Tim Bishop
Project Manager
Marketing Business Unit

Chevron Environmental Management Company
6101 Bollinger Canyon Road
San Ramon, CA 94583
Tel (925) 790-6463
TimBishop@chevron.com

May 29, 2014

Ms. Teena Le
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Well Decommissioning Report
7850 Amador Valley Boulevard, Dublin, California
Fuel Leak Case No.: RO0000482

Dear Ms. Le

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. The attached Well Decommissioning Report documents the decommissioning of 5 groundwater monitoring wells associated with the site. Destruction of the wells was required as a final condition to receive case closure at the site.

If you have any questions or need additional information, please contact me at 925.790.6463 or by e-mail me at TimBishop@chevron.com.

Sincerely,

Tim Bishop
Union Oil of California – Project Manager

Attachment
Well Decommissioning Report

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

Union Oil Company of California

Well Decommissioning Report

76 Service Station No. 7176
7850 Amador Valley Boulevard
Dublin, California
Case No. RO0000482

May 29, 2014

ARCADIS

Jacob Henry, P.G.
Project Geologist

Katherine Brandt, P.G.
Certified Project Manager

Well Decommissioning Report

76 Service Station No. 7176
7850 Amador Valley Boulevard
Dublin, California
Case No. RO0000482

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.:
B0047944.2013

Date:
May 29, 2014

ARCADIS

Table of Contents

Acronyms and Abbreviations

ACEH	Alameda County Environmental Health
ARCADIS	ARCADIS U.S., Inc.
bgs	below ground surface
CDWR	California Department of Water Resources
Cruz	Cruz Brothers Locators
EM	electromagnetic transmitter and receiver
ft/ft	foot per foot
GPR	ground-penetrating radar
Gregg	Gregg Drilling and Testing, Inc.
report	Well Decommissioning Report
site	76 Service Station No. 7176, located at 7850 Amador Valley Boulevard in Dublin, California
UST	underground storage tank
Zone 7	Zone 7 Water Agency

1. Introduction

On behalf of Chevron Environmental Management Company's affiliate, Union Oil Company of California (Union Oil), ARCADIS U.S., Inc. (ARCADIS) prepared this Well Decommissioning Report (report) for the 76 Service Station No. 7176, located at 7850 Amador Valley Boulevard in Dublin, California (site; Figure 1). This report documents the decommissioning of five groundwater monitoring wells (U-1 through U-3, MW-4, and MW-5). The wells were abandoned in accordance with the Zone 7 Water Agency (Zone 7) requirements. Monitoring well destruction activities were conducted pursuant to California Well Standards Bulletin No. 74-81 and Supplement No. 74-90, under the supervision and signed by an appropriately licensed California Professional Geologist. Destruction of the wells is part of Alameda County Environmental Health's requirements to receive case closure at the site (ACEH 2013).

2. Site Description

The site is an active 76 Products service station. Current site facilities include one station building, two dispenser islands, two 12,000-gallon gasoline underground storage tanks (USTs), and one 12,000-gallon diesel UST. There were five monitoring associated with the site. Current and former site features are shown on Figure 2.

3. Monitoring Well Decommissioning Activities

Five existing monitoring wells (U-1 through U-3, MW-4, and MW-5) at the site were identified for well destruction. A site plan showing the former well locations is included as 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 Zone 7 prior to initiating the drilling and grouting activities. An encroachment permit was acquired from the City of Dublin Public Works Department to perform well destruction activities at MW-5 was located in a City of Dublin right-of-way.

3.2 Underground Utility Locating

On April 10, 2014, ARCADIS contacted Underground Service Alert of Northern California to identify any public utilities near the monitoring well locations. On April 17, 2014, Cruz Brothers Locators (Cruz), 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 (EM; Fisher TW-6 Pipe & Cable Locator 81.92 kHertz frequency) and ground-penetrating radar (GPR) to depths of approximately 4 to 6 feet, to clear proposed decommissioned monitoring well locations of conductive and nonconductive underground utilities. Cruz used a traceable rodder to locate the sewer lateral and inspected manholes and storm drains. Finally, ARCADIS staff conducted a visual inspection of the site to identify potential utility lines. ARCADIS established three lines of evidence for utility location prior to implementing the planned drilling activities.

No utilities were located within 5 feet of monitoring wells U-1, U-2, MW-4, and MW-5 during the public or private utility scans with EM and GPR. An electrical line and telephone line was encountered within 1 foot of on-site monitoring well U-3. The location and depth of the product lines are likely to be in the vicinity of U-2, but could not be verified using GPR.

