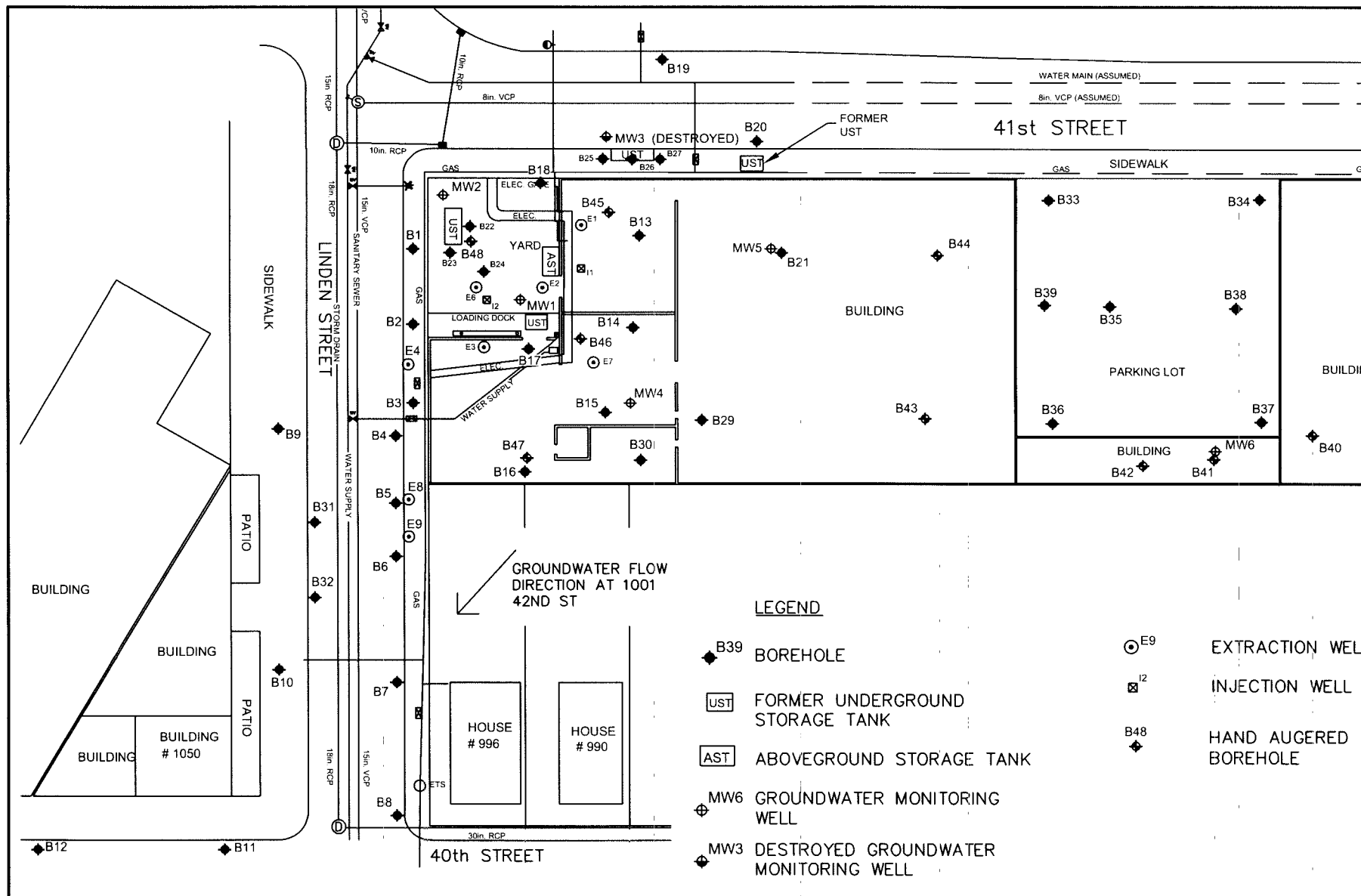
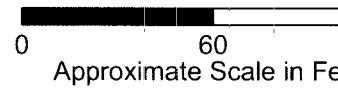


Figure 2  
 Site Vicinity Map Showing Borehole Locations and Well Locations  
 California Linen Rental Company  
 989 41st Street  
 Oakland, California

Base Map From:  
 California Utility Survey  
 Utility Sketch Plan  
 Feb. 14, 2005

