CONESTOGA-ROVERS & ASSOCIATES

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TRANSMITTAL

DATE: October 8, 2008

REFERENCE NO.: 240937

PROJECT NAME: 3600 Park Boulevard, Oakland

TO: Jerry Wickham
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED
11:14 am, Oct 15, 2008
Alameda County
Environmental Health

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QUANTITY	DESCRIPTION
1	Well Destruction Work Plan

- ☐ As Requested
- ☐ For Your Use
- ☒ For Review and Comment
- ☐
- ☐

COMMENTS:
If you have any questions regarding the contents of this document, please call Peter Schaefer at (510) 420-3319.

Copy to: Denis Brown

Completed by: Peter Schaefer [Please Print]

Signed: Peter Schaefer

Filing: **Correspondence File**

WELL DESTRUCTION WORK PLAN

SHELL-BRANDED SERVICE STATION
3600 PARK BOULEVARD
OAKLAND, CALIFORNIA

SAP CODE	135689
INCIDENT NO.	98995747
AGENCY NO.	RO0002855

OCTOBER 8, 2008
REF. NO. 240937(2)
This report is printed on recycled paper.

Prepared by:
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LIST OF APPENDICES

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) prepared this work plan on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell). The proposed well destructions are required for final case closure per Alameda County Health Care Services Agency's (ACHCSA's) September 18, 2008 letter.

The site is an operating Shell-branded service station located on the eastern corner of Park Boulevard and Chatham Road intersection in Oakland, California (Figure 1). The area surrounding the site is both commercial and residential. Interstate 580 is located across Chatham Road opposite the site's southwestern boundary. The service station layout includes a station building, four dispensers, and a gasoline underground storage tank (UST) complex (Figure 2).

2.0 PROPOSED SCOPE OF WORK

2.1 PERMIT

CRA will obtain an appropriate drilling permit from Alameda County Public Works Agency.

2.2 SITE SAFETY PLAN

CRA will prepare a site safety plan for field work.

2.3 UTILITY CLEARANCE

CRA will mark proposed drilling locations, and the locations will be cleared through Underground Service Alert prior to drilling.

2.4 MONITORING WELL DESTRUCTION

CRA proposes to properly destroy four monitoring wells (MW-2, MW-4, MW-7, and MW-8). The wells will be destroyed by backfilling with neat cement under pressure (pressure grouting). The upper 5 feet of each well will then be drilled out. The well vaults will be removed, and the surface pavement patched with concrete to match the surrounding grade or re-landscaped to match surrounding plantings. CRA's standard field procedures are included as Appendix A, and the well logs are included in Appendix B. The proposed scope of work described will be performed under the supervision of a professional geologist or engineer.

2.5 REPORT PREPARATION

Following completion of the well destructions, CRA will submit a brief report documenting the activities. A Department of Water Resources (DWR) Well Completion Report form will be completed for each of the destroyed wells and will be submitted to DWR under separate cover.

3.0 SCHEDULE

CRA will implement the well destructions upon approval of this work plan by ACHCSA and receipt of appropriate permits. The work is tentatively scheduled for November 5 and 6, 2008.

