ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

January 9, 2014

Perry Pineda *(Sent via E-mail to: perry.pineda@shell.com)*
Shell Oil Products US
20945 S. Wilmington Ave.
Carson, CA 90810-1039

Horizon Energy Ltd
c/o Victoria Du
540 Hegenberger Road
Oakland, CA 94621-1320

Subject: Case Closure for Fuel Leak Case No. RO0000223 and GeoTracker Global ID T0600102123, Shell#13-5694, 540 Hegenberger Road, Oakland, CA 94621

Dear Responsible Parties:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Health (ACEH) is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed. This case closure letter and the case closure summary can also be viewed on the State Water Resources Control Board's Geotracker website (http://geotracker.swrcb.ca.gov) and the Alameda County Environmental Health website (http://www.acgov.org/aceh/index.htm).

SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- Total Petroleum Hydrocarbons as gasoline remains in soil at concentrations up to 1,400 ppm at a depth of 5 feet below ground surface (bgs).
- Benzene remains in soil at concentrations up to 4.3 ppm at a depth of 5 feet bgs.
- As described in section IV of the attached Case Closure Summary, the case was closed with Site Management Requirements that limit future land use to the current commercial land use.

If you have any questions, please call Jerry Wickham at (510) 567-6791. Thank you.

Sincerely,

Donna Drogos, P.E.
Division Chief

Enclosures:
1. Remedial Action Completion Certification
2. Case Closure Summary

cc:

Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (*Sent via E-mail to:* lgriffin@oaklandnet.com)

Closure Unit
State Water Resources Control Board
UST Cleanup Fund
P.O. Box 944212
Sacramento, CA 94244-2120
(uploaded to GeoTracker)

Peter Schaefer
Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608 2032
(*Sent via E-mail to:* pschaefer@craworld.com)

Donna Drogos, ACEH (*Sent via E-mail to:* donna.drogos@acgov.org)
Jerry Wickham, ACEH (*Sent via E-mail to:* jerry.wickham@acgov.org)

GeoTracker (w/enc)
eFile (w/orig enc)

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
OFFICE OF THE DIRECTOR
1131 HARBOR BAY PARKWAY
ALAMEDA, CA 94502
(510) 567-6777
FAX (510) 337-9135

REMEDIAL ACTION COMPLETION CERTIFICATION

January 9, 2014

Perry Pineda *(Sent via E-mail to: perry.pineda@shell.com)*
Shell Oil Products US
20945 S. Wilmington Ave.
Carson, CA 90810-1039

Horizon Energy Ltd
c/o Victoria Du
540 Hegenberger Road
Oakland, CA 94621-1320

Subject: Case Closure for Fuel Leak Case No. RO0000223 and GeoTracker Global ID T0600102123, Shell#13-5694, 540 Hegenberger Road, Oakland, CA 94621

Dear Responsible Parties:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

Please be aware that claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

Ariu Levi
Director

Alameda County Environmental Health

CASE CLOSURE SUMMARY
LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM

I. AGENCY INFORMATION

Date: August 7, 2013

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6791
Responsible Staff Person: Jerry Wickham	Title: Senior Hazardous Materials Specialist

II. CASE INFORMATION

Site Facility Name: Shell #13-5694		
Site Facility Address: 540 Hegenberger Road, Oakland, California 94621		
RB Case No.: 01-2308	Local Case No.: STiD 3646	LOP Case No.: RO0000223
URF Filing Date: 08/21/1996	Geotracker ID: T0600102123	APN: 42-4323-1-7

Responsible Parties	Addresses	Phone Numbers
Victoria Du, Horizon Energy Ltd	540 Hegenberger Road Oakland, CA 94621-1320	No phone number
Perry Pineda Shell Oil Products US	20945 S. Wilmington Avenue, Carson, CA 90810	425-413-1164

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
---	---	---	---	---
---	---	---	---	---
---	---	---	---	---
Piping			Removed	August 1996

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Unknown. A piping leak was repaired in 1996 and dispenser modifications were completed in 1998 and 2004.	
Site characterization complete? Yes	Date Approved By Oversight Agency: -----

Monitoring wells installed? Yes	Number: 5	Proper screened interval? Yes
Highest GW Depth Below Ground Surface: 4.18 feet bgs	Lowest Depth: 18.35 feet bgs	Flow Direction: North to East
Most Sensitive Current Use: Potential drinking water source.		

Summary of Production Wells in Vicinity: No water supply wells were identified within 2,000 feet of the site.	
Are drinking water wells affected? No	Aquifer Name: East Bay Plain
Is surface water affected? No	Nearest SW Name: A storm drain canal leading to Elmhurst Creek is approximately 175 feet northwest of the site.
Off-Site Beneficial Use Impacts (Addresses/Locations): None identified.	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health and Oakland Fire Department

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	---	---	---
Piping	Not Reported	Not Reported	April 8, 1996
Free Product	----	----	----
Soil	50 tons	Disposal at Forward Landfill in Manteca, CA	April 30, 2004
Groundwater	83,060 gallons	Groundwater was transported to the Shell refinery in Martinez for treatment and disposal	July 1999 to February 2003
	361,511 gallons	Groundwater was treated and discharged to the sanitary sewer under permit to East Bay Municipal Utility District.	April 2003 to November 2005

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP
(Please see Attachments 1 through 6 for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas)	3,400	1,400	200,000 (1)	250 (1)
TPH (Diesel)	1,500	1,200	5,780	5,780
Oil and Grease	----	----	----	----
Benzene	39	4.3	11,000 (1)	24 (1)
Toluene	280	3.4	36,000 (1)	<2 (1)
Ethylbenzene	84	14	3,200 (1)	<2 (1)
Xylenes	450	3.3	19,000 (1)	<2 (1)
Heavy Metals (Cd, Cr, Pb, Ni, Zn)	----	----	----	----
MTBE	720 (2)	43 (3)	1,300,000 (4)	37 (5)
Other (8240/8270)	----	----	----	----

Notes:

(1) Maximum concentration before cleanup is a grab groundwater sample from boring SB-5 collected on March 6, 1998; maximum concentration after cleanup is from the groundwater monitoring event on September 23, 2009.

(2) MTBE = 720 ppm; TBA; DIPE, ETBE, TAME, EDB, and EDC not analyzed in soil.

(3) MTBE = 43 ppm; TBA; DIPE, ETBE, TAME, EDB, and EDC not analyzed in soil.

(4) MTBE = 1,300,000 ppb (Sample collected from SB-5 on March 6, 1998); TBA = 52,000 ppb, DIPE, TAME, ETBE <2.0 ppb; EDB and EDC not analyzed.

(5) From the groundwater monitoring event on September 23, 2009: MTBE = 37 ppb; TBA = 7,700 ppb; DIPE, TAME, and ETBE <2.0 ppb; EDB and EDC not analyzed.

Site History and Description of Corrective Actions:

The site is an active gasoline service station located at the intersection of Hegenberger Road and Edes Avenue in Oakland, CA. Surrounding land use is commercial.

A potential gasoline release was observed during dispenser repairs in August 1996. One soil sample (D-1) collected beneath dispenser piping beneath the northwest corner of the northwest pump island detected 3,400 parts per million (ppm) Total Petroleum Hydrocarbons as gasoline (TPHg), 17 ppm benzene, and 720 ppm MTBE. On September 6, 1996 employees indicated that petroleum odors had been noticeable inside the storeroom of the building and appeared to originate from the sink or sewer drain. An air sample collected from a floor drain detected 0.029 ppm toluene.

Petroleum odors were again reported in the storeroom on September 19, 1996. Air samples from the floor drain detected up to 5,100 ppm volatile organic compounds (VOCs). An air sample collected from a floor drain detected 170 ppm TPHg and 1.9 ppm toluene.

Secondary containment was added beneath the dispensers and turbine pumps in January and February 1998. Soil samples collected beneath the dispensers detected up to 340 ppm TPHg and 3.7 ppm benzene.

On March 6, 1998, five soil borings (SB-1 through SB-5) were advanced on-site. Soil samples from the borings detected up to 3,400 ppm TPHg, 39 ppm benzene, and 170 ppm MTBE at depths of 5 to 8 feet below grade. A grab groundwater sample collected from boring B-5, located adjacent to the western dispenser island detected 200,000 parts per billion (ppb) TPHg, 11,000 ppb benzene, and 1,300,000 ppb MTBE.

Three groundwater monitoring wells (MW-1 through MW-3) were installed and one soil boring (SB-D) was advanced on July 14 and 15, 1998. Soil samples from boring SB-D detected up to 460 ppm TPHg, 4.7 ppm benzene, and 240 ppm MTBE.

Weekly batch groundwater extraction (GWE) events were initiated in July 1999. Between June of 2000 and September of 2001, extraction and treatment of soil vapors was added in addition to GWE. Interim remediation was stopped in February 2003. Interim GWE removed 83,063 gallons of groundwater that detected an estimated 1.68 pounds of TPHg and 13.0 pounds of MTBE. Soil vapor extraction removed an estimated 19.3 pounds of TPHg and 0.72 pounds of MTBE.

In August and September 2000, three soil borings (SB-E, SB-F, and SB-G) were advanced and one groundwater monitoring well (MW-4) was installed. Soil samples from the borings detected up to 468 ppm TPHg, 108 ppm TPH as diesel, and 1.86 ppm MTBE. Grab groundwater samples detected up to 51,100 ppb TPHg, 5,780 ppb TPHd, 2,080 ppb benzene, and 76,400 ppb MTBE.

In June 2002, one monitoring well (MW-5) was installed. TPHg and benzene were not detected at concentrations above the reporting limit but MTBE was detected at concentrations up to 13 ppm in soil samples from the well boring.

A fixed GWE system was installed in March 2003. The GWE system removed up 362,511 gallons of groundwater between April 2003 and November 2005 that contained an estimated 4.75 pounds of TPHg and 18.4 pounds of MTBE.

In June and July 2004, the fuel dispensers, pining, under-dispenser containment, and fill-port sumps were upgraded. Soil samples collected beneath the dispensers and piping detected up to 1,400 ppm TPHg, 1,200 ppm TPHd, 4.3 ppm benzene, and 43 ppm MTBE.

Site History and Description of Corrective Actions (continued):

In March 2011, three sub-slab vapor probes (SVP-1 through SVP-3) were installed in the station building to evaluate the previous observations of petroleum hydrocarbon odors. The probes were sampled on March 9, 2011 and March 31, 2011. TPHg was detected in each of the probes at concentrations ranging from 14,000 to 17,000,000 micrograms per cubic meter (µg/m3). The highest concentrations of TPHg were detected in the soil vapor probe (SVP-3) inside the kiosk office. Benzene was not detected at concentrations above the reporting limit.

Two additional soil vapor probes were installed in January 2012 and were sampled on February 2, 2012. Sampling results for SVP-3 were generally similar to the previous two sampling events with TPHg detected at a concentration of 13,000,000 µg/m3. TPHg and benzene were not detected at concentrations above reporting limits in the remaining four sub-slab vapor probe samples. In order to mitigate the potential for vapor intrusion to the kiosk office, cracks in the office floor were sealed with grout and a sealant was applied to the floor. Air samples were collected from near the counter of the kiosk, the kiosk office, and outside the kiosk before and after sealant application. Benzene concentrations were highest in the initial pre-floor sealing air sample collected from the kiosk office (4.1 µg/m3). The three air samples collected after the sealant application detected similar benzene concentrations (1.2 to 1.4 µg/m3).

Groundwater monitoring was conducted from August 1998 until September 2009. During the groundwater monitoring event on September 23, 2009, the maximum concentrations of TPHg, benzene, and MTBE in groundwater were 250, 24 and 170 ppb, respectively. TBA was detected at concentrations up to 7,700 ppb.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, closure of this site appears to be consistent with the policies established by the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy which became effective on August 17, 2012.		
Site Management Requirements: This fuel leak case has been evaluated for closure consistent with the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy (LTCP). Based on sub-slab soil vapor and air sampling results for the kiosk building, there is a potential for vapor intrusion to indoor air at the site. The potential for vapor intrusion in the existing kiosk building has been mitigated. Under the current land use as an active fueling station, the remainder of the site is not required to meet media-specific criteria for vapor intrusion to indoor air. Therefore, case closure is granted for the current commercial land use as an active fueling station. If a change in land use to any commercial other than as an active fueling station, residential or other conservative land use, or if any re-development occurs, Alameda County Environmental Health (ACEH) must be notified as required by Government Code Section 65850.2.2. Due to the potential for vapor intrusion to indoor air for future buildings, ACEH will re-evaluate the case upon receipt of approved development/construction plans. Excavation or construction activities in areas of residual contamination require planning and implementation of appropriate health and safety procedures by the responsible party prior to and during excavation and construction activities This site is to be entered into the City of Oakland Permit Tracking System due to the residual contamination on site.		
Should corrective action be reviewed if land use changes? Yes		
Was a deed restriction or deed notification filed? No		Date Recorded: ----
Monitoring Wells Decommissioned: No	Number Decommissioned: 0	Number Retained: 5
List Enforcement Actions Taken: None		
List Enforcement Actions Rescinded: ----		

V. ADDITIONAL COMMENTS, DATA, ETC.

Considerations and/or Variances:

EDB and EDC were not analyzed in soil or groundwater.

The site meets the general criteria for case closure under the LTCP.

The site appears to meet the groundwater media-specific criteria in scenario 2 for closure under the LTCP based on the following:

1. The plume is stable or decreasing in size.
2. The plume is less than 250 feet in length.
3. There is no free product.
4. The dissolved concentration of benzene is less than 3,000 ppb.
5. The dissolved concentration of MTBE is less than 1,000 ppb.
6. No water supply wells or surface water bodies are within 1,000 feet of the plume boundary.

Since the site is an active commercial fueling station, the LTCP does not require evaluation of the potential for vapor intrusion to indoor air for the on-site building. If future on-site land use changes to something other than an active fueling station, the potential for vapor intrusion to indoor air should be re-evaluated

Based on sub-slab soil vapor and air sampling results for the kiosk building, there is a potential for vapor intrusion to indoor air at the site. The potential for vapor intrusion in the existing kiosk building has been mitigated. Under the current land use as an active fueling station, the remainder of the site is not required to meet media-specific criteria for vapor intrusion to indoor air. If future on-site land use changes to something other than an active fueling station, the potential for vapor intrusion to indoor air should be re-evaluated

Based on the apparent horizontal distance between off-site buildings and the residual contamination and the criteria for consideration of bioattenuation zones described in the LTCP, evaluation of the potential for vapor intrusion to indoor air does not appear to be warranted for the off-site buildings.

Benzene concentrations in shallow soil exceed the direct contact and outdoor air exposure criteria prescribed in the LTCP for residential land use, commercial land use, and utility workers. Under the current land use as an active fueling station, most of the site is paved with minor landscaped areas near the site boundaries resulting in a low potential for direct exposure under the current land use. Future risks from direct contact and outdoor air exposure can be mitigated through the use of land use restrictions.