RGA Environmental, Inc.  
 1466 66th Street  
 Emeryville, CA 94608





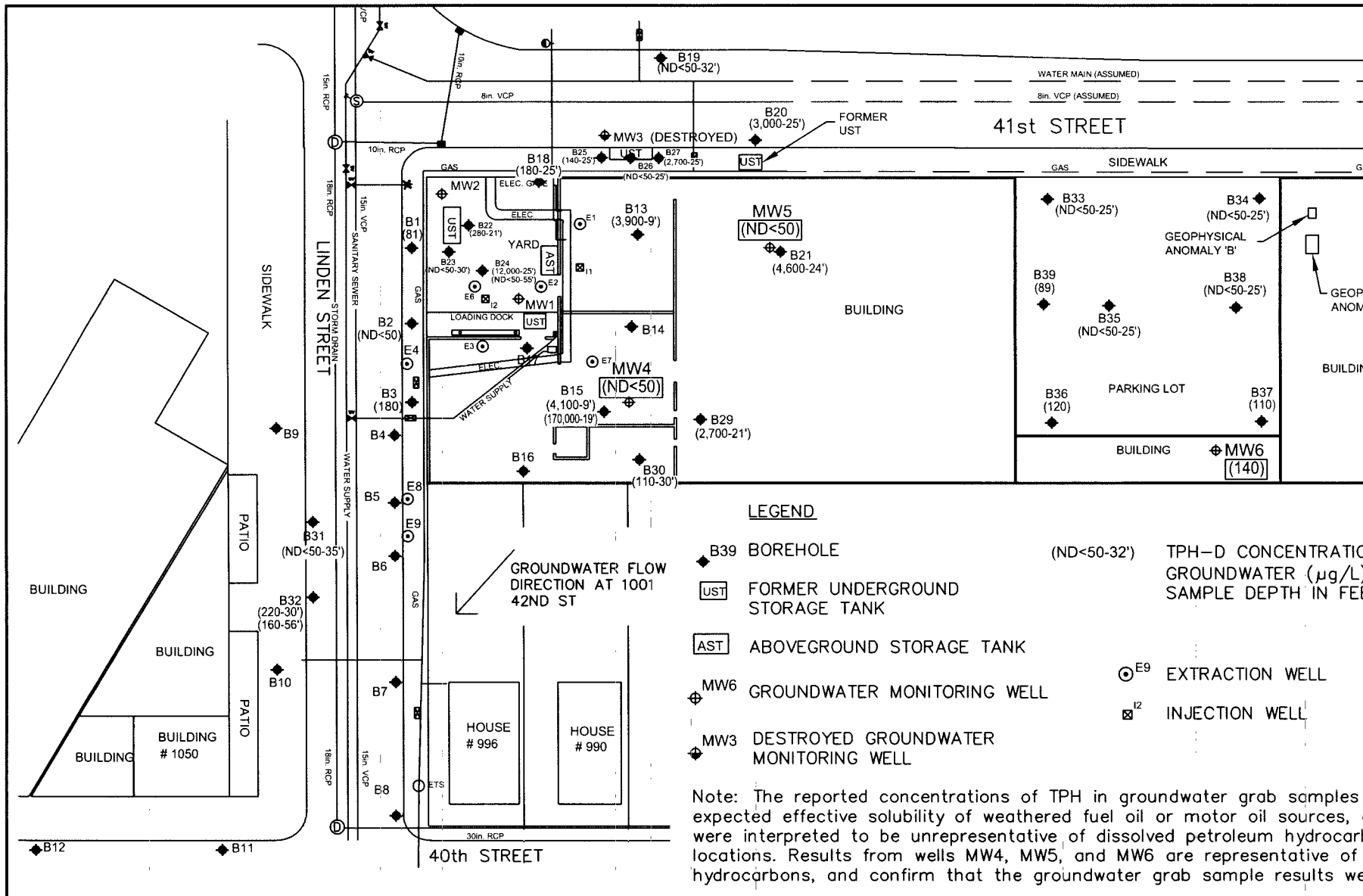
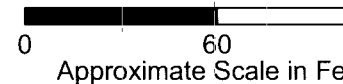


Figure 3  
 Site Vicinity Map Showing TPH-D in Groundwater  
 California Linen Rental Company  
 989 41st Street  
 Oakland, California



Base Map From:  
 California Utility Survey  
 Utility Sketch Plan  
 Feb. 14, 2005

RGA Environmental, Inc.  
 1466 66th Street  
 Emeryville, CA 94608



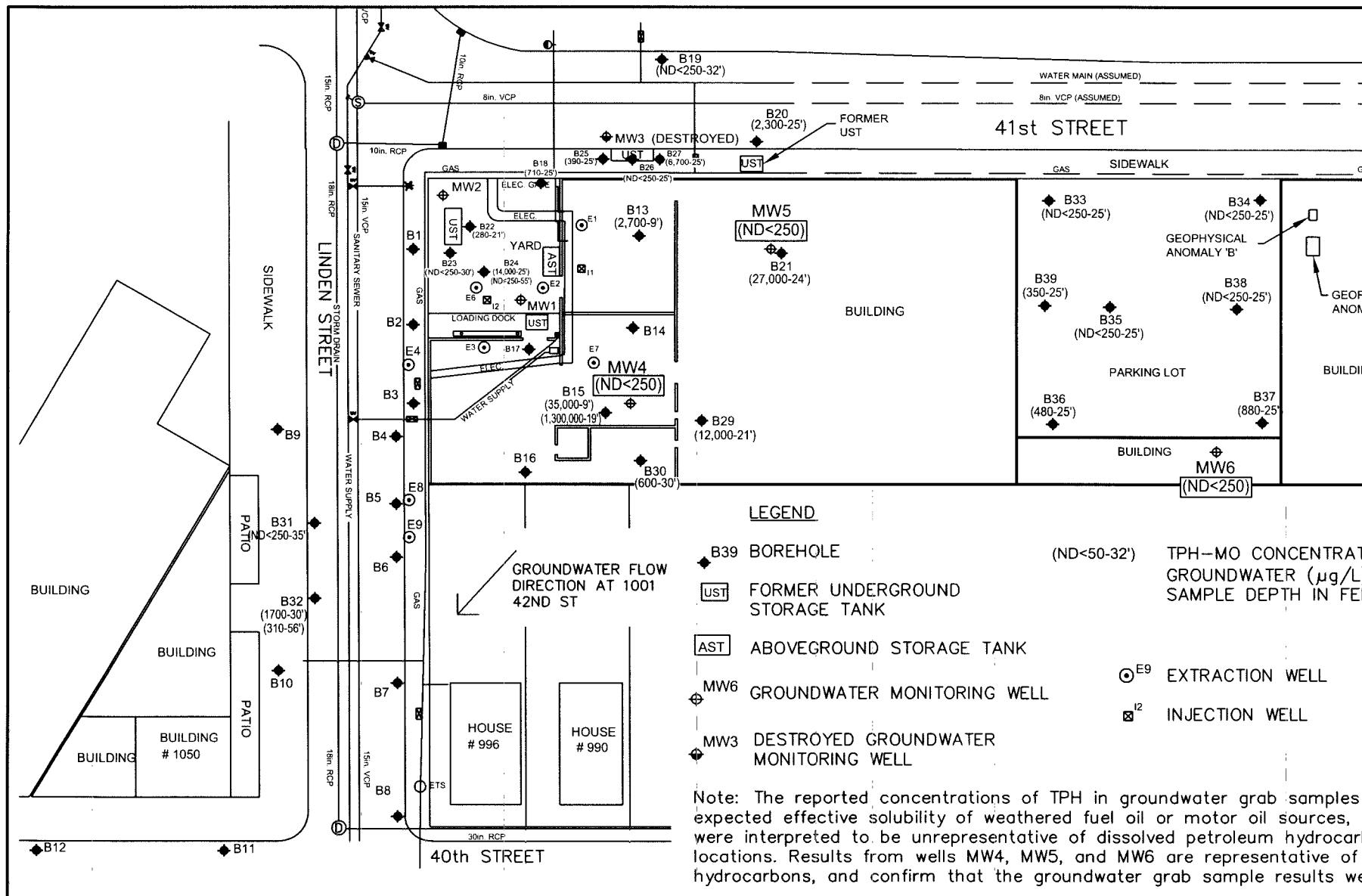
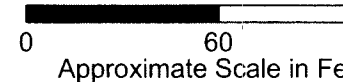