All of Which is Respectfully Submitted,
CONESTOGA-ROVERS & ASSOCIATES

Peter Schaefer, CEG, CHG
Project Manager

Aubrey K. Cool, PG
Professional Geologist

FIGURES

10/01/08

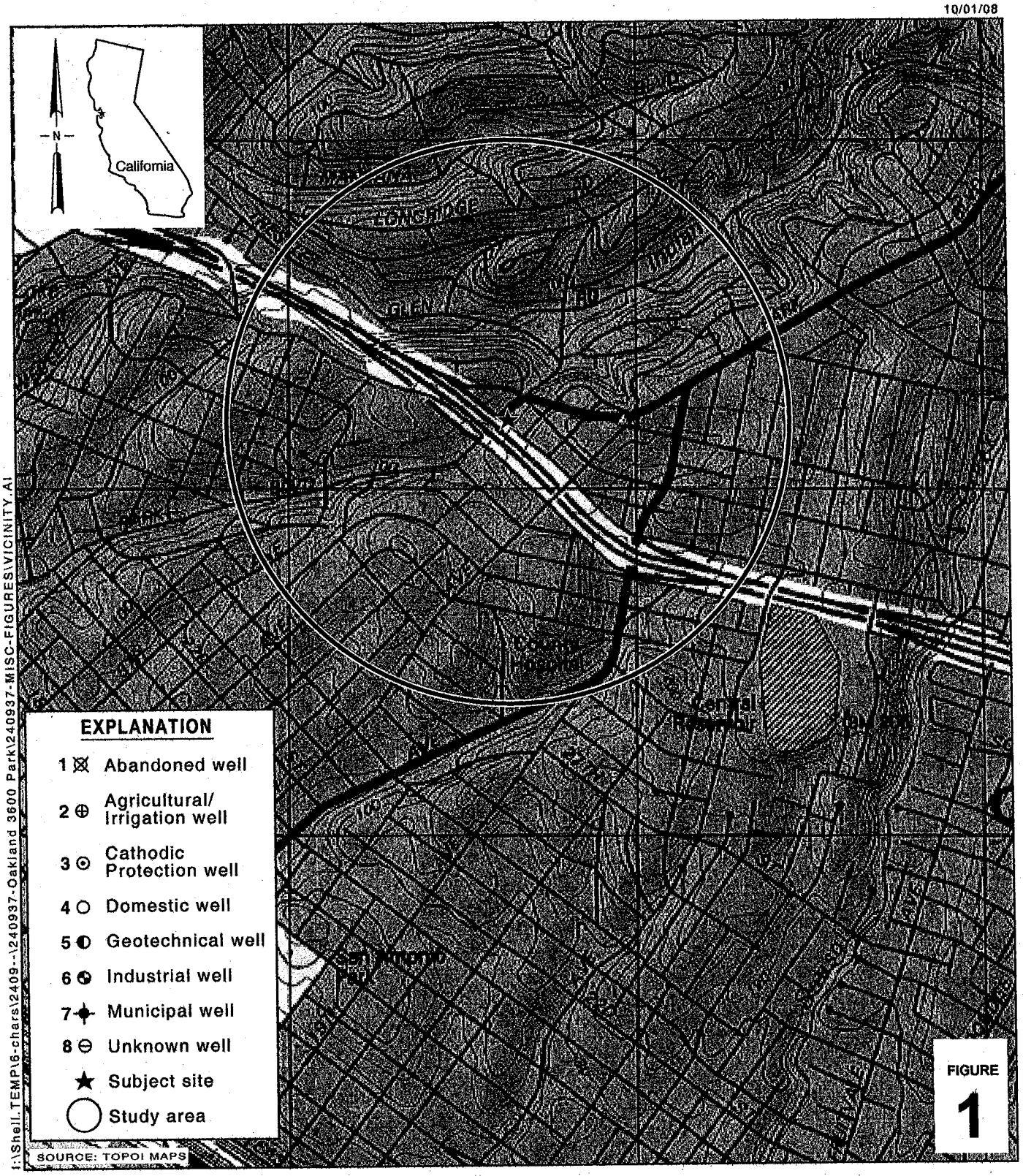

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FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Shell-branded Service Station

3600 Park Boulevard

Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

10/01/08

EXPLANATION

- MW-2 — Monitoring well location, proposed for destruction
- SB-1 — Soil boring location (1/3-6/06)
- D-1-5' — Dispenser soil sample location (8/20/04)
- D-1 — Dispenser soil sample location (02/20/98)
- Electrical line (E)
- Water line (W)

