



April 18, 2014

**RECEIVED**

By Alameda County Environmental Health at 2:15 pm, Apr 21, 2014

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**Chevron Environmental  
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San Ramon, CA 94583  
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TimBishop@chevron.com

Mr. Mark Detterman  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**RE: Well Decommissioning Report**

1400 Powell Street, Emeryville, California  
Fuel Leak Case No.: RO0000067

Dear Mr. Detterman,

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please contact me at (925) 790-6463.

Sincerely,

A handwritten signature in blue ink that reads "Tim Bishop".

Timothy Bishop  
Union Oil of California – Project Manager

Attachment  
Well Decommissioning Report

**Union Oil Company of California**

**Well Decommissioning Report**

76 Service Station No. 3737

1400 Powell Street

Emeryville, California

Case No. RO0000067

April 18, 2014



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Angeline Tan,  
Assistant Project Manager

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Katherine Brandt, P.G.  
Certified Project Manager

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David Lay, P.G.  
Vice President



## Well Decommissioning Report

76 Service Station No. 3737  
1400 Powell Street  
Emeryville, California  
Case No. RO0000067

Prepared for:  
Union Oil Company of California

Prepared by:  
ARCADIS U.S., Inc.  
2000 Powell Street  
Suite 700  
Emeryville  
California 94608  
Tel 510 652 4500  
Fax 510 652 4906

Our Ref.:  
B0047937.0002

Date:  
April 18, 2014

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Appendix A	Boring Logs
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### **Acronyms and Abbreviations**

ACDEH	Alameda County Department of Environmental Health
ACPWA	Alameda County Public Works Agency
ARCADIS	ARCADIS U.S., Inc.
bgs	below ground surface
Cascade	Cascade Drilling, LP
CDWR	California Department of Water Resources
GPR	ground-penetrating radar
Union Oil	Chevron Environmental Management Company's affiliate, Union Oil Company of California
UST	underground storage tank

## **1. Introduction**

ARCADIS U.S. Inc. (ARCADIS), on behalf of Chevron Environmental Management Company's affiliate, Union Oil Company of California (Union Oil), prepared this Well Decommissioning Report (report) for the former 76 Service Station No. 3737, located at 1400 Powell Street in Emeryville, California (site; Figure 1). This report documents the decommissioning of six groundwater monitoring wells (MW-1A through MW-3A; MW-1B through MW-3B) associated with the site. In a letter dated December 18, 2013 the Alameda County Department of Environmental Health (ACDEH) requested the groundwater monitoring wells to be destroyed to complete the site closure under the Low Threat Closure Policy (ACDEH 2013). The wells were abandoned in accordance with Alameda County Public Works Agency's (ACPWA) requirements. Destruction of the wells was required as a final condition to receive case closure at the site.

## **2. Site Description**

The site was a former 76 brand service station and is currently an operating Chevron brand service station located on the northeast corner of the intersection of Powell Street and Peladeau Street, at 1400 Powell Street in Emeryville, California (Figure 1). Current site features include three 10,000 gallon underground storage tanks (USTs), four dispenser islands, and a station building. A propane fueling station is located in the northwest portion of the property

The site is bordered by Powell Street to the south, Peladeau Street to the west, commercial properties to the north, and Hollis Street to the east. Commercial properties also exist south, west, and east of the site, across Powell, Peladeau, and Hollis streets, respectively.

## **3. Well Decommissioning Activities**

Six existing monitoring wells (MW-1A through MW-3A; MW-1B through MW-3B) at the site were identified for well destruction. A site plan showing the well locations before destruction is included on Figure 2.

### **3.1 Pre-Field Activities**

Prior to initiating field activities, ARCADIS updated the site-specific Health and Safety Plan in accordance with state and federal requirements for use during the field

activities. ARCADIS obtained well destruction permits from ACPWA prior to initiating the well destruction activities.

### **3.2 Underground Utility Locating**

On March 11, 2014, ARCADIS contacted Underground Service Alert of Northern California to identify any public utilities near the monitoring well locations. On March 12, 2014, Cruz Brothers Locators, a private utility-locating company, conducted a utility mark out under direct supervision by ARCADIS. Cruz conducted the utility mark out using an electromagnetic transmitter and receiver and ground-penetrating radar (GPR) to clear proposed decommissioned monitoring well locations of conductive and non-conductive underground utilities. A traceable rodder was used to locate the sewer lateral.