Figure 4  
 Site Vicinity Map Showing TPH-MO in Groundwater  
 California Linen Rental Company  
 989 41st Street  
 Oakland, California



Base Map From:  
 California Utility Survey  
 Utility Sketch Plan  
 Feb. 14, 2005


RGA Environmental, Inc.  
 1466 66th Street  
 Emeryville, CA 94608



# **BORING LOGS**

BORING NO.: MW4		PROJECT NO.: 0304		PROJECT NAME: California Linen, Oakland, CA		
BORING LOCATION: Plant Work Floor			ELEVATION AND DATUM: None			
DRILLING AGENCY: Vironex, Inc.		DRILLER: Bryan/Tim/Josh		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: Geoprobe 6610 DT				02/22/07	02/22/07	
COMPLETION DEPTH: 30.0 FEET		BEDROCK DEPTH: None Encountered		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: None Encountered		NO. OF SAMPLES: None		FJO	DAVID M GIBBS P.G. 7804	
DEPTH(FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
5	0.0 ft to 1.2 ft Concrete slab	FILL	See Attached Well Construction Diagram		0	Borehole drilled using a GeoProbe dual tube sampling system consisting of a 3.25-inch outside diameter outer casing and a 2.5-inch outside diameter sampling barrel lined with cellulose acetate sleeves. Borehole continuously cored in 5-foot intervals.  Borehole terminated at 30.0 feet. Borehole sloughed with sand to 23.0 feet. Well constructed in borehole to 23.0 feet.
	1.2 ft to 4.0 ft No Recovery					
	4.0 ft to 8.3 ft Dark brown to black silty CLAY (CL); black and white mottling, medium stiff, slightly moist. No Petroleum Hydrocarbon (PHC) odor.	CL		0		
	8.3 ft to 11.5 ft Dark brown to gray sandy SILT (ML); black and white mottling, medium stiff, medium dry. No PHC odor.	ML		0		
	11.5 ft to 13.0 ft Brown SILT (ML); loose, medium moist. No PHC odor.	ML		0		
	13.0 ft to 15.0 ft Brown SILT (ML); very stiff, little moisture. No PHC odor.	ML		0		
	15.0 ft to 17.3 ft Brown silty SAND (SM); medium stiff, little moisture. No PHC odor.	SM		0		
	17.3 ft to 20.0 ft Brown SILT (ML); medium soft, medium moist. No PHC odor.	ML		0		
	20.0 ft to 23.0 ft Light brown sandy SILT (ML); very soft, medium moist. No PHC odor.	ML	▽ —	0		
	23.0 ft to 30.0 ft Brown silty GRAVEL (GM); very stiff, dry. No PHC odor.	GM		0		
30						

BORING NO.: MW5		PROJECT NO.: 0304		PROJECT NAME: California Linen, Oakland, CA		
BORING LOCATION: Plant Work Floor			ELEVATION AND DATUM: None			
DRILLING AGENCY: Vironex, Inc.		DRILLER: Bryan/Tim/Josh		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: Geoprobe 6610 DT				02/22/07	02/22/07	
COMPLETION DEPTH: 27.2 FEET		BEDROCK DEPTH: None Encountered		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 21.8 FEET		NO. OF SAMPLES: None		FJO	DAVID M GIBBS P.G. 7804	
DEPTH(FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
0	0.0 ft to 1.2 ft Concrete slab	FILL	See Attached Well Construction Diagram		0	Borehole drilled using a GeoProbe dual tube sampling system consisting of a 3.25-inch outside diameter outer casing and a 2.5-inch outside diameter sampling barrel lined with cellulose acetate sleeves. Borehole continuously cored in 5-foot intervals.
	1.2 ft to 4.0 ft No recovery.					
5	4.0 ft to 5.0 ft Dark brown silty GRAVEL (GM); stiff, moist. No Petroleum Hydrocarbon (PHC) odor.	GM				
	5.0 ft to 7.8 ft Dark brown silty CLAY (CL); very stiff, slightly moist. No PHC odor.	CL				
10	7.8 ft to 12.1 ft Gray sandy GRAVEL (GP); very stiff, slightly moist. No PHC odor.	GP				
	12.1 ft to 15.1 ft Brown silty SAND (SM); medium stiff, medium dry. No PHC odor.	SM				
15	15.1 ft to 18.4 ft Brown silty CLAY (SM); black mottling, medium stiff, medium moist. No PHC odor.	SM				
	18.4 ft to 21.3 ft Brown SILT (ML); medium soft, medium moist. No PHC odor.	ML				
20	21.3 ft to 22.9 ft Brown sandy GRAVEL (GP); loose, very moist. No PHC odor.	GP				
	22.9 ft to 25.1 ft Brown SILT (ML); medium soft, medium moist. No PHC odor.	ML				
25	25.1 ft to 27.1 ft No Recovery					
30						