3.3 Monitoring Well Decommissioning by Pressure Grouting

From April 28 through April 29, 2014, 3 on-site (U-1 through U-3) and two off-site (MW-4 and MW-5) monitoring wells were successfully decommissioned by pressure grouting in place. Gregg Drilling and Testing, Inc. (Gregg), a California licensed drilling contractor (C-57 License No. 485165) performed the well abandonment in accordance with Zone 7 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 well locations U-1, U-2, MW-4, and MW-5 were removed with a jackhammer. The well collar at well location U-3 was left in place due to proximity to an electrical line. All well locations were pressure grouted at a pressure of approximately 25 pounds per square inch for 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 approximately 1.5 feet bgs and the casing was subsequently cut. The surface at U-1 through U-3 and MW-4 was restored to match pre-existing conditions using concrete. The surface at MW-5 is located in a City of Dublin right-of-way was restored using hot patch asphalt.

4. Management of Investigation-Derived Waste

Construction waste generated as part of the well destruction activities was properly contained in two 55-gallon Department of Transportation (DOT) approved steel drums. All drums were labeled as non-hazardous construction debris and left onsite for removal. The drums will be transported offsite by Belshire Environmental Services, Inc. to a Veolia facility in Azusa, California. A final copy of the waste manifest will be submitted under separate cover.

5. Well Completion Reports

As required by Section 13751 of the California Water Code, Well Completion Reports must be filed with the CDWR within 60 days of completion of the well destruction activities. Well Completion Reports were submitted to the California Department of Water Resources on May 13, 2014. Copies of the Well Completion Reports are included as Appendix B.

6. Summary

ARCADIS directed the decommissioning of five monitoring wells at the site in April 2014. Wells were decommissioned according to Zone 7 and CDWR Bulletin 74-90 guidelines. ARCADIS has fulfilled all of the requirements for case closure.

7. References

ACEH, 2013. *Fuel Leak Case No. RO0000482 and GeoTracker Global ID T0600101883, UNOCAL #7176, 7850 Amador Valley Boulevard, Dublin, CA 94568*. April 15.

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Table

Table 1
Well Construction Details
Union Oil Company of California
76 Service Station No. 7176
7850 Amador Valley Boulevard, Dublin, California

Monitoring Well ID	Well Installation Date	Well Destruction Date	Borehole Diameter (inches)	PVC diameter (inches)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Depth to Bottom (feet btoc)
U-1	7/6/1995	4/28/2014	8	2	30	10-30	28.42
U-2	7/6/1995	4/28/2014	8	2	30	10-30	26.10
U-3	7/6/1995	4/28/2014	8	2	30	10-30	28.30
MW-4	4/5/1998	4/29/2014	8	2	25	10-25	25.33
MW-5	4/5/1998	4/29/2014	8	2	25	10-25	24.50