### **3.3 Monitoring Well Decommissioning by Pressure Grouting**

On March 24th and 25th, 2014, six on-site groundwater monitoring wells (MW-1A through MW-3A; MW-1B through MW-3B) were successfully decommissioned by pressure grouting in place. Cascade Drilling, LP (Cascade), a California licensed drilling contractor (C-57 License No. 938110) performed the well abandonment in accordance with ACPWA requirements and the California Well Standards. Available boring logs and well construction diagrams are included as Appendix A.

Prior to well decommissioning, the depth to groundwater and depth to bottom was measured to confirm well construction details (Table 1). The well collar and cover at each well location was removed with a jackhammer, and the wells were pressure grouted at a pressure of approximately 25 pounds per square inch for at least 5 minutes. The pressure test was completed by connecting the well casing to an air compressor and monitoring the pressure to ensure sufficient setting of the neat cement mixture without any leak or pressure drop. Following the initial pressure test, additional neat cement was pumped into the well casing as necessary to bring the neat cement level back to the top of the casing. Annular materials were removed within the well box to 1 foot bgs and the casing was subsequently cut. The surface at each well location was restored to match pre-existing conditions using concrete.

## **4. Management of Investigation-Derived Waste**

Solid concrete and construction debris generated during well abandonment activities were contained in three 55-gallon drums and temporarily stored on-site pending disposal at an appropriately licensed facility. No waste liquids were generated during



## Well Decommissioning Report

76 Service Station 3737  
Emeryville, California

the well abandonment activities. Construction debris will be transported by Waste Management to their Altamont facility in Livermore, California, for disposal. Final copies of waste manifests will be submitted to ACDEH and uploaded to the State Water Resources Control Board GeoTracker database upon completion of the waste disposal activities.

### 5. Well Completion Reports

As required by Section 13751 of the California Water Code, Well Completion Reports must be filed with the California Department of Water Resources (CDWR) within 60 days of completion of the well destruction activities. Well Completion Reports were sent to the CDWR on April 11, 2014 and are included as Appendix B.

### 6. Summary

ARCADIS directed the decommissioning of six monitoring wells at the site on March 24<sup>th</sup> and 25<sup>th</sup>, 2014. Wells were decommissioned according to ACPWA and CDWR Bulletin 74-90 guidelines. ARCADIS has fulfilled all of the requirements for case closure.

### 7. References

Alameda County Department of Environmental Health. 2013. Public Participation Notification for Case Closure Consideration for Fuel Leak Case No. RO0000067 and Geotracker Global ID T0601745736, Tosco 76 #3737/Chevron, 1400 Powell Street, Emeryville, California. December 18.

California Department of Water Resources. 1974. California's Groundwater, Bulletin 118, Livermore Valley Groundwater Basin 2-10, Original 1974, Updated January 20, 2006.





**Figures**



**SITE  
LOCATION**

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., OAKLAND WEST, CALIFORNIA, 1993.



Approximate Scale: 1 in. = 2000 ft.