BORING NO.: MW6		PROJECT NO.: 0304		PROJECT NAME: California Linen, Oakland, CA			
BORING LOCATION: Plant Work Floor			ELEVATION AND DATUM: None				
DRILLING AGENCY: Vironex, Inc.		DRILLER: Bryan/Tim/Josh		DATE & TIME STARTED:	DATE & TIME FINISHED:		
DRILLING EQUIPMENT: Geoprobe 6610 DT				02/22/07	02/22/07		
COMPLETION DEPTH: 25.1 FEET		BEDROCK DEPTH: None Encountered		LOGGED BY:	CHECKED BY:		
FIRST WATER DEPTH: 21.0 FEET		NO. OF SAMPLES: None		FJO	DAVID M GIBBS P.G. 7804		
DEPTH(FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS	
0	0 to 1.0 ft Concrete Slab (FILL).	FILL	See Attached Well Construction Diagram		0	Borehole drilled using a GeoProbe dual tube sampling system consisting of a 3.25-inch outside diameter outer casing and a 2.5-inch outside diameter sampling barrel lined with cellulose acetate sleeves. Borehole continuously cored in 5-foot intervals.	
	1.0 ft to 3.0 ft No recovery.						
5	3.0 ft to 5.1 ft Dark brown SILT (ML); black mottling, stiff, moist. Strong Petroleum Hydrocarbon (PHC) odor.	ML					
	5.1 ft to 6.6 ft Gray SILT (ML); white mottling, very stiff, dry. No PHC odor.	ML					
10	6.6 ft to 12.0 ft Brown clayey GRAVEL (GC); very stiff, medium moist. Weak PHC odor.	GC					
	12.0 ft to 14.0 ft Brown silty SAND (SM); loose, very moist. No PHC odor.	SM					
15	14.0 ft to 18.3 ft Brown silty CLAY (CL); loose, very moist. No PHC odor.	CL					
	18.3 ft to 19.5 ft Brown silty SAND (SM); medium stiff, medium moist. No PHC odor.	SM					
20	19.5 ft to 23.1 ft Silty GRAVEL (GM); loose, medium moist. No PHC odor.	GM					
	23.1 ft to 25.1 ft Poorly graded SAND (SP); loose, saturated. No PHC odor.	SP					
25							
30							

# **WELL CONSTRUCTION DIAGRAMS**

# P&D ENVIRONMENTAL, INC.

55 Santa Clara Avenue, Suite 240

Oakland, CA 94610

(510) 658-6916

## WELL CONSTRUCTION DIAGRAM

PROJECT NUMBER 0304

BORING/WELL NO. MW4

PROJECT NAME California Linen

TOP OF CASING ELEV. Unknown

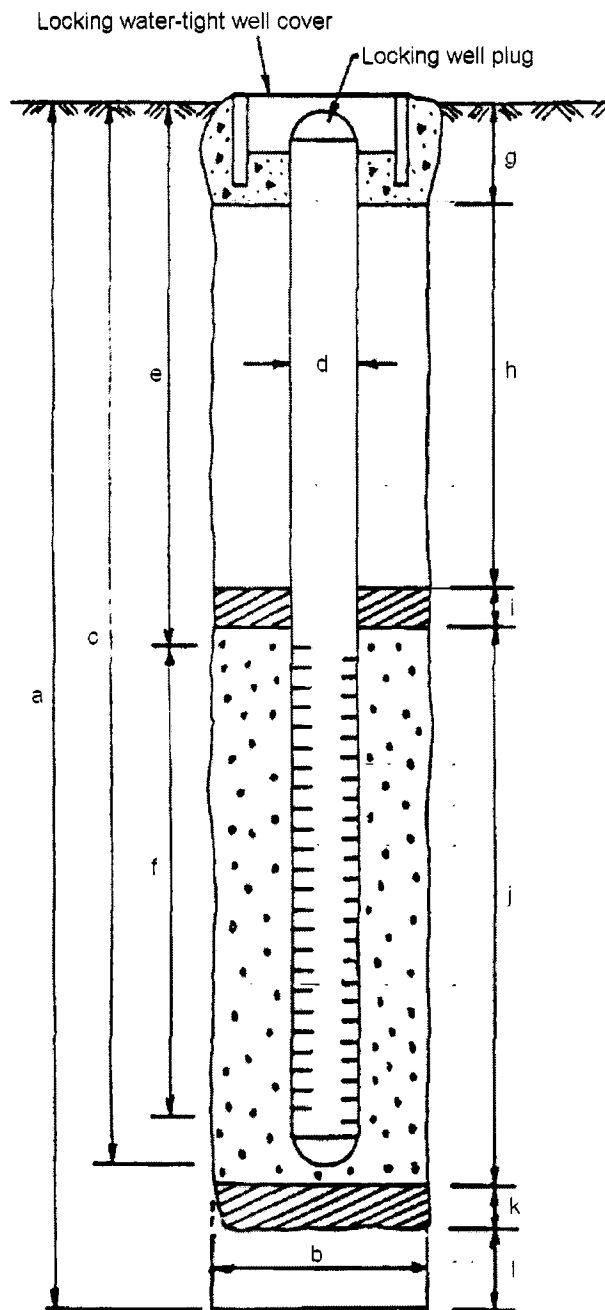
COUNTY Alameda

GROUND SURFACE ELEVATION Unknown

WELL PERMIT NO. W2007-0157

DATUM None

DATE(S) CONSTRUCTED 02/22/2007



### EXPLORATORY BORING

a. Total depth 30.0 ft.

b. Diameter 3.25 in.

Drilling method Direct Push Dual Tube

### WELL CONSTRUCTION

c. Casing length 23.0 ft.

Material Schedule 40 PVC

d. Diameter 1.5 in.

e. Depth to top of perforations 18.0 ft.

f. Perforated length 5.0 ft.

Perforated interval from 18.0 to 23.0 ft.