Conclusion:

Alameda County Environmental Health staff believe that the site meets the conditions for case closure under the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy. Based upon the information available in our files to date, no further investigation or cleanup for the fuel leak case is necessary at this time. However, as specified in the Site Management Requirements, re-evaluation of this case is required if land uses changes to any commercial other than as an active fueling station or residential or other conservative land use.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Jerry Wickham, P.G.	Title: Senior Hazardous Materials Specialist
Signature: Jerry Wickham	Date: 8/7/13
Approved by: Donna L. Drogos, P.E.	Title: Division Chief
Signature: Donna L. Drogos	Date: 8/7/13

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

VII. REGIONAL BOARD NOTIFICATION

Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
Notification Date: 7/23/13	

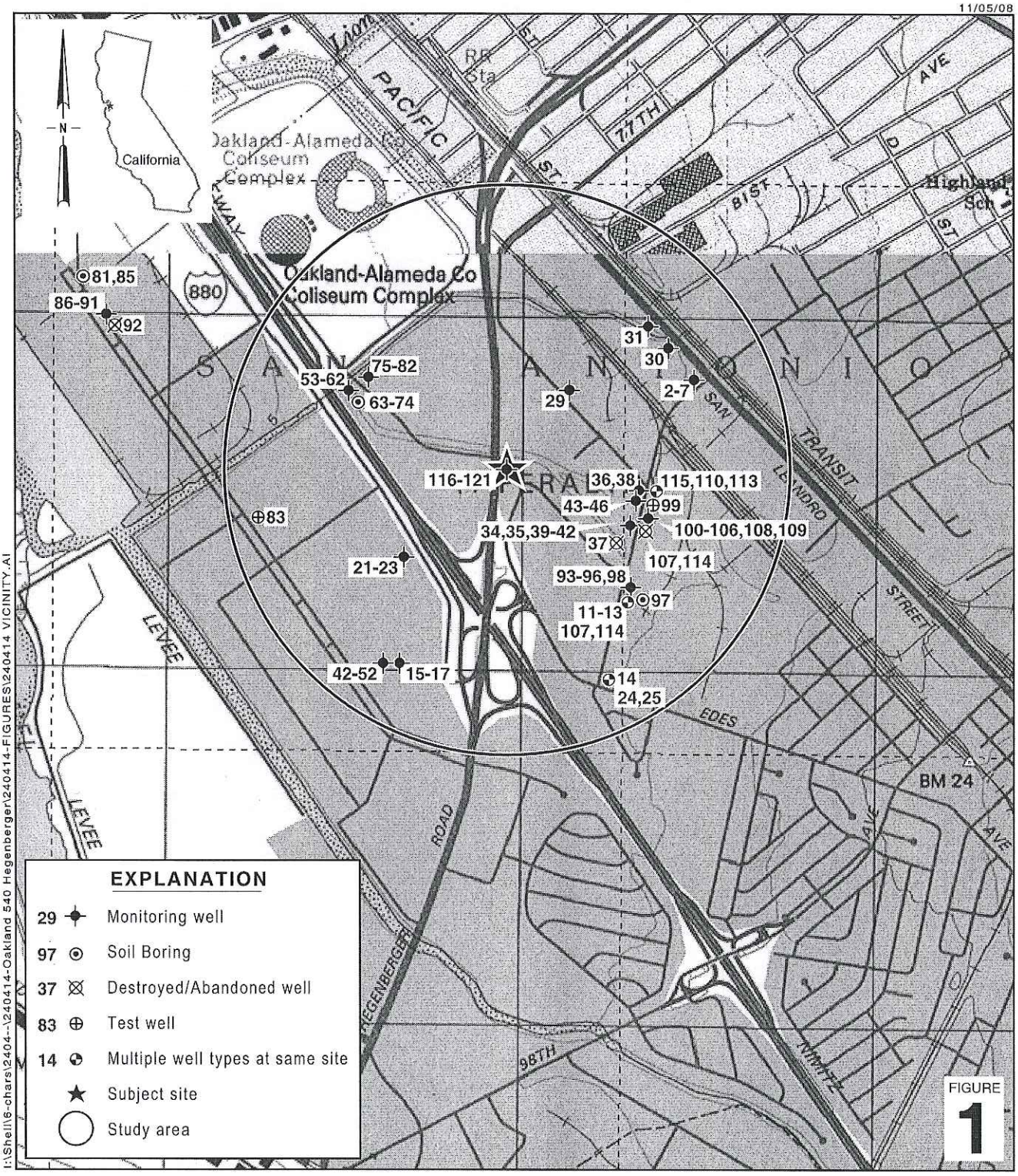
VIII. MONITORING WELL DECOMMISSIONING

Date Requested by ACEH: 10/03/2013	Date of Well Decommissioning Report: 01/06/2014	
All Monitoring Wells Decommissioned: (Yes) No	Number Decommissioned: 5	Number Retained: 0
Reason Wells Retained: NA		
Additional requirements for submittal of groundwater data from retained wells: None		
ACEH Concurrence - Signature: Jerry Wickham		Date: 01/09/2014

Attachments:

1. Site Vicinity Map and Aerial Photo (2 pp)
2. Site Plans (3 pp)
3. Groundwater Contour and Chemical Concentration Maps (2 pp)
4. Soil and Soil Vapor Analytical Data (7 pp)
5. Groundwater Analytical Data (14 pp)
6. Boring Logs (14 pp)

This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.



Shell-branded Service Station
540 Hegenberger Road
Oakland, California

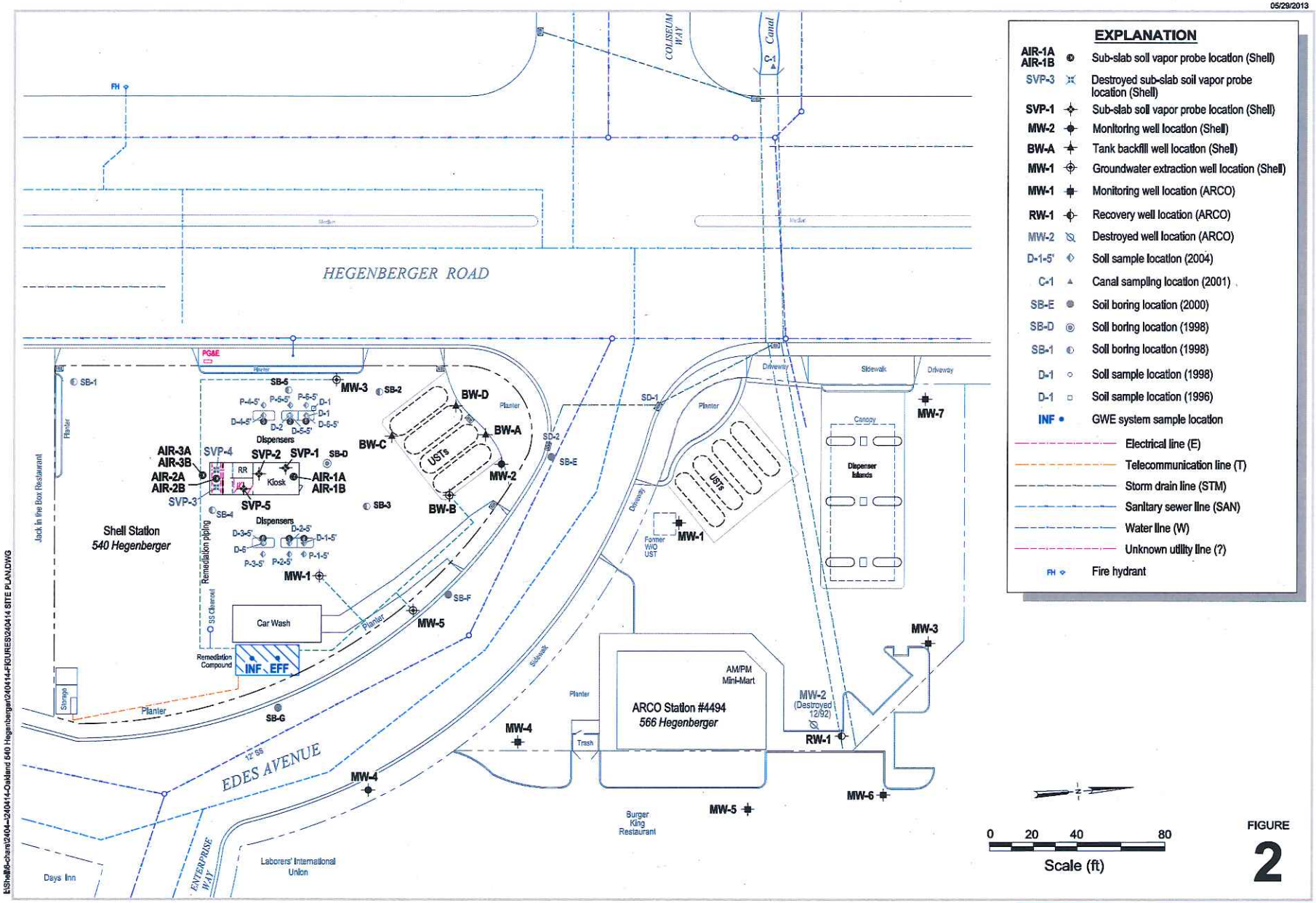
CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

ATTACHMENT 1

540 Hegenberger Road, Oakland, CA (Google, 2013)

05/29/2013



EXPLANATION

AIR-1A AIR-1B	Sub-slab soil vapor probe location (Shell)
SVP-3	Destroyed sub-slab soil vapor probe location (Shell)
SVP-1	Sub-slab soil vapor probe location (Shell)
MW-2	Monitoring well location (Shell)
BW-A	Tank backfill well location (Shell)
MW-1	Groundwater extraction well location (Shell)
MW-1	Monitoring well location (ARCO)
RW-1	Recovery well location (ARCO)
MW-2	Destroyed well location (ARCO)
D-1-5'	Soil sample location (2004)
C-1	Canal sampling location (2001)
SB-E	Soil boring location (2000)
SB-D	Soil boring location (1998)
SB-1	Soil boring location (1998)
D-1	Soil sample location (1998)
D-1	Soil sample location (1996)
INF	GWE system sample location
	Electrical line (E)
	Telecommunication line (T)
	Storm drain line (STM)
	Sanitary sewer line (SAN)
	Water line (W)
	Unknown utility line (?)
FH	Fire hydrant

0 20 40 80

Scale (ft)

FIGURE

2

Site Plan

Shell-branded Service Station

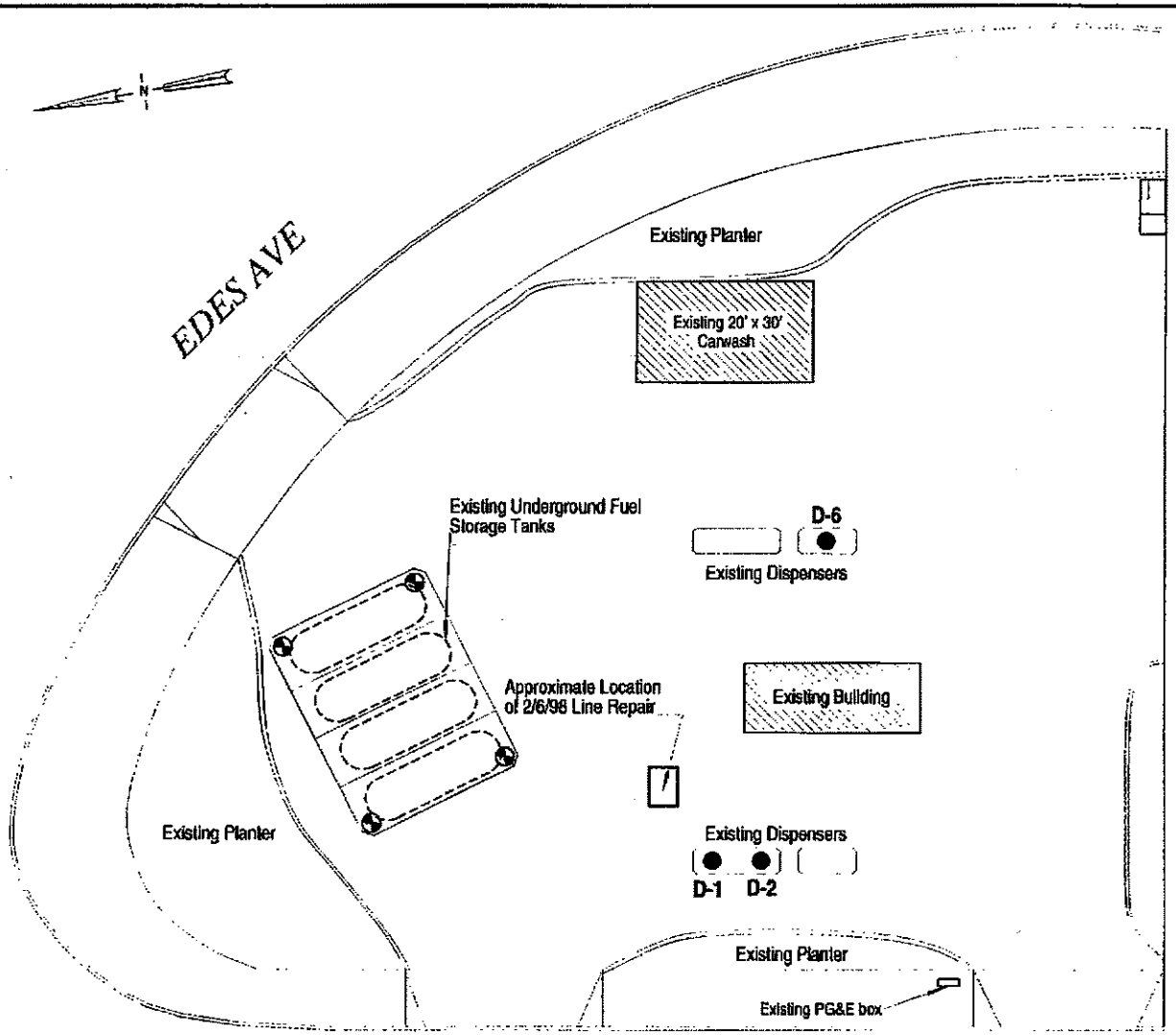
540 Hegenberger Road

Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

E:\Shell\Site-plans\2404-\240414-Oakland 540 Hegenberger\240414-FIGURES\240414 SITE PLAN.DWG

ATTACHMENT 2



EXPLANATION

- Existing Underground Storage Tank Backfill Wells
- D-1 ● Sample Location

0 15 30

Scale (ft)

Base Map by R.H. Lee & Assoc.

CAMBRIA
Environmental Technology, Inc.

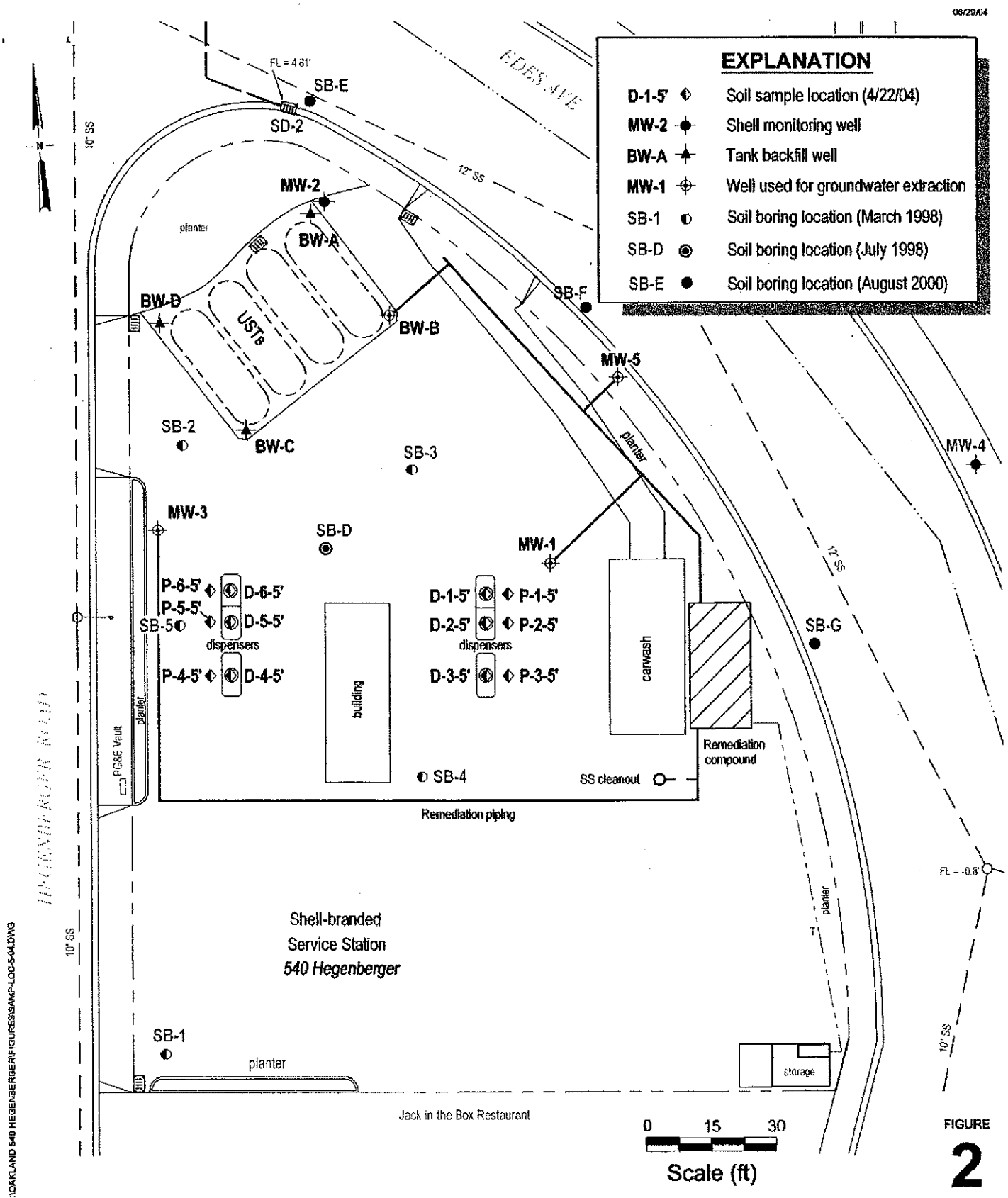
Shell Service Station
540 Hegenberger Road
Oakland, California