AREA  
LOCATION

CALIFORNIA



UNION OIL  
 FORMER 76 SERVICE STATION 3737  
 1400 POWELL STREET  
 EMERYVILLE, CALIFORNIA

**SITE LOCATION MAP**

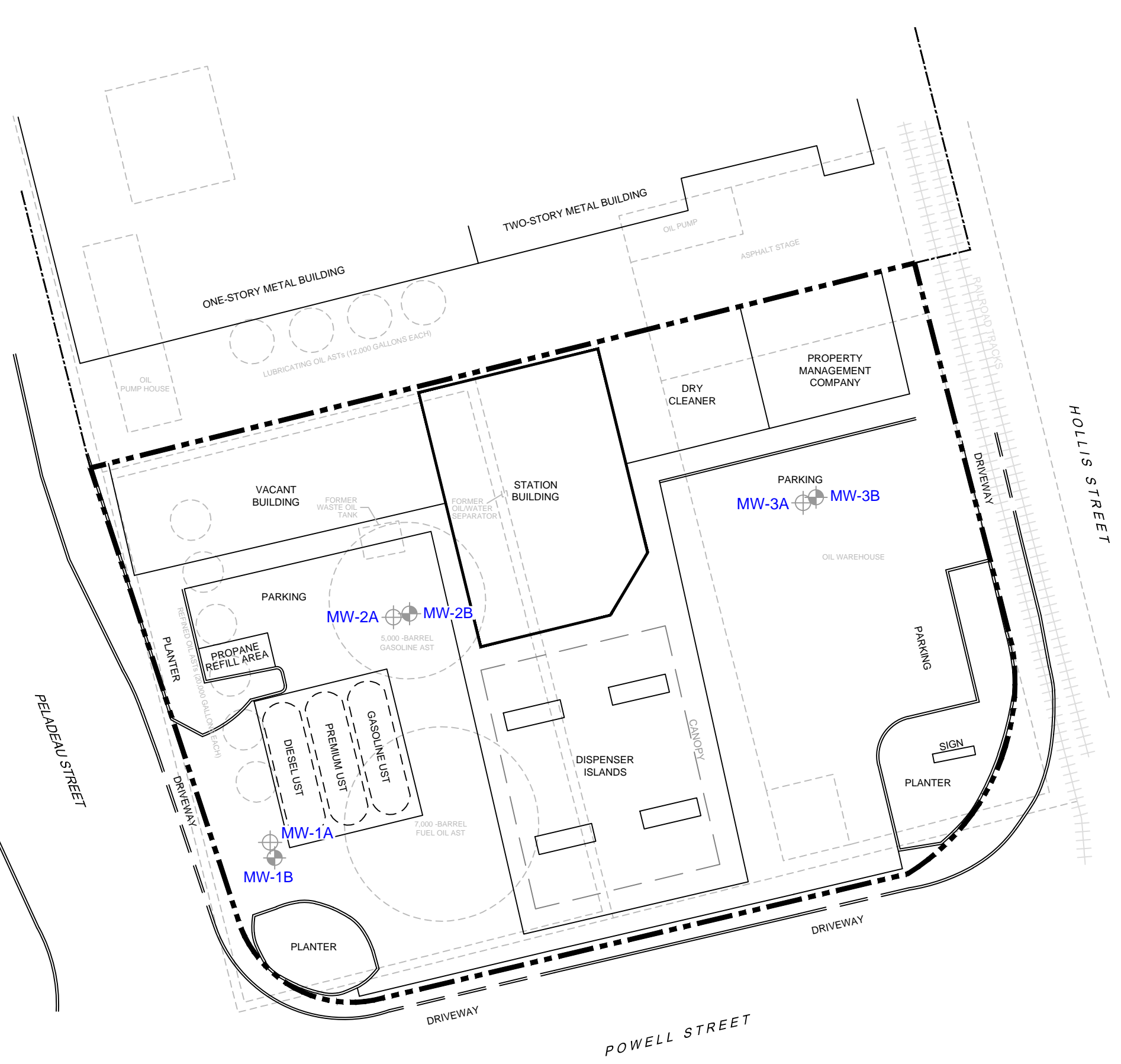


FIGURE

**1**



CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENV DB: J. HARRIS  
 C:\Users\jharris\Desktop\ENV\CA\B0047837\002\000006\DWG\47937801.dwg LAYOUT: 2 SAVED: 8/22/2012 10:03 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 3/27/2014 2:36 PM BY: HARRIS, JESSICA  
 XREFS: IMAGES: PROJECTNAME: 47937802

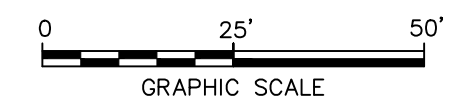


**LEGEND**

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A ABANDONED MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B ABANDONED MONITORING WELL LOCATION (DEEP ZONE)
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP

**NOTE:**

- BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.