Perforation type Factory Slot

Perforation size 0.010

g. Surface sanitary seal 0.5 ft.

Seal material Concrete

h. Sanitary seal 15.5 ft.

Seal material Neat Cement Grout

i. Filter pack seal 2.0 ft.

Seal material Bentonite Pellet

j. Filter pack length 5.0 ft.

Filter pack interval from 18.0 to 23.0 ft.

Pack material #20/40 Grade Environmental

Prepack Sand

k. Bottom seal 0 ft.

Seal material None

l. Slough in bottom of borehole 7.0 ft.

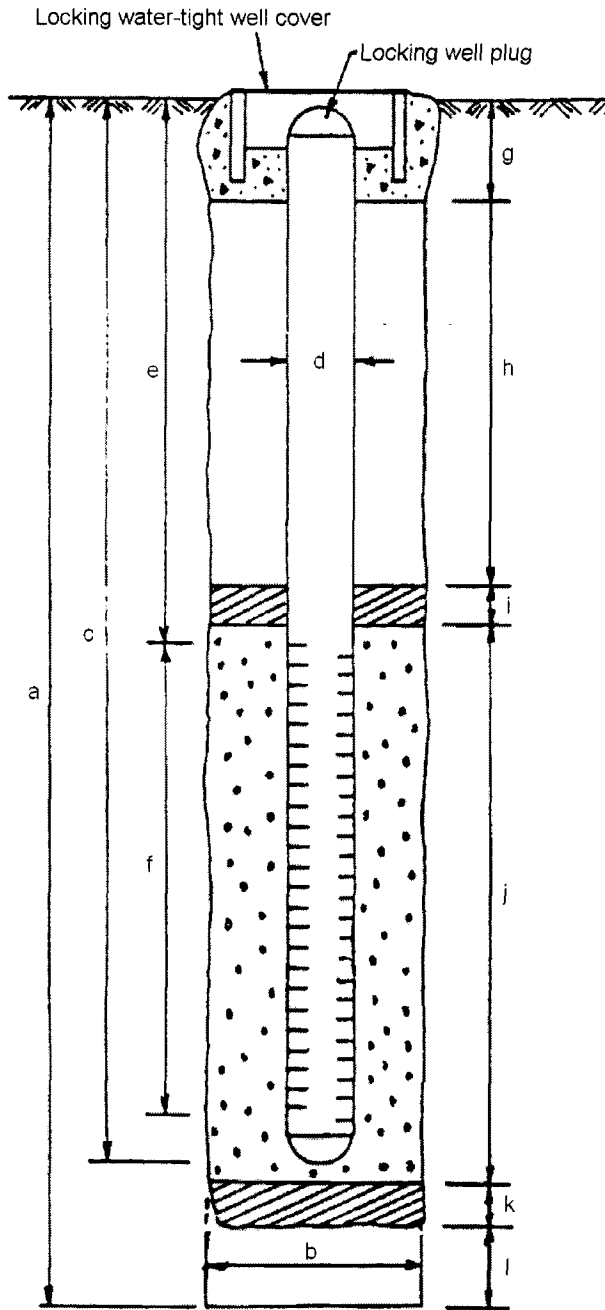


# P&D ENVIRONMENTAL, INC.

55 Santa Clara Avenue, Suite 240  
Oakland, CA 94610  
(510) 658-6916

## WELL CONSTRUCTION DIAGRAM

PROJECT NUMBER 0304 BORING/WELL NO. MW5  
 PROJECT NAME California Linen TOP OF CASING ELEV. Unknown  
 COUNTY Alameda GROUND SURFACE ELEVATION Unknown  
 WELL PERMIT NO. W2007-0157 DATUM None  
 DATE(S) CONSTRUCTED 02/22/2007



### EXPLORATORY BORING

a. Total depth 27.2 ft.  
 b. Diameter 3.25 in.  
 Drilling method Direct Push Dual Tube

### WELL CONSTRUCTION

c. Casing length 27.2 ft.  
 Material Schedule 40 PVC  
 d. Diameter 1.5 in.  
 e. Depth to top of perforations 21.0 ft.  
 f. Perforated length 5.0 ft.  
 Perforated interval from 21.0 to 26.0 ft.  
 Perforation type Factory Slot  
 Perforation size 0.010  
 g. Surface sanitary seal 0.5 ft.  
 Seal material Concrete  
 h. Sanitary seal 18.5 ft.  
 Seal material Neat Cement Grout  
 i. Filter pack seal 2.0 ft.  
 Seal material Bentonite Pellet  
 j. Filter pack length 5.0 ft.  
 Filter pack interval from 21.0 to 26.0 ft.  
 Pack material #20/40 Grade Environmental  
Prepack Sand  
 k. Bottom seal 0 ft.  
 Seal material Caved In (Sand)  
 l. Sluff in bottom of borehole 1.2 ft.