F:\PROJECTS\SHELL\OAK540\FIGURES\DISP-SMPL.DWG

Dispenser Sample Locations

FIGURE
1

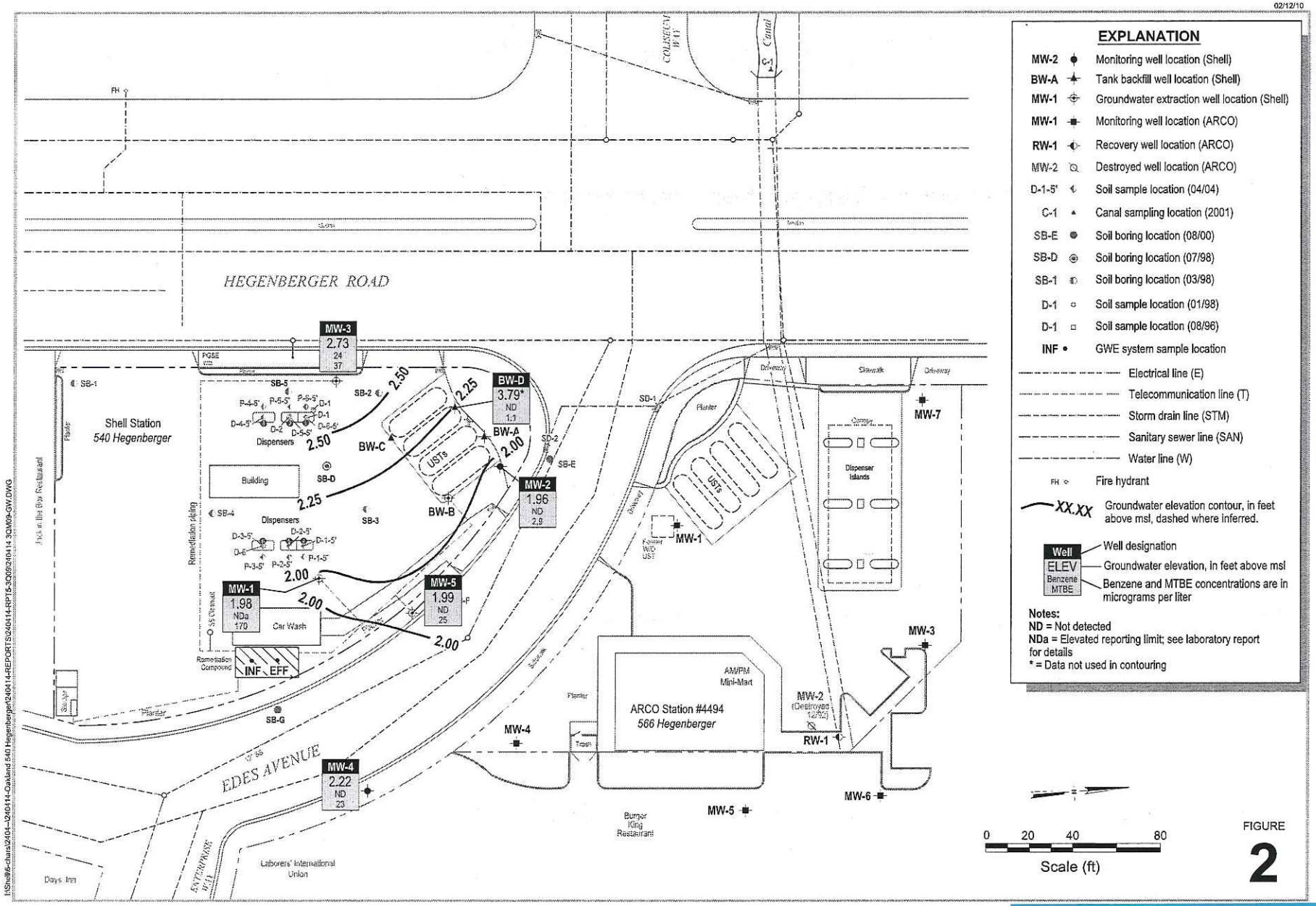
03/12/98



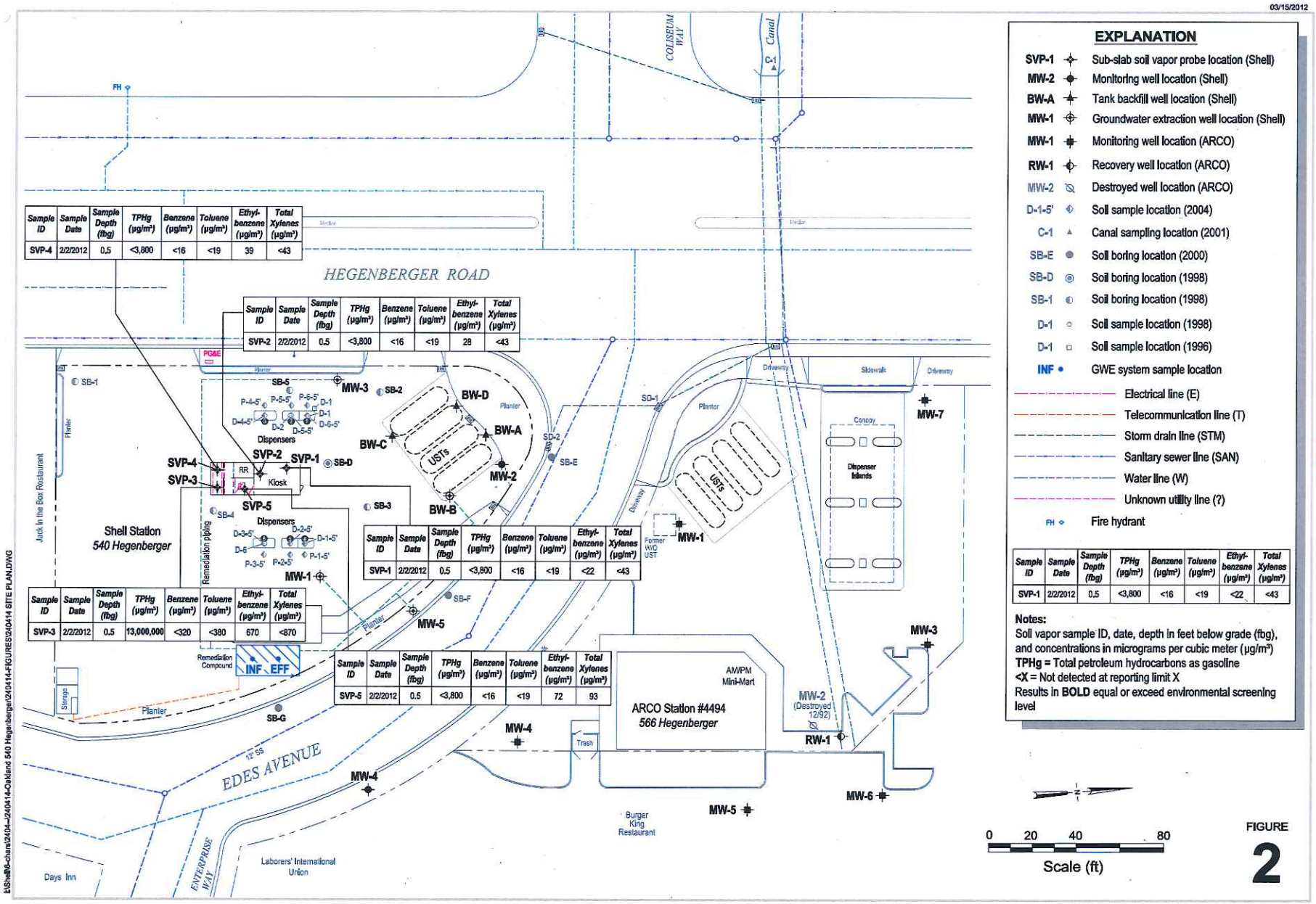
Shell-branded Service Station
540 Hegenberger Road
Oakland, California
Incident #98995752

CAMBRIA

Soil Sample Location Map



ATTACHMENT 3



Sample ID	Sample Date	Sample Depth (fbg)	TPHg (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethyl-benzene (µg/m³)	Total Xylenes (µg/m³)
SVP-4	2/2/2012	0.5	<3,800	<16	<19	39	<43

Sample ID	Sample Date	Sample Depth (fbg)	TPHg (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethyl-benzene (µg/m³)	Total Xylenes (µg/m³)
SVP-2	2/2/2012	0.5	<3,800	<16	<19	28	<43

Sample ID	Sample Date	Sample Depth (fbg)	TPHg (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethyl-benzene (µg/m³)	Total Xylenes (µg/m³)
SVP-1	2/2/2012	0.5	<3,800	<16	<19	<22	<43

Sample ID	Sample Date	Sample Depth (fbg)	TPHg (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethyl-benzene (µg/m³)	Total Xylenes (µg/m³)
SVP-3	2/2/2012	0.5	13,000,000	<320	<380	670	<870

Sample ID	Sample Date	Sample Depth (fbg)	TPHg (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethyl-benzene (µg/m³)	Total Xylenes (µg/m³)
SVP-5	2/2/2012	0.5	<3,800	<16	<19	72	93

EXPLANATION

- SVP-1 — Sub-slab soil vapor probe location (Shell)
- MW-2 — Monitoring well location (Shell)
- BW-A — Tank backfill well location (Shell)
- MW-1 — Groundwater extraction well location (Shell)
- MW-1 — Monitoring well location (ARCO)
- RW-1 — Recovery well location (ARCO)
- MW-2 — Destroyed well location (ARCO)
- D-1-5' — Soil sample location (2004)
- C-1 — Canal sampling location (2001)
- SB-E — Soil boring location (2000)
- SB-D — Soil boring location (1998)
- SB-1 — Soil boring location (1998)
- D-1 — Soil sample location (1998)
- D-1 — Soil sample location (1996)
- INF — GWE system sample location
- Electrical line (E)
- Telecommunication line (T)
- Storm drain line (STM)
- Sanitary sewer line (SAN)
- Water line (W)
- Unknown utility line (?)
- FH — Fire hydrant

Sample ID	Sample Date	Sample Depth (fbg)	TPHg (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethyl-benzene (µg/m³)	Total Xylenes (µg/m³)
SVP-1	2/2/2012	0.5	<3,800	<16	<19	<22	<43

Notes:
Soil vapor sample ID, date, depth in feet below grade (fbg), and concentrations in micrograms per cubic meter (µg/m³)
TPHg = Total petroleum hydrocarbons as gasoline
<X = Not detected at reporting limit X
Results in **BOLD** equal or exceed environmental screening level

Soil Vapor Concentration Map

February 2, 2012

CONESTOGA-ROVERS & ASSOCIATES

Shell-branded Service Station
540 Hegenberger Road
Oakland, California

L:\Shell\8-chan\2404--\240414-Oakland 540 Hegenberger\240414-FIGURES\240414 SITE PLAN.DWG

TABLE 1

HISTORICAL SOIL ANALYTICAL DATA – TPHg, TPHd, BTEX AND MTBE
SHELL-BRANDED SERVICE STATION
540 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*TPHd*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*
D-1	8/8/1996	Unk	3,400	---	17	280	84	450	720
D-1	1/30/1998	2	340	280	3.7	11	5.4	33	190
D-2	1/30/1998	2	89	92	0.65	3.9	0.50	3.0	150
D-6	1/30/1998	2	340	1,500	0.29	0.44	1.3	2.7	4.1
D-6	1/30/1998	5	4.2	240	<0.0050	0.014	0.0085	0.040	0.33
SB-1	3/6/1998	8	2.4	---	0.094	0.12	<0.0050	<0.0050	0.40
SB-2	3/6/1998	7.5	160	---	1.5	12	2.8	17	55
SB-3	3/6/1998	5	37	---	0.058	0.24	0.90	5.0	5.8
SB-4	3/6/1998	7.5	<1.0	---	0.0057	0.029	<0.0050	0.014	0.34
SB-5	3/6/1998	6	3,400	---	39	200	52	300	170
SB-A-5.0'	7/14/1998	5	82	---	2.1	2.4	0.34	1.4	10
SB-A-9.5'	7/14/1998	9.5	<2.5	---	0.060	<0.012	0.013	0.027	15
SB-B-5.0'	7/15/1998	5	<1.0	---	<0.0050	<0.0050	<0.0050	<0.0050	1.2
SB-C-9.5'	7/14/1998		<1.0	---	<0.0050	0.0056	<0.0050	<0.0050	0.33
SB-D-5.5'	7/14/1998	5.5	460	---	4.7	35	8.5	55	240
SB-D-10.5'	7/14/1998	10.5	<1.0	---	<0.0050	<0.0050	<0.0050	<0.0050	0.44
SB-E-5.5	8/29/2000	5.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	0.441/0.481[b]
SB-E-10.5	8/29/2000	10.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	0.248/0.0971[b]
SB-E-15.5	8/29/2000	15.5	<5.00	<5.00[a]	<0.0250	<0.0250	<0.0250	<0.0250	1.83/1.86[b]
SB-E-20.5	8/29/2000	20.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500
SB-E-25.5	8/29/2000	25.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500

ATTACHMENT 4

TABLE 1

HISTORICAL SOIL ANALYTICAL DATA – TPHg, TPHd, BTEX AND MTBE
SHELL-BRANDED SERVICE STATION
540 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*TPHd*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*
SB-F-5.5	8/29/2000	5.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	0.0727[c]
SB-F-10.5	8/29/2000	10.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	0.0551/<0.00500[b]
SG-G-5.5	8/29/2000	5.5	2.19	<5.00[a]	<0.00500	<0.00500	0.132	0.258	0.141/0.0505[b]
SG-G-10.5	8/29/2000	10.5	**468**	108[a,d]	<0.250	1.88	**7.05**	**26.9**	<2.50
MW-4-5.5	9/5/2000	5.5	<1.00	31.7[a]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500
MW-4-10.5	9/5/2000	10.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500
MW-4-15.5	9/5/2000	15.5	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500
MW-4-19.0	9/5/2000	19	<1.00	<5.00[a]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500
MW-5-5.5	6/7/2002	5.5	<1.0	---	<0.005	<0.005	<0.005	<0.005	<0.5
MW-5-9.0	6/7/2002	9	<1.0	---	<0.005	<0.005	<0.005	<0.005	<0.5
MW-5-14.0	6/7/2002	14	<5.0	---	<0.025	<0.025	<0.025	<0.050	**13**
MW-5-19.0	6/7/2002	19	<1.0	---	<0.005	<0.005	<0.005	<0.010	5.5
D-1-5'	4/22/2004	5	**1,000**	---	**3.7**	<2.5	**12**	<2.5	**18**
D-2-5'	4/22/2004	5	**1,300**	1,200[e]	**4.3**	<0.50	**14**	2.6	**23**
D-3-5'	4/22/2004	5	6.6	---	0.15	0.031	0.063	0.047	0.66
D-4-5'	4/22/2004	5	<50	---	**1.0**	<0.50	2.0	<0.50	**33**
D-5-5'	4/22/2004	5	<50	---	**0.59**	3.4	0.67	3.3	**43**
D-6-5'	4/22/2004	5	59	---	<0.50	<0.50	<0.50	0.6	**9.8**
P-1-5'	4/22/2004	5	<50	---	<0.50	<0.50	1.3	0.65	7.4
P-2-5'	4/22/2004	5	**240**	1,200[e]	**2.8**	<0.50	1.3	1.2	**13**
P-3-5'	4/22/2004	5	**240**	---	<1.3	<1.3	2.2	<1.3	<1.3
P-4-5'	4/22/2004	5	<50	---	<0.50	<0.50	<0.50	<0.50	7.3