UNION OIL  
 FORMER 76 SERVICE STATION 3737  
 1400 POWELL STREET  
 EMERYVILLE, CALIFORNIA

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**SITE PLAN SHOWING LOCATIONS OF  
 ABANDONED WELLS**

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**ARCADIS**

FIGURE  
**2**



## **Appendix A**

Boring Logs



Project No: C103737 Client: ConocoPhillips Well/ Boring ID: MW-1A  
 Logged By: Nadine Periat Location: 1400 Powell Street, Emeryville, CA Page 1 of 1  
 Driller: Cascade Drilling, LP Date Drilled: 1/15/2011  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8-inches  
 Sampling Method: Split Spoon Hole Depth: 10 feet  
 Casing Type: Sch 40 PVC Well Diameter: 2-inches  
 Slot Size: 0.010-inch Well Depth: 10 feet  
 Gravel Pack: 2/12 Sand Casing Stickup: NA

Location Map  
See Attached Site Map

Elevation Northing Easting







Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION		
Backfill	Casing										
		▼	moist		Air Knife to 5 Feet	1		GC-GP	Asphalt		
						2		SC	Sandy Gravel with Clay, gray, 50% fine gravel, 35% well graded sand, 15% fines (base rock).		
						3			Clayey Sand, brown-black, 10% concrete debris (5" diameter), 50% medium sand, 40% fines, low plasticity.		
						4					
						5			As above		
						6	1015	7		SP	Poorly Graded Sand, blue, <5% fines, fine sand, medium dense.
						7	89	8			As above
						8		9			
						9	4.6	7		SC	Clayey Sand, blue with red oxidation, 10% fine gravel, 70% medium sand, 20% fines, roots with black liquid medium dense
						10		8			

Bottom of Boring at 10 feet Below Grade

**Notes:**

Groundwater not encountered during drilling.

**Legend:**

-  Portland Cement
-  Bentonite Seal
-  2/12 Sand Pack
-  Blank Casing
-  0.01 inch Screen
-  Static Groundwater



Project No: C103737 Client: ConocoPhillips Well/ Boring ID: MW-1B  
 Logged By: Nadine Periat Location: 1400 Powell Street, Emeryville, CA Page 1 of 2  
 Driller: Cascade Drilling, LP Date Drilled: 1/15/2011  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8-inches  
 Sampling Method: Split Spoon Hole Depth: 23 feet  
 Casing Type: Sch 40 PVC Well Diameter: 2-inches  
 Slot Size: 0.010-inch Well Depth: 22 feet  
 Gravel Pack: 2/12 Sand Casing Stickup: NA

Location Map  
 See Attached Site Map

Elevation	Northing	Easting
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Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing								
					Air Knife to 5 Feet				Asphalt
						1		GC-GP	<b>Sandy Gravel with Clay</b> , gray, 50% fine gravel, 35% well graded sand, 15% fines (base rock).
						2		SC	<b>Clayey Sand</b> , brown-black, 10% concrete debris, 50% medium sand, 40% fines, low plasticity.
						3			
						4			
						5			As above
			moist	985	7	5		SP	<b>Poorly Graded Sand</b> , blue, <5% fines, fine sand
						6		CL	<b>Lean Clay with Sand and Gravel</b> , brown with orange oxidation, 30% gravel, 15% well graded sand, 55% fines, stiff
			moist	111	7	6		SP	<b>Poorly Graded Sand</b> , blue, 10% fines, fine sand, nodules of clay ~1-inch diameter, trace fine gravel, medium dense
						7			<b>Clayey Sand</b> , blue with red oxidation, 10% fine gravel, 70% medium sand, 20% fines, roots with black liquid
			moist	3.2	8	7		SC	<b>Sandy Lean Clay</b> , brown, 10% fine gravel, 30% well graded sand, 60% fines, medium plasticity, very stiff
						8		CL	<b>Sandy Lean Clay</b> , brown, 10% fine gravel, 30% well graded sand, 60% fines, medium plasticity, very stiff
			moist	3.8	8	8			As above, some thin layers of lean clay, stiff
						9			
			moist	18.9	8	9		CL	<b>Lean Clay with Sand</b> , brown-orange mottled, 35% well graded sand, 65% fines, root holes with black linings, medium plasticity, very stiff
						10			As above, 5% fine gravel, sand is fine.
			moist	0.8	8	10			
						11			
			moist	6.4	7	11		CL	<b>Sandy Lean Clay</b> , brown-orange mottled, 45% fine sand, 55% fines, trace gravel, fine root holes with black linings, stiff
						12			
			moist	1.4	7	12		CL	<b>Lean Clay</b> , tan, 15% fine sand, 85% fines, root holes, trace gravel, medium plasticity, very stiff
						13			
			moist	5.1	8	13			As above, color change to blue with orange mottling, medium plasticity, very stiff
						14			As above
			wet	1	7	14		SW-SC	<b>Well Graded Sand with Clay and Gravel</b> , blue, 60% sand, 25% fine gravel, 15% fines, sand mostly medium and fine, medium dense.
						15			As above
			wet	2.2	9	15		CL	<b>Lean Clay with Sand</b> , tan-blue mottled, 20% fine sand, 80% fines, medium plasticity, roots with brown linings, very stiff
						16			As above
			wet	1.1	9	16			
						17			
						18			
						19			
						20			
						21			
						22			