# P&D ENVIRONMENTAL, INC.

55 Santa Clara Avenue, Suite 240  
Oakland, CA 94610  
(510) 658-6916

## WELL CONSTRUCTION DIAGRAM

PROJECT NUMBER 0304

BORING/WELL NO. MW6

PROJECT NAME California Linen

TOP OF CASING ELEV. Unknown

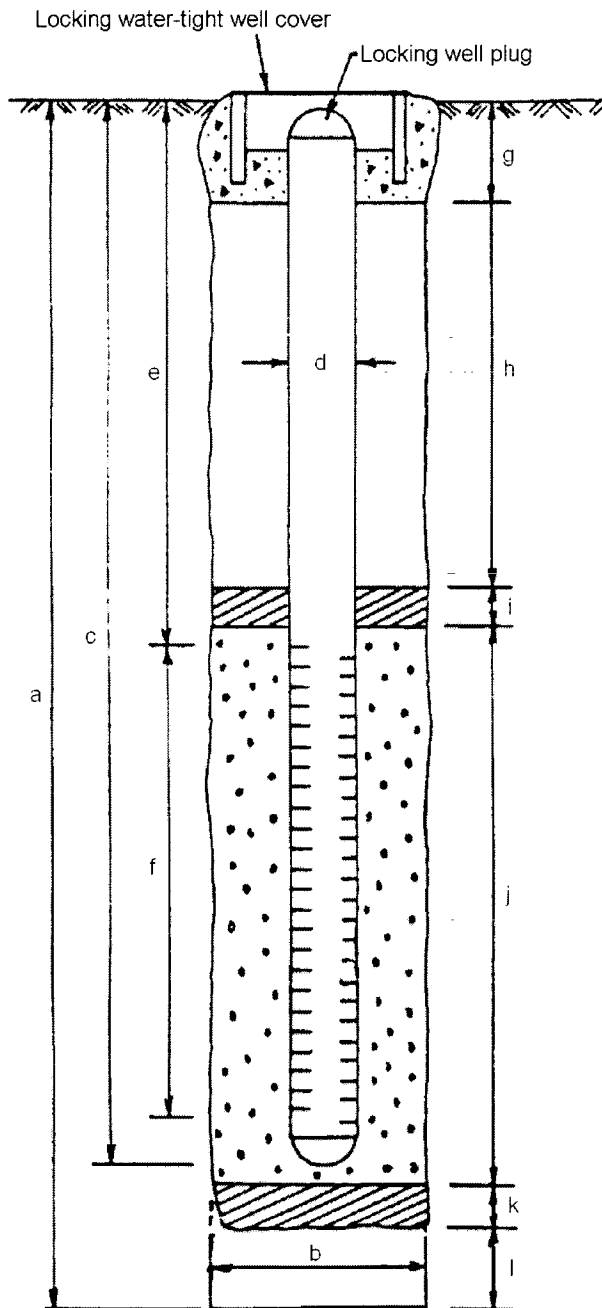
COUNTY Alameda

GROUND SURFACE ELEVATION Unknown

WELL PERMIT NO. W2007-0157

DATUM None

DATE(S) CONSTRUCTED 02/22/2007



### EXPLORATORY BORING

- a. Total depth 25.1 ft.  
 b. Diameter 3.25 in.  
 Drilling method Direct Push Dual Tube

### WELL CONSTRUCTION

- c. Casing length 25.1 ft.  
 Material Schedule 40 PVC  
 d. Diameter 1.5 in.  
 e. Depth to top of perforations 20.1 ft.  
 f. Perforated length 5.0 ft.  
 Perforated interval from 20.1 to 25.1 ft.  
 Perforation type Factory Slot  
 Perforation size 0.010  
 g. Surface sanitary seal 0.5 ft.  
 Seal material Concrete  
 h. Sanitary seal 17.6 ft.  
 Seal material Neat Cement Grout  
 i. Filter pack seal 2.0 ft.  
 Seal material Bentonite Pellet  
 j. Filter pack length 5.0 ft.  
 Filter pack interval from 20.1 to 25.1 ft.  
 Pack material #20/40 Grade Environmental  
Prepack Sand  
 k. Bottom seal 0 ft.  
 Seal material None  
 l. Slough in bottom of borehole 0 ft.

**GROUNDWATER  
MONITORING/WELL PURGING  
DATA SHEETS**

RGA ENVIRONMENTAL  
GROUNDWATER MONITORING/WELL PURGING  
DATA SHEET

Site Name <sup>Sic</sup> 050 California Lien  
 Job No. 0304  
 TOC to Water (ft.) 18.96  
 Well Depth (ft.) 26.31  
 Well Diameter 1 1/2" (0.092)  
 Gal./Casing Vol. 0.7

Well No. MW4  
 Date 2/28/07  
 Sheen NONE  
 Free Product Thickness 0  
 Sample Collection Method PE tubing + 3/8 check valve

3 vol = 2.1

<u>TIME</u>	<u>GAL. PURGED</u>	<u>pH</u>	<u>TEMPERATURE</u> °C	<u>ELECTRICAL CONDUCTIVITY</u> $\mu\text{S/cm}$
<u>1358</u>	<u>0.25</u>	<u>7.01</u>	<u>54.6</u>	<u>108</u>
<u>1401</u>	<u>0.50</u>	<u>6.99</u>	<u>55.9</u>	<u>376</u>
<u>1405</u>	<u>0.75</u>	<u>7.04</u>	<u>56.5</u>	<u>611</u>
<u>1409</u>	<u>1.00</u>	<u>7.04</u>	<u>57.1</u>	<u>1,277</u>
<u>1411</u>	<u>Well dewatered @ ~1.2 gallons</u>			
	<u>1.50</u>			
	<u>1.75</u>			
	<u>2.00</u>			
	<u>2.10</u>			

NOTES: No sheen; No odor - Sample Time  $\Rightarrow$  1545 (until

RGA ENVIRONMENTAL  
GROUNDWATER MONITORING/WELL PURGING  
DATA SHEET

Site Name California Linen  
Job No. 0304  
TOC to Water (ft.) 7.95  
Well Depth (ft.) 25.13  
Well Diameter 1 1/2" (0.092)  
Gal./Casing Vol. 1.6

Well No. MWS  
Date 2/28/07  
Sheen NO  
Free Product Thickness 0  
Sample Collection Method PE tubing w/ S/S check val w/c

TIME	GAL. PURGED	pH <sup>S/C</sup>	TEMPERATURE <sup>°C</sup>	ELECTRICAL CONDUCTIVITY <sup>µs/cm</sup>
1428	0.5	<del>67.9</del> 6.79	61.9	494
1433	1.0	6.82	64.8	510
1438	1.5	6.80	66.6	516
1443	2.0	6.81	<del>67.0</del> 66.8	101
1448	2.5	6.81	67.0	43
1453	3.0	6.82	67.0	45
1458	4.0	6.86	67.1	48
1502	4.5	6.86	67.1	45
1505	4.8	6.87	67.1	43

NOTES: No sheen, No odor hvy silt/sed. Sample time => 1515 hrs

RGA ENVIRONMENTAL  
GROUNDWATER MONITORING/WELL PURGING  
DATA SHEET

Site Name California Linen  
 Job No. 0304  
 TOC to Water (ft.) 7.40  
 Well Depth (ft.) 24.55  
 Well Diameter 1 1/2" (0.092)  
 Gal./Casing Vol. 1.6

Well No. MW6  
 Date 2/28/07  
 Sheen No  
 Free Product Thickness 0  
 Sample Collection Method PE tubing w/ 1/2" check valve

TIME	GAL. PURGED	pH	TEMPERATURE	ELECTRICAL CONDUCTIVITY $\mu\text{S/cm}$
1232	0.5	6.95	58.5	170
1239	1.0	6.97	56.0	255
1243	1.5	6.95	55.2	1007
1248	2.0	7.02	54.9	1017
1253	2.5	7.07	54.1	1017
1258	3.0	7.09	53.8	1252
1306	4.0	7.08	53.5	1341
1311	4.5	7.11	53.3	1333
1316	4.8	7.13	53.3	1337

NOTES: Purging w/ PE tubing + 1/2" check valve.  
No Sheen; No odor      Sample Time  $\rightarrow$  1330

**LABORATORY REPORTS  
AND CHAIN OF CUSTODY  
DOCUMENTATION**



# McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

RGA Environmental  1466 66th Street  Emeryville, CA 94608	Client Project ID: #0304-CLR15957	Date Sampled: 02/28/07
		Date Received: 03/01/07
	Client Contact: Paul King	Date Extracted: 03/02/07
	Client P.O.:	Date Analyzed 03/02/07

### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*

Extraction method: SW5030B

Analytical methods: SW8015Cm

Work Order: 0703012


Lab ID	Client ID	Matrix	TPH(g)	DF	% SS
001A	MW4	W	ND	1	90
002A	MW5	W	ND,i	1	96
003A	MW6	W	ND	1	96

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request; p) see attached narrative.

 Angela Rydelius, Lab Manager





# McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

RGA Environmental  1466 66th Street  Emeryville, CA 94608	Client Project ID: #0304-CLR15957	Date Sampled: 02/28/07
		Date Received: 03/01/07
	Client Contact: Paul King	Date Extracted: 03/01/07
	Client P.O.:	Date Analyzed: 03/02/07-03/06/07

### Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons as Diesel and Motor Oil\*

Extraction method: SW3510C

Analytical methods: SW8015C

Work Order: 0703012

Lab ID	Client ID	Matrix	TPH(d)	TPH(mo)	DF	% SS
0703012-001A	MW4	W	ND	ND	1	99
0703012-002A	MW5	W	ND,i	ND	1	95
0703012-003A	MW6	W	140,k	ND	1	96

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	250	µg/L
	S	NA	NA	mg/Kg

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirits; p) see attached narrative.



**QC SUMMARY REPORT FOR SW8021B/8015Cm**

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0703012

EPA Method SW8015Cm		Extraction SW5030B			BatchID: 26518			Spiked Sample ID: 0702669-001A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	96.3	96.7	0.372	105	93.7	11.2	70 - 130	30	70 - 130	30
MTBE	ND	10	92.5	89.3	3.44	74.5	79.5	6.51	70 - 130	30	70 - 130	30
Benzene	ND	10	96	101	4.72	102	110	7.77	70 - 130	30	70 - 130	30
Toluene	ND	10	96.9	104	6.94	95.9	103	6.88	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	102	106	4.05	108	96.8	10.7	70 - 130	30	70 - 130	30
Xylenes	ND	30	117	120	2.82	107	110	3.08	70 - 130	30	70 - 130	30
%SS:	109	10	90	93	3.90	101	106	4.45	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

**BATCH 26518 SUMMARY**

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0703012-001A	02/28/07 3:45 PM	03/02/07	03/02/07 4:00 AM	0703012-002A	02/28/07 3:15 PM	03/02/07	03/02/07 4:33 AM
0703012-003A	02/28/07 1:30 PM	03/02/07	03/02/07 5:05 AM				

MS = Matrix Spike, MSD = Matrix Spike Duplicate, LCS = Laboratory Control Sample, LCSD = Laboratory Control Sample Duplicate, RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0703012

EPA Method SW8015C	Extraction SW3510C			BatchID: 26530			Spiked Sample ID: N/A					
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	103	106	2.35	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	101	102	1.20	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 26530 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0703012-001A	02/28/07 3:45 PM	03/01/07	03/06/07 4:01 PM	0703012-002A	02/28/07 3:15 PM	03/01/07	03/02/07 10:22 AM
0703012-003A	02/28/07 1:30 PM	03/01/07	03/02/07 6:50 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked), RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: [www.mccampbell.com](http://www.mccampbell.com) E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: 877-252-9262 Fax: 925-252-9269

RGA Environmental  1466 66th Street  Emeryville, CA 94608	Client Project ID: #0304-CLR15957	Date Sampled: 02/28/07
		Date Received: 03/01/07
	Client Contact: Paul King	Date Reported: 03/08/07
	Client P.O.:	Date Completed: 03/08/07

**WorkOrder: 0703012**

March 08, 2007

Dear Paul:

Enclosed are:

- 1). the results of **3** analyzed samples from your **#0304-CLR15957 project**,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager



RGA Environmental, Inc  
 1466 - 66<sup>th</sup> St  
 Emeryville, CA 94608  
 510-658-4363  
 510-834-0152 fax  
 paul.king@rgaenv.com