TABLE 1

HISTORICAL SOIL ANALYTICAL DATA - TPHg, TPHd, BTEX AND MTBE
SHELL-BRANDED SERVICE STATION
540 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*TPHd*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*
P-5-5'	4/22/2004	5	**1,400**	---	<2.5	<2.5	3.1	2.5	3.4
P-6-5'	4/22/2004	5	**180**	---	<0.50	<0.50	1.3	<0.50	6.0
Shallow Soil (≤10 fbg) ESL [f]			100	100	0.27	93	4.7	11	0.84
Deep Soil (>10 fbg) ESL [f]			180	180	2.0	93	4.7	11	0.84

Notes:

All results in milligrams per kilograms (mg/kg) unless otherwise indicated.
fbg = Feet below grade
TPHg = Total petroleum hydrocarbons as gasoline analyzed by EPA Method 8260B; before June 7, 2002, analyzed by EPA Method 8015.
TPHd = Total petroleum hydrocarbons as diesel, analyzed by EPA Method 8015
BTEX = Benzene, toluene, ethylbenzene, and xylenes, analyzed by EPA Method 8260B; before June 7, 2002, analyzed by EPA Method 8020
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B; before June7, 2002, analyzed by EPA Method 8020 unless otherwise noted
Unk = Unknown
<x = Not detected at reporting limit x
--- = Not analyzed
Results in **bold** equal or exceed applicable ESL

a = Analyzed with silica gel clean-up
b = Analyzed by EPA Method 8260B
c = MTBE not confirmed due to lab error.
d = Results in the diesel organics are elevated due to overlap from higher boiling point hydrocarbons
e = Reported hydrocarbon does not match lab's diesel standard.
f = San Francisco Bay Regional Water Quality Control Board commercial/industrial ESL for soil where groundwater is not a source of drinking water (Tables B and D of *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater*, California Regional Water Quality Control Board, Interim Final - November 2007 [Revised May 2008]).

TABLE 1

HISTORICAL SOIL VAPOR ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
540 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg ($\mu g/m^3$)*	*B ($\mu g/m^3$)*	*T ($\mu g/m^3$)*	*E ($\mu g/m^3$)*	*X ($\mu g/m^3$)*	*MTBE ($\mu g/m^3$)*	*TBA ($\mu g/m^3$)*	*Naphthalene ($\mu g/m^3$)*	*Methane (%v)*	*Carbon Dioxide (%v)*	*Oxygen + Argon (%v)*	*Helium (%v)*
SVP-1	3/9/2011	0.5	**74,000**	<16	<19	28	52	<36	<30	<52	<0.500	8.59	10.2	2.31
SVP-1	3/31/2011	0.5	**180,000**	<16	<19	<22	<43	<36	<30	<52	<0.500	12.7	2.92	<0.0100
SVP-1	2/2/2012	0.5	<3,800	<16	<19	<22	<43	<36	<30	<52	<0.500	10.5	7.60	0.0124
SVP-2	3/9/2011	0.5	14,000	<16	<19	40	140	<36	<30	<52	<0.500	3.19	16.8	4.70
SVP-2	3/31/2011	0.5	<7,000	<16	<19	<22	<43	<36	<30	<52	<0.500	5.62	11.7	<0.0100
SVP-2	2/2/2012	0.5	<3,800	<16	<19	28	<43	<36	<30	<52	<0.500	5.67	13.6	0.0106
SVP-3	3/9/2011	0.5	**11,000,000**	<320	<380	640	1,400	<720	<610	<1,000	2.11	4.71	10.6	<0.0100
SVP-3	3/31/2011	0.5	**17,000,000**	<320	<380	550	<870	<720	<610	<1,000	2.75	7.07	3.03	3.05
SVP-3	2/2/2012	0.5	**13,000,000**	<320	<380	670	<870	<720	<610	<1,000	3.62	8.25	4.83	0.0116
SVP-4	2/2/2012	0.5	<3,800	<16	<19	39	<43	<36	<30	<52	<0.500	10.3	4.24	<0.0100
SVP-5	2/2/2012	0.5	<3,800	<16	<19	72	93	<36	75	<52	<0.500	2.68	17.7	<0.0100
ESLs [a]			*29,000*	*280*	*180,000*	*3,300*	*58,000*	*31,000*	*NA*	*240*	*NA*	*NA*	*NA*	*NA*

Notes:
TPHg = Total petroleum hydrocarbons as gasoline analyzed by EPA Method TO-3M
BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B (M)
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B (M)
TBA = Tertiary-butyl alcohol analyzed by EPA Method 8260B (M)
Naphthalene analyzed by EPA Method 8260B (M)
Methane, carbon dioxide, and oxygen + argon analyzed by ASTM D-1946
Helium analyzed by ASTM D-1946 (M)
fbg = Feet below grade
$\mu g/m^3$ =Micrograms per cubic meter
%v = Percent by volume
<x = Not detected at reporting limit x

HISTORICAL SOIL VAPOR ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
540 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

ESL = Environmental screening level
NA = No applicable ESL
Results in **bold** exceed environmental screening level

a = San Francisco Bay Regional Water Quality Control Board (RWQCB) shallow soil gas screening level for evaluation of potential vapor intrusion concerns - commercial/industrial land use from RWQCB's *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater*, California Regional Water Quality Control Board, Interim Final - November 2007 (Revised May 2008).

Table 2. Hydrocarbon Concentrations in Air
Concentrations in parts per million by volume (ppmv)

Sample ID	Date	Location	TPHg	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
Air-1	9/3/96	SE Tank Backfill observation well	900	420	6.9	48	2.3	14
Air-2	9/6/96	Storeroom	< 1.4	< 1.4	< 0.016	0.029	< 0.012	< 0.012
Air 919-2	9/19/96	Storeroom	170	< 25	< 0.25	1.9	< 0.25	0.54

CLOSING

Based on the soil and air sampling results, the hydrocarbon release from the dispenser appears to be limited in volume. There was no indication of accumulated liquid-phase hydrocarbons or associated vapors in any underground air spaces near the dispensers. Although gasoline vapors were detected in the tank backfill monitoring well, the concentrations detected are not indicative of liquid-phase hydrocarbons. Had liquid-phase hydrocarbons been present, we would expect hydrocarbon vapor concentrations to approach the lower explosive limit for gasoline, or about 14,000 ppmv. Although hydrocarbons were detected in the floor drain, the concentrations were relatively low and do not exceed permissible exposure limits.

We appreciate the opportunity to work with you on this case. Please call me at (510) 420-9172 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

N. Scott MacLeod, R.G.
Principal Geologist

Attachments: A - Site Map
B - Analytical Reports
C -Standard Field Procedures for Soil Sampling

cc: R. Jeff Granberry, Shell Oil Products Company
Brett Hovland, Shell Oil Products Company

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TABLE 1

AIR ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
540 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Sample ID	Date	TPHg ($\mu g/m^3$)	B ($\mu g/m^3$)	T ($\mu g/m^3$)	E ($\mu g/m^3$)	X ($\mu g/m^3$)	MTBE ($\mu g/m^3$)	Acetone ($\mu g/m^3$)	2-Butanone ($\mu g/m^3$)	Carbon Disulfide ($\mu g/m^3$)	Chloro-methane ($\mu g/m^3$)	Dichloro-difluoro-methane ($\mu g/m^3$)	4-Ethyl-Toluene ($\mu g/m^3$)	Methylene Chloride ($\mu g/m^3$)	4-Methyl-2-pentanone ($\mu g/m^3$)	Trichloro-ethene ($\mu g/m^3$)	Hexachloro-butadiene ($\mu g/m^3$)	Trichloro-fluoro-methane ($\mu g/m^3$)	1,2,4-Trimethyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	Styrene ($\mu g/m^3$)	Vinyl acetate ($\mu g/m^3$)
AIR-1A	3/11/2013	<12,000	2.8	15	2.4	13	<2.9	14	<2.4	2.8	1.8	3.2	2.6	22	3.0	2.5	<8.5	<2.2	<3.9	<2.0	<1.7	<2.8
AIR-1B	5/6/2013	<15,000	1.4	5.3	0.94 a	7.0	<2.9	17	2.2 a	<2.5	1.3 a	3.0	1.3 a	1.4	<1.6	<2.1	3.3 a	3.0	1.6 a	<2.0	<1.7	<2.8
AIR-2A	3/11/2013	<12,000	4.1	23	3.7	20	<2.9	29	3.0	<2.5	<1.7	6.0	3.5	<1.4	<1.6	<2.1	<8.5	<2.2	<3.9	<2.0	<1.7	<2.8
AIR-2B	5/6/2013	<12,000	1.2 a	9.0	1.5 a	7.4	<2.9	40	8.1	1.5 a	1.3 a	2.7	<2.0	3.1	0.92 a	<2.1	<8.5	110	<3.9	<2.0	0.92 a	0.80 a
AIR-3A	3/11/2013	<12,000	1.5	5.0	<1.7	5.0	<2.9	6.0	<2.4	<2.5	1.8	2.6	<2.0	<1.4	<1.6	<2.1	<8.5	<2.2	<3.9	<2.0	<1.7	<2.8
AIR-3B	5/6/2013	<15,000	1.3 a	4.2	0.74 a	7.5	<2.9	13	2.9	0.67 a	1.3 a	2.6	1.1 a	0.85 a	<1.6	<2.1	<8.5	18	1.3 a	0.94 a	<1.7	<2.8
ESLs [b]		*1,200*	*0.42*	*1,300*	*4.9*	*440*	*47*	*140,000*	*22,000*	*NA*	*390*	*NA*	*NA*	*26*	*13,000*	*3.0*	*NA*	*NA*	*NA*	*NA*	*3,900*	*NA*

Notes:
TPHg = Total petroleum hydrocarbons as gasoline analyzed by EPA Method TO-3
All other constituents are volatile organic compounds analyzed by EPA Method TO-15; all detections tabulated. See laboratory report for details.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes
MTBE = Methyl tertiary-butyl ether
$\mu g/m^3$ =Micrograms per cubic meter
<x = Not detected at reporting limit x
ESL = Environmental screening level
NA = No applicable ESL
Results in **bold** exceed environmental screening level

a = Detection is below the method reporting limit but above the method detection limit.

b = San Francisco Bay Regional Water Quality Control Board (RWQCB) indoor air screening level - commercial/industrial land use from RWQCB's *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater*, California Regional Water Quality Control Board, Interim Final - November 2007 (Revised May 2008) - Updated May 2013.

WELL CONCENTRATIONS
Shell-branded Service Station
540 Hegenberger Road
Oakland, CA

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
MW-1 (a)	08/26/1998	2,700	28	55	59	39	33,000	NA	NA	NA	NA	NA	NA	10.54	7.91	2.63	1.8
MW-1 (b)	08/26/1998	<1,000	22	<10	<10	<10	17,000	NA	NA	NA	NA	NA	NA	10.54	7.91	2.63	2.2
MW-1	12/28/1998	<5,000	<50.0	<50.0	<50.0	<50.0	153,000	33,000	NA	NA	NA	NA	NA	10.54	8.75	1.79	1.9
MW-1	03/29/1999	<2,000	<20.0	<20.0	<20.0	<20.0	693,000	NA	NA	NA	NA	NA	NA	10.54	8.32	2.22	2.0
MW-1	06/22/1999	20,000	<200	<200	<200	<200	150,000	NA	NA	NA	NA	NA	NA	10.54	9.05	1.49	1.7
MW-1	09/30/1999	<2,500	<25.0	<25.0	<25.0	<25.0	30,900	NA	NA	NA	NA	NA	NA	10.54	8.35	2.19	2.6
MW-1	11/19/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.54	9.58	0.96	NA
MW-1	11/24/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.54	9.65	0.89	NA
MW-1	12/02/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.54	9.55	0.99	NA
MW-1	12/10/1999	<50.0	29.7	<20.0	<20.0	<20.0	76,300	NA	NA	NA	NA	NA	NA	10.54	8.86	1.68	1.2
MW-1	03/02/2000	<2,500	<25.0	<25.0	<25.0	<25.0	27,600	NA	NA	NA	NA	NA	NA	10.54	8.83	1.71	3.2
MW-1	06/08/2000	<2,000	<20.0	<20.0	<20.0	<20.0	59,000	67,600	NA	NA	NA	NA	NA	10.54	7.78	2.76	1.9
MW-1	09/05/2000	<10,000	411	<100	<100	<100	71,100	115,000 e	NA	NA	NA	NA	NA	10.54	7.84	2.70	NA
MW-1	12/15/2000	35,600	1,310	<50.0	<50.0	<50.0	136,000	f	NA	NA	NA	NA	NA	10.54	7.65	2.89	NA
MW-1	03/09/2001	<10,000	1,390	<100	<100	<100	89,600	164,000	NA	NA	NA	NA	NA	10.54	6.44	4.10	NA
MW-1	06/27/2001	<5,000	<50	<50	<50	<50	NA	19,000	NA	NA	NA	NA	NA	10.54	8.46	2.08	NA
MW-1	09/19/2001	<5,000	<50	<50	<50	<50	NA	52,000	NA	NA	NA	NA	NA	10.54	8.10	2.44	NA
MW-1	12/31/2001	<5,000	<25	<25	<25	<25	NA	17,000	NA	NA	NA	NA	NA	10.54	7.31	3.23	NA
MW-1	03/14/2002	<20,000	<200	<200	<200	<200	NA	60,000	NA	NA	NA	NA	NA	10.54	7.68	2.86	NA
MW-1	06/25/2002	<5,000	<50	<50	<50	<50	NA	34,000	NA	NA	NA	NA	NA	10.54	8.40	2.14	NA
MW-1	09/19/2002	<2,500	<25	<25	<25	<25	NA	18,000	NA	NA	NA	NA	NA	10.52	8.58	1.94	NA
MW-1	12/12/2002	<5,000	<50	<50	<50	<50	NA	30,000	NA	NA	NA	NA	NA	10.52	8.41	2.11	NA
MW-1	01/02/2003	NA	<0.50	<0.50	<0.50	<1.0	NA	NA	NA	NA	NA	NA	NA	10.52	7.45	3.07	NA
MW-1	03/20/2003 g	3,800	<25	<25	<25	<25	5,500	NA	NA	NA	NA	NA	NA	10.52	8.21	2.31	NA
MW-1	06/23/2003	<10,000	<100	<100	<100	<200	NA	35,000	NA	NA	NA	NA	NA	10.52	9.02	1.50	NA
MW-1	09/22/2003	<5,000	<50	<50	<50	<100	NA	15,000	NA	NA	NA	NA	NA	10.52	15.74	-5.22	NA
MW-1	12/03/2003	<1,300	<13	<13	<13	<25	NA	3,600	NA	NA	NA	NA	NA	10.52	18.35 h	NA	NA
MW-1	03/18/2004	<250	<2.5	<2.5	<2.5	<5.0	NA	570	NA	NA	NA	NA	NA	10.52	7.32	3.20	NA
MW-1	05/25/2004	<250	<2.5	<2.5	<2.5	<5.0	NA	250	NA	NA	NA	NA	NA	10.52	6.80	3.72	NA