Project No: C103737 Client: ConocoPhillips Well/ Boring ID: MW-2A  
 Logged By: Nadine Periat Location: 1400 Powell Street, Emeryville, CA Page 1 of 1  
 Driller: Cascade Drilling, LP Date Drilled: 1/14/2011  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8-inches  
 Sampling Method: Split Spoon Hole Depth: 10 feet  
 Casing Type: Sch 40 PVC Well Diameter: 2-inches  
 Slot Size: 0.010-inch Well Depth: 10 feet  
 Gravel Pack: 2/12 Sand Casing Stickup: NA

Location Map  
See Attached Site Map

Elevation Northing Easting







Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing								
			moist		Air Knife to 5 Feet	1		GC GP	Asphalt Sandy Gravel with Clay, gray, 50% fine gravel, 35% well graded sand, 15% fines (base rock).
			moist	1318	5	2		CL	Lean Clay with Gravel, gray-brown, 20% fine gravel, 10% medium sand, 70% fines, medium plasticity.
			moist	886	7	3		CL	Lean Clay, brown, trace sand, medium plasticity
			moist	9.5	6	4			
			moist		7	5			As above, green-gray-brown mottled, stiff
			moist		7	6			
			moist		7	7		ML	Silt, black, <5% sand, sooty, very moist, nodules of black oil, stiff
			moist		7	8		GC	Clayey Gravel, brown-tan, 80% fine angular gravel, 10% fine sand, 10% fine, medium dense
			moist		6	9		CL	Lean Clay, brown-green mottled, 20% very fine sand, 15% fine gravel, black roots with brown liquid, medium plasticity, stiff
			moist		8	10			

Bottom of Boring at 10 feet below grade

**Notes:**

Groundwater not encountered during drilling.

**Legend:**

-  Portland Cement
-  Bentonite Seal
-  2/12 Sand Pack
-  Blank Casing
-  0.01 inch Screen
-  Static Groundwater





Project No: C103737 Client: ConocoPhillips Well/ Boring ID: MW-2B  
 Logged By: Nadine Periat Location: 1400 Powell Street, Emeryville, CA Page 1 of 2  
 Driller: Cascade Drilling, LP Date Drilled: 1/15/2011  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8-inches  
 Sampling Method: Split Spoon Hole Depth: 26 feet  
 Casing Type: Sch 40 PVC Well Diameter: 2-inches  
 Slot Size: 0.010-inch Well Depth: 25 feet  
 Gravel Pack: 2/12 Sand Casing Stickup: NA

Location Map

See Attached Site Map

Elevation	Northing	Easting
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Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
								Asphalt
				Air Knife to 5 Feet	1		GC GP	<b>Sandy Gravel with Clay</b> , gray, 50% fine gravel, 35% well graded sand, 15% fines (base rock).
					2		CL	<b>Lean Clay with Gravel</b> , gray-brown, 20% fine gravel, 10% medium sand, 70% fines, medium plasticity.
					3		CL	<b>Lean Clay</b> , brown, trace sand, medium plasticity
					4			
	▼	moist	419	5	5			As above, green-gray-brown mottled, stiff
				6	6			As above, trace fine sand, medium to high plasticity
			1120	5	7		ML	<b>Silt</b> , olive green-gray, 10-15% fine sand, low to no plasticity, stiff
				7	7			color change to dark gray with orange mottling
		moist	16.7	5	8		CL	<b>Lean Clay</b> , orange-brown, 15% fine to medium sand, 85% fines, trace fine gravel, medium plasticity, abundant root holes with LNAPL, % sand increasing with depth, stiff
				6	9		CL	
			34.1	7	10		CL	<b>Gravelly Lean Clay</b> , orange brown, 25% small gravel, 20% sand, 55% fines, gravel up to .5-inches, stiff
				8	11		CL	<b>Lean Clay</b> , orange-brown, 15% fine to medium sand, 80% fines, trace fine gravel, orange oxidation, medium plasticity, abundant root holes with LNAPL very stiff
		moist	23.2	8	12			
				8	13			As above, no gravel, <10% coarse sand.
				7	14			As above, trace fine gravel, root holes less common.
		moist	3.4	8	15		CL	<b>Gravelly Lean Clay with Sand</b> , light brown, 25% small gravel, 15% medium to coarse sand, 60% fines, abundant orange oxidation, nodules within matrix have sheen, nodules are <0.25 inches, gravel up to 0.75 inches, very stiff
				9	16		CL	
			2.3	9	17		CL	<b>Lean Clay</b> , light brown with orange mottling, trace coarse sand, black mineral throughout, medium to high plasticity, abundant black root holes, very stiff
		moist	10.6	10	18			As above, white precipitate with orange oxidation, light gray color
				10	19			
			2	10	20			As above, root holes less common, groundwater in sample root holes are saturated
		moist		9	21			
	▽	wet	2.7	9	22		CL	<b>Lean Clay with Gravel</b> , blue-gray, 15% fine gravel, 10% well graded sand, medium plasticity, very stiff



Project No: C103737	Client: ConocoPhillips	Well/ Boring ID: MW-2B	
Logged By: Nadine Periat	Location: 1400 Powell Street, Emeryville, CA	Page 2 of 2	
Driller: Cascade Drilling, LP	Date Drilled: 1/15/2011	Location Map  See Attached Site Map	
Drilling Method: Hollow Stem Auger	Hole Diameter: 8-inches		
Sampling Method: Split Spoon	Hole Depth: 26 feet		
Casing Type: Sch 40 PVC	Well Diameter: 2-inches		
Slot Size: 0.010-inch	Well Depth: 25 feet		
Gravel Pack: 2/12 Sand	Casing Stickup: NA		
Elevation		Northing	Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6')	Depth (feet)	Sample		Soil Type	LITHOLOGY / DESCRIPTION
						Recovery	Interval		
		wet	2	10	23			CL	<b>Lean Clay with Gravel Continued</b>
				8	24				As above, blue with brown mottling, 20% well graded sand, trace small gravel, gravel is rounded, very stiff
		wet	2.5	7	25				As above, crumbly, some black root holes, slough is wet, very stiff
				9	26				

**Bottom of Boring at 26 Feet Below Grade**

**Legend:**

	Portland Cement
	Bentonite Seal
	2/12 Sand Pack
	Blank Casing
	0.01 inch Screen
	First Encountered Groundwater
	Static Groundwater



Project No: C103737 Client: ConocoPhillips Well/ Boring ID: MW-3A  
 Logged By: Nadine Periat Location: 1400 Powell Street, Emeryville, CA Page 1 of 2  
 Driller: Cascade Drilling, LP Date Drilled: 1/15/2011  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8-inches  
 Sampling Method: Split Spoon Hole Depth: 25 feet  
 Casing Type: Sch 40 PVC Well Diameter: 2-inches  
 Slot Size: 0.010-inch Well Depth: 25 feet  
 Gravel Pack: 2/12 Sand Casing Stickup: NA

Location Map

See Attached Site Map

Elevation Northing Easting

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION	
Backfill	Casing									
		 	moist	44	Air Knife to 5 Feet	1		SC	Asphalt	
			moist			2				Base Rock
			wet			3				Clayey Sand with Gravel, green-gray, 60% small gravel, 20% well graded sand, 20% fines, gravel is 1" in diameter, subrounded, resembles base rock
				wet	4				Groundwater in hole at 4 feet bgs	
				wet	5	7			As above, sand is blue and tan, fine angular gravel, sand is 80% fine, medium dense	
				wet	6	7				
				wet	7	7		SC	Clayey Sand, gray-green-brown, 70% very fine sand, 30% fines, clusters of fine gravel, roots with brown liquid	
				wet	8	8			one 1-inch layer of poorly graded sand, brown, medium grains, medium dense	
				wet	9	7			as above, 40% fines	
					8					

**Legend:**

- Portland Cement
- Bentonite Seal
- 2/12 Sand Pack
- Blank Casing
- 0.01 inch Screen
- First Encountered Groundwater
- Static Groundwater



Project No: C103737 Client: ConocoPhillips Well/ Boring ID: MW-3B  
 Logged By: Nadine Periat Location: 1400 Powell Street, Emeryville, CA Page 1 of 2  
 Driller: Cascade Drilling, LP Date Drilled: 1/15/2011  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8-inches  
 Sampling Method: Split Spoon Hole Depth: 25 feet  
 Casing Type: Sch 40 PVC Well Diameter: 2-inches  
 Slot Size: 0.010-inch Well Depth: 25 feet  
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Location Map  
See Attached Site Map

Elevation Northing Easting

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing									
										Asphalt
						1			SC	Base Rock
			moist			2				<b>Clayey Sand with Gravel</b> , green-gray, 60% small gravel, 20% well graded sand, 20% fines, gravel is 1" in diameter, subrounded.
			moist			3				
		▽	wet			4				<b>Groundwater in hole at 4 feet bgs</b>
			wet	1188	7	5				As above, sand is blue and tan, fine angular gravel, sand is 80% fine, medium dense
			wet		7	6				
			wet	36.1	6	7			SC	<b>Clayey Sand</b> , gray-green-brown, 70% very fine sand, 30% fines, clusters of fine gravel, roots with brown liquid medium dense
		▼	wet		8	8				As above, 40% fines.
			wet	104	7	9				
			moist	45.4	8	10			CL	<b>Lean Clay with Sand and Gravel</b> , brown with red oxidation, 15% fine rounded gravel, 20% fine sand, 65% fines, roots with black liquid, low plasticity, very stiff
			moist		8	11			SC	<b>Clayey Sand with Gravel</b> , 20% small gravel, 60% well graded sand, 20% fines, medium dense.
			moist	35.7	9	12			CL	<b>Lean Clay with Sand and Gravel</b> , brown, 20% gravel, 15% medium sand, 65% fines, red oxidation, brown thick liquid covering gravel and in roots, medium plasticity. very stiff
			moist	84.9	8	13				No Recovery
			moist		8	14				
			moist		8	15				
			moist	85.5	8	16				As above, trace sand and gravel, some roots, medium plasticity, very stiff
			moist		9	17				
			moist	69.4	9	18			CL	<b>Lean Clay with Sand and Gravel</b> , brown with orange mottling, 15% gravel, 20% sand, 65% fines, root holes, less brown liquid, very stiff.
			moist		9	19				No Recovery
			moist		10	20			SC	<b>Clayey Sand</b> , blue gray, 55% very fine sand, 45% fines, trace fine gravel, roots, pockets of poorly graded medium sand (tan), medium dense.
			moist	20.9	10	21			SC	<b>Clayey Sand with Gravel</b> , brown with dark red mottling, 15% fine gravel, 40% well graded sand, 45% fines, medium dense
			moist	26.4	10	22			SC	



Project No: C103737	Client: ConocoPhillips	Well/ Boring ID: MW-3B	
Logged By: Nadine Periat	Location: 1400 Powell Street, Emeryville, CA	Page 2 of 2	
Driller: Cascade Drilling, LP	Date Drilled: 1/15/2011	Location Map  See Attached Site Map	
Drilling Method: Hollow Stem Auger	Hole Diameter: 8-inches		
Sampling Method: Split Spoon	Hole Depth: 25 feet		
Casing Type: Sch 40 PVC	Well Diameter: 2-inches		
Slot Size: 0.010-inch	Well Depth: 25 feet		
Gravel Pack: 2/12 Sand	Casing Stickup: NA		
Elevation		Northing	Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample		Soil Type	LITHOLOGY / DESCRIPTION
						Recovery	Interval		
		moist	25.8	12	23		↓	SC	Clayey Sand with Gravel Continued
				11	24		↑	SC	Clayey Sand, brown-blue with orange mottling, 55% fine sand, 45% fines, trace gravel, medium plasticity. medium dense.
				11					
				13	25		↓		

**Bottom of Boring at 25 Feet Below Grade**

**Legend:**

	Portland Cement
	Bentonite Seal
	2/12 Sand Pack
	Blank Casing
	0.01 inch Screen
	First Encountered Groundwater
	Static Groundwater



**Appendix B**

Well Completion Reports

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**



**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
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(WELL LOGS)

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STATE OF CALIFORNIA DWR  
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**REMOVED**



## **Appendix B**

Well Completion Reports