RGAE 0703012

# CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 0304-CCR15957		PROJECT NAME: California Lines (Oakland)			NUMBER OF CONTAINERS	ANALYSIS(ES):				PRESERVATIVE	REMARKS
SAMPLED BY: (PRINTED AND SIGNATURE) Steven Cronce						TPH	MULTI	OTHER	OTHER		
SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION							
MW4	2/28/07	1545	Water		7	X			ICE	Normal Tar	
MW5		1515			7	X					
MW6		1530			7	X					
					ICE @ 34°C						
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		TOTAL NO. OF SAMPLES (THIS SHIPMENT)	3	LABORATORY:			
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		TOTAL NO. OF CONTAINERS (THIS SHIPMENT)	21	McCampbell Am			
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)		LABORATORY CONTACT: Angela Rydelius		LABORATORY PHON (925) 252-92			
					SAMPLE ANALYSIS REQUEST SHEET ATTACHED ( ) YES (X) NO						
					REMARKS: Vials preserved w/ HCL; See attached Sample Prep Pr						

**McC Campbell Analytical, Inc.**



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0703012

ClientID: RGAE

EDF

Fax

Email

HardCopy

ThirdParty

**Report to:**

Paul King  
RGA Environmental  
1466 66th Street  
Emeryville, CA 94608

Email: paul.king@rgaenv.com  
TEL: (510) 547-7771 FAX: (510) 547-1983  
ProjectNo: #0304-CLR15957  
PO:

**Bill to:**

Accounts Payable  
RGA Environmental  
1466 66th Street  
Emeryville, CA 94608

**Requested TAT:**

Date Received: ( )

Date Printed: ( )

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)													
					1	2	3	4	5	6	7	8	9	10				
0703012-001	MW4	Water	2/28/07 3:45:00 PM	<input type="checkbox"/>	A													
0703012-002	MW5	Water	2/28/07 3:15:00 PM	<input type="checkbox"/>	A	A												
0703012-003	MW6	Water	2/28/07 1:30:00 PM	<input type="checkbox"/>	A													

**Test Legend:**

1	G-MBTEX_W	2	TPH(DMO)_W	3		4		5	
6		7		8		9		10	
11		12							

The following SampIDs: 0703012-001A, 0703012-002A, 0703012-003A contain testgroup. Please make sure all relevant testcodes are reported. Many thanks.

**Prepared by: Sheli Cry**

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

# **SAMPLE PREPARATION PROTOCOL**

## ATTACHMENT B

### Protocol for Cleanup of Groundwater Sample Extracts Prior to TPH Analysis

This protocol is for cleanup of groundwater sample extracts to be analyzed for extractable TPH by EPA Method 8015M (or equivalent). The purpose of the cleanup is to remove polar non-hydrocarbons from the sample extract so that the TPH quantitation better represents petroleum hydrocarbons. The success of sample cleanup depends on many factors, including: matrix interferences, mass of petroleum hydrocarbons and non-hydrocarbon constituents present, polarity of non-hydrocarbon constituents present, lab procedures, and lab QA. Cleanup success can only be determined after the GC-FID analysis is performed by reviewing the chromatograms. The cleanup presented here is based on EPA Method 3630, however, there is no solvent exchange. This protocol was developed in consultation with several analytical chemists, and has been refined after cleanup and analysis of thousands of samples since 1996.

1. Add surrogates to water sample.
2. Extract water sample using methylene chloride per method (e.g., 3510, 3520).
3. Concentrate extract down to 5 milliliters (ml); split extract in half (save unused half for backup or other analyses).
4. Pack a glass column (20 ml volume) with 10 grams of activated silica gel; pre-wash the packed column with methylene chloride. **[NOTE: A packed column must be used. Adding 3 grams of silica gel to the extract and stirring/shaking (e.g., Method 418.1 procedure) is NOT ACCEPTABLE. Using a cartridge with 3 grams of silica gel is NOT ACCEPTABLE.]**
5. Run sample extract (2.5 ml) through the packed, pre-washed column.
6. Wash column with 60 ml methylene chloride.
7. Concentrate elutriate down to original extract volume (2.5 ml).
8. Analyze extract as per EPA Method 8015M (or equivalent). Sample chromatograms are to be included with the laboratory report.

Analytical results are typically reported as "TPH with Silica Gel Cleanup".

© 2006 Zemo & Associates LLC



**ATTACHMENT A**

**Protocol for Gravity Separation of Groundwater Samples to Isolate the Water Phase**

Groundwater samples may contain non-dissolved petroleum resulting from entrained sheen and/or entrained petroleum-affected soil particles. The objective of this procedure is to separate the oil phase and the particulate matter solid phase from the water phase prior to extraction and analysis of the sample. In this way, the analysis will better represent the true dissolved-phase of the sample. The success of this procedure depends on many factors, including adequate time for separation, and complete exclusion of the oil and particulate matter phases from the collected water phase.

*For groundwater samples to be analyzed for semi-volatiles (e.g., extractable TPH, PAHs):*

1. Pour the raw groundwater sample into a glass separatory funnel of adequate volume.
2. Allow the sample to separate and equilibrate for a minimum of 48 hours. Keep the sample refrigerated during the separation period.
3. After the separation period, the analyst will observe the sample to confirm that the water phase is visually clear. If the water is not visually clear, additional separation time may be required.
4. Open the bottom stopcock of the funnel and allow all of the particulate matter that collected at the bottom to run completely through; discard.
5. Collect an adequate sample volume of the water phase from the bottom of the funnel without including any of the oil phase and place into appropriate containers.
6. Add surrogates to water phase sample and extract as per requested method.

*For groundwater samples to be analyzed for volatiles (e.g., purgeable TPH, BTEX, etc.):*

1. Store the 40-ml VOA vials upside-down in the refrigerator for a minimum of 48 hours.
2. After the separation period, the vials must remain in the upside-down position while the septum is punctured by the hypodermic needle and the water phase is subsampled. The analyst should keep the needle tip within the water phase and must avoid both the solid and oil phases with the needle tip during subsampling.