Notes:
bgs = below ground surface
btoc = below top of casing

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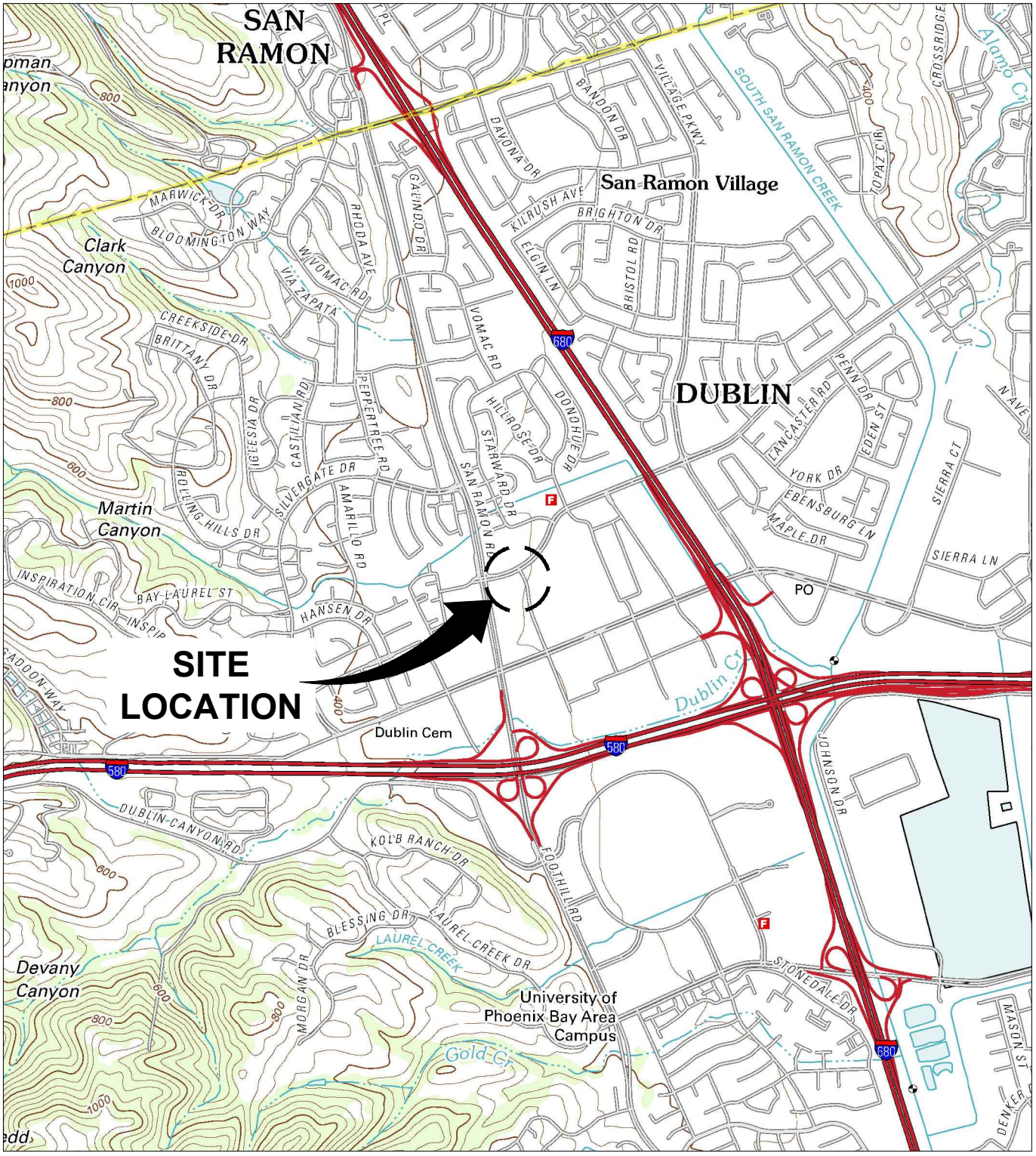
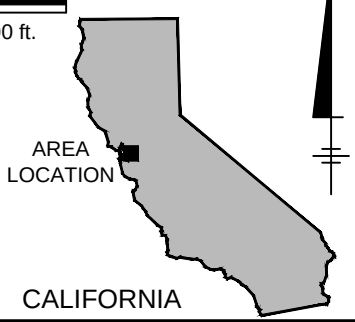
Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., DUBLIN, CALIFORNIA, 2012.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



UNION OIL COMPANY OF CALIFORNIA
76 SERVICE STATION 7176
7850 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA

SITE LOCATION MAP

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FIGURE 1

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
C:\Users\jharris\Desktop\ENVCAD\B0047944\2012\00002\DWG\47944N01.dwg LAYOUT: 1 SAVED: 7/6/2012 1:24 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 9/14/2012 11:27 AM BY: HARRIS, JESSICA

XREFS: IMAGES: PROJECTNAME: ---
Dublin 2012.jpg

AMADOR VALLEY BOULEVARD

REGIONAL STREET

SIDEWALK

PLANTER

DRIVEWAY

CANOPY

FORMER UST BASIN

CURRENT UST BASIN

VALERO STATION BUILDING

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7

U-1 U-2 U-3

FORMER & CURRENT UST

BUILDING

FORMER OIL/WATER SEPARATOR

FORMER WASTE OIL TANK

PARKING LOT

CLASSIC FURNITURE

LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE LIMITS OF FORMER EXCAVATION
- MW-1 PREVIOUSLY ABANDONED GROUNDWATER MONITORING WELL
- MW-4 GROUNDWATER MONITORING WELL ABANDONED APRIL 2014
- U-1 GROUNDWATER MONITORING WELL ABANDONED APRIL 2014

NOTES:

1. BASE MAP PROVIDED BY CRA, DATED 2/1/2011. BASED ON A MAP PROVIDED BY DELTA CONSULTANTS, FIGURE 3, TITLED "SITE PLAN WITH CROSS SECTIONS", DATED 2/11/2010.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 40' 80'