PARK BOULEVARD

CHATHAM ROAD

SB-1
D-1
D-1-5'
W
D-2
D-2-5'
MW-4
MW-2
D-4-5'
SB-5
SB-6
D-3-5'
SB-3
Kiosk
W
E
planter
trash
storage
sign
planter
light (typ.)
MW-8
MW-7
USTs
light
E
light & air/water
vents
fenceline
concrete retaining wall
bus stop
N 44°30'00" E PL 150.00'
S 45°30'00" E PL 101.50'
N 45°30'00" W PL 101.50'
S 44°30'00" W PL 150.00'

N

0 10 20 40

Scale (ft)

FIGURE

2

Site Plan

Shell-branded Service Station

3600 Park Boulevard

Oakland, California

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APPENDIX A

STANDARD FIELD PROCEDURES FOR MONITORING WELL DESTRUCTION

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR MONITORING WELL DESTRUCTION

This document presents standard field methods for properly destroying groundwater monitoring wells. The objective of well destruction is to destroy wells in a manner that is protective of potential water resources. The two procedures most commonly used are pressure grouting and drilling out the well. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Pressure Grouting

Pressure grouting consists of injecting neat Portland cement through a tremie pipe under pressure to the bottom of the well. The cement is composed of about five gallons of water to a 94 pound. sack of Portland I/II Cement. Once the well casing is full of grout, it is pressurized for five minutes by applying a pressure of 25 pounds per square inch (psi) with a grout pump. The well casing can also be pressurized by extending the well casing to the appropriate height and filling it with grout. In either case, the additional pressure allows the grout to be forced into the sand pack. After grouting the sand pack and casing, the well vault is removed and the area resurfaced or backfilled as required.

Well Drill Out

When well drill out is required, the well location is cleared for subsurface utilities and a hollow-stem auger (or other appropriate) drilling rig is used to drill out the well casing and filter pack materials. First, drill rods are placed down the well and used to guide the augers as they drill out the well. A guide auger is used in place of the drill rods if feasible. Once the well is drilled out, the boring is filled with Portland cement injected through the augers or a tremie pipe under pressure to the bottom of the boring. The well vault is removed and the area resurfaced or backfilled as required.

I:\misc\Templates\SOPs\Well Destruction SOP.doc

APPENDIX B

WELL LOGS

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BORING / WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-2
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	04-Jan-06
LOCATION	3600 Park Boulevard, Oakland, California	**DRILLING COMPLETED**	05-Jan-06
PROJECT NUMBER	240937	**WELL DEVELOPMENT DATE (YIELD)**	19-Jan-06 (29 gallons purged.)
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	157.50 ft above msl
DRILLING METHOD	Hydraulic push / hollow stem auger	**TOP OF CASING ELEVATION**	156.92 ft above msl
BORING DIAMETER	3" / 10"	**SCREENED INTERVALS**	20 to 30 fbg
LOGGED BY	S. Dalie IV	**DEPTH TO WATER (First Encountered)**	24.0 fbg (03-Jan-06) ▽
REVIEWED BY	D. Gibbs P.G. # 7804	**DEPTH TO WATER (Static)**	11.23 fbg (24-Jan-06) ▼
REMARKS	Air knifed to 5 fbg. First encountered groundwater at 24 fbg. Water rose to 23 fbg before being sampled via hydropunch.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT	0.6	
					CL		**CLAY with Sand and Gravel** 5Y4/3 Olive; moist; 70% clay, 10% silt, 10% fine sand, 10% fine gravel; high plasticity.	5.0	
0.4		SB-2-5		5	CL		@ 5 fbg, CLAY with Sand and Gravel; 5Y6/6 Olive yellow; moist; 70% clay, 15% fine sand, 15% fine gravel; medium plasticity.	7.0	
					ML		**SILT** 2.5Y5/4 Light olive brown; moist; 20% clay, 80% silt.	9.0	Portland Type I/II
0.4		SB-2-10		10	CL		**CLAY with Sand** 2.5Y5/2 Grayish brown; moist; 65% clay, 20% silt, 10% fine sand, 5% fine gravel. ▼	12.0	4" diam., Schedule 40 PVC
0		SB-2-15		15	ML		**SILT** 5Y6/6 Olive yellow; moist; 25% clay, 65% silt, 10% fine sand.		Bentonite Seal
0		SB-2-20		20				21.0	Lonestar Sand #2/12
					SC		**Clayey SAND** 2.5Y4/3 Olive brown; moist; 20% clay, 80% medium sand.	23.0	
		SB-2-23W		25	SP SC		**Poorly Graded SAND with Gravel** 2.5Y4/3 Olive brown; wet; 5% clay, 5% silt, 75% fine sand; 15% fine gravel. ▽		4"-diam., 0.010" Slotted Schedule 40 PVC
				30				30.0	Bottom of Boring @ 30 fbg

WELL LOG (PID) I:\SHELL.TEMP\6-CHARS\2409--\240937-OAKLAND 3600 PARK\240937-PRE SEPTEMBER 2008\OAKLAND 3600 PARK-EVILLE\GINT\240937.GPJ DEFAULT.GDT 10/3/08

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BORING / WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	04-Jan-06
LOCATION	3600 Park Boulevard, Oakland, California	**DRILLING COMPLETED**	05-Jan-06
PROJECT NUMBER	240937	**WELL DEVELOPMENT DATE (YIELD)**	19-Jan-06 (29 gallons purged.)
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	155.33 ft above msl
DRILLING METHOD	Hydraulic push / hollow stem auger	**TOP OF CASING ELEVATION**	155.00 ft above msl
BORING DIAMETER	3" / 10"	**SCREENED INTERVALS**	20 to 30 fbg
LOGGED BY	S. Dalie IV	**DEPTH TO WATER (First Encountered)**	24.0 fbg (03-Jan-06) ▽
REVIEWED BY	D. Gibbs P.G. # 7804	**DEPTH TO WATER (Static)**	9.92 fbg (24-Jan-06) ▼
REMARKS	Air knifed to 5 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
							ASPHALT	0.6
					CL		**CLAY with Sand** 2.5Y5/3 Light olive brown; moist; 70% clay, 15% silt, 15% fine sand; high plasticity.	2.3
					SM		**Silty SAND** 2.5Y4/3 Dark brown; moist; 45% silt, 55% fine sand.	
21		SB-4- 5		5				6.0
					CL		**CLAY** 2.5Y3/1 Very dark gray; moist; 65% clay, 25% silt, 10% fine sand.	
14.9		SB-4- 10		10			▼	11.0
					SM		**Silty SAND** 2.5Y5/2 Grayish brown; moist; 10% clay, 40% silt, 50% fine sand.	12.0
					CL		**CLAY** 2.5Y5/2 Grayish brown; moist; 80% clay, 10% silt, 10% fine sand; high plasticity.	
12.9		SB-4- 15		15				
					ML		**SILT** 2.5Y5/2 Grayish brown; moist; 20% clay, 75% silt, 5% fine sand.	18.1
0		SB-4- 20		20	CL		**CLAY** 2.5Y5/2 Grayish brown; moist; 65% clay, 25% silt, 10% fine sand; low plasticity.	20.0
					SM		**Silty SAND** 2.5Y3/1 Very dark gray; moist to wet, 5% clay, 40% silt, 55% fine sand.	22.0
		SB-4- 24W					▽	24.0
0		SB-4- 25		25	SP SM		**Poorly Graded SAND** 2.5Y3/1 Very dark gray; wet; 5% clay, 5% silt, 80% medium sand, 10% fine gravel.	
				30				30.0

WELL DIAGRAM

- Portland Type I/II
- 4" diam., Schedule 40 PVC
- Bentonite Seal
- Lonestar Sand #2/12
- 4"-diam., 0.010" Slotted Schedule 40 PVC

Bottom of Boring @ 30 fbg

WELL LOG (PID) I:\SHELL TEMP\6-CHARS\2409--\240937-OAKLAND 3600 PARK\240937-PRE SEPTEMBER 2008\OAKLAND 3600 PARK-EVILLE\GINT\240937.GPJ DEFAULT.GDT 10/3/08

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BORING / WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-7
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	04-Jan-06
LOCATION	3600 Park Boulevard, Oakland, California	**DRILLING COMPLETED**	06-Jan-06
PROJECT NUMBER	240937	**WELL DEVELOPMENT DATE (YIELD)**	19-Jan-06 (41 gallons purged.)
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	154.37 ft above msl
DRILLING METHOD	Hydraulic push / hollow stem auger	**TOP OF CASING ELEVATION**	154.00 ft above msl
BORING DIAMETER	3" / 10"	**SCREENED INTERVALS**	28 to 38 fbg
LOGGED BY	S. Dalie IV	**DEPTH TO WATER (First Encountered)**	35.0 fbg (04-Jan-06) ▽
REVIEWED BY	D. Gibbs P.G. # 7804	**DEPTH TO WATER (Static)**	9.64 fbg (24-Jan-06) ▼
REMARKS	Air knifed to 5 fbg. First encountered water at 35 fbg. Water rose to 29 fbg before being sampled via hydropunch.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT	0.6	
					CL		**CLAY with Gravel** 10YR5/6 Yellowish brown; moist; 65% clay, 10% silt, 10% fine sand, 15% fine gravel; high plasticity.	3.0	
					ML		**Silt with SAND** 10YR5/6 Yellowish brown; moist; 10% clay, 75% silt, 15% fine sand.	6.5	
0.9		SB-7-5		5					
					SM		**Silty SAND with Gravel** 10YR5/3 Brown; moist; 20% silt, 65% fine sand, 15% fine gravel.	8.0	
					SC		**Clayey SAND with Gravel** 10YR4/3 Brown; moist; 25% clay, 60% fine sand, 15% fine gravel.	9.5	
					SP		**Poorly Graded SAND** 10YR4/3 Brown; wet; 100% fine sand.	10.3	
0.1		SB-7-10		10					
					SC		**Clayey SAND with Gravel** 10YR4/3 Brown; moist; 25% clay, 60% fine sand, 15% fine gravel.	14.0	Portland Type I/II
0.1		SB-7-15		15					4" diam., Schedule 40 PVC
					GC		**Clayey GRAVEL** 10YR5/2 Grayish brown; moist; 40% clay, 5% silt, 55% coarse gravel.	18.0	
					CL		**CLAY** 10YR5/3 Brown; moist; 55% clay, 40% silt, 5% fine sand; low plasticity.		
0		SB-7-20		20					
								25.0	Bentonite Seal
0		SB-7-25		25	ML		**SILT** 10YR5/3 Brown; moist; 45% clay, 55% silt; no to low plasticity.	28.8	Lonestar Sand #2/12
		SB-7-29W							
0		SB-7-30		30	CL		**CLAY** 10YR4/3 Brown; moist; 75% clay, 20% silt, 5% fine sand; high plasticity.	32.0	
					SC		**Clayey SAND** 10YR4/3 Brown; moist; 25% clay, 70% fine sand; 5% fine gravel.	35.0 ▽	4"-diam., 0.010" Slotted Schedule 40 PVC
				35					

WELL LOG (PID) I:\SHELL\TEMPl6-CHARS\2409--\240937-OAKLAND 3600 PARK\240937-PRE SEPTEMBER 2008\OAKLAND 3600 PARK-EVILLE\GINT\240937.GPJ DEFAULT.GDT 10/3/08

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BORING / WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-7
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	04-Jan-06
LOCATION	3600 Park Boulevard, Oakland, California	**DRILLING COMPLETED**	06-Jan-06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
0		SB-7-35			SP		**Poorly Graded SAND** 10YR4/3 Brown; wet; 100% fine sand.	38.0	
					CL		**CLAY** 10YR4/3 Brown; wet; 65% clay, 25% silt, 10% fine sand; high plasticity.		
0		SB-7-40		40				40.0	Bottom of Boring @ 40 fbg

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BORING / WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-8
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	04-Jan-06
LOCATION	3600 Park Boulevard, Oakland, California	**DRILLING COMPLETED**	06-Jan-06
PROJECT NUMBER	240937	**WELL DEVELOPMENT DATE (YIELD)**	19-Jan-06 (34 gallons purged.)
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	152.86 ft above msl
DRILLING METHOD	Hydraulic push / hollow stem auger	**TOP OF CASING ELEVATION**	152.61 ft above msl
BORING DIAMETER	3" / 10"	**SCREENED INTERVALS**	40 to 50 fbg
LOGGED BY	S. Dalie IV	**DEPTH TO WATER (First Encountered)**	33.0 fbg (04-Jan-06) ▽
REVIEWED BY	D. Gibbs P.G. # 7804	**DEPTH TO WATER (Static)**	17.08 fbg (24-Jan-06) ▼
REMARKS	Air knifed to 5 fbg. First encountered water at 33 fbg. Sampled water discretely at 32 fbg, and 50 fbg via hydropunch.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT	0.6	Portland Type I/II; 4" diam., Schedule 40 PVC
					CL		**CLAY with Sand** 10YR5/4 Yellowish brown; moist; 65% clay, 10% silt, 25% medium sand; high plasticity.	3.3	
0.9		SB-8-5		5	SM		**Silty SAND** 10YR5/4 Yellowish brown; moist; 15% clay, 25% silt, 60% medium sand.	7.0	
					CL		**CLAY** 10YR5/3 Brown; moist; 70% clay, 20% silt, 10% fine sand; medium plasticity.	9.0	
0.1		SB-8-10		10	ML		**SILT** 10YR5/2 Grayish brown; moist; 35% clay, 55% silt, 10% fine sand; low plasticity.	12.0	
					GC		**Clayey GRAVEL** 10YR5/2 Grayish brown; moist; 25% clay, 15% silt, 60% fine gravel.		
0.1		SB-8-15		15				16.0	
					ML		**SILT** 10YR5/2 Grayish brown; moist; 25% clay, 65% silt, 10% fine sand. ▼		
0		SB-8-20		20					
0		SB-8-25		25				26.0	
					CL		**CLAY with Gravel** 10YR4/3 Brown; moist; 60% clay, 15% silt, 5% fine sand; 20% fine gravel; no to low plasticity. @ 27 fbg 10YR3/3 Dark brown.		
0		SB-8-30		30			@ 30 fbg CLAY with Gravel; 10YR5/1 Black; moist; 75% clay, 10% silt, 5% fine sand, 10% fine gravel; high plasticity.		
		SB-8-32W					▽	33.0	
							Clayey SAND with Gravel 10YR4/3 Brown; wet; 20% clay, 15% silt, 50% fine sand, 15% fine gravel.		
				35					

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BORING / WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	MW-8
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	04-Jan-06
LOCATION	3600 Park Boulevard, Oakland, California	**DRILLING COMPLETED**	06-Jan-06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
0		SB-8- 35		40	SC				Bentonite Seal; Lonestar Sand #2/12; 4"-diam., 0.010" Slotted Schedule 40 PVC
		SB-8- 50W		45					
				50				50.0	Bottom of Boring @ 50 fbg

WELL LOG (PID) I:\SHELL TEMP\6-CHARS\2409--\240937-OAKLAND 3600 PARK\240937-PRE SEPTEMBER 2008\OAKLAND 3600 PARK-EVILLEGINT\240937.GPJ DEFAULT.GDT 10/3/08