ATTACHMENT 5

WELL CONCENTRATIONS
Shell-branded Service Station
540 Hegenberger Road
Oakland, CA

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
MW-1	09/22/2004	<2,000	<20	<20	<20	<40	NA	170	<80	<80	<80	20,000	<2,000	10.52	6.55	3.97	NA
MW-1	12/22/2004	<500	<5.0	<5.0	<5.0	<10	NA	57	NA	NA	NA	NA	NA	10.52	6.44	4.08	NA
MW-1	02/23/2005	<2,000	<20	<20	<20	<40	NA	110	NA	NA	NA	NA	NA	10.52	5.79	4.73	NA
MW-1	06/27/2005	<250	<2.5	<2.5	<2.5	<5.0	NA	16	NA	NA	NA	NA	NA	10.52	6.43	4.09	NA
MW-1	08/31/2005	<250	<2.5	<2.5	<2.5	<5.0	NA	32	<10	<10	<10	4,000	<250	9.27	6.38	2.89	NA
MW-1	12/14/2005	<50.0	<0.500	2.03	<0.500	<0.500	NA	30.4	NA	NA	NA	NA	NA	9.27	6.46	2.81	NA
MW-1	03/08/2006	417	1.87	<0.500	<0.500	0.830	NA	17.8	NA	NA	NA	3,380	NA	9.27	6.21	3.06	NA
MW-1	06/14/2006	728	282	1.61	4.16	9.82	NA	109	NA	NA	NA	2,950	NA	9.27	6.86	2.41	NA
MW-1	09/27/2006	817	<0.500	<0.500	<0.500	<0.500	NA	122	<0.500	<0.500	<0.500	1,420	<50.0	9.27	7.70	1.57	NA
MW-1	11/30/2006	150	<0.50	<0.50	<0.50	<1.0	NA	54	NA	NA	NA	3,200	NA	9.27	7.59	1.68	NA
MW-1	03/06/2007	150 k	<0.50 k	<1.0 k	<0.50 k	<1.0 k	NA	40 k	NA	NA	NA	3,600 k	NA	9.27	6.38	2.89	NA
MW-1	06/11/2007	340	<5.0	<10	<10	<10	NA	23	NA	NA	NA	14,000	NA	9.27	7.88	1.39	NA
MW-1	09/26/2007	190 m,n	<2.5	<5.0	<5.0	<5.0	NA	490	<10	<10	<10	460	<500	9.27	7.03	2.24	NA
MW-1	12/28/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	120	NA	NA	NA	710	NA	9.27	7.40	1.87	NA
MW-1	03/31/2008	360	<0.50	<1.0	<1.0	<1.0	NA	350	NA	NA	NA	890	NA	9.27	7.41	1.86	NA
MW-1	06/23/2008	280	<2.5	<5.0	<5.0	<5.0	NA	180	NA	NA	NA	620	NA	9.27	6.80	2.47	NA
MW-1	09/22/2008	90	<0.50	<1.0	<1.0	<1.0	NA	6.1	<2.0	<2.0	<2.0	1,400	<100	9.27	7.18	2.09	NA
MW-1	12/16/2008	NA	<0.50	<1.0	<1.0	<1.0	NA	190	NA	NA	NA	820	NA	9.27	7.17	2.10	NA
MW-1	02/27/2009	290	<0.50	<1.0	<1.0	<1.0	NA	140	NA	NA	NA	820	NA	9.27	5.82	3.45	NA
MW-1	06/11/2009	220	<1.0	<2.0	<2.0	<2.0	NA	180	NA	NA	NA	1,200	NA	9.27	7.90	1.37	NA
MW-1	**09/23/2009**	**150**	**<1.0**	**<2.0**	**<2.0**	**<2.0**	**NA**	**170**	**<4.0**	**<4.0**	**<4.0**	**1,100**	**<200**	**9.27**	**7.29**	**1.98**	**NA**
MW-2 (a)	08/26/1998	<250	3.2	<2.5	<2.5	<2.5	4,000	NA	NA	NA	NA	NA	NA	9.21	7.18	2.03	2.4
MW-2 (b)	08/26/1998	<250	3.1	<2.5	<2.5	<2.5	4,800	NA	NA	NA	NA	NA	NA	9.21	7.18	2.03	2.7
MW-2 (D)(b)	08/26/1998	<250	4.8	<2.5	<2.5	6.0	3,300	NA	NA	NA	NA	NA	NA	9.21	7.18	2.03	2.7
MW-2	12/28/1998	<50.0	<0.500	<0.500	<0.500	<0.500	28.8	NA	NA	NA	NA	NA	NA	9.21	7.34	1.87	2.1
MW-2	03/29/1999	235	<0.500	<0.500	<0.500	3.4	101	NA	NA	NA	NA	NA	NA	9.21	6.85	2.36	2.0
MW-2	06/22/1999	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA	NA	NA	NA	NA	NA	9.21	7.10	2.11	1.9
MW-2	09/30/1999	<50.0	<0.500	<0.500	<0.500	<0.500	1,700	NA	NA	NA	NA	NA	NA	9.21	8.06	1.15	1.0

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MW-2	12/10/1999	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	NA	NA	NA	NA	NA	9.21	8.61	0.60	1.4
MW-2	03/02/2000	<500	11.5	<5.00	<5.00	<5.00	5,280	NA	NA	NA	NA	NA	NA	9.21	6.33	2.88	0.4
MW-2	06/08/2000	<50.0	0.670	<0.500	<0.500	<0.500	3,160	NA	NA	NA	NA	NA	NA	9.21	6.87	2.34	1.6
MW-2	09/05/2000	<1,000	<10.0	<10.0	<10.0	<10.0	9,600	NA	NA	NA	NA	NA	NA	9.21	6.79	2.42	NA
MW-2	12/15/2000	<200	<2.00	<2.00	<2.00	<2.00	6,320	NA	NA	NA	NA	NA	NA	9.21	6.76	2.45	NA
MW-2	03/09/2001	<500	<5.00	<5.00	<5.00	<5.00	17,200	NA	NA	NA	NA	NA	NA	9.21	6.28	2.93	NA
MW-2	06/27/2001	<100	1.4	<1.0	<1.0	<2.0	NA	470	NA	NA	NA	NA	NA	9.21	7.12	2.09	NA
MW-2	09/19/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	330	NA	NA	NA	NA	NA	9.21	7.17	2.04	NA
MW-2	12/31/2001	<100	<1.0	<1.0	<1.0	<1.0	NA	420	NA	NA	NA	NA	NA	9.21	6.24	2.97	NA
MW-2	03/14/2002	<250	4.5	3.3	<2.5	<2.5	NA	1,600	NA	NA	NA	NA	NA	9.21	6.72	2.49	NA
MW-2	06/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	110	NA	NA	NA	NA	NA	9.21	7.23	1.98	NA
MW-2	09/19/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	90	NA	NA	NA	NA	NA	9.19	7.48	1.71	NA
MW-2	12/12/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	170	NA	NA	NA	NA	NA	9.19	7.33	1.86	NA
MW-2	03/20/2003 g	56	<0.50	<0.50	<0.50	<0.50	58	NA	NA	NA	NA	NA	NA	9.19	7.65	1.54	NA
MW-2	06/23/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	44	NA	NA	NA	NA	NA	9.19	8.72	0.47	NA
MW-2	09/22/2003	<250	<2.5	<2.5	<2.5	<5.0	NA	37	NA	NA	NA	NA	NA	9.19	8.84	0.35	NA
MW-2	12/03/2003	<250	<2.5	<2.5	<2.5	<5.0	NA	99	NA	NA	NA	NA	NA	9.19	8.95	0.24	NA
MW-2	03/18/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	24	NA	NA	NA	NA	NA	9.19	7.19	2.00	NA
MW-2	05/25/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	53	NA	NA	NA	NA	NA	9.19	8.40	0.79	NA
MW-2	09/22/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	24	<2.0	<2.0	<2.0	100	<50	9.19	7.08	2.11	NA
MW-2	12/22/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	39	NA	NA	NA	NA	NA	9.19	7.09	2.10	NA
MW-2	02/23/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	38	NA	NA	NA	NA	NA	9.19	6.50	2.69	NA
MW-2	06/27/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	28	NA	NA	NA	NA	NA	9.19	7.17	2.02	NA
MW-2	08/31/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	5.5	<2.0	<2.0	<2.0	19	<50	9.19	7.21	1.98	NA
MW-2	12/14/2005	<50.0	<0.500	2.16	<0.500	<0.500	NA	5.33	NA	NA	NA	NA	NA	9.19	7.13	2.06	NA
MW-2	03/08/2006	<50.0	<0.500	<0.500	<0.500	0.560	NA	18.8	NA	NA	NA	<10.0	NA	9.19	6.02	3.17	NA
MW-2	06/14/2006	<50.0	<0.500	0.680	<0.500	<0.500	NA	2.17	NA	NA	NA	<10.0	NA	9.19	7.19	2.00	NA
MW-2	09/27/2006	276	<0.500	<0.500	<0.500	<0.500	NA	5.29	<0.500	<0.500	<0.500	30	<50.0	9.19	7.45	1.74	NA
MW-2	11/30/2006	<50	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	<5.0	NA	9.19	7.30	1.89	NA
MW-2	03/06/2007	<50 k	<0.50 k	<1.0 k	<0.50 k	<1.0 k	NA	0.87 k	NA	NA	NA	<5.0 k	NA	9.19	6.70	2.49	NA

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MW-2	06/11/2007	<50	<0.50	<1.0	<1.0	<1.0	NA	<1.0	NA	NA	NA	<10	NA	9.19	7.14	2.05	NA
MW-2	09/26/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	2.1	<2.0	<2.0	<2.0	<10	<100	9.19	7.34	1.85	NA
MW-2	12/28/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	0.57 l	NA	NA	NA	<10	NA	9.19	6.79	2.40	NA
MW-2	03/31/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	1.4	NA	NA	NA	<10	NA	9.19	7.09	2.10	NA
MW-2	06/23/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	1.5	NA	NA	NA	<10	NA	9.19	7.00	2.19	NA
MW-2	09/22/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	<1.0	<2.0	<2.0	<2.0	<10	<100	9.19	7.28	1.91	NA
MW-2	12/16/2008	NA	<0.50	<1.0	<1.0	<1.0	NA	2.6	NA	NA	NA	<10	NA	9.19	7.22	1.97	NA
MW-2	02/27/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	<1.0	NA	NA	NA	<10	NA	9.19	6.00	3.19	NA
MW-2	06/11/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	1.2	NA	NA	NA	<10	NA	9.19	7.28	1.91	NA
MW-2	**09/23/2009**	**<50**	**<0.50**	**<1.0**	**<1.0**	**<1.0**	**NA**	**2.9**	**<2.0**	**<2.0**	**<2.0**	**<10**	**<100**	**9.19**	**7.23**	**1.96**	**NA**
MW-3 (a)	08/26/1998	2,300	180	330	<0.50	420	44,000	NA	NA	NA	NA	NA	NA	9.45	6.52	2.93	1.8
MW-3 (b)	08/26/1998	<50	<0.50	<0.50	<0.50	<0.50	52,000	75,000	NA	NA	NA	NA	NA	9.45	6.52	2.93	2.3
MW-3	12/28/1998	<5,00	139	<50.0	<50.0	<50.0	15,100	NA	NA	NA	NA	NA	NA	9.45	6.73	2.72	1.7
MW-3	03/29/1999	52,500	5,500	6,900	1,360	6,250	508,000	630,000 c	NA	NA	NA	NA	NA	9.45	6.21	3.24	2.1
MW-3	06/22/1999	58,000	6,600	9,850	1,640	6,950	677,000	653,000	NA	NA	NA	NA	NA	9.45	7.00	2.45	1.3
MW-3	09/30/1999	4,360	121	122	36.1	647	33,700	35,600	NA	NA	NA	NA	NA	9.45	6.84	2.61	0.6
MW-3	11/19/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.45	7.93	1.52	NA
MW-3	11/24/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.45	8.25	1.20	NA
MW-3	12/02/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.45	7.55	1.90	NA
MW-3	12/10/1999	4,220	973	26.3	273	584	88,200	NA	NA	NA	NA	NA	NA	9.45	7.28	2.17	2.5
MW-3	03/02/2000	65,300	5,210	10,300	2,650	15,100	56,800	59,800 e	NA	NA	NA	NA	NA	9.45	5.87	3.58	d
MW-3	06/08/2000	72,700	3,570	10,200	2,100	13,400	44,400	NA	NA	NA	NA	NA	NA	9.45	5.32	4.13	1.1
MW-3	09/05/2000	26,100	959	2,910	1,090	5,640	24,000	NA	NA	NA	NA	NA	NA	9.45	5.60	3.85	NA
MW-3	12/15/2000	5,190	438	8.39	483	530	19,100	11,800 f	NA	NA	NA	NA	NA	9.45	6.27	3.18	NA
MW-3	03/09/2001	5,880	472	42.2	392	1,290	41,800	NA	NA	NA	NA	NA	NA	9.45	5.71	3.74	NA
MW-3	06/27/2001	9,100	330	79	140	1,600	NA	31,000	NA	NA	NA	NA	NA	9.45	6.88	2.57	NA
MW-3	09/19/2001	790	14	18	17	67	NA	8,100	NA	NA	NA	NA	NA	9.45	6.70	2.75	NA
MW-3	12/31/2001	<5,000	220	<50	86	<50	NA	22,000	NA	NA	NA	NA	NA	9.45	5.92	3.53	NA
MW-3	03/14/2002	<2,500	<25	<25	<25	<25	NA	12,000	NA	NA	NA	NA	NA	9.45	6.25	3.20	NA

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MW-3	06/25/2002	<10,000	160	<100	<100	<100	NA	42,000	NA	NA	NA	NA	NA	9.45	6.65	2.80	NA
MW-3	09/19/2002	<10,000	650	<100	280	360	NA	84,000	NA	NA	NA	NA	NA	9.45	6.51	2.94	NA
MW-3	12/12/2002	<10,000	170	<100	<100	<100	NA	45,000	NA	NA	NA	NA	NA	9.45	6.97	2.48	NA
MW-3	01/02/2003	NA	59	<5.0	5.3	<10	NA	NA	NA	NA	NA	NA	NA	9.45	5.90	3.55	NA
MW-3	03/20/2003 g	5,100	<50	<50	<50	<50	4,400	NA	NA	NA	NA	NA	NA	9.45	6.87	2.58	NA
MW-3	06/23/2003	<5,000	<50	<50	<50	<100	NA	8,100	NA	NA	NA	NA	NA	9.45	13.80	-4.35	NA
MW-3	09/22/2003	<250	<2.5	4.6	<2.5	<5.0	NA	470	NA	NA	NA	NA	NA	9.45	6.31	3.14	NA
MW-3	12/03/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	180	NA	NA	NA	NA	NA	9.45	14.77 h	NA	NA
MW-3	03/18/2004	<1,000	14	<10	<10	<20	NA	2,500	NA	NA	NA	NA	NA	9.45	6.07	3.38	NA
MW-3	05/25/2004	3,900	<10	66	23	470	NA	140	NA	NA	NA	NA	NA	9.45	14.63	-5.18	NA
MW-3	09/22/2004	<10,000	830	<100	290	450	NA	28,000	<400	<400	<400	13,000	<10,000	9.45	4.86	4.59	NA
MW-3	12/22/2004	94	<0.50	<0.50	<0.50	<1.0	NA	84	NA	NA	NA	NA	NA	9.45	6.93	2.52	NA
MW-3	02/23/2005	<50 i	<0.50	<0.50	<0.50	<1.0	NA	85	NA	NA	NA	NA	NA	9.45	5.68	3.77	NA
MW-3	06/27/2005	<2,500	96	<25	29	<50	NA	6,100	NA	NA	NA	NA	NA	9.45	4.80	4.65	NA
MW-3	08/31/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	300	<2.0	<2.0	<2.0	700	<50	8.33	5.07	3.26	NA
MW-3	12/14/2005	647	6.16	2.37	1.88	<0.500	NA	303 j	NA	NA	NA	NA	NA	8.33	5.65	2.68	NA
MW-3	03/08/2006	901	20.8	<0.500	5.55	0.980	NA	313	NA	NA	NA	1,660	NA	8.33	5.57	2.76	NA
MW-3	06/14/2006	1,240	61.0	<0.500	11.0	0.730	NA	680	NA	NA	NA	5,660	NA	8.33	5.68	2.65	NA
MW-3	09/27/2006	555	1.70	<0.500	<0.500	<0.500	NA	24.5	<0.500	<0.500	<0.500	1,370	<50.0	8.33	6.11	2.22	NA
MW-3	11/30/2006	990	32	<2.5	8.2	<5.0	NA	590	NA	NA	NA	13,000	NA	8.33	6.09	2.24	NA
MW-3	03/06/2007	2,900 k	57 k	<10 k	16 k	<10 k	NA	1,700 k	NA	NA	NA	46,000	NA	8.33	4.20	4.13	NA
MW-3	06/11/2007	1,900	110	<50	28 l	<50	NA	1,100	NA	NA	NA	42,000	NA	8.33	5.19	3.14	NA
MW-3	09/26/2007	<50 m	2.0	<1.0	0.38 l	<1.0	NA	11	<2.0	<2.0	<2.0	920	<100	8.33	5.54	2.79	NA
MW-3	12/28/2007	84 m	15	<1.0	0.52 l	<1.0	NA	91	NA	NA	NA	4,400	NA	8.33	4.68	3.65	NA
MW-3	03/31/2008	140	3.9	<1.0	<1.0	<1.0	NA	14	NA	NA	NA	1,600	NA	8.33	5.06	3.27	NA
MW-3	06/23/2008	180	<1.0	<2.0	<2.0	<2.0	NA	<2.0	NA	NA	NA	4,500	NA	8.33	5.00	3.33	NA
MW-3	09/22/2008	3,300	29	<10	<10	<10	NA	150	<20	<20	<20	52,000	<1,000	8.33	5.66	2.67	NA
MW-3	12/16/2008	NA	<25	<50	<50	<50	NA	59	NA	NA	NA	11,000	NA	8.33	5.50	2.83	NA
MW-3	02/27/2009	240	2.3	<2.0	<2.0	<2.0	NA	17	NA	NA	NA	1,800	NA	8.33	4.08	4.25	NA
MW-3	06/11/2009	400	3.8	<5.0	<5.0	<5.0	NA	18	NA	NA	NA	5,800	NA	8.33	5.30	3.03	NA

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Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
MW-3	**09/23/2009**	**250**	**24**	**<2.0**	**<2.0**	**<2.0**	**NA**	**37**	**<4.0**	**<4.0**	**<4.0**	**7,700**	**<200**	**8.33**	**5.60**	**2.73**	**NA**
MW-4	09/25/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.88	7.64	2.24	NA
MW-4	12/15/2000	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	NA	NA	NA	NA	NA	9.88	7.55	2.33	NA
MW-4	03/09/2001	<50.0	<0.500	0.730	<0.500	0.529	3.16	NA	NA	NA	NA	NA	NA	9.88	7.04	2.84	NA
MW-4	06/27/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	7.76	2.12	NA
MW-4	09/19/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	7.69	2.19	NA
MW-4	12/31/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	7.08	2.80	NA
MW-4	03/14/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	7.57	2.31	NA
MW-4	06/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	8.50	1.38	NA
MW-4	09/19/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	8.22	1.66	NA
MW-4	12/12/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	9.88	8.08	1.80	NA
MW-4	03/20/2003 g	<50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA	NA	NA	9.88	7.92	1.96	NA
MW-4	06/23/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	<5.0	NA	NA	NA	NA	NA	9.88	8.18	1.70	NA
MW-4	09/22/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	16	NA	NA	NA	NA	NA	9.88	8.28	1.60	NA
MW-4	12/03/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	15	NA	NA	NA	NA	NA	9.88	8.44	1.44	NA
MW-4	03/18/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	15	NA	NA	NA	NA	NA	9.88	7.52	2.36	NA
MW-4	05/25/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	20	NA	NA	NA	NA	NA	9.88	8.30	1.58	NA
MW-4	09/22/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	20	<2.0	<2.0	<2.0	<5.0	<50	9.88	7.72	2.16	NA
MW-4	12/22/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	20	NA	NA	NA	NA	NA	9.88	7.32	2.56	NA
MW-4	02/23/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	18	NA	NA	NA	NA	NA	9.88	6.95	2.93	NA
MW-4	06/27/2005	55	<0.50	<0.50	<0.50	<1.0	NA	14	NA	NA	NA	NA	NA	9.88	7.48	2.40	NA
MW-4	08/31/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	15	<2.0	<2.0	<2.0	11	<50	9.88	7.53	2.35	NA
MW-4	12/14/2005	<50.0	<0.500	2.04	<0.500	<0.500	NA	10.1	NA	NA	NA	NA	NA	9.88	7.54	2.34	NA
MW-4	03/08/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	5.73	NA	NA	NA	NA	NA	9.88	6.19	3.69	NA
MW-4	06/14/2006	<50.0	<0.500	0.590	<0.500	<0.500	NA	14.0	NA	NA	NA	NA	NA	9.88	7.63	2.25	NA
MW-4	09/27/2006	426	<0.500	<0.500	<0.500	<0.500	NA	16.5	<0.500	<0.500	<0.500	<10.0	<50.0	9.88	7.87	2.01	NA
MW-4	11/30/2006	<50	<0.50	<0.50	<0.50	<1.0	NA	16	NA	NA	NA	NA	NA	9.88	7.81	2.07	NA
MW-4	03/06/2007	<50 k	<0.50 k	<1.0 k	<0.50 k	<1.0 k	NA	17 k	NA	NA	NA	NA	NA	9.88	7.10	2.78	NA
MW-4	06/11/2007	<50	<0.50	<1.0	<1.0	<1.0	NA	22	NA	NA	NA	NA	NA	9.88	7.68	2.20	NA

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MW-4	09/26/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	17	<2.0	<2.0	<2.0	<10	<100	9.88	7.80	2.08	NA
MW-4	12/28/2007	59 m	<0.50	<1.0	<1.0	<1.0	NA	20	NA	NA	NA	NA	NA	9.88	7.19	2.69	NA
MW-4	03/31/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	15	NA	NA	NA	NA	NA	9.88	6.46	3.42	NA
MW-4	06/23/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	18	NA	NA	NA	NA	NA	9.88	7.34	2.54	NA
MW-4	09/22/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	20	<2.0	<2.0	<2.0	<10	<100	9.88	7.68	2.20	NA
MW-4	12/16/2008	NA	<0.50	<1.0	<1.0	<1.0	NA	19	NA	NA	NA	NA	NA	9.88	7.55	2.33	NA
MW-4	02/27/2009	65	<0.50	<1.0	<1.0	<1.0	NA	27	NA	NA	NA	NA	NA	9.88	6.73	3.15	NA
MW-4	06/11/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	25	NA	NA	NA	NA	NA	9.88	7.68	2.20	NA
MW-4	**09/23/2009**	**<50**	**<0.50**	**<1.0**	**<1.0**	**<1.0**	**NA**	**23**	**<2.0**	**<2.0**	**<2.0**	**<10**	**<100**	**9.88**	**7.66**	**2.22**	**NA**
MW-5	06/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.36	NA	NA
MW-5	06/25/2002	<10,000	<100	<100	<100	<100	NA	60,000	NA	NA	NA	NA	NA	NA	8.30	NA	NA
MW-5	09/19/2002	<2,000	<20	<20	<20	<20	NA	7,200	NA	NA	NA	NA	NA	10.03	8.44	1.59	NA
MW-5	12/12/2002	<5,000	<50	<50	<50	<50	NA	33,000	NA	NA	NA	NA	NA	10.03	8.49	1.54	NA
MW-5	03/20/2003 g	12,000	<50	<50	<50	<50	15,000	NA	NA	NA	NA	NA	NA	10.03	8.23	1.80	NA
MW-5	06/23/2003	<1,000	<10	<10	<10	<20	NA	1,700	NA	NA	NA	NA	NA	10.03	16.70	-6.67	NA
MW-5	09/22/2003	<2,500	<25	<25	<25	<50	NA	4,400	NA	NA	NA	NA	NA	10.03	16.70	-6.67	NA
MW-5	12/03/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	70	NA	NA	NA	NA	NA	10.03	16.79	-6.76	NA
MW-5	03/18/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	43	NA	NA	NA	NA	NA	10.03	16.78	-6.75	NA
MW-5	05/25/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	30	NA	NA	NA	NA	NA	10.03	13.02	-2.99	NA
MW-5	09/22/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	20	<2.0	<2.0	<2.0	83	<50	10.03	5.91	4.12	NA
MW-5	12/22/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	67	NA	NA	NA	NA	NA	10.03	5.72	4.31	NA
MW-5	02/23/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	120	NA	NA	NA	NA	NA	10.03	4.41	5.62	NA
MW-5	06/27/2005	56	<0.50	<0.50	<0.50	<1.0	NA	46	NA	NA	NA	NA	NA	10.03	5.98	4.05	NA
MW-5	08/31/2005	<1,000	<10	<10	<10	<20	NA	69	<40	<40	<40	2,400	<1,000	9.03	6.60	2.43	NA
MW-5	12/14/2005	302	<0.500	2.02	<0.500	<0.500	NA	34.0	NA	NA	NA	NA	NA	9.03	5.00	4.03	NA
MW-5	03/08/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	34.6	NA	NA	NA	677	NA	9.03	4.18	4.85	NA
MW-5	06/14/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	30.4	NA	NA	NA	4,380	NA	9.03	6.10	2.93	NA
MW-5	09/27/2006	528	<0.500	<0.500	<0.500	<0.500	NA	28.6	<0.500	<0.500	<0.500	384	<50.0	9.03	6.94	2.09	NA
MW-5	11/30/2006	<50	<0.50	<0.50	<0.50	<1.0	NA	7.3	NA	NA	NA	380	NA	9.03	6.70	2.33	NA

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MW-5	03/06/2007	76 k	<0.50 k	<1.0 k	<0.50 k	<1.0 k	NA	20 k	NA	NA	NA	1,200 k	NA	9.03	4.65	4.38	NA
MW-5	06/11/2007	<50	0.35 l	0.30 l	0.47 l	3.79 l	NA	21	NA	NA	NA	38	NA	9.03	6.28	2.75	NA
MW-5	09/26/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	27	<2.0	<2.0	<2.0	2,400	<100	9.03	7.71	1.32	NA
MW-5	12/28/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	6.5	NA	NA	NA	190	NA	9.03	5.86	3.17	NA
MW-5	03/31/2008	60	<0.50	<1.0	<1.0	<1.0	NA	15	NA	NA	NA	910	NA	9.03	6.29	2.74	NA
MW-5	06/23/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	1.7	NA	NA	NA	200	NA	9.03	6.45	2.58	NA
MW-5	09/22/2008	160	<0.50	<1.0	<1.0	<1.0	NA	14	<2.0	<2.0	<2.0	3,000	<100	9.03	6.99	2.04	NA
MW-5	12/16/2008	NA	<0.50	<1.0	<1.0	<1.0	NA	4.4	NA	NA	NA	880	NA	9.03	6.34	2.69	NA
MW-5	02/27/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	4.7	NA	NA	NA	69	NA	9.03	4.35	4.68	NA
MW-5	06/11/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	4.9	NA	NA	NA	20	NA	9.03	6.70	2.33	NA
MW-5	**09/23/2009**	**<50**	**<0.50**	**<1.0**	**<1.0**	**<1.0**	**NA**	**25**	**<2.0**	**<2.0**	**<2.0**	**1,300**	**<100**	**9.03**	**7.04**	**1.99**	**NA**
C-1	09/19/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	NA	1.44	NA	NA
C-1	03/29/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	NA	2.59	NA	NA
C-1	06/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	NA	3.72	NA	NA
C-1	09/19/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	NA	3.08	NA	NA
C-1	12/12/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	NA	NA	0.64	NA	NA
C-1	03/20/2003 g	<50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA	NA	NA	NA	4.61	NA	NA
SD-1	09/19/2001	Unable to sample		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-1	03/29/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-1	06/25/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-1	09/19/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-1	12/12/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-1	03/20/2003	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-2	09/19/2001	Unable to sample		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-2	03/29/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-2	06/25/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-2	09/19/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SD-2	12/12/2002	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SD-2	03/20/2003	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BW-A	06/22/1999	318	<0.50	<0.50	0.590	1.48	4,470	NA	NA	NA	NA	NA	NA	NA	4.71	NA	1.1
BW-A	06/25/2002	<500	<5.0	<5.0	<5.0	18	NA	3,100	NA	NA	NA	NA	NA	NA	5.14	NA	NA
BW-A	09/19/2002	<200	<2.0	<2.0	<2.0	<2.0	NA	<20	NA	NA	NA	NA	NA	NA	7.19	NA	NA
BW-A	12/12/2002	<500	<5.0	<5.0	<5.0	<5.0	NA	2,900	NA	NA	NA	NA	NA	NA	6.40	NA	NA
BW-A	03/20/2003 g	<2,500	<25	<25	<25	<25	<250	NA	NA	NA	NA	NA	NA	NA	5.36	NA	NA
BW-A	06/23/2003	<1,000	<10	<10	<10	<20	NA	<100	NA	NA	NA	NA	NA	NA	10.27	NA	NA
BW-A	09/22/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.63	NA	NA	NA
BW-B	06/22/1999	<250	<2.5	<2.5	<2.5	<2.5	8,600	NA	NA	NA	NA	NA	NA	NA	5.90	NA	1.2
BW-B	06/27/2001	<5,000	<50	<50	<50	<50	NA	40,000	NA	NA	NA	NA	NA	NA	5.83	NA	NA
BW-B	12/31/2001	<2,000	<20	<20	<20	<20	NA	9,200	NA	NA	NA	NA	NA	NA	4.19	NA	NA
BW-B	03/14/2002	<2,000	<20	<20	<20	<20	NA	9,400	NA	NA	NA	NA	NA	NA	5.24	NA	NA
BW-B	06/25/2002	<2,000	<20	<20	<20	<20	NA	6,600	NA	NA	NA	NA	NA	NA	6.19	NA	NA
BW-B	09/19/2002	<500	<5.0	<5.0	<5.0	<5.0	NA	<50	NA	NA	NA	NA	NA	NA	8.46	NA	NA
BW-B	12/12/2002	<500	<5.0	<5.0	<5.0	<5.0	NA	1,700	NA	NA	NA	NA	NA	NA	7.46	NA	NA
BW-B	03/20/2003 g	170	<1.0	<1.0	<1.0	<1.0	190	NA	NA	NA	NA	NA	NA	NA	6.23	NA	NA
BW-B	06/23/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	43	NA	NA	NA	NA	NA	NA	9.95	NA	NA
BW-B	09/22/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.32	NA	NA	NA
BW-C	06/22/1999	<50	<0.50	<0.50	<0.50	0.98	11,000	NA	NA	NA	NA	NA	NA	NA	5.91	NA	1.6
BW-C	06/25/2002	<5,000	<50	<50	<50	<50	NA	20,000	NA	NA	NA	NA	NA	NA	6.49	NA	NA
BW-C	09/19/2002	<1,000	<10	<10	<10	<10	NA	400	NA	NA	NA	NA	NA	NA	8.52	NA	NA
BW-C	12/12/2002	<2,000	<20	<20	<20	<20	NA	8,000	NA	NA	NA	NA	NA	NA	7.57	NA	NA
BW-C	03/20/2003 g	270	<1.0	<1.0	<1.0	<1.0	250	NA	NA	NA	NA	NA	NA	NA	6.48	NA	NA
BW-C	06/23/2003	<1,000	<10	<10	<10	<20	NA	170	NA	NA	NA	NA	NA	NA	11.48	NA	NA
BW-C	09/22/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.81	NA	NA	NA

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BW-D	06/22/1999	<50.0	<0.500	<0.500	<0.500	<0.500	2,190	NA	NA	NA	NA	NA	NA	NA	4.78	NA	1.4
BW-D	06/25/2002	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BW-D	07/02/2002	<1,000	23	<10	<10	<10	NA	<100	NA	NA	NA	NA	NA	NA	6.36	NA	NA
BW-D	09/19/2002	<250	<2.5	<2.5	<2.5	<2.5	NA	<25	NA	NA	NA	NA	NA	NA	7.25	NA	NA
BW-D	12/12/2002	<5,000	<50	<50	<50	<50	NA	16,000	NA	NA	NA	NA	NA	NA	6.21	NA	NA
BW-D	03/20/2003 g	71	<0.50	<0.50	<0.50	<0.50	55	NA	NA	NA	NA	NA	NA	NA	5.23	NA	NA
BW-D	06/23/2003	<1,000	<10	<10	<10	<20	NA	<100	NA	NA	NA	NA	NA	NA	10.25	NA	NA
BW-D	09/22/2003	<100	<1.0	<1.0	<1.0	<2.0	NA	120	NA	NA	NA	NA	NA	NA	10.18	NA	NA
BW-D	12/03/2003	<1,300	110	<13	<13	29	NA	560	NA	NA	NA	NA	NA	NA	10.20	NA	NA
BW-D	03/18/2004	<50	0.67	<0.50	<0.50	<1.0	NA	12	NA	NA	NA	NA	NA	NA	3.42	NA	NA
BW-D	05/25/2004	<50	1.4	0.96	<0.50	<1.0	NA	1.7	NA	NA	NA	NA	NA	NA	8.83	NA	NA
BW-D	09/22/2004	<100	6.9	<1.0	2.1	4.2	NA	210	NA	NA	NA	NA	NA	NA	2.75	NA	NA
BW-D	12/22/2004	61	2.1	2.9	<0.50	3.6	NA	5.4	NA	NA	NA	NA	NA	NA	3.67	NA	NA
BW-D	02/23/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	1.2	NA	NA	NA	NA	NA	NA	2.88	NA	NA
BW-D	06/27/2005	53	<0.50	<0.50	<0.50	<1.0	NA	1.8	NA	NA	NA	NA	NA	NA	3.70	NA	NA
BW-D	08/31/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	1.4	NA	NA	NA	NA	NA	8.61	3.82	4.79	NA
BW-D	12/14/2005	<50.0	<0.500	2.78	<0.500	<0.500	NA	2.26	NA	NA	NA	NA	NA	8.61	3.59	5.02	NA
BW-D	03/08/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	2.23	NA	NA	NA	NA	NA	8.61	3.61	5.00	NA
BW-D	06/14/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	18.1	NA	NA	NA	NA	NA	8.61	3.86	4.75	NA
BW-D	09/27/2006	410	<0.500	<0.500	<0.500	<0.500	NA	2.90	<0.500	<0.500	<0.500	78	<50.0	8.61	4.32	4.29	NA
BW-D	11/30/2006	<50	<0.50	<0.50	<0.50	<1.0	NA	1.3	NA	NA	NA	NA	NA	8.61	4.00	4.61	NA
BW-D	03/06/2007	<50 k	<0.50 k	<1.0 k	<0.50 k	<1.0 k	NA	1.4 k	NA	NA	NA	NA	NA	8.61	3.44	5.17	NA
BW-D	06/11/2007	<50	<0.50	<1.0	<1.0	<1.0	NA	0.95 l	NA	NA	NA	NA	NA	8.61	4.14	4.47	NA
BW-D	09/26/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	1.1	NA	NA	NA	NA	NA	8.61	4.22	4.39	NA
BW-D	12/28/2007	<50 m	<0.50	<1.0	<1.0	<1.0	NA	1.4	NA	NA	NA	NA	NA	8.61	3.55	5.06	NA
BW-D	03/31/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	2.3	NA	NA	NA	NA	NA	8.61	4.20	4.41	NA
BW-D	06/23/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	1.1	NA	NA	NA	NA	NA	8.61	4.01	4.60	NA
BW-D	09/22/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	<1.0	NA	NA	NA	<10	NA	8.61	4.21	4.40	NA
BW-D	12/16/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	1.3	NA	NA	NA	NA	NA	8.61	3.69	4.92	NA
BW-D	02/27/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	<1.0	NA	NA	NA	NA	NA	8.61	3.14	5.47	NA

WELL CONCENTRATIONS
Shell-branded Service Station
540 Hegenberger Road
Oakland, CA

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
BW-D	06/11/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	1.5	NA	NA	NA	NA	NA	8.61	4.52	4.09	NA
BW-D	**09/23/2009**	**<50**	**<0.50**	**<1.0**	**<1.0**	**<1.0**	**NA**	**1.1**	**NA**	**NA**	**NA**	**NA**	**NA**	**8.61**	**4.82**	**3.79**	**NA**

Abbreviations:
TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to June 27, 2001, analyzed by EPA Method 8015.
BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to June 27, 2001, analyzed by EPA Method 8020.
MTBE = Methyl tertiary butyl ether
DIPE = Di-isopropyl ether, analyzed by EPA Method 8260B
ETBE = Ethyl tertiary butyl ether, analyzed by EPA Method 8260B
TAME = Tertiary amyl methyl ether, analyzed by EPA Method 8260B
TBA = Tertiary butyl alcohol, analyzed by EPA Method 8260B
TOC = Top of Casing Elevation
GW = Groundwater
DO = Dissolved Oxygen
ppm = Parts per million
ug/L = Parts per billion
MSL = Mean sea level
ft. = Feet
<n = Below detection limit
(D) = Duplicate sample
NA = Not applicable

WELL CONCENTRATIONS
Shell-branded Service Station
540 Hegenberger Road
Oakland, CA

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)

Notes:

a = Pre-purge

b = Post purge

c = Lab confirmed MTBE by mistake. MTBE value at MW-1 should have been confirmed instead.

d = DO reading not taken.

e = Sample was analyzed outside of the EPA recommended holding time.

f = The second highest MTBE hit was mistakenly confirmed. MTBE for MW-1 should have been confirmed.

g = On March 20, 2003, all analyses run by EPA Method 8015/8020.

h = Depth to top of pump; pump prevented depth to water measurement.

i = The concentration reported reflects individual or discrete unidentified peaks not matching a typical fuel pattern.

j = Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.

k = 1,1-Dichloroethene, a calibration check compound (CCC), was outside the 20%D method acceptance criteria in the CCV.

l = Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.

m = Analyzed by EPA Method 8015B (M).

n = The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard. Quantitation of the unknown hydrocarbon(s) in the sample was based upon the specified standard.

Ethanol analyzed by EPA Method 8260B.

Site surveyed September 21, 2000 by Virgil Chavez Land Surveying of Vallejo, CA.

C-1 is a canal sample location.

SD-1 and SD-2 are storm drains.

Wells MW-1 through MW-5 surveyed January 24 and June 19, 2002 by Virgil Chavez Land Surveying of Vallejo, CA.

Wells MW-1, MW-3, MW-5, and BW-D surveyed on September 22, 2005 by Virgil Chavez Land Surveying of Vallejo, CA.

Unmonitored backfilled wells BW-A, BW-B, and BW-C surveyed on September 22, 2005 by Virgil Chavez Land Surveying of Vallejo, CA.

Table 3. Groundwater Chemical Analytical Data - Shell-branded Service Station Incident # 98995752, 540 Hegenberger Road, Oakland, California

Sample ID	Date	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE by EPA 8020M	MTBE by EPA 8260B
		← (Concentrations in µg/L) →							
SB-E-W1	8/29/00	<5000	**353**	<50.0	<50.0	<50.0	<50.0	**13700**	**17900**
SB-F-W1	8/29/00	<50.0	**64.6**	<0.500	<0.500	<0.500	<0.500	**68.3**	**85.3**
SB-G-W1	8/29/00	**51100**	**5780**	**2080**	**2390**	**2980**	**14100**	**58400**	**76400**

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
TPHd = Total petroleum hydrpcarbons as diesel by modified EPA Method 8015 with silica gel clean-up
Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020
MTBE = Methyl tertiary butyl ether by EPA method 8020 and 8260B
µg/L = Micrograms per liter
<n = Below detection limit of n µg/L

g:\oakland540hegenberger\report\workbook for samples from offsite investigation.xls

Table 2. Ground Water Analytical Data - Shell Service Station, WIC# 204-5508-5900, 540 Hegenberger Road, Oakland, California

Sample ID	Date Sampled	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	TDS
		←			µg/L			→	mg/L
SB-1	3/6/98	<50	<50	<0.50	<0.50	<0.50	<0.50	<2.5	420
SB-2	3/6/98	3,400	---	190	880	81	460	9,400	---
SB-3	3/6/98	410	---	14	48	10	61	210	---
SB-4	3/6/98	<50	<50	<0.50	<0.50	<0.50	<0.50	<2.5	---
SB-5	3/6/98	200,000	---	11,000	36,000	3,200	19,000	1,300,000	---

Notes and Abbreviations:
µg/L = Micrograms per liter
mg/L = Milligrams per liter
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
MTBE = Methyl tert-butyl ether by EPA Method 8020.
TDS = Total dissolved solids by EPA Method 160.2
<n = Below detection limit of n µg/L
Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020
--- = Not analyzed

BORING LOG

Client: **Shell Oil Products Company**

Project No: **240-0414** Phase Task **006**

Boring ID **SB-1**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
0	Ground Surface							0	
				ASPHALT					
				Gravelly Silty SAND with pieces of brick, cinders, debris, FILL.					
5				No Recovery.				5	
				Silty SAND; (SM); black; loose; wet; 10% clay, 20% silt, 60% sand, 10% gravel; no plasticity; moderate estimated permeability.	2.4				Water level @ 8 ft
10				**Silty CLAY**; (CH); grey to black; soft; moist; 70% clay, 30% silt; medium to high plasticity; low estimated permeability.				10	
					<1.0				Bottom of boring @ 12 ft
15								15	
20								20	

Driller **Vironex**

Logged By **Maureen Feineman**

Water-Bearing Zones **NA**

Drilling Started **3/6/98**

Drilling Completed **3/6/98**

Grout Type **Portland Type I/II**

Notes: **Southwest corner of lot.**

ATTACHMENT 6

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **240-0414** Phase Task **006**

Boring ID **SB-2**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				ASPHALT
				Compacted GRAVEL, FILL.
5		X		**Sandy Silty CLAY**; (CL); black; soft; moist; 50% clay, 20% silt, 30% sand; medium plasticity; low estimated permeability.
				Silty CLAY; (CH); black; soft; moist; 70% clay, 30% silt; high plasticity; low estimated permeability.
		X		
10				
		X		Grey; 60% clay, 40% silt; medium to high plasticity.
15				
				Silty SAND; (SM); grey; loose; wet; 20% silt, 80% fine sand; low plasticity; high estimated permeability.
20				

TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
			0	
160.0			5	
			10	Water level @ 12 ft
			15	Bottom of boring @ 16 ft
			20	

Driller **Vironex**

Logged By **Maureen Feineman**

Water-Bearing Zones **NA**

Drilling Started **3/6/98**

Drilling Completed **3/6/98**

Grout Type **Portland Type I/II**

Notes: **Approximately 20 feet west of USTs.**

BOR 24414 4/13/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **240-0414** Phase Task **006**

Boring ID **SB-3**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				ASPHALT
				Gravelly Silty SAND, FILL
5		X		**Silty SAND with Clay Clasts:** (SM); grey to black; loose; moist; 15% clay, 15% silt, 65-70% sand, trace gravel; low plasticity; moderate estimated permeability.
		X		
		X		No clay clasts; wet; 20% silt, 80% fine sand.
10		X		
15				
20				

TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
			0	
37.0			5	Water @ 6 ft
830.0			10	Bottom of boring @ 12 ft
			15	
			20	

Driller **Vironex**

Logged By **Maureen Feineman**

Water-Bearing Zones **NA**

Drilling Started **3/6/98**

Drilling Completed **3/6/98**

Grout Type **Portland Type I/II**

Notes: **Approximately 15 feet south of USTs.**

BOR 24414 4/13/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **240-0414** Phase Task **006**

Boring ID **SB-4**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
0	Ground Surface							0	
				ASPHALT					
				Gravelly CLAY, FILL: brown to black; soft; dry; 60% clay, 5% silt, 10% sand, 25% gravel; low to medium plasticity; low to moderate estimated permeability.					
5								5	
				Silty CLAY: (CH); black; soft; moist; 70% clay, 30% silt; high plasticity; low estimated permeability.					
					<1.0				
10								10	Water level @ 10 ft
				Sandy Silty CLAY: (CL); black; soft; wet; 50% clay, 20% silt, 30% sand; low to medium plasticity; low estimated permeability.					
				Silty CLAY: (CH); grey; soft; moist; 60% clay, 40% silt; medium to high plasticity; low estimated permeability.					
15								15	
				Sandy Silty CLAY: (CL); black; soft; wet; 50% clay, 20% silt, 30 % sand; low to medium plasticity; low estimated permeability.					
					<1.0				
				Silty CLAY: (CH); grey; soft; moist; 60% clay, 40% silt; medium to high plasticity, low estimated permeability.					
20								20	Bottom of boring @ 20 ft

Driller **Vironex**

Logged By **Maureen Feineman**

Water-Bearing Zones **NA**

Drilling Started **3/6/98**

Drilling Completed **3/6/98**

Grout Type **Portland Type I/II**

Notes: **South side of lot, approximately 15 feet east of building.**

BOR 24414 4/13/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **240-0414** Phase Task **006**

Boring ID **SB-5**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				CONCRETE
				Silty SAND, FILL: (SM); brown; loose; damp; 20% silt, 80% sand; low plasticity; moderate to high estimated permeability. **Silty CLAY, FILL:** (CH); brown to black; soft; damp; 60% clay, 40% silt, high plasticity; low estimated permeability.
5				**Gravelly SAND, FILL:** (SP); black; loose; damp; 10% silt, 70% sand, 20% gravel; low plasticity; high estimated permeability.
		X		**Silty SAND:** (SM); black; loose; wet; 20% silt, 80% fine sand; low plasticity; moderate to high estimated permeability.
		X		**Silty CLAY:** (CH); black; soft; moist; 70% clay, 30% silt; high plasticity; low estimated permeability.
10				**Silty SAND:** (SM); black; loose; wet; 20% silt, 80% fine sand; low plasticity; moderate to high estimated permeability.
15				
20				

TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
			0	
			5	
3,400				
100.0				Water level @ 8 ft
			10	
				Bottom of boring @ 12 ft
			15	
			20	

Driller **Vironex**

Logged By **Maureen Feineman**

Water-Bearing Zones **NA**

Drilling Started **3/6/98**

Drilling Completed **3/6/98**

Grout Type **Portland Type I/II**

Notes: **West side of lot, adjacent to planter.**

BOR 24414 4/13/98

Cambria Environmental Technology, Inc.

DRILLING LOG

Client: **Equilon Enterprises LLC**

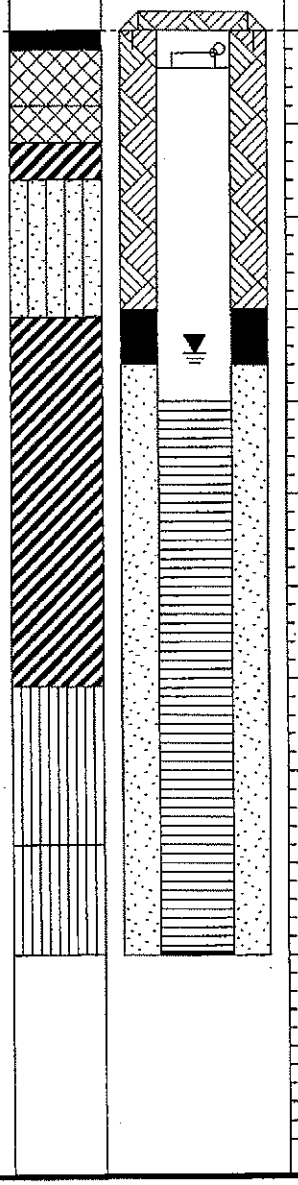
Project No: **240-0414** Phase Task012

Well ID **MW-1** Boring ID **SB-A**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	% Rec	Lithologic Description
0	Ground Surface			
				Asphalt
				Sandy GRAVEL, FILL: (FILL); brown; loose; dry to damp; 10% silt, 20% sand, 70% gravel; no plasticity; high estimated permeability.
				Gravelly SAND, FILL: (FILL); green; loose; dry to damp; 10% silt, 50% sand, 40% gravel; no plasticity; high estimated permeability.
5	7 13 10/6"			**Silty CLAY:** (CH); black; medium stiff; dry to damp; 70% clay, 30% silt; high plasticity; very low estimated permeability.
				Silty SAND: (SM); black; loose; dry to damp; 20% silt, 80% very fine sand with chunks of rock and slag; no plasticity; high estimated permeability.
10	4 8 10/6"			**Silty CLAY:** (CH); grey; medium stiff; damp; 70% clay, 30% silt; high plasticity; very low estimated permeability.
15	4 8 10/6"			moist.
20				**Sandy, Clayey SILT:** (ML); brown; soft; wet; 30% clay, 40% silt, 30% sand; low plasticity; moderate estimated permeability.
25				**Clayey SILT:** (ML); grey; medium stiff; moist; 40% clay, 60% silt; medium plasticity; low to moderate estimated permeability.
30				



T.O.C. Elev. NA

Static water level @ 8.7 ft.

Water encountered @ 14 ft.

Bottom of well and boring @ 25 ft.

Driller **Gregg Drilling**	Development Yield **NA**	Bentonite Seal **7.5' to 9'**
Logged By **Maureen Feineman**	Well Casing **2"** Dia. **0'** to **10'**	Sand Pack **9' to 25'**
Drilling Started **7/14/98**	Casing Type **Schedule 40 PVC**	Sand Pack Type **Monterey Sand #2-12**
Drilling Completed **7/14/98**	Well Screen **2"** Dia. **10'** to **25'**	Static Water Level **8.70** ft Depth
Construction Completed **07/14/98**	Screen Type **Slotted Schedule 40 PVC**	Date **7/15/98**
Development Completed **NA**	Slot Size **0.010"**	Notes: **10 feet west of car wash.**
Water Bearing Zones **NA**	Drilling Mud **NA**	
	Grout Type **Portland Type I/II**	

WELL 24414 7/27/98

Cambria Environmental Technology, Inc.

DRILLING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0414** Phase Task012

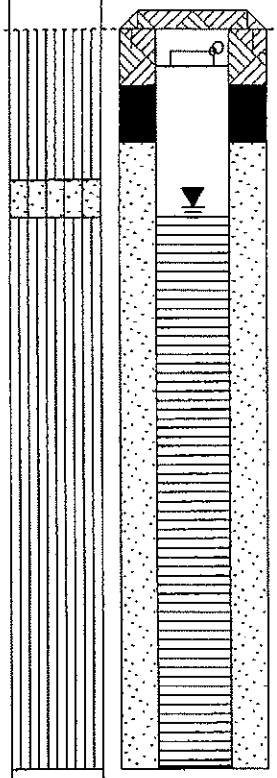
Well ID **MW-2** Boring ID **SB-B**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	% Rec	Lithologic Description
0	Ground Surface			
				Sandy SILT; (ML); black; soft; moist; 10% clay, 75% silt, 15% fine sand; low plasticity; moderate estimated permeabilty.
5	3 3 6/6"			**Silty SAND**; (SM); black; loose; wet; 20% silt, 80% fine sand; no plasticity; high estimated permeability.
				Clayey SILT; (ML); black; medium stiff; wet; 40% clay, 60% silt; medium plasticity; low estimated permeability.
10	3 5 9/6"			grey; stiff.
15	5 7 8/6"			grey to brown.
20				
25				
30				

TPHg (ppm) | Graphic Log | Well Construction Graphics | Depth (feet) | Well Construction Details



T.O.C. Elev. NA

Static water level @ 4.75 ft.
Water encountered @ 5 ft.

Bottom of well and boring @ 20 ft.

Driller **Gregg Drilling**	Development Yield **NA**	Bentonite Seal **1.5' to 3'**
Logged By **Maureen Feineman**	Well Casing **2"** Dia. **0'** to **5'**	Sand Pack **3' to 20'**
Drilling Started **7/15/98**	Casing Type **Schedule 40 PVC**	Sand Pack Type **Monterey Sand #2-12**
Drilling Completed **7/15/98**	Well Screen **2"** Dia.**5'** to **20'**	Static Water Level **4.75** ft Depth
Construction Completed **07/15/98**	Screen Type **Slotted Schedule 40 PVC**	Date **07/15/98**
Development Completed **NA**	Slot Size **0.010"**	Notes: **Northern planter.**
Water Bearing Zones **NA**	Drilling Mud **NA**	
	Grout Type **Portland Type I/II**	

WELL 24414 7/27/98

Cambria Environmental Technology, Inc.

DRILLING LOG

Client: Equilon Enterprises LLC

Project No: 240-0414 Phase Task012

Well ID MW-3 Boring ID SB-C

Location 540 Hegenberger Road, Oakland

Surface Elev. NA ft, Page 1 of 1

Depth (feet)	Blow Count	Sample	% Rec	Lithologic Description
0	Ground Surface			
				Asphalt
				Gravelly SAND, FILL; (FILL); brown; loose; dry; 10% silt, 70% sand, 20% gravel; no plasticity; high estimated permeability.
				Clayey SILT; (ML); dark grey; medium stiff; damp; 40% clay, 60% silt; medium plasticity; low estimated permeablity.
5				**Gravelly, Sandy SILT;** (ML); black; medium stiff; wet; 10% clay, 40% silt, 20% sand, 30% gravel; low plasticity; moderate estimated permeability.
				brown; stiff; dry.
10	3 5 7/6"			**Clayey SILT;** (ML); dark grey; stiff; moist; 40% clay, 60% silt; medium plasticity; moderate estimated permeability.
15	5 7 9/6"			wet.
20				grey.
25				
30				

TPHg (ppm) | Graphic Log | Well Construction Graphics

Depth (feet)	Well Construction Details
0	T.O.C. Elev. NA
5	Static water level @ 6.4 ft.
10	Water encountered @ 10 ft.
15	
20	Bottom of well and boring @ 20 ft.
25	
30	

Driller **Gregg Drilling**	Development Yield **NA**	Bentonite Seal **2.5' to 4'**
Logged By **Maureen Feineman**	Well Casing **2"** Dia. **0'** to **5'**	Sand Pack **4' to 20'**
Drilling Started **7/14/98**	Casing Type **Schedule 40 PVC**	Sand Pack Type **Monterey Sand #2-12**
Drilling Completed **7/14/98**	Well Screen **2"** Dia.**5'** to **20'**	Static Water Level **6.40** ft Depth
Construction Completed **07/14/98**	Screen Type **Slotted Schedule 40 PVC**	Date **07/15/98**
Development Completed **NA**	Slot Size **0.010"**	Notes: **Adjacent to north end of**
Water Bearing Zones **NA**	Drilling Mud **NA**	**western planter.**
	Grout Type **Portland Type I/II**	

WELL 24414 7/27/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0414** Phase Task **012**

Boring ID **SB-D**

Location **540 Hegenberger Road, Oakland**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				Asphalt
				Clayey SILT; (ML); brown to black; medium stiff; damp; 40% clay, 60% silt; medium plasticity; low to moderate estimated permeability.
				Gravelly, Sandy SILT; (ML); black; medium stiff; damp; 10% clay, 40% silt, 30% sand, 30% gravel; low plasticity; moderate estimated permeability.
5	3 5 7/6"			**Clayey SILT**; (ML); dark grey; medium stiff; damp; 40% clay, 60% silt; medium plasticity; low estimated permeability.
10	7 9 10/6"			stiff.
15	3 7 9/6"			grey; wet
20				
25				
30				

TPHg (ppm) | Graphic Log | Boring Completion Graphics | Depth (feet) | Additional Comments

Water encountered @ 14 ft.

Bottom of boring @ 16 ft.

Driller **Gregg Drilling**

Logged By **Maureen Feineman**

Water-Bearing Zones **NA**

Drilling Started **7/14/98**

Drilling Completed **7/14/98**

Grout Type **Portland Type I/II**

Notes: **18 feet north of station building.**

BOR 24414 7/27/98

Cambria Environmental Technology, Inc.

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BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	SB-E
JOB/SITE NAME	oakl540	**DRILLING STARTED**	29-Aug-00
LOCATION	540 Hegenburger Road	**DRILLING COMPLETED**	29-Aug-00
PROJECT NUMBER	242-0414	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	7"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Loetterle	**DEPTH TO WATER (First Encountered)**	7.0 ft (29-Aug-00) ▽
REVIEWED BY	S. Bork, RG# 5626	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand Augered to 5'. Located on the south side of Edes Ave. approximately 35' from the southeast corner.

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	1.5	
							FILL black; damp; 3% clay, 37% silt, 60% sand; no plasticity; moderate estimated permeability.	4.5	
	5 6 6	SB-E- 5.5		5			**Clayey SILT** (ML) black; stiff; damp; 35% clay, 45% silt, 20% sand; medium plasticity; low estimated permeability. ▽ @ 7' - organics; fine sand.		
	7 8 8	SB-E-10.5		10			@ 10' - light brown; very stiff; damp; 40% clay, 50% silt; 10% sand; high plasticity; very low estimated permeability.		Portland Type I/II
	5 7 8	SB-E-15.5		15	ML		@ 15' - light brown/dark brown; stiff; wet; 35% clay, 50% silt, 15% sand; low estimated permeability.		
	8 10 12	SB-E-20.5		20			@ 20' - grey/brown; very stiff; wet; 25% clay, 40% silt, 35% sand; medium plasticity.		
		SB-E-25.5		25	SM		**Silty SAND** (SM) 5% clay, 30% silt, 65% sand; no plasticity; moderate estimated permeability.	25.0 26.5	Bottom of Boring @ 26.5 ft

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BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	SB-F
JOB/SITE NAME	oakl540	**DRILLING STARTED**	29-Aug-00
LOCATION	540 Hegenburger Road	**DRILLING COMPLETED**	29-Aug-00
PROJECT NUMBER	242-0414	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	7"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Loetterle	**DEPTH TO WATER (First Encountered)**	7.0 ft (29-Aug-00) ▽
REVIEWED BY	S. Bork, RG# 5626	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand Augered to 5'. Located on the south side of Edes Ave. approximately 120' from the southeast corner.

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	1.5	
							FILL black; damp; 3% clay, 37% silt, 60% sand; no plasticity; moderate estimated permeability:contains gravel sized pieces of brick, cobbles, and steel.	5.0	
	4 3 6	SB-F-5.50 SBP-F-6.0		5	SM		**Silty SAND** black; stiff; moist; 3% clay, 37% silt, 60% sand; no plasticity; moderate permeability; fine sand. ▽	10.0	Portland Type I/II
	7 10 12	SB-F-10.5		10	ML		**Clayey SILT** greyish brown; very stiff; damp; 40% clay, 50% silt, 10% sand; high plasticity; low estimated permeability.	11.5	Bottom of Boring @ 11.5 ft

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BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	SB-G
JOB/SITE NAME	oakl540	**DRILLING STARTED**	29-Aug-00
LOCATION	540 Hegenburger Road	**DRILLING COMPLETED**	29-Aug-00
PROJECT NUMBER	242-0414	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	7"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Loetterle	**DEPTH TO WATER (First Encountered)**	9.5 ft (29-Aug-00) ▽
REVIEWED BY	S. Bork, RG# 5626	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand Augered to 5'. Located on the south side of Edes Ave., adjacent to the car wash, four feet away from the curb.

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	1.5	
							FILL olive-grey; moist; 15% silt, 85% fine sand; no plasticity; high estimated permeability.		
	8 7 6	SB-G- 5.5 SB-GP -6.0		5			@ 5' - stiff.	6.5	Portland Type I/II
					SM		**Silty SAND** (SM) ▽		
	7 10 17	SB-G- 10.5		10			@ 10' - olive-grey/brown; very stiff; moist; 3% clay, 37% silt, 60% fine sand; low plasticity; moderate estimated permeability.	11.5	Bottom of Boring @ 11.5 ft

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BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	oakl540	**DRILLING STARTED**	05-Sep-00
LOCATION	540 Hegenburger Road	**DRILLING COMPLETED**	05-Sep-00
PROJECT NUMBER	242-0414	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	10"	**SCREENED INTERVAL**	5 to 19.4 ft bgs
LOGGED BY	J. Loetterle	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	S. Bork, RG# 5626	**DEPTH TO WATER (Static)**	NA

REMARKS Hand augered to 5 fbg. Located on the east side of Edes Ave., approximately 63 feet from the corner of Edes Ave. and Enterprise

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.3	Portland Type I/II
							FILL black/brown; damp; 2% clay, 13% silt, 80% fine-coarse sand, 5% fine gravel; low plasticity; high estimated permeability.		Bentonite Seal
	4 7 11	MW-4-5.5		5			@ 5' - very stiff; 2% clay, 23% silt, 70% sand, 5% gravel; low plasticity; moderate estimated permeability.	6.0	Monterey Sand #2/12
							Sandy SILT (ML) black/brown; moist; 10% clay, 60% silt, 30% fine-medium sand; medium plasticity; moderate estimated permeability; contains organics.		
	3 5 5	MW-4-10.5 MW-4P-11.0		10	ML		@10' - dark olive/brown; stiff; 20% clay, 50% silt, 30% fine sand; low estimated permeability; contains rootlets		4"-diam., 0.010" Slotted Schedule 40 PVC
								15.0	
	5 7 7	MW-4-15.5		15	SP		**SAND** (SP) olive/tan; wet; 7% clay, 3% silt, 90% fine sand; low plasticity; moderate estimated permeability.	16.0	
					CL		**Silty CLAY** (CL) light olive/tan; wet; 70% clay, 20% silt, 10% sand; high plasticity; low estimated permeability.		
	5 7 8	MW-4-19.0		20				20.0	Bottom of Boring @ 20 ft

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BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-5
JOB/SITE NAME	oakl540	**DRILLING STARTED**	07-Jun-02
LOCATION	540 Hegenberger Road, Oakland	**DRILLING COMPLETED**	07-Jun-02
PROJECT NUMBER	244-0414	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	10.47 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	10.03 ft above msl
BORING DIAMETER	10"	**SCREENED INTERVAL**	5 to 20 ft bgs
LOGGED BY	J. Gerke	**DEPTH TO WATER (First Encountered)**	5.6 ft (07-Jun-02) ▽
REVIEWED BY	M. Derby, PE# 55475	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand Augered to 5'.		

MTBE (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	Portland Type I/II Cement
							FILL brown; damp; sandy gravel.		
							@ 4fbg - 10% metal debris, up to 2" in diameter.		Bentonite Seal
	11			5					Monterey Sand #2/12
<0.5	19 20	MW-5-5.5			SM		**Silty SAND** (SM); black; dense; wet; 15% silt, 80% very fine sand, 5% medium gravel; no plasticity; slight odor. ▽	5.5	
	5							8.6	
<0.5	5 11	MW-5-9.0		10	CL		**Silty CLAY** (CL); gray; very stiff; damp; 75% clay, 25% silt; high plasticity.		4"-diam., 0.010" Slotted Schedule 40 PVC
	7								
13	8 11	MW-5-14.0		15			@ 14.0 fbg - light gray with blueish gray mottling; moist; 70% clay, 30% silt; medium plasticity.		
								16.8	
					ML		**Sandy SILT** (ML); light brown; wet; 20% clay, 45% silt, 30% sand; low plasticity.		
	5								
5.5	7 12	MW-5-19.0		20				20.0	Bottom of Boring @ 20 ft

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