GRAPHIC SCALE

UNION OIL COMPANY OF CALIFORNIA
76 SERVICE STATION 7176
7850 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA

SITE PLAN SHOWING LOCATIONS OF ABANDONED WELLS

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FIGURE 2

Appendix A

Boring Logs

Field Exploratory Boring Log of Well U-1

OVM PPM	Blows/ 6"	Sample Number	Depth (ft)	Materials Description
			1	Asphalt
			2	Silt with Sand (ML) Fill Material
			3	Very Dark Grayish Brown (10YR 3/2); stiff, moist, 75% silt, 15% fine to coarse sand, 10% fine gravel.
	7		4	
	9		5	Silty Sand (SM)
0	13			Dark Grayish Brown (10YR 4/2); medium dense, moist, 75% very fine sand, 20% silt, 5% fine gravel.
			6	
			7	Silty Clay (CL)
				Dark Grayish Brown (10YR 4/2); very stiff, moist, 70% clay, 25% silt, 5% very fine sand, plastic, rootlets.
			8	
	8		9	
	8		10	
0	14	U-1-10.5'	11	
			12	Silt (ML)
	5			Dark Olive Gray (5Y 3/2); very stiff, moist, 80% silt, 10 % clay, 10% fine sand.
	10		13	
0	13		14	
			15	
			16	
			17	
			18	
	12	U-1-18.5'	19	Saturated at 19 ft.
	14			Gravel with Silt and Sand (GW-GM)
20	17		20	Olive Gray (5Y 4/2); dense, saturated, 75% fine to coarse gravel, 15% fine to coarse sand, 10% silt.
			21	Silty Clay (CL)
			22	Dark Olive Gray (5Y 3/2); stiff, wet, 70% clay, 25% silt, 5% very fine sand.
			23	
	9		24	
	13			
0	16		25	Color change to Dark Grayish Brown (10YR 4/2); very stiff, wet, increase in clay content.
			26	
			27	
			28	
	12			
	17		29	
0	26		30	Total Depth of Boring = 30 ft.

Well construction: Cement; Bent. 1- Ft.; 2-in. Sch. 40 PVC; Lonestar #3 Sandpack; 2-in. Sch. 40 PVC - 0.02-in. Mill Slot

WELL			
U-1	UNOCAL CORPORATION - CERT Unocal SS No. 7176 7850 Amador Valley Road Dublin, California	Borehole Diameter: 8 inches Logged by: C. Galantine Driller: Mitchell Date Started: 7-6-95 Date Completed: 7-6-95	*enviros* ® 95132.02

Field Exploratory Boring Log of Well U-2

OVM PPM	Blows/ 6"	Sample Number	Depth (ft)	Materials Description
			1	Asphalt
			2	Silt with Sand (ML) Fill Material
			3	Very Dark Grayish Brown (10YR 3/2); stiff, moist, 75% silt, 15% fine to coarse sand, 10% fine gravel.
	6		4	Silty Clay (CL)
	8		5	Black (10YR 2/1); very stiff, moist, 80% clay, 15% silt, 5% very fine sand.
0	9		6	
			7	Color change to Very Dark Grayish Brown (10YR 3/2); very stiff, moist, 60% clay, 30% silt, 10% very fine sand.
			8	Color change to Dark Olive Gray (5Y 3/2).
	9		9	
	11		10	
0	15		11	Color change to Very Dark Gray (10YR 3/1).
	10		12	
	15		13	
0	15	U-2-13'	14	
			15	Color change to Dark Olive Gray (5Y 3/2).
	12		16	
	12		17	
2	18		18	
	9		19	
	14	U-2-17.5'	20	Saturated at 17.5 ft.
34	17		21	Sandy Silt (ML)
			22	Olive Gray (5Y 4/2); very hard, wet to saturated, 60% silt, 35% very fine sand, 5% clay.
			23	
			24	Sandy Clay (CL)
	5		25	Dark Gray (5Y 4/1); very stiff, wet, 60% clay, 20% silt, 20% very fine sand.
	12		26	
0	16		27	
			28	Silty Clay (CL)
			29	Dark Brown (10YR 3/3); hard, wet, 85% clay, 10% silt, 5% very fine sand.
	13		30	
	15			
6.3	20			Total Depth of Boring = 30 ft.

Well construction: Cement; Bent. 1- Ft.; 2-in. Sch. 40 PVC; Lonestar #3 Sandpack; 2-in. Sch. 40 PVC - 0.02-in. Mill Slot

WELL			
U-2	**UNOCAL CORPORATION - CERT** Unocal SS No. 7176 7850 Amador Valley Road Dublin, California	Borehole Diameter: 8 inches Logged by: C. Galantine Driller: Mitchell Date Started: 7-6-95 Date Completed: 7-6-95	*enviros* ® 95132.02

Field Exploratory Boring Log of Well U-3

OVM PPM	Blows/ 6"	Sample Number	Depth (ft)	Materials Description
			1	Asphalt
			2	Silt with Sand (ML) Fill Material
			3	Very Dark Gray (10YR 3/1); stiff, moist, 80% silt, 20% fine sand.
	8		4	Silty Clay (CL)
	16		5	Black (10YR 2/1); very stiff, moist, 80% clay, 15% silt, 5% very fine sand.
0	16		6	Sandy Silt (ML)
			7	Dark Grayish Brown (10YR 4/2); hard, moist, 55% silt, 40% very fine to coarse sand, 5% clay.
			8	
	9		9	
	13		10	Increase in silt and clay content.
0	18		11	
			12	Clayey Silt (ML)
			13	Dark Grayish Brown (10YR 4/2); hard, moist, 60% silt, 30% clay, 10% very fine to fine sand.
	7		14	
	17		15	
0	17		16	
			17	Silty Clay (CL)
	12		18	Dark Grayish Brown (10YR 4/2); very stiff, moist to saturated, 55% clay, 40% silt, 5% very fine sand.
	12	U-3-17.5'	19	
0	18		20	Saturated at 18 ft.
			21	
			22	
			23	Color change to Dark Grayish Brown (10YR 4/2); hard, wet, increase in clay content.
	13		24	
	18		25	
0	25		26	
			27	
			28	
			29	
	12		30	
	15			
0	22			Total Depth of Boring = 30 ft.

Well construction: Cement; Bent. 1- Ft.; 2-in. Sch. 40 PVC; Lonestar #3 Sandpack; 2-in. Sch. 40 PVC - 0.02-in. Mill Slot

WELL			
U-3	**UNOCAL CORPORATION - CERT** Unocal SS No. 7176 7850 Amador Valley Road Dublin, California	Borehole Diameter: 8 inches Logged by: C. Galantine Driller: Mitchell Date Started: 7-6-95 Date Completed: 7-6-95	*enviros* ® 95132.02

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2092 Boring: B7/MW4 Plate: APPENDIX
Site: Tosco (Union) 76 Service Station 7176 Date: 4/15/98
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: ROBERT H. ENKEBOLL
Drill Rig: Mobile B-57 Bore Hole Diameter: 8" Signature:
Location: 80 Feet Southwest of Well U1 Registration: R.G. 5034
30 Feet South of Southern Site Boundary Logged by: Sue Shallenberger

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						2" asphalt, 8" base	
					ML		
5	20	0				Clayey silt, some sand and gravel, very dark greyish brown, damp, subangular gravel to 1"	
					CL	Transitioning to silty clay, abundant discontinuous calcium veinlets, sand and gravel interfingered at 9 feet	
10	14	0					
15	26	0					
					ML	Clayey silt, some gravel and sand, olive grey, moist, trace of sand, gravel rounded to subangular, up to 1" in size, sparse plant stems to 1 1/4", sand and gravel pocket 2" in diameter, fine-to coarse-grained sand. gravel to 1/4"	
20	20	7					
					CL	Silty clay, dark greyish brown, wet, sparse gravel	
					GP	Sandy gravel, dark greyish brown, wet, gravel to 1"	
25	25	2				Total depth at 25 feet Groundwater encountered at 20 feet	

Casing Diameter: 2" Slot Size: 0.010 , Sand Size: 2/12 , Grout: Portland Cement

FN: 30928007

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2092 Boring: B8/MW5 Plate: APPENDIX
Site: Tosco (Union) 76 Service Station 7176 Date: 4/15/98
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: ROBERT H. ENKEBOLL
Drill Rig: Mobile B-57 Bore Hole Diameter: 8" Signature:
Location: 95 Feet East of Well MW4 Registration: R.G. 5034
85 Feet Southeast of Well U1 Logged by: Sue Shallenberger

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						3" asphalt, 14" baserock	
					CL	Silty clay, dark greyish brown, damp with sandy gravel at 4', gravel rounded to subangular, up to 1 1/2"	
5	15	0					
10	13	0				mottled brown and dark greyish brown, moist, with discontinuous calcium deposit veinlets, some rootlets, trace of sand, sparse gravel to 1/2"	
15	12	0					
					ML	Clayey silt, mottled brown and greenish grey, wet, some calcium veinlets, trace of sand	
20	9	2					
					CL	Clay, dark greyish brown, wet, some gravel to 1/2"	
25	22					Total depth at 25 feet Groundwater encountered at 20 feet	

Casing Diameter: 2" Slot Size: 0.010 , Sand Size: 2/12 , Grout: Portland Cement

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
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED