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By Alameda County Environmental Health at 1:58 pm, Dec 27, 2013

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December 19, 2013

Mr. Jerry Wickham Alameda County Health Care Services 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

RE: Well Decommissioning Report

1771 First Street, Livermore, California Fuel Leak Case No.: RO0000436

Dear Mr. Wickham,

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 15 groundwater monitoring wells and 8 sparge points 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) 790-3513 or by email at <u>JillianHolloway@chevron.com</u>.

Sincerely,

Jum Halloury

Jillian Holloway Union Oil of California – Project Manager

Attachment Well Decommissioning Report



Imagine the result

Union Oil Company of California

Well Decommissioning Report

76 Service Station No. 4186 1771 First Street Livermore, California Case No. RO0000436

December 19, 2013

atherine Brondt

Katherine Brandt Certified Project Manager

David W. Lay, P.G., C.P.G Principal Geologist



Well Decommissioning Report

76 Service Station No. 4186 1771 First Street Livermore, California Case No. RO0000436

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.: B0047942.2013.00005

Date: December 19, 2013

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Well Decommissioning Report

76 Service Station 4186 Livermore, California

Acronyms and Abbreviations

ACDEH	Alameda County Department of Environmental Health
ARCADIS	ARCADIS U.S., Inc.
bgs	below ground surface
CDWR	California Department of Water Resources
Cruz	Cruz Brothers Locators
Delta	Delta Environmental Consultants, Inc.
EM	electromagnetic transmitter and receiver
ft/ft	foot per foot
GPR	ground-penetrating radar
Gregg	Gregg Drilling, Inc.
report	Well Decommissioning Report
site	76 Service Station No. 4186, located at 1771 First Street in Livermore, California
UST	underground storage tank
Zone 7	Zone 7 Water Agency



76 Service Station 4186 Livermore, California

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 76 Service Station No. 4186, located at 1771 First Street in Livermore, California (site; Figure 1). This report documents the decommissioning of 15 groundwater monitoring wells (U-1 through U-15) and eight ozone sparge points (SP-1 through SP-4, SP-5/5S, SP-6S, SP-7S, SP-8/8S) associated with the site. The wells were abandoned in accordance with the Zone 7 Water Agency (Zone 7) requirements. In a letter dated September 23, 2013 the Alameda County Department of Environmental Health (ACDEH) requested well destruction activities (ACDEH 2013). 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 registered California Professional Geologist. Destruction of the wells was required as a final condition to receive case closure at the site.

2. Site Description

The site is an operating Chevron-branded gas station located at 1771 First Street in Livermore, California (Alameda County Assessor's Parcel # 97-10-1-1; Figure 1). The site currently consists of a station building, four product dispenser islands, and two 10,000-gallon gasoline underground storage tanks. A site plan is presented on Figure 2.

The site is bounded to the northwest by First Street, to the east by South N Street, and to the south and west by commercial property. Commercial and residential properties are located further north and south of the site (ARCADIS 2013a).

2.1 Regional and Site Geology

Onsite soil include Holocene-age alluvial fan deposits, described by the California Department of Water Resources (CDWR) in Bulletin 118-3 as "unconsolidated, moderately sorted, permeable fine sand and silt, with gravel becoming more abundant toward fan heads with canyons" (CDWR 1974). The site is located approximately 1 mile east of the northwest-trending Livermore Fault (Zone 7 2005). Holocene alluvial fan deposits comprise semi-consolidated sand and gravel in a clayey sand matrix (Delta Environmental Consultants, Inc. [Delta] 2006).

Well Decommissioning Report

76 Service Station 4186 Livermore, California

The site is underlain by sand and gravel to approximately 20 feet below ground surface (bgs). The sand and gravel layer is underlain by a clay layer from approximately 20 to 35 feet bgs. A sandy layer then extends from approximately 35 to 45 feet bgs, followed by another clay layer from approximately 45 feet bgs (Delta 2010). Copies of available boring logs are provided in Appendix A.

2.2 Regional and Site Hydrogeology

The site is located within the Mocho Sub-basin of the Livermore Valley Groundwater Basin. The Mocho Sub-basin is bounded by the Livermore Fault to the west, exposed Livermore Formation to the east, Tassajara Formation and Parks Boundary to the north, and Livermore Uplands to the south (Zone 7 2005).

Water-bearing zones can be found under the entire Livermore Valley Groundwater Basin and portions of the upland areas. Valley fill, the Livermore Formation, and the Tassajara Formation make up the primary water-bearing zones (CDWR 1974). Multiple aquifers are present in the Livermore Valley Groundwater Basin and include unconfined aquifers in the Upper Aquifer Zone and confined aquifers in the Lower Aquifer Zone. The Upper Aquifer Zone exists between surficial clay (at approximately 20 to 40 feet bgs) to approximately 80 to 150 feet bgs. The Lower Aquifer Zone is located below the up to 50-foot-thick clay aquiclude beneath the center of the Upper Aquifer Zone. Water quality within the Mocho Sub-basin is described as fair to excellent quality, with the presence of sodium bicarbonate and magnesium bicarbonate (Zone 7 2005).

Groundwater was first encountered in borings drilled in 1998 at approximately 23 feet bgs (Gettler-Ryan Inc. 1998). Three hydrologic units were discovered (shallow, intermediate, and deep), separated by approximately 15-foot-thick clayey layers (Delta 2006). The groundwater flow direction on site has varied from the north to the southwest, with dominant flow to the west. The depth to groundwater in on-site wells varies from approximately 21 to 51 feet bgs. Groundwater elevations fluctuate seasonally by approximately 10 feet. The hydraulic gradient during the second semiannual 2012 groundwater monitoring event was approximately 0.004 foot per foot (ft/ft) in the shallow zone, 0.036 ft/ft in the intermediate zone, and 0.014 ft/ft in the deep zone (ARCADIS 2013b).

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3. Monitoring Well Decommissioning Activities

Fifteen existing monitoring wells (U-1 through U-15) and eight ozone sparge points (SP-1 through SP-4, SP-5/5S, SP-6S, SP-7S, SP-8/8S) 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 Zone 7 prior to initiating the drilling and grouting activities, and an encroachment permit from the City of Livermore Community Development Department to perform well destruction activities at U-4 and U-5, which were located on the City of Livermore right-of-way.

3.2 Underground Utility Locating

On October 11, 2013, ARCADIS contacted Underground Service Alert of Northern California to identify any public utilities near the monitoring well locations. On October 16, 2013, 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 and sparge well locations of conductive and nonconductive underground utilities. Cruz used a traceable rodder to locate the sewer lateral. The site was also inspected for 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, U-3, U-9, U-10, U-13, U-14, and SP-5/SP-5S during the public or private utility scans with EM and GPR. Utilities including water (irrigation and domestic), electrical (high voltage electrical, side lighting), sewer, communication, and product lines were encountered within 5 feet of off-site monitoring wells U-4 and U-5, and on-site wells U-6 through U-8, U-11, U-12, SP-1 through SP-4, SP-6, SP-7, and SP-8/SP-8S. A magnetic anomaly was identified around well U-15.

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3.3 Monitoring Well Decommissioning by Pressure Grouting

From November 4 through 8, 2013, 13 on-site (U-1 through U-3, and U-6 through U-15) and two off-site (U-4 and U-5) monitoring wells, and eight on-site sparge points (SP-1 through SP-4, SP-5/5S, SP-6/6S, SP-7S, SP-8/8S) were successfully decommissioned by pressure grouting in place. Gregg Drilling, 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 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 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, except for SP-3, which was backfilled with garden soil to match the surrounding landscape material.

4. Management of Investigation-Derived Waste

On the final day of work, Gregg removed construction debris including polyvinyl chloride piping, concrete, asphalt, and well monuments from the site and disposed of the debris as municipal waste.

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 CDWR on November 25, 2013.

Well Decommissioning Report

76 Service Station 4186 Livermore, California

6. Summary

ARCADIS directed the decommissioning of 15 monitoring and eight sparge wells at the site in November 2013. 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

- Alameda County Department of Environmental Health. 2013. Well Decommissioning for Fuel Leak Case No. RO0000436 and GeoTracker Global ID T0600101777, Unocal #4186, 1771 First Street, Livermore, CA 94550. September 23.
- ARCADIS U.S., Inc. 2013a. Semiannual Monitoring Report Second Half 2012. Facility No. 4186, 1771 First Street, Livermore, California. January 24.
- ARCADIS U.S., Inc. 2013b. Conceptual Site Model and Closure Request. 76 Service Station No. 4186, 1771 First Street, Livermore, California. May 23.
- California Department of Water Resources. 1974. California's Groundwater, Bulletin 118, Livermore Valley Groundwater Basin 2-10, Original 1974, Updated January 20, 2006.
- Delta Environmental Consultants, Inc. 2006. Soil Boring Assessment, Delta Project No. C104186031, 76 Services Station No. 4186, 1771 First Street, Livermore, California. May 26.
- Delta Environmental Consultants, Inc. 2010. Magnesium Sulfate Application Pilot Test Report, 76 Service Station No. 4186, 1771 First Street, Livermore, California. September 15.
- Gettler-Ryan Inc. 1998. Well Installation Report at Tosco (Unocal) Service Station No. 4186, 1771 First Street, Livermore, California. November 23.
- Zone 7 Water Agency. 2005. Groundwater Management Plan for Livermore-Amador Valley Groundwater Basin. September.

Table

Table 1 Well Construction Details

Well Decommissioning Report Union Oil Company of California 76 Service Station No. 4186 1771 First Street, Livermore, 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)					
			Shallo	w Unit								
U-1	8/15/1998	11/7/2013	8	2	34.5	14 - 34.5	33.8					
U-2	8/16/1998	11/7/2013	8	2	34.5	13 - 34.5	32.9					
U-3	8/16/1998	11/7/2013	8	2	34	14 - 34	33.5					
Intermediate Unit												
U-4	2/21/2001	11/5/2013	8	2	45	35 - 45	44.6					
U-5	2/21/2001	11/5/2013	8	2	47	37 - 47	47.8					
U-6	12/6/2001	11/6/2013	8	2	45	35 - 45	41.8					
U-7	12/6/2001	11/8/2013	8	2	45	35 - 45	44.9					
U-8	9/8/2008	11/6/2013	8	2	45	35 -45	45.5					
U-9	9/10/2008	11/6/2013	8	2	45	35 -45	44.7					
U-10	9/11/2008	11/7/2013	8	2	47	37 - 47	47.9					
U-11	9/12/2008	11/8/2013	8	2	45	35 -45	45.6					
			Deep	Unit								
U-12	10/7/2008	11/8/2013	17	4	75	65 - 75	74.8					
U-13	10/8/2008	11/6/2013	17	4	72	62 - 72	75.3					
U-14	10/1/2008	11/6/2013	17	4	73	65 - 73	72.0					
U-15	10/8/2008	11/7/2013	17	4	71	61 - 71	71.5					
			Sparge	Points								
SP-1	12/7/2001	11/6/2013	8	3/4	45	42.5-45						
SP-2	12/7/2001	11/7/2013	8	3/4	45	42.5-45						
SP-3	12/6/2001	11/7/2013	8	3/4	45	42.5-45						
SP-4	12/5/2001	11/7/2013	8	3/4	45	42.5-45						
SP-5/SP-5S	12/5/2001	11/7/2013	8	3/4	45	42.5-45, 22.5-25						
SP-6S	12/72001	11/7/2013	8	3/4	25	22.5-25						
SP-7S	12/6/2001	11/8/2013	8	3/4	25	22.5-25						
SP-8/SP-8S	12/5/2001	11/8/2013	8	3/4	25	42.5-45, 22.5-25						

Notes:

bgs = below ground surface btoc = below top of casing

Figures



BY: HARRIS, JESSICA PLOTTED: 7/5/2012 6:45 AM ARCADIS.CTB PLOTSTYLETABLE: SETUP1 PAGESETUP: ACADVER: 18.1S (LMS TECH) SAVED: 7/5/2012 6:45 AM LAYOUT: 1 gwb. MA, CA DIV/GROUP: ENV DB: J. HARRIS \Desktop\ENVCAD\B0047942\2012\00002\DWG\47942N01. PETALUMA, CA C:\Use CITX:



LEGEND

	PROPERTY BOUNDARY
U-1 븆	SHALLOW ZONE MONITORING WELL (ABANDONED NOVEMBER 2013)
U-6 教	INTERMEDIATE ZONE MONITORING WELL (ABANDONED NOVEMBER 2013)
U-15 🏶	DEEP ZONE MONITORING WELL (ABANDONED NOVEMBER 2013)
SP-1 📕	OZONE SPARGE POINT (ABANDONED NOVEMBER 2013)
B-1 🖲	BOREHOLE LOCATION
С.В.	STORM DRAIN
— — E —	UNDERGROUND ELECTRIC
V <u></u>	UNDERGROUND WATER
OE	OVERHEAD ELECTRIC

NOTES:

LED

2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



GRAPHIC SCALE

UNION OIL COMPANY OF CALIFORNIA 76 SERVICE STATION 4186 1771 FIRST STREET LIVERMORE, CALIFORNIA

SITE PLAN SHOWING ABANDONED WELL LOCATIONS



FIGURE

+

Appendix A

Boring Logs



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BO	Ent			0					A CONTRACTOR OF A			
R P	BOIR	: /(DSCO (76)	Serv	rice S	tation	No. 4186	LOCATION: 1771 First Street, Livermore, CA CASING ELEVATION:				
		ADTE	D: 00/01	15.0	5							
ATE	FI	NICH	D. 02/21	101				WL (fl. bgs): 29.5 DATE: 02/21/01 TIME: 10:35				
RII		MET		701	11			WL (ft. bgs): 33.0 DATE: 02/21/01	TIME: 15:00			
RIL	LING	COM	PANY. C	и. ПО	do De	DIEM A	uger	TOTAL DEPTH: 46.5 feet				
IRIELING COMPANY: Cascade Drilling								GEOLOGIST: Jed Douglas				
(feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMB	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	Gi A satu se statu ses	EOLOGIC DESCRIPTION	WELL DIAGRAM			
					र स्ट	GW	ASPHALT - 3 inch	nes thick.				
							GRAVEL WITH SAU dry, very dense; (to 4 cm, 40% fine	ND (GW) - dark brown (10YR 3/3), 50% fine to coarse subangular gravel to coarse sand.				
-	Ø	>100	U~4-5				<i>a</i> .					
4		-				maj 1						
4		8 - S							NN			
			The store of									
1												
1	0	>100				- - -	Becomes 50% fine cm, 30% fine to co	to coarse subangular gravel to 4 arse sand, 20% slit.				
-					S	H-SM	SAND WITH SILT A (10YR 4/3), dry, ve 30% silt, 20% fine g	ND GRAVEL (SW-SM) - brown ery dense: 50% fine to coarse sand, gravel.	tuent			
	0	>100	U-4-15			isel) netti			2" blank sche			
-					15	N-SC	SAND WITH GRAVE (10YR 4/3), dry, ve 30% fine to coarse	AND CLAY (SW-SC) - brown ry dense: 60% fine to coarse sand, subangular gravel, 20% clay.				
	0	>100	U-4-20			CL						
							medium plasticity; 9	isn brown (10YR 5/4), dry, hard, 5% clay, 5% fine sand.				
	1	38	U-4-25	P	2							



Page 2 of 2

Gettler-Ryan, Inc.								Log of Bori	ng U-5				
PRO	ECT:	Tos	co (78) :	Servi	ice S	tation N	lo. 4186	LOCATION: 1771 First Street Live	armore CA				
GR P	ROJE	CT NO).: 1401.	75.05	5	1.1		CASING ELEVATION:					
DAT	E ST	ARTEC): 02/21/	/01				WL (ft. bas): 29 DATE: 02/21/01	TIME: 14:05				
DAT	EFIN	ISHE): 02/21	1/01		I Carlo Marine		WL (ft. bas): 33.4 DATE: 02/21/01	TIME: 15:30				
DRIL	LING	METH	10D: <i>8 ir</i>	n. Ho	llow S	Stem Au	ger	WL (ft. bgs): 33.4 DATE: 02/21/01 TIME: 15:30 TOTAL DEPTH: 47 feet					
DRIL	LING	COMP	ANY: Ca	asca	de Di	rilling	- 8	GEOLOGIST: Jed Douglas					
DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	GEOLOGIC DESCRIPTION	WELL DIAGRAM				
4	0	>100	U-5-10			GW-GM	ASPHALT - 3 in GRAVEL WITH S (IDYR 3/3), dry subangular grav 15% silt. SAND (SW) - da very dense; 90% (perched zone	ches thick. AND AND SILT (GW-GM) - dark brown , very dense; 80% fine to coarse el to 4.5 cm, 25% fine to coarse sand, "In to coarse sand, 10% clay. "In to coarse sand, 10% clay.	2" blank schedule 40 PVC				
20-	0	64	U-5-20	N		CL	CLAY (CL) - bro	wn (10YR 4/3), dry, hard, low					
24-	0	44	U5-25				plasticity; 95% c	lay, 5% fine sand.					
20				E	1								
207		1	,	L-Ť		- 172 J.		and the second					

Page 1 of 2



GR PROJ DATE S DATE F DRILLIN DRILLIN	JECT NO TARTED INISHED NG METH NG COMP	.: 14017 : 12/06/): 12/06. 0D: 8 in	75.07 701 701	/ V - + 7	unional .	CASING ELEVATION: 478.38 Ft. (A	ASL)			
DATE S	TARTED INISHEE IG METH IG COMP	: 12/06/): 12/06, 0D: 8 in	'01 /01					2		
DATE F: DRILLIN DRILLIN (100)	INISHEE): <i>12/06.</i> 0D: 8 in	/01			WL (ft. bgs): 31.5 DATE: 12/06/01 TIME: 04:40				
	IG METH	0D: 8 in		1473	si na na l	WL (ft. bgs): DATE:	TIME.			
DRILLIN	IG COMP		. Hollow S	item Au	uger	TOTAL DEPTH: 46.5 feet	a hat in a			
FTH feet) (nom)	*	ANY: Ca	scade Dr.	illing		GEOLOGIST: Jed Douglas	623 (S. 1986)			
feet) (n (nom)	*	μ	free and the							
	BLOWS/FT.	SAMPLE NUME	SAMPLE INT. GRAPHIC LOG	SOIL CLASS	h ganar to	GEOLOGIC DESCRIPTION	WELL DIAGRA	M		
- - - - - - - - - - - - - - - - - -) >100	U-8-5		GW	Asphalt and b WELL-GRADEI (10YR 3/3), d subangular to coarse sand.	base rock D GRAVEL WITH SAND, (GW) - dark brown ry, very dense; 50% fine to coarse rounded gravel to 3 cm, 50% fine to		7		
) >100	U-6-10	2		Color change to coarse gra	s to brown (IQYR 4/3); becomes 70% fine ivel, 30% fine to coarse sand.				
16-10) >100	U-6-15		SW	WELL-GRADEI (10YR 4/3), d 30% fine grav	D SAND WITH GRAVEL (SW) - brown Iry, very dense; 70% fine to coarse sand, el.	hedvie 40 PVC	- เบลแลง เคลเ		
- 8	3 48	ป − 8−20	2	1. 1. 1. my	Color change: becomes mois	s to dark yellowish brown (10YR 4/4), t, dense, 70% fine to coarse sand, 30% a gravel to 3 cm	2 blank sci 7777			
24-21	5 39	U-6-25		GL	CLAY (CL) - hard, low plas sand.	dark yellowish brown (10YR 4/6), moist Allcity; 80% clay, 20% fine to coarse				
32-	7 57	U~6-30			Becomes satu fine to coarsu	urated, medlum plasticity; 90% clay, 10% e sand.		=+= +=		
	0 54	U-6-35		SW-SC	WELL-GRADE (SW-SC) - ol dense; 50% fi	D SAND WITH GRAVEL AND CLAY live gray (5Y 4/2), saturated, very ne to coarse sand, 40% fine to coarse	3 ach)	tar sand		
40-1 19	9 50	toni 10 Ti utor 10 Ti utor		CL	gravel, 10% cl CLAY (CL) –	ay. olive brown (2.5Y 4/4), moist, hard,	machine /C (0.02(-3 Lones		
- 5	4 50				Becomes sati	irated	va III	-		
48-		in the second		40 184 40 184	Boltom of bo (¥ = Convert blows/foot.)	ring at 46.5 feet bgs. ed to equivalent standard penetration		T		

ROJ	ECT:	Tose	0 (76) 5	ervic	e Sta	tion I	Vo. 4186	LOCATION: 1771 First Street, Livermore, CA CASING ELEVATION: 478.74 Ft. (MSL) WL (ft. bqs): 20 DATE: 12/06/01 TIME: 13:05				
GR PF	ROJEC	T NO.	: 14017	5.07	10111	19.12	Skii po j					
DATE	STA	RTED:	12/06/	01			2 M. 197					
DATE	FIN	SHED	: 12/06/	101		ni in	en en augu	WL (ft. bgs): DATE: TIME:				
ORILI	ING	METH	DD: 8 in.	Holl	ow St	em Al	iger	TOTAL DEPTH: 46.5 feet				
ORILI	ING	COMP	ANY: Ca	scao	e Drill	ling	(and the first of	GEOLOGIST: Jed Douglas				
		1	Li li									
(feet)	PID (ppm)	BLONS/FT. H	SAMPLE NUME	SAMPLE INT	GRAPHIC LOG	SOIL CLASS	n sona karihi	GEOLOGIC DESCRIPTION WELL DIAGRAM				
						GW'	Asphall and be WELL-GRADED grayish brown to coarse gray	GRAVEL WITH SAND (GW) - very dark (10YR 3/2), dry, very dense; 50% fine rel, 50% fine to coarse sand.				
8-		>100		-			No recovery.					
-	0	>100	U-7-10				Color changes to brown (10YR 4/3).					
16-	0	>100	U-7-15	-		SW	WELL-GRADED SAND WITH GRAVEL (SW) - dark yellowish brown (10YR 4/4), dry, very dense: 70% fine to coarse sand, 30% fine to coarse gravel to 3 cm.					
	0	>100	U-7-20				Becomes wet; coarse gravel	60% fine to coarse sand, 40% fine to				
24-	۵	51	U-7-25	5		CL	CLAY (CL) – c hard, low plast	lark yellowish brown (10YR 4/4), dry, icity; 90% clay, 10% fine sand.				
32	0	52	U-7-30				Becomes wet,	medium plasticity; iron oxide staining.				
	0	47	U-7-35			SW	WELL-GRADEC yellowish brow to coarse san	SAND WITH GRAVEL (SW) - dark n (10YR 4/4), wet, very dense; 70% fine d, 30% fine to coarse gravel.				
40-	349	49				GW	WELL-GRADED GRAVEL WITH SAND (GW) - dark yellowish brown (IOYR 4/6), saturated, very dense; 60% fine to coarse gravel to 4 cm, 40% fine to coarse					
	558	52				UL.	CLAY (CL) - I medium plastic	cht olive brown (2.5Y 5/3), molst, hard, ity; 90% clay, 10% fine sand.				
48-			nonive to g				Color changes with very dark Bottom of bor (* = Converte blows/foot.)	to light olive brown (2.5Y 5/3) mottled gray (N3). ing at 46.5 feet bgs. ed to equivalent standard penetration				

		Project N Logged E Driller: Drilling M Sampling Casing T Slot Size: Gravel Pa	o: By: Method: Method ype: : ack: Elevation	C104186 Joyce W Gregg D Hollow S Split Spo SCH 40 0.020 #3 Sand	3 rilling Stem Auger/ pon PVC	Clien Loca Date Rhino Hole Hole Well Well Casi Latitude	it: Drilled: Diamete Depth: Depth: Depth: ng Sticks	ConocoPhillips Well No: U-8 1771 First Street, Livernore, CA Page 1 of 2 9/4/08, 9/8/08 Location Map er: 8 inches 50 feet Please see site map ver: 2 inches 45 feet up: - Longitude	
Nell Completion Completion Back us Back us Completion C	Well npletion Confector and Confector and Confector Conf		Moisture Content	PID Reading (ppm)	Penetration (biows/6")	Depth (feet)	Recovery Secovery Interval	Soll Type	LITHOLOGY / DESCRIPTION
	well box neat cement 2" PVC casing		DRY DRY DRY WET	0 0.3 0 146	Rhino Rig used- no blow Air Knife Air Counts collected	1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0		GM GM CL CL	Concrete Silty Sandy Gravel: well graded, no odor Silty Sandy Gravel: dark brown, well graded, 30-40% silty sand matrix, loose, no odor, dry Gravelly Silty Clay: brown, medium plasticity, >50% silty clay matrix, soft to firm, (as per driller from augers) Silty Clay: brown, medium plasticity, firm, moderate hydrocarbon odor, wet
			WET	0.4		22.0— 23.0— 24.0— 25.0—		CL	Gravelly Clay: brown, well graded, >50% clay, no odor

	1.0	Project No	D:	C10418	6	Clier	nt	ConocoPhillips Well No: U-8	
D ∽		a	Logged B Driller: Drilling M Sampling Casing Ty Slot Size: Gravel Pa	y: Method: Method: pe: ick: Elevation	Joyce W Gregg D Hollow S Split Spo SCH 40 0.020 #3 Sand	/elsh Drilling Stem Auger/ con PVC	Loca Date /Rhino Hole Hole Well Well Casi Latitude	tion: Drilled: Diamete Depth: Diamete Depth: ng Stick	1771 First Street, Livemore, CA Page 2 of 2 9/4/08, 9/8/08 Location Map er: 8 inches 50 feet Please see site map er: 2 inches 45 feet up: - Longitude
IIeW Backtill Backtill Backtill Backtill	Well Details	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (biows/6")	Depth (feet)	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
	neat cement	_	WET			26.0		CL	Gravelly Clay: brown, well graded, >50% clay, no odor wet
			7457	A Ro	50, 13 1	27.0-	191 H.S.		
						28.0			
	2" PVC	23				29.0		·	
	casing		_			30.0		CL	Silty Clay: orange-brown, high plasticity, soft, no odor, wet
	bentonite		WET	0.3		31.0-		200	
				= *		32.0	1		
	#3					33.0			
	sand					34.0			
	well		WET	0.4	Ň	35.0		GC	Sandy Clayey Gravel: orange-brown mottled,
	screen				no blo	36.0			iow plasticity, son, no odor, wet
			MET	42204	used- collec	37.0			As above: grey mottled with moderate to strong
			VVEI	1000	ounts	38.0			* soil sample collected for laboratory analysis
				165	Rhíno	39.0			Soli Sample Collected for Taboratory analysis
			MOIST	358		40.0		CL	Silty Clay: orange-brown, medium-high plasticity,
	20300 (22 22 20 20 20 20 20 20 20 20 20 20 20 2					41.0			
			MOIST	- 20		42.0			An obayo with no odar
		in lys	NOIST	20	ता अस	43.0			
		WE OL	MOIST	OIST 57		44.0-		CL	Sandy Clay: medium brown, medium-high plasticity,
	# 3 sand	1.55	MOIST 56	NO. NO.	45.0			Site Class day brown to empre brown, modum plasticity	
	bentonite		MOIST	238	ding .	46.0			soft, no odor, moist
			MOIST	70		47.0-			
			MOIST	15		48.0			
						50.0			Boring terminated at 50 feet below ground surface
1.	New Taxan			1313 0		A-2.511007-1087			

		1	Project N	0:	C10418	3	Clien	Euglis .	ConocoPhillips	Well No: U-9
D		a	Logged B Driller: Drilling M Sampling Casing T Slot Size: Gravel Pa	iethod; Method; ype: sck: Elevation	Joyce W Gregg D Hollow S : Split Spl SCH 40 0.020 #3 Sand	leish rilling Stem Auger Soon PVC	Locat Date Hole Hole Well Well Casir Latitude	tion: Drilled: Diamete Depth: Diamete Depth: ng Sticks	1771 First Street, Liven 9/4/08, 9/10/08 L ar: 8 inches 45 feet 97: 2 inches 45 feet up: - Longitude	xore, CA Page 1 of 2 .ocation Map Please see site map The set of the set
Well Completion		Static	27	ding 0	e) u	(tee	Sample	ed		
Backfill Casing Backfill	Well Details	Water Level	Moistu Conte	PID Rea (ppm	Penetra (biows/	Depth (1	Recovery Interval	Soll Ty	Lim	IOLOGY / DESCRIPTION
	well	1-12			1			11	Asphalt	
	neat					1.0				
	cement				Knife	2.0 —		GM	Sifty Sandy Gravel: well	graded, no odor
				TCXEU ¹ 2	Airl	3.0 —				A STATE AND
	2" PVC					4.0		1.0		
	casing					50 -		- 58		
			DRY	07	9	5.0 -		GM	Sandy Silty Gravel: med ~30% sandy silt, w	lium to dark brown, reli graded, no odor, dry
		_	Ditt	0.7	5	6.0			1	
				dire -	4 (s	7.0				
		- 50	31401		S. 16	8.0				
		1.13	DBY	07	9	9.0 -			as above: medium	dence
		1	DRT	0.7	10				as above. medium	
						-				
					tust.	11.0				
					in the	12.0				
		are to	12556		15 J.S.	13.0	00001 1053 N		2	
		100	DPV	0.3	18	14.0		GM	Silty Sandy Gravel: brow	wn 30-35% silty sand well
				0.5	26	15.0-			graded, no odor, d	iry
	17 THE	-				16.0				
		10	220			-	0/ -30	and the		
				ent.	- UKAT	17.0				
		- SRT	1		Store B	18.0		- 3		
		-	DRY	0.2	12	19.0		GC	Sandy Clayey Gravel: b sandy clay, no odd	rown, low plasticity, 20-30%
					5	20.0				
						21.0-		1		
						-			as above: with les	s gravel (50-60%)
						-			(as per driller from	augers)
						23.0 -				
			MOIST	0	8	24.0-			no odor, moist	n, medium plasticity, very stiff,
					12	25.0-		- F		
	透	1		No.	4	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1	1		and the second s

Logged By: Joyce Weish Location: 1771 First Street, Livemore, CA Page 2 of 2 Delific: Gregg Dilling Date Drilled: 94/08, 9/10/08 Location: Map Driller: Gregg Dilling Date Drilled: 94/08, 9/10/08 Location: Map Sampling Method: Hole Network Hole Depth: 45 feet Please see site map Consultants Sampling Method: No.20 Well Depth: 45 feet Please see site map Completion Elevation Latitude Longitude Image: Static Groundwater Well Details Static 9 to gregg Static Groundwater Sample A Well Details Level Static Groundwater Sample Gregg Static Gr	- 211	Well No: U-9	ConocoPhillips		Client		C104188);	Project No					
Delta consultants Driller: Sengling Method: Split Spoon Casing Type: Sengling Method: Split Spoon Casing Statue: The sengling Method: The sengl		nore, CA Page 2 of 2	1771 First Street, Livem	ion:	Locat	elsh	Joyce W	y:	Logged By	Dolto				
Ucerta Drilling Method: Hollow Stem Auger Hole Diameter: 8 Inches Consultants Drilling Method: Split Spoon Hole Depth: 45 feet Please see site map Consultants Static 0.20 Well Static 9 model 9 model Sample 9 model 100 Depth: 45 feet Please see site map Well Static 9 model 9 model 9 model Sample 9 model 100 Depth: 45 feet Please see site map Well Static 9 model 9 model Sample 9 model 100 Depth: 45 feet Please see site map Well Static 9 model 9 model 100 model Sample 9 model 100 model 100 model 100 model Well Static 9 model 9 model 10 model <th10 model<="" th=""> <th10 model<="" th=""> <t< td=""><td></td><th>Location Map</th><td>9/4/08, 9/10/08</td><td>Drilled:</td><td>Date</td><td>rilling</td><td>Gregg Di</td><td></td><td>Driller:</td><td></td><td>111</td><td></td><td></td></t<></th10></th10>		Location Map	9/4/08, 9/10/08	Drilled:	Date	rilling	Gregg Di		Driller:		111			
Well Static 9 # # 0 # 0 # 0 # 0 # 0 # 0 # 0 # 0 # 0			8 inches	Diameter:	Hole	tem Auger	Hollow S	ethod:	Drilling Me	ן ב				
Consultants Casing Type: SCH 40 PVC Well Diameter: 2 Inches Stot Size: 0.020 Well Depth: 45 feet Gravel Pack: #3 Sand Casing Stickup:	1.045	h: 45 feet Please see site map			Hole	ion	Solit Sm	Method	Sampling				L	
Consultation Consultation <th< td=""><td></td><th></th><td>2 Inches</td><td>Diameter</td><td>\Alalt I</td><td>PVC</td><td>SCH X01</td><td></td><td>Caeina Tu</td><td></td><td></td><td>^</td><td></td></th<>			2 Inches	Diameter	\Alalt I	PVC	SCH X01		Caeina Tu			^		
Solution Course Course Course Course Casing Stickup: Well Well Static P to B to C P to B to C Molistic to C P to B to C Well Well Static P to B to C Well Well Static P to B to C Well Well Static P to B to C Well Details Static P to B to C Details Static P to B to C P to B to C P to C P to C P to C P to C Details MOIST P to C 2" PVC P VC P VC P to C 2" PVC P VC P to C 2" P VC P to C 2" P to C P to C P to C P to C P to C <th< td=""><td></td><th>on to a firm</th><td>45 feet</td><td>Booth.</td><td>Alan I</td><td></td><td>0.020</td><td>ha[.]</td><td>Class Class</td><td></td><td>เซนแลกเร</td><td>CON</td><td></td></th<>		on to a firm	45 feet	Booth.	Alan I		0.020	ha [.]	Class Class		เซนแลกเร	CON		
Graver Pack: #3 Sano Casing Succup: Elevation Latitude Longitude Well Static a transform Details Static a transform O a transform a transform Completion MOIST a transform Q a transform Q a transform a transform </td <td></td> <th></th> <td>-0 1001</td> <td>a Silatura</td> <td>AAGU</td> <td></td> <td>40 0</td> <td></td> <td>SIDE SIZE:</td> <td></td> <td></td> <td></td> <td></td>			-0 1001	a Silatura	AAGU		40 0		SIDE SIZE:					
Well Completion End Well Details Static Water Level 9 to 10 to 20 S 9 to 10 to 20 S 9 to 10 to 20 S 9 to 20 S 10 S			-	ig Suckup:	Casin		#3 Sand	CK:	Gravel Pa					
Well Completion Introduced viewell Details Static Water Level Static Provide Subscription Static Provide Subscription <td>3</td> <th>The static Groundwater</th> <td>Longitude</td> <td></td> <td>.amudê</td> <td></td> <td></td> <td>levation</td> <td>E</td> <td></td> <td></td> <td></td> <td>3</td>	3	The static Groundwater	Longitude		.amudê			levation	E				3	
Well Completion IF Details Well Details Static Water Level It is protection og O In protection of protection O Sample is or is protection P Sample is or is protection Sample is or is protection IntroLOGY / DESCRIPTION Image: Details Moist P Moist P Moist P Image: Details P Moist P Image: Details P Moist P Image: Details P			and the second							1.574			-	
Well Details Static Water Level Static					Samala	8	ຣິດ	2				tion	We	
Image: Sector of the sector		HOLOGY / DESCRIPTION	1 1714	2	2	ê.	se se	ba a		Static	Well			
Image: Section for the section			- SIN		S S	毛	low l	ing B	si o	1 evel	Details	희	御い	
neat cement MOIST 26.0 CL Silty Clay: orange-brown, medium plasticity, stiff to hard no odor, moist 2" PVC casing 28.0 28.0 28.0 MOIST 0 6 8 29.0 CL 20.0 0 0 30.0 0 0				Ø	T eo	8	99	물	20	LOVGI		a la	Cas	
2" PVC casing MOIST 0 6 29.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist 0 8 9 30.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist	rd	medium plasticity stiff to he	Clay: orange brown	CI CI	# -				MOIET		nosi	Cilling and	ALC: NO POINT	
2" PVC casing MOIST 0 6 8 9 30.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist		, meanin placedary, can to he	no odor moiet			26.0-			NOISI		- IICidl			
2" PVC casing MOIST 0 6 8 9 27.0 28.0 29.0 29.0 30.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist					-						cement			
2" PVC casing MOIST 0 6 8 9 28.0 29.0 29.0 30.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist	An er	1419 (0.1)				27.0	0.00			8503				
2" PVC casing MOIST 0 6 28.0 28.0 9 29.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist			5		-1. A 194	1000	Res Cal	127.5						
Casing MOIST 0 6 8 29.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist 10 0 00000000000000000000000000000000	2013		12		1	28.0					2" PVC			
MOIST 0 6 29.0 CL Clay: orange-brown, medium-high plasticity, stiff to very no odor, moist				_						_	caeino			
MOIST 0 8 9 30.0 no odor, moist	y stiff,	dium-high plasticity, stiff to ver	: orange-brown, medi	CLC		29.0	6				Casing			
9 30.0	9.4	de la companya de la	no odor, moist			20.0	8	0	MOIST					
	1 w	10 St.				200 -	9					10.1		
	- Calence	And a state state			1	30.0								
			1 /		01121	+	4 1 2 1		Sector 1					
31.0-		1.5%		1		31.0-	100	10.0	0.0	- 2	hentonite	11111	11/1/	
	1011	I-Ges				-					~Gritonite			
32.0 GM Gravel			vel	GMG		32.0	7= =							
(as nor drillar from surgers)			(as nor driller from					_	1					
	-	undere)	las her anner italit			33.0	-	•	MOINT			1/////	Deateact	
		mage brown method medium	ally Candy Class			+	40	U			#3		A STATE	
sand 18 34.0 CL Gravely Sandy Clay: orange-brown motiled, medium	-	anye-prown mottleo, medium	veny Sanuy Clay: Ora		_	34.0	18				sand		ALLER DE LE COLUMN	
plasticity, 50-60% sanay clay, soft, no odor, mois	si	sandy clay, soft, no odor, mol	plasticity, 50-60% s	1.2		-	25						I MAL	
34 35.0				-	COLUMN STREET	35.0	34						THING THE PARTY OF	
well WET 1 8 as above: with 50% sandy clay, no odor, wet		% sandy clay, no odor, wet	as above: with 50%				8	1	WET		well			
screen 18 36.0	142					36.0	18			141	screen			
	(DVE)		DUTING	-		50.0	25							
		1				270	36					TOXE.		
WET 60 15 GM Sandy Silty Gravel: green-grey mottled with black		en-grey mottled with black	dy Silty Gravel: gree	GM S		51.0	15	60	WET					
21 as a staining, hydrocarbon odor, wet		bon odor, wet	staining, hydrocarb				21			2.3				
34 38.0	N		anne i chaileanna i			38.0	34					2		
21 GC Sandy Clavey Gravel: black-brown mottled in color.		lack-brown mottled in color.	dy Clayey Gravel: bl	GCS		-	21							
WFT 122 24 39.0 low plasticity, dense, strong hydrocarbon odor, w	vet	se, strong hydrocarbon odor.	low plasticity, dens	F	Repara	39.0	24	122	WFT			開始		
				1949	1 23 23	100 50	30		1	11			ALC: NO.	
					CONTRACTOR OF	40.0		1.1.2						
	12002					-	10	647	WOIGT					
						41.0-	12	047						
		um madium high plasticit	Class anona here				2			1				
4 42.0 Clay: orange brown, medium-nigh plasticity,		vn, meolum-nign plasticity,	Clay: orange brow		No. Carlos Printeres	42.0	4 -			ŀ				
MOIST 89 2 CL medium stiff, strong hydrocarbon odor, moist		ng nydrocarbon odor, moist	medium stiff, strong	CL			2	89	MOIST	1.			認識	
CL Silty Clay: orange brown, medium-high plasticity, mediu	ium	n, medium-high plasticity, med	y Clay: orange brown,	CLS		430	3		1	b	-			
5 5 stiff, hydrocarbon odor, moist		odor, moist	stiff, hydrocarbon o			10.0	5			-				
				L. F		440	1		1	· ·		A STATE		
WET 75 4 44.0 as above: becoming wet		ng wet	as above: becomin			44.0	4	75	WET		15 J. 18 18	题		
	8			1.18		100	4		155 %	-				
45.0 Boring terminated at 45 feet below ground surface							-						COM LABOR	

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			Project N	0;	C10418	8	Clien	ıt:	ConocoPhillips	Well No: U-10
D c.	Deita Consultants			ethod: Method ype: ack: Elevation	Joyce W Gregg D Hollow S : Split Spo SCH 40 0.020 #3 Sand	/elsh krilling Stem Auger con PVC	Loca Date Hole Hole Well Well Casi Latitude	tion: Drilled: Diamet Depth: Diamet Depth: ng Stick	1771 First Street, Livemore, 9/5/08, 9/11/08 Locati ar: 8 inches 48.5 feet Please 47 feet up: - Longitude	CA Page 1 of 2 on Map e see site map
10.0										
Well Completion Completion Backui Back Completion Completion Completion Completion Completion Completion	Weli Details	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feat)	Recovery Sample	Soll Type	LITHOLC	OGY / DESCRIPTION
	well	- 1			T T		100		Asphalt	
	neat					1.0		GM	Gravel with Cobbles and Sil	t: well graded, no odor
	cement				ie.	2.0 —				
		100	422.52		Ark	3.0 —				
	2" P\/C			1		40				
	casing		a (1			-		1		
				13	18	5.0 -		GM	Silty Sandy Gravel: brown, v	vell graded,
			DICI	15	34	6.0 —				
				200		7.0				
	15-16 TE	ings.	1.5	-150		8.0 —				
			DRY	1	50/5	9.0		GC	Sandy Clayey Gravel: brown	, well graded, medium-low
	12110-004	Roig	gele gelag il	Taria -	-			plasticity, 50-40 % sand	ry clay, very dense, no bdor, dry	
		125		-		-				
	Que	-		i cina	-					
					een i	12.0				tere i
						13.0—				
		(8 will)	DRY	2	27	14.0		GC	Clayey Sandy Gravel: brown 20-30% clayey sand, y	erv dense, no odor, drv
					40	15.0-				
		162	Tunid	1.1	auta e	16.0-	1			
						17.0		12		
						11				
					45	18.0	Difference of			
		84	MOIST	1	20	19.0-				
			(Charles		4	20.0		CL	Silty Clay: orange-brown, hig moist	in plasticity, hard, no odor,
				_		21.0—		The second		
			07.00	T, in	R	22.0	125 1		<u> </u>	
	19 La	1 20	201		1.00	23.0				
		1.0	1.18.1		16	-			as above: with medium	plasticity, hard
		-	MOIST	1	15	24.0		\$153.71 ft		
					25	25.0-				

			Project No):	C104186		Clien	rt	ConocoPhillips	Well No: U-10
De	elta	a	Logged By Driller: Drilling Me Sampling Casing Ty Slot Size: Gravel Pa	Logged By: Joyce W Driller: Gregg D Drilling Method: Hollow S Sampling Method: Split Spic Casing Type: SCH 40 Slot Size: 0.020 Gravel Pack: #3 Sand Elevation			Loca Date Hole Hole Well Well Casi	tion: Drilled: Diamete Depth: Diamete Depth: ng Sticke	1771 First Street, Live 9/5/08, 9/11/08 er: 8 inches 48.5 feet er: 2 inches 47 feet up: - Longitude	emore, CA Page 2 of 2 Location Map Please see site map
Well ompletion	Weil Details	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Semple Interval	Soil Type	U	THOLOGY / DESCRIPTION
c	neat æment		MOIST		1.13	26.0		CL	Slity Clay: orange-brow moist	m, medium plasticity, hard, no odor
2	2" PVC casing		MOIST	1	6 7 9	28.0 29.0 30.0			as above: with hi	gh plasticity, stiff to very stiff
	na thu		MOIST 1 WET 2			31.0 — 32.0 — 33.0 —				
be	entonite			5 34.0 6 35.0			CL	Gravelly Clay: orange- stiff to very stiff, r	brown, high plasticity, <20% gravel, no odor, moist	
	#3 sand		WET	2	14 10 12 19	36.0 — 37.0 —			as above: with sa	andy clay (<20%) and mottling
	well screen		MOIST	4	28 8 27 35 19	38.0 			as above: with black staining and slight hydrocard odor, 30-40% sandy clay	
			WET	2	21 23 4 14	¹⁵ 18 19 10 10 10 10 10 10 10 10 10 10		GC	hard, no odor Silty Clayey Gravel: or black staining, m	ange-brown with ~20% silty clay, edium plasticity, no odor, wet
	bentonite		WET	1	28 39 11 14	42.0				
			WET	3 10	53 10 50/5" 12	44.0			as above: turning and staining, slig	grey in color with orange mottling
		•	WET	10	20 25 30	46.0				
b		_	MOIST 62	8 7 7	48.0		CL	Sandy Clay: orange-br plasticity, <10% s hydrocarbon odo Boring terminate	own mottled with grey staining, high sand, stiff to very stiff, moderate or, moist d at 48.5 feet below ground surface	

D	elta	а	Project N Logged B Driller: Drilling M Sampling Casing T Slot Size: Gravel Pa	o: by: Method: Method: ype: : ack: Elevation	s /elsh irilling Stem Auger con PVC	Client: Location: Date Drilled: uger Hole Dlameter: Hole Depth: Well Diameter: Well Depth: Casing Stickup: Latitude			1771 First Street, Livemore, CA Page 1 of 2 9/3/08, 9/12/08 Location Map r: 8 inches 45 feet Please see site map r: 2 Inches 45 feet <u>p: -</u> Longitude	
Well Completion Sature Completion Sature Completion Com	Well Details	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Dapth (feet)	San Vievooe	Interval addu	Soil Type	LITHOLOGY / DESCRIPTION
	well box				Î	10		2.4		Asphalt
	neat cement				life	2.0 -			GM	Gravel with Cobbles and Slity Sand: well graded,
	2" PVC				Air Ki	3.0 —		H		no.odor
	casing			-		4.0	T	Ħ		
		14.02°			4	5.0 -			SW	Gravelly Sand: brown, 1/4 - 3/4" diameter gravel,
			MOIST	0	19 19	6.0 —			11896	~75% well graded sand, loose to medium dense, no odor, moist
						7.0				
						8.0		E		
				k Linter		10.0 -	Section of	H	014	One with Citty Can de light heaven heaven 410 4 4/48
			MOIST	0	11 14 14	11.0			GIM	diameter gravel, 40% sandy silt, medium dense, no odor, moist
				and the second s	25	12.0				
			1.19			13.0				
					-	14.0				
			MOIST	0	23 50/5"	15.0				as above: with 25-30% sandy silt, dense, 1/4" - 1" diameter gravel, no odor, moist
	15, 1, 294	i qelu	niki y		5	10.0 -		28		
				Di vinita A	ana 12	18.0-		H		
					Sec.	19.0-		Ħ		
			i i i	TE:	20	20.0				
			MOIST		24 29	21.0			-	
						22.0			CL	Silty Clay: light brown, medium-high plasticity, stiff, no odor, moist (as per driller from augers)
						23.0				
						24.0 -	1-	Ħ		Gravelly Silty Clay: light brown, medium plasticity
					7	25.0-			CL	very stiff, 5% gravel, no odor, moist
(5.) 2						4				8

		and the second		Project No	D.	C10418	6	Clier	it	ConocoPhillips	2. 4	Well No: U-11
			100	Logged B	y:	Joyce W	/elsh	Loca	tion:	1771 First Street, Live	emore, CA	Page 2 of 2
		- 11 -		Driller:	5 C	Gregg D	rilling	Date	Drilled:	9/3/08, 9/12/08	Location Map	
	- 34	ριτρ	7	Drilling M	ethod:	Hollow S	Stem Auger	Hole	Diamete	er: 8 inches		COLOR D
				Sampling	Method	Solit Sp	oon	Hole	Depth:	45 feet	Please see s	ite map
	Col	noultante	1	Casing T	me.	SCH 40	PVC	Well	Diamete	er 2 inches		
C.		13 WILLING		Sint Size	.	0.020		Well	Denth	45 feet		100 million (100
				Convol Da		#2 Sand	10112-0	Caei	no Stick	10 1001	C = =	0
2			- 1	Giaverra	loudtion	#J Gand		Lotitude	ng Olick			
				· ·	Lievauon		Contract of the	Lautode		Longitude		*
Wa						100500	1 88	<u> </u>			1	
Comple	etion				<u>E</u>	50	8	Samola	2			and the second
	_	Well	Static	ta ta	m ad	nati nati	e e	2 -	2			ESCRIPTION
ž ž	圛	Details	level	io io	R G	E S	l ĝ	No No	1			
B B	ă			2~	비	5 D	۱å	e te	0			
	INGUE .	neat		MOIST	24	13	1 860 to 3		CI	Gravelly Silty Clay: light	t brown, m	edium plasticity.
		oomont	_			16	26.0		1	very stiff 5% gray	vel no odor	moist
		Cement				10			and the	very still, o /o gra		, moist
		#	513	1000		diam'r.	27.0-	1				
		2" PVC	- #			12 24	-					
		casing		- I		-	28.0		1		(i	
						i relig				A second second second		
							29.0					
		_							0-0-0-	Sector Sector		
			_			1i	30.0					
					10.000	5	_	THE REAL PROPERTY OF	CL	Silty Clay: light brown,	medium-hig	h plasticity,
		Due S. T.	211_= <u>-</u>	MOIST	33	7	31 0			stiff, no odor, moi	ist	
		bentonite		e ote,		9	01.0				1.	
		•					22.0					
							52.0-				Л., П.	
			5	1. I.)			220	Sec. Sec.				
		#3	1				33.0					10 State 10
	A MAR	sand					-		1			LL MARTIN
	The second						34.0					
0110												Tevrill
		well		WET	0	11	35.0-		SP	Gravelly Clavey Sand:	orange-bro	wn to brown mottled.
		screen	1.0		(Bayell	16	A Lot	STREET, STREET	THE	50% clavey sand	. 1/4 - 1/2" (pravel, soft-medium stiff.
				194,001,001		17	36.0		1990	no odor, wet	Yeshican	
						4	141					1000
	1 Sector			WET	15	13	37.0	SALESSEE	GC	Sandy Clavey Gravel	orange-hrow	wn to brown mottled
				[·····	1.0	35				30% sandy day	1/4 - 1" are	vel soft slight
				1 1		36	38.0			hydrocerbon odo	rwet	in Jon, ongrit
						14					., no t	
				MOIET	4 9	20	39.0					
識		Ť	-		4.0	29		-				
			i	DOV	74	40	40.0	-	10	Randy Class brown law	u madium -	lanticity hard as ador
		1.1	-	URT	7.1	10		a state particula		Danuy Glay: Drown, 100	-mealum p	asually, naid, no oddi
						11	41.0				Carl Land av	a standard and a
		To 212		1000		15		it man	53%	Land the second s	Incare Billin	
						8	42.0-					
		_		MOIST	2.7	4	_			as above: becom	ing light bro	wn with high plasticity,
			- I	- 1	-	4	43.0-	3.2.2		soft to medium st	tiff, moist	
				MOIST	13.3	6		1		Carlos and C		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	0000		1			3	44 0-	- 7		as above: with gr	ey staining,	medium-high plasticity,
			-			4				soft to medium st	tiff, moist	
						4	45.0		4		1	The second second
			Elizie -	T. C.				1		Boring terminate	d at 45 feet	below ground surface.

and the strength of the streng			Project I	No:	C10418	6	Clier	nt:	ConocoPhillips	Well No: U-12
D		a	Logged Driller: Drilling & Samplin Casing 1 Slot Size Gravel F	By: Method: g Method Type: e: Pack:	Joyce V Gregg E Mud Ro : Split Sp 12" Ster 0.020 #3 Sand	Velsh Drilling Mary/Hollow : Moon A el/ 4" SCH 4	Loca Date Stem Hole uger Hole 0 PVC Well Well Casi	tion: Drilled: Diamete Depth: Diamete Depth: ng Stick	1771 First Street, Liver 9/2, 9/22-26,10/7/08 er: 17 inches 75 feet ar: 4 inches 75 feet up: -	more, CA Page 1 of 3 Location Map Please see site map
				Elevation	1		Latitude	Minest	Longitude	▼ = Static Groundwater
Here and the second sec	Well Details	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Interval	Soli Type	Liπ	HOLOGY / DESCRIPTION
	well		1.12	1999	1				Asphalt	
	neat cement				ter Knife	1.0		GC	Gravel with Sand, Silt a no odor	ind Clay: tight sand-clay,
	12" steel &			201	Ma	3.0				
	4" PVC casings					4.0		ester (anning		
						5.0 — 6.0 —		GW	Sandy Gravel: well grad (Note: Mud Rotary does	led, no odor not allow for detailed lithology)
						7.0				
						8.0				
						9.0		- 10		
						10.0-				
		_16=	1970	997-1	12 10	11.0-	36	1		
			-			12.0-				
					totary	13.0-				
				-	Mud R	14.0-	\square			188 B. 191
						15.0-				
						16.0				
				-		17.0—		GM	Sandy Gravel: smaller o	coarse grained sand, no odor
		_			-	18.0-			with < 1 1/2" diam (as per driller)	eter cobbles, no odor
						19.0-				
						20.0 —		SW	Gravelly Sand: no odor	
		-				21.0			(as per driller)	
			-			22.0-			as above: with cot	hbles
						23.0		SP	Sand: green-grey, no od	
						24.0-				
						25.0 —		GC	Clayey Gravel: orange-b	prown, no odor

				Project N	10:	C10418	6		Client	2	ConocoPhillips	Well No: U-12
L	Delta			Logged	By:	Joyce V	Velsh		Locat	ion:	1771 First Street, Live	more, CA Page 2 of 3
l l		- 14 -		Dritler:	Í.	Gregg [Dritting		Date i	Drilled:	9/2, 9/22-26,10/7/08	Location Map
1]/	eit?	-	Drilling N	lethod:	Mud Ro	tary/Hollow	Stem	Hole I	Diamete	er: 17 inches	Look Contraction
1				Sampling	g Method	: Split Sp	oon A	uger	Hole I	Depth:	75 feet	Please see site map
1	Co	nsultants		Casing T	ype:	12" Ste	el/ 4" SCH 4	0 PVC	Well [Diamete	er. 4 inches	and the second se
1				Slot Size		0.020			Well [Depth:	75 feet	and an
1				Gravel P	ack:	#3 Sand	d		Casin	g Stick	up: -	
					Elevation	n i	-	Latitud	de	1.1.1.	Longitude	T = Static Groundwater
1				168								
V	/ell				2	5.	0					· · · · · · · · · · · · · · · · · · ·
Com	pletion	اه/م	Static	B ta	들은		jee j	San	nple	ype		Line a second state
<u> </u>	ਟੂ = ≞	Details	Water	a st	ppg	- Sws	Ę	l é	B	Ē	ហ	HOLOGY / DESCRIPTION
Ste			Level	Įžŏ	ے ا	h a ž	l de	8	Ē	80	1 - 오마지마~^^	
	J 7 60		L	L	<u>ٿ</u>	1		ľ ď				
		neat		·	- 2	I T	26.0-	<u> </u>		GC	Clayey Gravel: orange-	brown, no odor
		cement			- 1	1.1						
					-		27.0				1 10	
		12" steel	100	지역	186	million r	1000	1			2	
		&					28.0-		U	14		
		4" PVC							1	CL	Clay: orange-brown, no	odor
		casings					29 0					1
		2										1.2.17
							30.0					1
				3						CL	Sandy Clay: orange-bro	wn, no odor
			1	s en jar	11 1 etc.	12	310-	110				
		1 m 1		m 4 1		2.00	0					
			1.				32 0					
				_	1.0		52.0					
							330-	1				
		2	1									
							340-					
							07.0					
							35.0	1				
							J	1				
			5 × 1		1		36.0	l.		L. Grand		
			0 -	1						GW	Sandy Gravel: well grad	led, no odor
27			1.00	1			37.0-					tati i dat
201												
	114			- a		a l	38.0					
								1 mars				
						밀	39.0-					
					l	1 E	-		1.3			
							40 0					
						1.1	41.0					
												1/= 1 (+ A)
							42 0-					
		-					12.0		[1,0]			
		ज़्या पट देल	11.116	- R (1)	12		43.0-	1				
		in Karley	27.59	8- 4 y	1000						assert i i i	
讔					1.00	1.1	44 0-					
					2 							
				1			45.0-					
							46.0		13			
					25	1 2			1			
				2			47 0-					
			· ·						ti i	Ĩ	a unit	「「「」「「」」
				1000		20 0	480-			CL	Gravelly Clay: light brow	wn, no odor
						10.0	40.0	352				
							40.0-				konstanting and a state of the second se	
							49.0					
							50.0-					
						+	00.0			1		
The party is not	and the second se	Contraction of the local division of the loc	and the second data		and the second s	- Contraction of the local division of the l	and the second se	and the party of the local division of the l	-			

	20		Project N	lo:	C10418	C104186 Client Joyce Welsh Locat		:	ConocoPhillips	Norther States	Well No: U-12	
			Logged E	By:	Joyce V	Velsh		Locat	on:	1771 First Street, Liver	ore, CA	Page 3 of 3
	alta		Driller:		Gregg [Drilling		Date I	Drilled:	9/2, 9/22-26,10/7/08 Lo	ocation Map	
	CILC	1	Drilling N	lethod:	Mud Ro	tary/Hollow	Stem	Hole [Diamet	er: 17 inches		1.7.6.1.7.2.
	no ultorato		Sampling	j Method	: Spin Sp				Jeptn:	/5 teet P	lease see si	ne map
	nsunants		Slot Size	ура.	0.020	84 3014	UPVC.	Well L	Jameu Jeoth	75 foot		
(Gravel P	ack:	#3 San	1		Casin	a Stick			
			Glaron	Elevation	1	T	Latitud	le	g çanı	Longitude	▼ =	Static Groundwater
						- 11 ⁻²				in a second s		
Well Completion 문고 말고 문	Well Details	Static Water	oisture ontent	Reading ppm)	tetration ows/6")	ith (feet)	Sam	aipie	II Type	LITH	OLOGY / DI	ESCRIPTION
Bac Ste Bac Ste		Lever	ΣO	ë.	Pe Pe	å	₩	Intel	ŝ			
	neat	T	a standard		1	51.0			CL	Gravelly Clay: light brown	, no odor	
	cement			_		51.0						
		· Salatan			100	52 0-						· · · · · · · · · · · · · · · · · · ·
	12" steel			5-mail	3	-						
	&			-	2 -	53.0-						
	4" PVC			-							and the second	
	casings			_		54.0		_				
				- R		-		-				
						55.0						
			6-1 mg	11 S		Sector -						The state
	Red Theorem	1	1241	1.0	V	56.0						1
	4" PVC					570 -						
	casings		- eine -	3.8]	57.0-				NO RECOVERY		
		8 ¹⁵				58 0		1.5		Geole III.		
												22 Fil
						59.0-						
		2 H		_		-		-				And the second second
			MOIST		1 40	60.0	No. of Concession, Name	REAL PROPERTY	01	Rondy Class. Unbit has up	- 40 ⁿ diam	antes commo comul
				0	10				GL	Sandy Clay: Ight brown,		lor moist to wat
	bentonite		WET			61.0-		-		ineusuin plasuoity, in	ini, no oc	ior, moist to wet
						-	Although 12	-		as above: becoming	light bro	wn-orange mottled
			MOIST	0	14	62.0-					,	ini blango inotilou
						000	CALCULATION OF				1	
	#3		WET	0	16	03.0	a selec		CL	Gravelly Clay: light brown	, ~30-409	% gravel, medium-high
	sand					64 0-	5.40 A			plasticity, very stiff,	no odor, v	wet
		-	**		1	-						
						65.0-				NO RECOVERY		
	well					-						
	screen		WET	0	10	66.0		-	CI	Gravelly Sandy Clay ligh	t brown	30% sand 5 40%
					1 10	-	1		OL.	gravel high plasticit	v soft n	odor wet
						67.0				aread man highlight		
										NO RECOVERY		
			s			68.0						1211.01
					1	60.0-						
			×								11 574	1
						70.0-	L.				1.1	
					E.	-				ATT 11	1	
			1 1	1.11		71.0-		-				
			MET		10	-	CONTRACTOR OF		<u>CP</u>	Sandy Crowal Habi harris	CE0/ 00	nd loope no oder
			VVEI	U	10	72.0	STREET, ST		Gr	Sanuy Graver, light brown	i, 5% sa	nu, iouse, no odor,
					1	73.0-			1			
										Clayev Gravel: ligh	t brown.	<20% clay, soft, wet
			WET	0	1	/4.0			GC	as above: with >40%	% clay, his	gh plasticity,
			Second second			75 0		1		very firm to hard, no	odor, we	et i de la companya d
Mud Rotary -	5 - 55' bgs; l	Hollow S	Stem Auge	er 55-75'	bgs	- 15.0				Boring terminated at 75 fe	et below g	ground surface (bgs).

 $\frac{1}{2}$ at

			Project N	lo:	C10418	6	Clie	nt	ConocoPhillips	Well No: U-13
2			Logged I	By:	Joyce V	Velsh	Loc	ation:	1771 First Street, Live	more, CA Page 1 of 3
D	- 11 -		Driller:		Gregg D	Drilling	Dat	a Drilled:	9/2,26,29-30,10/8/08	Location Map
)(PITA	7	Dritling N	lethod:	Mud Ro	tary/Hollow S	Stem Hol	e Diamet	er: 17 inches	
			Sampling	g Method:	Split Sp	oon Au	iger Hol	Depth:	72 feet	Please see site map
Col	nsultants		Casing T	ype:	12" Stee	el/ 4" SCH 40	PVC We	I Diamete	er: 4 inches	and a second second
	2 8		Slot Size		0.020		We	I Depth:	72 feet	
			Gravel P	ack:	#3 Sand	1	Cas	ing Stick	up: -	New Y
				Elevation		1946 (COM 1944 - 1944) 1	Latitude	1.15	Longitude	T = Static Groundwater
		202		12						
Well				E	50	8	Sample	2		the second se
Compieuon	Well	Static	ter t	De E	rati 13/6	e.			1.7	HOLOGY / DESCRIPTION
	Details	Level	So S	n d	a s	1 đ		8		
Ba & B & B			20	물	1 2 8	ő	1 <u>1</u>	0		
	well		-	1.1.1.1.1.1.1					Asphalt	
	box		Divid III	0.000						1000
	neat		[*]	I —	=	1.0				
	cement							GM	Gravel with Silty Sand	and Cobbles: no odor
	Comone				15	2.0				
	12" etaal		= = "	1	x			1	THE CALL OF	1
	2 01001		-	-	1	3.0	1 1-			729 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	4" P\/C						<u> </u>			
	Casinge		-			4.0		1		1
	casings					1.000		-		
						5.0		GW	Sandy Gravel with Cot	bles: well graded no odor
	-				1 T			- ""	(Note: Mud Rotary does	not allow for detailed lithology)
			°			6.0	<u>├</u>		(Note: Mad Hotal) abou	nor allow for actance fibrology,
					1.5			-		
			1	-	- 10 B	7.0				
		-		=					14-12-72	
		8	1 -	1	1-1-	8.0	+	4 4		
								-		
			-			9.0		-		
			2							
		12,13				10.0		-		
			11.2.2	1.1		-		1		
			l aba	1.1.1.1.1.1		11.0		1		and the second se
		<u> </u>	a vaina	1111111					E E E	
	40.00 V 14 (-	a 8			12.0		-		
		10.00			2			-		The second se
	101 23		644 E		8	13.0			the second se	
	-			1.1	l c			1		
	· · · · · · · · · · · · · · · · · · ·				Į	14.0		-		
		- × -		1	<			-		
		-				15.0				
		100	1	en and	5.X 15	-			1 - 1/ Bal 3	1 1 1
		100		1		16.0-		1		
			interativ	1		47.0		1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
					0.0	17.0-		1		
		1	-			-			100-1100-1	
			1		1-1-	18.0				
			-			-		1		
				-		19.0-		1		
				1.00	1 1-	-				
						20.0-		SW	Gravelly Sand: 1-1.5"	diameter gravel, coarse grained sand
						-	1		well graded, no c	dor
		-	1. 2.1	100		21.0		1 100		
			1			-		1		
			-			22.0-		-	· · · · · · · · · · · · · · · · · · ·	
				1				- 9		
			-	The second		23.0				
							1.16			
						24.0-				
						000	1			
		1		1 2	1 +	25.0-	1.00	GC	Clayey Gravel: orange	-brown, no odor
1031 13	× 1	1	and the second se	1	2 1 0		-	-		and the second

		4.0.2		Project	io:	C10418	6	-	Client	E	ConocoPhillips Well No: U-13	
	Delta Consultants		Logged Driller: Drilling M Samplin Casing 1 Slot Size Gravel F	By: Aethod: g Method; Type: a: Pack:	Joyce Welsh Gregg Drilling Mud Rotary/Hollow Stem Split Spoon Auger 12" Steel/ 4" SCH 40 PVC 0.020 #3 Sand Latitu			Locat Date Hole Hole Well I Well I	ion: Drilled: Dlametr Depth: Dlametr Depth: Ig Stick	1771 First Street, Livemore, CA Page 2 of 3 9/2,26,29-30,10/8/08 Location Map er: 17 inches 72 feet Please see site map er: 4 inches 72 feet up: -	Ç.	
				a).	Elevation	1210	(k.)	Latitud	e	- 18	Longitude 📃 🗶 = Static Groundwater	
Backfill Steel Casing C	Backfill not	Well Details	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sam	Interval of	Soll Type	LITHOLOGY / DESCRIPTION	
		neat cement			diffe	1	26.0-			GC	Clayey Gravel: orange-brown, no odor	
		12 th stool	_				27.0-		_			
		12 Steel				20			1		Olevense konverkisk stadistik av adas	
		4" PVC casings	_				29.0-			CL	Clay: orange-brown, mgn plasticity, no odor	
					100	as as	30.0-			13		
						10.00	00.0		_	SC	Sandy Clay: orange-brown, no odor	
							-					
							32.0					
							33.0			nyirr		<u> </u>
			15-1	-	i Transfer	5158	34.0			1.1		
				er se Fre Su			35.0	1.54				
		22.6° n ne 10*					36.0		1			
							37.0-		- Sile Th	GP	Sandy Gravel: no odor	
				-		totary	38.0		13			2 0 1 1
					- V	Aud R	39.0					
							40.0		E.			
							41.0-					
				dE.vi	ie Pra		42.0	1721	36			
			0.79		reigu-c	1	43.0-	553	-	1100		1
			di la	1.15	-	30 8	44.0	1.16		10		
				10	1.5v -	-•)	45.0		120.0			3-4
							45.0					
				2001	- 14		46.0 -		dan s			
			1.190	- FF			47.0			CI	Gravelly Clay: no oder	
				1			48.0					
							49.0					
						↓	50.0					

				Project N	0:	C10418	6	Clier	nt:	ConocoPhillips	Well No: U-13
Delta		Logged E	By:	Joyce W	Velsh	Loca	ation:	1771 First Street, Live	emore, CA Page 3 of 3		
	7	alta	ו ב	Driller:	lethed:	Gregg D	Drilling tan/biotiou 9	Date Stem Hole	Diamete	9/2,26,29-30,10/8/08 17 inches	Location Map
i L	<u> </u>		7	Sampling	Method:	Solit Sp	oon Ai	uger Hole	Depth:	72 feet	Please see site map
	Co	nsultants		Casing T	ype:	12" Stee	#/ 4" SCH 40	PVC Wel	I Diamete	ar: 4 inches	and a state of the
				Slot Size	:	0.020		Wei	l Depth:	72 feet	Provide a second s
a				Gravel Pr	ack:	#3 Sand	i 1	Cas	ing Stick	up: -	
					Elevator	1		Laplude		Louguude	
We	1		-		8	50	8		6		Traditional Investores
Comple	Btion	Well	Static	sture	badi m)	vs/6"	j)	Sample	Å	1	HOLOGY / DESCRIPTION
asing asing a	iteel acidi	Details	Level	C Q	цщ	Plov Dio	ept		Soll		
a v o	ы С ПШШ		_		à	a -		<u> </u>	00	Grouelly Claut no odor	
		neat	_		1.1	ΙT	51.0			Glavelly Clay. 10 0001	
		12" steel	T				-				
		&				3	52.0		GP	Gravel: no odor	1
		4" PVC	100		tion's	Σ	53.0-			Annal 20	
		casings		1.1			-	1	1		
		bentonite					54.0		GC	Clavey Gravel: no odor	
		arout			-		-				
		plug	_	1.54		100	55.0		GP	Gravel: no odor	
							56.0			in the second second	
			_				-				
		A" DVC					57.0		1.4.12		
		casing									
		bentonite	-		-		58.0-	7			
						Lt	59.0				
			=			1	-	-		NOTE: Drilled to 59' with	th 10" bit; backfilled to 54'
		#3		WET	0		60.0		GC	Clavey Gravel: light bro	own, 20-30% clay, no odor
	- 12	sand				_	-		CL	Gravelly Sandy Clay: I	ight brown-orange mottled, ~30%
				WET	0		61.0]	gravel, low plastic	city, hard, no odor, wet
					SHOT I	-Auro	62.0-		<u>.</u>	-ne-ni fiti - i - e - ni	
		well		WET	0		-				÷ ;
		screen		WET	0		63.0				
							-			Bi	
						-	64.0-]		
			0				65.0			en al transmission de la companya de	
			-	WET	0		-		4		- A Contract Sector
				WET	0		66.0		1		
			8		ľ		-		GP	Sandy Gravel: light bro	wn, ~10% sand, no odor,wet
				WET	0		67.0				
							68.0		GC	Sandy Clayey Gravel:	light brown, no odor, wet
			14				-		CL	Sandy Class light brown	20-30% sand
				WET	0		69.0-		-	medium stiff no	n, 20-0070 Sand, odor. wet
		Contraction of the second s					-				
							1/0.0				
				1			71.0-			as above: with <	20% sand, low plasticity, soft
			÷	WET	0	1	-			as above: with ~	5-10% sand,
		5 50 bar	Hollow	Storn Arr	Dor 60 70	bae	72.0		4	Boring terminated at 72	feet below around surface (bas)

			Project N Logged I	lo: By:	C10418 Joyce V	16 Velsh		Clien Locat	t ion:	ConocoPhillips Well No: U-14 1771 First Street, Livemore, CA Page 1 of 3
Do		3	Driller: Drilling N Sampling Casing T Slot Size Gravel P	Nethod: g Method: [ype: o: /ack: Elevation	Gregg I Mud Ro Split Sp 12" Stee 0.020 #3 Sand	Drilling Mary/Hollow S Moon Au el/ 4" SCH 40 d	item iger PVC	Date Hole Hole Well Well Casir e	Drilled: Diarnete Depth: Diarnete Depth: ng Stick	9/3,29,30,10/1,9/08 er: 17 inches 73 feet Please see site map er: 4 inches 73 feet up: - Longitude
Casing Steel uoiteldu Backfill	Well Details	Static Water Level	Molsture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sam Seconery	Interval a	Soll Type	LITHOLOGY / DESCRIPTION
	well		1.11	107-3	1 1			a î		Asphalt
	neat				-	1.0				
	cement				nife	2.0			GM	Gravel with Silty Sand and Cobbles: well graded,
	12" steel				2 =	20 -				
	& 41 DVC				Ā	3.0				
	casings					4.0				
					+	5.0			CW	Sandy Gravel with Cobbles: well are ded no oder
					I T	60 -	1			(Note: Mud Rotary does not allow for detailed lithology)
	- 19 - 1			0.0		10				
				₂		7.0				
			- 1			8.0	-J.C.s.			1000
						9.0 —				
						-				
						10.0				
						11.0			-	
	. 1					12.0				
		1-1	-		2 Z	120			-	
					Rot 1					
					Mud	14.0			T	
			_	1990	44	15.0-			1	as above; with fower larger sized cabbles
	S		_			16.0				as above, with lewer larger sized cobbles
				-13333						
	3N					17.0				
		2				18.0				
						19.0-				
						20.0			SW	Gravelly Sand: well graded, no odor
		-				21.0—			5 -	
142 21						22.0				
						-	-			
						23.0		1	_	
						24.0			GC	Clayey Gravel: orange-brown, no odor
				1.12		25.0-			0	Sandy Clays organs brown no odor

	12122012		Project N	ło:	C10418	86	CI	lent	ConocoPhillips	Well No: U-14
			Logged	By:	Joyce V	Nelsh	La	cation:	1771 First Street, Liver	more, CA Page 2 of 3
n.	alta		Driller:		Gregg I	Drilling	Da	ate Drilled	9/3,29,30,10/1, 9/08	Location Map
	enz		Drilling N	fethod:	Mud Ro	otary/Hollow S	Stem Ho	ole Diame	ter: 17 inches	- 6
	U.100	~	Samplin	g Method:	Split Sp	boon Au	uger Ho	ole Depth:	73 feet	Please see site map
Co	nsultants		Casing 1	Type:	12" Ste	el/ 4" SCH 40	PVC W	ell Diame	ler: 4 inches	a second second second
			Slot Size		0.020		W	ell Depth:	73 feet	Statement of the second se
			Gravel P	ack:	#3 San	d	Ca	asing Stic	kup: -	
1			195	Elevation		in the l	Latitude	1	Longitude	T = Static Groundwater
Well				29	6.	0				5-10-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
Completion	10/01	Static	g te	- - - - -	36	ae e	Sampl	e d		2 TENS
변 = 명 = 변	Details	Water	a si te	a da	E S	Ę	5 3		L UT	HOLOGY / DESCRIPTION
		Level	žŏ	ļ ģ j	ਙ ž	है	8	S g		
	1-22		I		_		a -			
	neat		_		I T	26.0	3		Sandy Clay: orange-brow	wn, no odor
	cement		1	_			1			and the second second
			· · · · · · · · · · · · · · · · · · ·		100	27.0			L L L L L L	1
	12" steel	1111	S Disc 7 h	i i i i i	2 B		07.16		······	
	&					28.0-		3.		
	4" PVC		· · · · ·						1.000	
	casings	1		-		29.0				
						20.0				
						30.0				Bunna Shi na ta
					2	30.0	3		1	
		11,211		COD D	100	24.0			1 3 1	in the second
	in the stin	TIME	the state			31.0-	1.	The second		
								3 I.		
						32.0				
			1.1			-		100		
						33.0		-		
						-				
						34.0				E Field
	1									
					11	35.0		0.2		
	ź	1			1 1			10	1	
					1.1	36.0				
							100			
						37.0				
		2 3			≥					10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
					lea lea	38.0				
		1.1			I ≝I			8 10		
					Į	39.0		T		the second s
		8				-				
		10	1	1		40.0		GM	Sandy Gravel: no odor	
		2	Section 1	10.01		-		\neg		e e de la companya de
		1				41.0				
	-		1	1						
				1		42.0		GC	Clavey Gravel: no odor	
	2009		1			-		-1 -		
	11254		3			43.0	+			
				1			+			
				1 -		44.0	+ +	-		
						-	+	-		
			1	1		45.0	1-+-	-	Graveliv Clav: no odor	
			1 total	1.1		-	+		Stateny viay. 10 000	
	4					46.0	+	-	The second se	
		1 =	-					-		
			1			47.0		-		
			1	1		-	┼╌╄╴	-	1	
	-			1		48.0	+	-		
				1.000		-				
						49.0		_		
						-				
		1		1000	•	50.0			Bandy Clause	
				1	1			CL	Sandy Clay: no odor	

			Project N	o:	C10418	6	C	lient:	-	ConocoPhillips	5.1.1.521	Well No: U-14
		12	Logged B	y:	Joyce V	Velsh	L	ocation	n:	1771 First Street, Liven	nore, CA	Page 3 of 3
	- 14 -	M	Driller:		Gregg D	Orläing	D	ate Dr	illed:	9/3,29,30,10/1-3/08	Location Ma	p
	e ita	7	Drilling M	ethod:	Mud Ro	tary/Hollow	Stem H	lole Di	amete	er: 17 inches	18 g=310	
			Sampling	Method:	Split Sp	oon A	uger H	iole De	epth:	73 feet	Please see :	site map
Cor	nsultants		Casing Ty	/pe:	12" Ste	el/ 4" SCH 4	IO PVC W	Vell Dia	amete	er: 4 inches	4 inches	
			Slot Size:		0.020		W	Vell De	pth:	73 feet		
			Gravel Pa	sck:	#3 San	d	С	asing	Stick	up: -	021 201	
				Elevation		Latitude				Longitude		= Static Groundwater
		a w			-							
Well		01-14	@ ++	2	50	e l	Samo		ģ			and the second second
	Well	Mater	Line I	m) ead	rati rs/6	e)		-	ž	1 (7)		ESCRIPTION
ckfi e el c	Details	Level	ŝõ	άğ	ane oo	ap to the total set of total	8 ×	ž	10			
Bosoga				Ē	4	ă.	a di	2	9		La superior	A MARK
					τ	510-		CL Sar		Sandy Clay: no odor		and the part of the
	12" steel				I₹I	-						
	casing		1.0		-	52.0-						
	1 · · · · ·				111	-		- 77				
	neat	-				53.0-	-	-				
	cement							-			arra Karlat I	and the design of the design o
			LUCIOT			54.0-		1	GL	Gravely Clay: orange-or	own-light i	prown monied, ~20%
			MOIST	1-1		-				gravei, nign-mediu	m plasticn	y, naro, no odor, moist
			DOV	•	_	55.0	-		<u>CI</u>	Gravelly Sandy Clay: orange-brown-light brown.		
	ILM DI IE	0.2	DRI	U	1000	The wave		-	UL.	Call Clay Clay. 01	Leand low	n-ight brown,
		1.1	MOIST	0	0.005	56.0		-		no odor	o sanu, ioi	-inculum plasticity
			1410101	v		-	1-1		CI	Sandy Gravelly Clay: lin	ht brown	<5% gravel 20-40%
			MOIST	0		57.0	+	-	~	sand high plasticit	v firm no	odor moist
	4" PVC			Ū		-	+-+	-		ound, righ plaotion	<u>yı mini ne</u>	
	casing		MOIST	0		58.0		-		as above: turning o	prange-bro	wn-light brown in color.
			_	_		-				with <5% gravel an	d 15-20%	sand
			MOIST	1		59.0		2			and the second second	S. 33
	1. In 1.	S = 11		-		600 -			GC	Clayey Sandy Gravel: or	ange-brov	vn, 20-30% clay,
	100	. I	. – – –		_	00.0				low plasticity, soft,	no odor, n	noist
			-			61 0						21 · · · · · · · · · · · · · · · · · · ·
	bentonite		WET	1	· · · ·	01.0				as above: turning c	orange-bro	wn-light brown in color
						620-		1-0		with 30-40% clay, 5	50-60% gr	avel, soft, wet
		- 313	MOIST	0		-						
						63.0		-				
	#3				5			1000				
	sand	- 1	LIGIOT	•	l v v	64.0-	-				and the second	la color
			MOIST	U	l F Đ	-				as above: turning i	ignt brown	
			MOIST	0	88	65.0						
	ecroon			U	≷ [₽]	-	and the second	-		as above: turning (range bro	walight brown in color
	GUICEII				6	66.0		-		as above, turning t	ange-bio	
			WET	n	1	-			CI.	Gravelly Clay: light brow	n. ~ 40% (pravel, medium-high
						67.0-				plasticity. soft-firm.	no odor	wet
			<i>7</i>			-				Preservey1		
			WET	0		0.80				California de la companya de la comp		
				_	÷ _	-			GM	Sandy Gravel: light brow	n, loose, r	no odor, wet
					1	09.0	and the second					
	i					70.0			11 11 11 11 11 11 11 11 11 11 11 11 11			
			MOIST	0		10.0-	-		CL	Sandy Clay: orange-brow	vn, high pl	asticity, hard, no odor,
					1	710				moist	I	
	— . I		MOIST	- 0		1,1.0						
		E - 1		_	1 -	72 0-						
		-	WET	-1		12.0						
					1	73.0			CL	Gravelly Clay: orange-br	rown, 5-10	% gravel, high plasticity
		1.	The Conference	District of	IN PART		1005	1.00	-	firm to hard, no od	or, wet	
Mud Rotary -	- 5 - 50' bgs;	Hollow	Stem Aug	er 50-73	bgs	- TE COMP	15521			Boring terminated at 73 fe	eet below	ground surface (bgs).
										<u>2</u>		
				5								
				<i>1</i> 2								

and the second second	100000		Project N	lo:	C104	188	-	(Client		ConocoPhillips		Well No: U-15
			Logged	Зу:	Joyce	e W	elsh	ι	.ocat	ion:	1771 First Street, Live	more, CA	Page 1 of 3
D.	- 11 -		Driller:		Greg	g Di	rilling	0	Date	Drilled:	9/4-5,23,10/2-3,6,10/08 Location Map		
)(eit?	7	Drilling N	lethod:	Mud	Rot	ary/Hollow St	em H	lole l	Diamete	17 inches		
			Samplin	Method:	Split	Spo	on Aug	ger H	lole	Depth:	71.5	Please see si	te map
Cor	nsultants		Casing 1	ype:	12" S	Steel	V 4" SCH 40	PVC V	Nell I	Diamete	r: 4 inches		
			Slot Size	c	0.020	כ		١	Nell 1	Depth:	71		
			Gravel P	ack:	#3 Sa	3 Sand Casing Stickup:			g Sticku	ир: -			
			1.0	Elevation	1		. L	atitude	Э	11.	Longitude	⊻ =	Static Groundwater
												L	
Well		1		2	5.	-	8	Sam		ġ			
Completion	Well	Static		Da E	120	30	ê.	2	_	Typ	1 17	HOLOGY	SCRIPTION
	Details	Level	100			8	뛽	0Ve	S	10		noeoor / D.	
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	well	-		Same Streps		1	and the second second	<u>"</u>	-		Asphalt		
	box	-			-	T			-	-			1000
	neat					_	1.0				1.5		
	cement				0				-	GM	Gravel with Silty Sand	and Cobbl	es: well graded
	Cement	2	-		12		2.0 —				no odor		
	12" steel	-			×			-		-			
	2				12		3.0		-	in the	2		
	4" P\/C			10.000		121	1.000		-		Carlo Carlo Carlo		and Ale
		11.80	1 2 2 3	12.35			4.0	-	-	180			
	Casings	21010			1 1	S				-			100
			1 er#	-96 free	H	1	5.0 —			GW	Sandy Gravel with Coh	bles: well	araded, no odor
	1970 B	1.1.2	18- L	0.0	1 T				1000	011	(Note: Mud Rotary does	not allow fo	or detailed lithology)
		1.00	1				6.0				(Note: Mild Notary dood	not anoth is	actuality installing gy
	a len s		1959 F				THAT SHE		-				
	1341		N. OKA				7.0						
				L			_						and the second
		1.196	9 <u>19</u> 5	TO B M			8.0			144		- 1	and a state of the
			200	100			1154 C					1	in the second
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		1.5		12020			-		1.1	183	and the second		
	-	111	- 19-20-	1000			10.0		1			1	
	_			1					-	and and a second			the state of the state
			1	1.	13		11.0						
		1000	2.02.04	103000	1961		-				And the second second		
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	-				1		17.0		811-1				
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	2	1				-	10.0		1-	120-1	~~ 민영민 개		
			1	1		1	19.0			175			
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						12	20.0		T		1	1	
	1.4100		1				210-			ter.		bergen haved	
							21.0		T^{\pm}	EST.			
	4		1	1			220-		1	NI ST		t and the	
		10.1	1	1.00	115	TO	22.0	125	17	360			1 195 1
			and the	a de la come			22.0		-		ويتحال المناجع المستعل (201) المحك		
			1.1			-	23.0			GC	Clayey Gravel with Co	bbles: no o	dor
			1	-			24 0-		-		and the second second second second	100 100 100 100 100 100 100 100 100 100	Sheet in the Vertility Sector All
		1	1	1			27.0		2010				
		1					25.0						
			1		1	7	20.0						

	delation	0	Project N	lo:	C10418	36	Ċli	ent:	ConocoPhillips	Well No: U-15
1		8. S	Logged 1	By:	Joyce V	Joyce Welsh			1771 First Street, Live	ernore, CA Page 2 of 3
	- 14 -		Driller:		Gregg I	Drilling	Da	te Drilled:	9/4-5,23,10/2-3,6,10/08	Location Map
1 1-)(PIT		Drilling N	lethod:	Mud Ro	stary/Hollow S	Stem Ho	le Diamet	er: 17 inches	
		A	Sampling	Method:	Split Sp	xoon Au	uger Ho	le Depth:	71.5	Please see site map
C.	neultante		Casing T	voe:	12" Ste	el/ 4" SCH 40	PVC W	eli Diamet	er: 4 inches	
	lounanto		Slot Size		0.020		W	A/all Depth: 71		sentenaen
1			Convol	n Inch	#2 San	A	Ca	eina Stick		
		11 8	Graver	Elevation	WO Qan	1	Lotituda	ionig outer	Longitude	V - Statia Groupduster
				Elevanor					Longitude	
Mol						-	1	-		1
Completion				2	50	(j)	Samole		1 an a 1 1	
	Well	Static	and the	B E	s et i	e.		2	1	
	Details	vvater	ŝ	a d	a a a	ŧ				HOLOGY / DESCRIPTION
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							<u> ~</u> -		Olaran Oranal with Ora	hhler an adar
	neat	i		10.04	I T	26.0			Clayey Gravel with Co	DDIes: no ogor
	cement					_	-			
			E 14			27.0		0		. 1
	12" steel	1	<pre></pre>			21.0				States and the second states and second
	&					28.0				
	4" PVC			1		20.0				
	casings					000		21.4		
		1				29.0				
		17.00				30.0		CI	Clay: light brown no od	lor
	Concerning the second			1						
						31.0				
								-		
		I		1 - 1		32.0	-	- 616		and the second
						(\vdash	- 3.3		
	dia an		1			33.0	<u>↓</u>	-		
		11100		1.0	125	-		- Det a		
		1	e	1.1.1	1.12	34.0		-		
						35.0				
	CTOL BUT	1	11 없는	8		a b-		-		
			i		1 1	36.0		1.0		1
						-		-		
		_				37.0		197		
				1				in the second		
		1			a l	38.0-				
		I		1	1 &			GC	Clayey Gravel: no odoi	and the second se
		1		1	P	39.0				
	internet in the	<u> - 197</u>	205 I	1. 200 8	ž			1		Tayl
					1.1	40.0		_		
						_		CL	Gravelly Clay: light bro	wn, no odor
						41 0-				
	24 82	1	1					_		5. T
		1				42 0			- 19 E Y Y	
			Spath. 1			72.0		144		
					1	120-		a parent		
				1		40.0				
						44.0				
			12.2	1. 11		177.0	130	107.		
						45.0		in the second		
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		1		<u>ke</u> – 1		46.0			1 S 1 S 1	
	date:	1				40.0				
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				1		47.0		GC	Clayey Gravel: no odor	el d'a constant de la constant
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	1 1 1	1				49.0				
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			<u>*</u>		1 +	100.0				

			14	Project N	0.	C10418	6		Clien	t	ConocoPhillips	2001	Well No: U-15	
				Logged B	ly:	Joyce V	Velsh		Locat	tion:	1771 First Street, Live	more, CA	Page 3 of 3	
		- 11 -		Driller:		Gregg D	Drilling		Date	Drilled:	9/4-5,23,10/2-3,6,10/08	Location Ma	ρ	
		SIIS	ר	Drilling M	ethod:	Mud Ro	tary/Hollow	Stem	Hole	Diamet	er: 17 Inches	Ad play		
			- 245	Sampling	Method:	Split Sp	oon A	uger	Hole	Depth:	71.5	Please see s	site map	
	Cor	sultants		Casing T	ype:	12" Stee	al 4" SCH 4	0 PVC	Well	Diamete	er: 4 inches	1.1.1	-1 - 0 - 1	
				Slot Size:		0.020			Well	Depth:	71			
				Gravel Pa	ack:	#3 Sand	I	1.55	Casir	ng Stick	up: -	8.177		
				i i i i i i i i i i i i i i i i i i i	Elevation	1		Latitud	ie di		Longitude	Longitude V = Static Groundwater		
			e aver						in the second	antanting 1				
Wel			13938		2	50	6	Con	anla	ę				
Compie		Well	Static	ter t	De C	S 6	₽.	200	ipie –	ž	117	HOLOGY	ESCRIPTION	
Sing stift	<u>8</u> Ž	Details	Level	풭	a d	low the	1 E	lă >	2g	10		HOLOGY / D	ESCRIPTION	
a to go	N M			~ `	ם	1 4 2	Ő	De les		ŝ				
		neat	118 23	2011-00	l actuals	1 A	54.0	1 2	5 T	GC	Gravelly Clay: light brow	vn	1947 - 1947 - 1948	
		cement				3	151.0		1			-	Contract, March 1983	
						5.	52.0	100						
		12" steel					192.0					1		
		casing					520							
		142 12					53.0			1				
							54 0		-E			1		
							54.0-							
						-	55.0-	1						
		1		DRY	5	20161			-	CL	Gravelly Sandy Clay: o	range-brow	n-light brown mottled,	
		4" PVC				5	56.0-		- 14	11.1	10-15% gravel, m	edium plas	ticity, hard-firm, no odor	
		casing	_							1		1		
				DRY	5		57 0			_	C. Nave		1 1 45	
		bentonite				2			4					
							58.0-							
			- 1	MOIST	2	1 - T				CL	Sandy Clay: light brown	, <5% grav	el, low plasticity,	
		"0					59.0			-	sont-nirm, no odor,	moist		
A., 2 1 - 1 - 1	140.0	#3		MOIST	1			Provide a state		00	Sandy Clayer Croyely I	abt buoum	200/ sendu slav	
		sand		MET		-	60.0			GC	Januy Clayey Graver: 1	blog coft	~30% sandy clay,	
				VVEI				1				0103, 3011,	ioose, no odor, moist	
		woll		WET		-	61.0						1024 1100	
	1	screen							-	1	and the second			
	2	3010011					62.0			-		1		
	4種							+			NO RECOVERY			
						i neve	63.0	1 11						
										1000		1.		
				WET	14	+	64.0-			GC	Sandy Clayey Gravel: I	ight brown,	20-30% sandy clay.	
	Lines.						-				loose, no odor, w	et		
				WET	7	a grant	65.0	1.0		12			(de 1 - 45)	
						1 =	66.0	Contraction of the local division of the loc		1				
				WET	0	Ê	00.0-					-		
						led at	670						- 22 - 12 - 14 - 14 - 14 - 14 - 14 - 14	
			1	WET	8		01.0-			1	as above: with 40	% sandy c	ay	
						≥ 2	68.0.			1.				
					_	18								
							69 0-				NO RECOVERY			
		and the								CL	(as per driller: cla	y @ 69')		
					_	1	70.0							
				WET	1		_			CL	Sandy Clay: light brown	, 5-10% sa	nd, high plasticity,	
						1	71.0-		-		soft, no odor, wet			
						1	L			-				
Mud Ro	tary -	5 - 59' bgs;	Hollow	Stem Aug	er 59-71.	.5' bgs	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.				Boring terminated at 71.	5 feet below	w ground surface (bgs).	

PRO	ECT:	Tosco	(76) Service Station No. 4186	LOCATION: 1771 First Street, Liver	more, CA				
GR F	ROJEC	T NO. :	140175.07	CASING ELEVATION:	i nanan kar				
DAT	E STAI	RTED:	12/07/01	WL (ft. bgs): DATE: TIME:					
DAT	E FINI	SHED:	12/07/01	WL (ft. bgs): DATE: TIME:					
DRIL	LING I	METHOD:	8 in. Hollow Stem Auger	TOTAL DEPTH: 45 feet					
DRIL	LING	COMPAN	(: Cascade Drilling	GEOLOGIST: Jed Douglas	(63 August 74				
DEPTH (feet)	GRAPHIC LOG	SOIL CLASS	GEOLOGI	WELL DIAGRA					
8-		GW	Asphall and base rock. WELL-GRADED GRAVEL WITH SAND (G dense; 50% fine to coarse subangular i coarse sand.	W) – dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to					
16-		SW	WELL-GRADED SAND WITH GRAVEL (S 70% fine to coarse sand, 30% fine grav	W) - brown (10YR 4/3), dry, very dense; rel.	dule 80 PVC				
24-		CL.	CLAY (CL) – dark yellowish Drown (10) 20% fine to coarse sand.	(R 4/4), moist hard, low plasticity; 80% clay,					
			WELL-GRADED SAND WITH GRAVEL AN	ID CLAY (SW-SC) - Drown (10YR 4/3)					
32-		SW-SCI	saturated, very dense; 50% fine to co	arse sand, 40% fine to coarse gravel, 10%					
32- 40-		SW-SC	CLAY (CL) - olive brown (2.5Y 4/4).	ioist, hard, medium plasticity: 80% clay. 20%	rge pour				
32- 40-		SW-SC	CLAY (CL) - olive brown (2.5Y 4/4).	ioist, hard, medium plasticity: 80% clay. 20%	rge por				

COULD 1: 1050 107 Service Station No. 4100 COULD 105: 17771115 Street, Livermore, CA. SPROJECT NO. 14075.07 CLASING ELEVATION: DATE STARTED: 12/07/01 HL (It. bgs): DATE STARTED: 12/07/01 HE (It. bgs): DATE STARTED: 12/07/01 HE (It. bgs): DATE STARTED: 12/07/01 <th></th> <th>na (76) Couvies Clotion Ha 1100</th> <th>LOCATION: 1771 Elect Street Liver</th> <th>ore CA</th>		na (76) Couvies Clotion Ha 1100	LOCATION: 1771 Elect Street Liver	ore CA				
DN FORCEL INC. PAULON DATE STARTED: 12/07/01 NL (H. bgs): DATE: TIME: DATE STARTED: 12/07/01 NL (H. bgs): DATE: TIME: DRILLING WETHOD: 8.0. Hollow Stem Auger TOTAL DEPTH: 45 feet DRILLING COMPANY: Cascade Drilling GEOLOSIC DESCRIPTION VELL DIAGE BILLING COMPANY: Cascade Drilling GEOLOSIC DESCRIPTION VELL DIAGE GN MELL-GRADED GRAVEL WITH GRAVEL (SN) - dark brown (00YR 3/2), dry, very dense; VELL DIAGE GN WELL-GRADED SAND WITH GRAVEL (SN) - brown (UYR 4/3), dry, very dense; VEL GN WELL-GRADED SAND WITH GRAVEL (SN) - brown (UYR 4/3), dry, very dense; VEL GN WELL-GRADED SAND WITH GRAVEL (SN) - brown (UYR 4/3), dry, very dense; VEL GN WELL-GRADED SAND WITH GRAVEL (SN) - brown (UYR 4/3), dry, very dense; VEL GN WELL-GRADED SAND WITH GRAVEL (SN) - brown (UYR 4/3), dry, very dense; VEL GN WELL-GRADED SAND WITH GRAVEL AND CLAY (SN-SC) - brown (UYR 4/3), saturated, very dense; 50% fine to coarse sand, 40% fine to coarse gravel, 0% VEL GN WELL-GRADED SAND WITH GRAVEL AND CLAY (SN-SC) - brown (UYR 4/3), saturated, very dense; 50% fine to coarse gravel, 0% VEL	HUJECI: TOS	CO (70) SERVICE STATION NO. 4186	CASTNE ELEVATION	IUIE, LA				
ALE JANTLEL. 10(Club) ML (IT Logit) DATL. TALL. ATE FINISHED: 12/07/01 ML (IT Logit) DATL. TIME. RILLING METHOD: 8 in. Hollow Stem Auger TOTAL DEPTH: 45 feet TIME. RILLING COMPANY: Cascade Drilling GEOLOGIC DESCRIPTION WELL DIAGE Image: State of the state of t	ATE STADTED	. 1401/5.07		TIME				
ALL TAUGLED: Bin: Hollow Stem Auger To TAL DEPTH: 45 feet RILLING COMPANY: Cascade Drilling GEOLOGIST: Jed Qauglas RILLING COMPANY: Cascade Drilling GEOLOGIS IS: Jed Qauglas Bit GR Asphalt and base rock. MELL-GRADED GRAVEL MITH GRAVEL MITH GRAVEL (SN) - derk brown (10YR 3/2), dry, very dense; MELL GRADED GRAVEL WITH GRAVEL (SN) - derk brown (10YR 4/3), dry, very dense; GN MELL-GRADED SAND WITH GRAVEL (SN) - brown (10YR 4/3), dry, very dense; Tox fine to coarse subangular to rounded gravel to 3 cs, 50% fine to coarse sand. G SN MELL-GRADED SAND WITH GRAVEL (SN) - brown (10YR 4/3), dry, very dense; Tox fine to coarse sand. 30% fine gravel. G CL CLAY (CL) - Gark yellowish brown (10YR 4/4), moist herd, low plasticity; 80% clay, 20% fine to coarse sand. Tox fine to coarse gravel. G NELL-GRADED SAND WITH GRAVEL AND CLAY (SN-SC) - brown (10YR 4/3), seturated, very dense; 50% fine to coarse sand, 40% fine to coarse gravel, 10% fine samd, 20% fine samd, 20% fine to coarse gravel, 10% fine samd, 40% fine to coarse gravel, 10% fine samd, 40% fine to coarse gravel, 10% fine samd, 40% fine samd,	ATE ETNISHER	. 12/07/01	WI (ft bos): BATE: TIME:					
SM WELL-GRADED SAND WITH GRAVEL (SN) - brown (KDYR 4/3), dry, very dense; SM WELL-GRADED SAND WITH GRAVEL (SN) - brown (KDYR 4/3), dry, very dense; SM WELL-GRADED SAND WITH GRAVEL (SN) - brown (KDYR 4/3), dry, very dense; CL CLAY (CL) - dark yellowish brown (KDYR 4/4), moist hard, low plasticity; 80% clay, 20% the to coarse sand, 30% fine to coarse sand, 40% fine to coarse gravel, 10% B CL CLAY (CL) - olive brown (25Y 4/4), moist, hard, medium plasticity; 80% clay, 20% the sand, 40% fine to coarse gravel, 10%	DTIL ING METH	OD: 8 in Hollow Stem Auger	TOTAL DEPTH: 45 feet	WE (ft. Dgs); UATE: TIME:				
Image: String of the construction of the construc	BILLING COMP.	ANY: Cascade Drilling	GEALOGIST: Jed Douolas					
100 90	MEENING COM							
SW Asphalt and base rock. WELL-GRADED SANDE WITH SAND. (6W) – dark trown. (10YR 3/2), dry, very dense; 50X fine to coarse subangular to rounded gravel to 3 cm, 50X fine to coarse sand. SW WELL-GRADED SAND WITH GRAVEL (SW) – brown. (KOYR 4/3), dry, very dense; 70% fine to coarse sand, 30X fine gravel. CL CLAY. (CL) – dark yellowish brown. (I0YR 4/4), moist hard, low plasticity; 80% clay, 20% fine to coarse sand. SW WELL-GRADED SAND WITH GRAVEL (SW) – brown. (KOYR 4/3), dry, very dense; 70% fine to coarse sand, 30X fine gravel. CL CLAY. (CL) – dark yellowish brown. (I0YR 4/4), moist hard, low plasticity; 80% clay, 20% fine to coarse sand. SW WELL-GRADED SAND WITH GRAVEL AND CLAY. (SW-SC) – brown. (I0YR 4/3), saturated, very dense; 50% fine to coarse sand. 40% fine to coarse gravel, 10% clay. CL CLAY. (CL) – dark yellowish brown. (I0YR 4/4), moist, hard, medium plasticity; 80% clay, 20% fine to coarse sand. CL CLAY. (CL) – dark yellowish brown. (I0YR 4/4), moist, hard, medium plasticity; 80% clay, 20% fine to coarse sand.	(feet) GRÅPHIC LOG SOIL CLASS	GEOLOGIC DESCRIPTION						
SW WELL-GRADED SAND WITH GRAVEL (SN) - dark brown (IOYR 3/2), dry, very dense; SW WELL-GRADED SAND WITH GRAVEL (SN) - brown (KOYR 4/3), dry, very dense; 70% fine to coarse sand, 30% fine gravel. CL CLAY (CL) - dark yellowish brown (IOYR 4/4), moist hard, low plasticity; 80% clay, 20% fine to coarse sand. SW-SC WELL-GRADED SAND WITH GRAVEL AND CLAY (SW-SC) - brown (IOYR 4/3), saturated, very dense; 50% fine to coarse sand, 40% fine to coarse gravel, 10% clay. SW-SC WELL-GRADED SAND WITH GRAVEL AND CLAY (SW-SC) - brown (IOYR 4/3), saturated, very dense; 50% fine to coarse sand, 40% fine to coarse gravel, 10% clay. CL CLAY (CL) - olive brown (2:5Y 4/4), moist, hard, medium plasticity; 80% clay, 20% fine sand. Bottom of boring at 45 feet bgs. Bottom of boring at 45 feet bgs.	- GW	Asphalt and base rock.	/					
CL CLAY (CL) - dark yellowish brown (I0YR 4/4), molst hard, low plasticity: 80% clay. 20% fine to coarse sand. SW-SC WELL-GRADED SAND WITH GRAVEL AND CLAY (SW-SC) - brown (I0YR 4/3), seturated, very dense; 50% fine to coarse sand, 40% fine to coarse gravel, 10% clay. CL CLAY (CL) - olive brown (2.5Y 4/4), moist, hard, medium plasticity; 80% clay, 20% fine sand. Bottom of boring at 45 feet bgs.	SW	WELL-GRADED SAND WITH GRAVEL (70% fine to coarse sand, 30% fine gra	SW) – brown (10YR 4/3), dry, very dense; avel.	k schedule 80 PVC				
SW-SC WELL-GRADED SAND WITH GRAVEL AND CLAY (SW-SC) - brown (10YR 4/3), saturated, very dense; 50% fine to coarse sand, 40% fine to coarse gravel, 10% clay. CL CLAY (CL) - olive brown (2.5Y 4/4), moist, hard, medium plasticity; 80% clay, 20% fine sand. Bottom of boring at 45 feet bgs.	CL	CLAY (CL) – dark yellowish brown (10 20% fine to coarse sand.	YR 4/4), molst hard, low plasticity; 80% clay,	ald "A" bia				
CL CLAY (CL) - olive brown (2.5Y 4/4), moist, hard, medium plasticity; 80% clay, 20% fine sand. Bottom of boring at 45 feet bgs.	SW-SO	WELL-GRADED SAND WITH GRAVEL A saturated, very dense; 50% fine to co clay.	ND CLAY (SW-SC) - brown (10YR 4/3), barse sand, 40% fine to coarse gravel, 10%					
CL CLAY (CL) - olive brown (2.5Y 4/4), moist, hard, medium plasticity; 80% clay, 20% fine sand. Bottom of boring at 45 feet bgs.	NFO							
Bottom of boring at 45 feet bgs.	a	CLAY (CL) - olive brown (2.5Y 4/4), fine sand.	moist, hard, medium plasticity; 80% clay, 20%	Jieds 1				
8-	11	Bottom of boring at 45 feet bgs.	erinnare en pagemente admin	T CROOMED T				
	8-							
	-							

	6	Bettl	er-Ryan, Inc.	Log of Boring	SP-3			
ROJ	ECT:	Tosco	(76) Service Station No. 4186	LOCATION: 1771 First Street, Liverm	ore, CA			
R PI	ROJEC	CT NO. :	140175.07	CASING ELEVATION:				
ATE	STA	RTED:	12/06/01	WL (ft. bgs): DATE: TIME:				
ATE	FIN	ISHED:	12/06/01	WL (ft. bgs): DATE:	TIME:			
RIL	LING	METHOD	: 8 in. Hollow Stem Auger	TOTAL DEPTH: 45 feet				
RIL	LING	COMPAN	Y: Cascade Drilling	GEOLOGIST: Jed Douglas	en Azonglas da Tre- a			
(feel)	GRAPHIC LOG	WELL DIAGRAM						
8		GW	Topsoil. WELL-GRADED GRAVEL WITH SAND (Gw dense; 50% fine to coarse subangular to coarse sand.	1) – dark brown (10YR 3/2), dry, very b rounded gravel to 3 cm, 50% fine to				
18-		SW	WELL-GRADED SAND WITH GRAVEL (SV 70% fine to coarse sand, 30% fine grav	N) – brown (10YR 4/3), dry, very dense; el.	coule 80 PVC			
24-		CL	CLAY (CL) – dark yellowish brown (10Y 20% fine to coarse sand.	R 4/4), moist hard, low plasticity: 80% clay.	- 3/4 blank sch			
32-								
	I	SW-SC	WELL-GRADED SAND WITH GRAVEL AN salurated, very dense; 50% fine to coa clay.	D CLAY (SW-SC) - brown (10YR 4/3), arse sand, 40% fine to coarse gravel, 10%	Pont			
Ю-		CL	CLAY (CL) - olive brown (2.5Y 4/4), m fine sand.	oist, hard, medlum plasticity; 80% clay, 20%				
18-			Bottom of boring at 45 feet bgs.					
56-	-							

		Jetu	er-nyan, Inc.	LUG OF BUILING	JF -4				
ROJ	ECT:	Tosco	(76) Service Station No. 4186	LOCATION: 1771 First Street, Liver	more, CA				
SR P	ROJE	CT NO. :	140175.07	CASING ELEVATION:					
DATE	E STA	RTED:	12/05/01	WL (ft. bgs): DATE: TIME:					
DATE	FIN	ISHED:	12/05/01	WL (ft. bgs): DATE: TIME:					
ORIL	LING	METHOD	3: 8 in. Hollow Stem Auger	TOTAL DEPTH: 45 feet					
DRIL	LING	COMPAN	Y: Cascade Drilling	GEOLOGIST: Jed Douglas					
(feet)	GRAPHIC LOG	SOIL CLASS	GEOLOG1	C DESCRIPTION	WELL DIAGRAM				
8 8		GW	Asphalt and base rock, WELL-GRADED GRAVEL WITH SAND (O dense; 50% fine to coarse subangular coarse sand.	GW) – dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to					
16-		CL	CLAY (CL) – dark yellowish brown (10 20% fine to coarse sand.	DYR 4/4), moist hard, low plasticity; 80% clay,					
32-		GW	WELL-GRADED GRAVEL WITH SAND (dense; 50% fine to coarse subangular coarse sand.	GW) - dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to					
10-				st e Ville Hille Tald Salara (Line Alle) Com and 208 average ville platester M	s pourt				
		CL	CLAY (CL) - olive brown (2.5Y 4/4), fine sand.	moist, hard, medium plasticity; 80% clay, 20%					
48-			Bottom of Doring at 45 feet Dgs.						

Page 1 at 1

	Gettie	er-Kyan, Inc.		
OJECT	: Tosco	(76) Service Station No. 4186	LOCATION: 1771 First Street, Livern	nore, CA
R PROJE	ECT NO. :	140175.07	CASING ELEVATION:	
ATE ST	ARTED:	12/05/01	WL (it. bgs): DATE:	TIME:
ATE FI	NISHED:	12/05/01	WL (ft. bgs): DATE:	TIME:
RILLIN	G METHOD	: 8 in. Hollow Stem Auger	TOTAL DEPTH: 45 feet	
RILLIN	G COMPAN	Y: Cascade Drilling	GEOLOGIST: Jed Douglas	
(feet) GRAPHIC LOG	SOIL CLASS	GEOLOG10	DESCRIPTION	WELL DIAGRAM
в 6 4	GW-GC	WELL-GRADED GRAVEL WITH SAND AN (ЮYR 4/2), dry, very dense; 60% fine 10% clay.	D CLAY (GW-GC) - dark grayish brown to coarse gravel, 30% fine to coarse sand,	DPVC
	CL GW	CLAY (CL) - dark yellowish brown (10) 20% fine to coarse sand. WELL-GRADED GRAVEL WITH SAND (0) dense; 50% fine to coarse subangular	YR 4/4), moist hard, low plasticity; 80% clay, GW) – dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to	3/4 biank schedule 40
10-1-1-1	CL	CLAY (CL) - olive brown (2.5Y 4/4), fine sand.	moist, hard, medium plasticity; 80% clay, 20%	
48		Bottom of boring at 45 feet bgs.		

Page 1 of

	Gettie	er-Ryan, Inc.	LUG OF BUTING SF	-0/01 00
PROJECT:	Tosco	(76) Service Station No. 4186	LOCATION: 1771 First Street, Liver	nore, CA
GR PROJE	CT NO. :	140175.07	CASING ELEVATION:	
DATE ST	ARTED:	12/05/01	WL (ft. bgs): DATE:	TIME:
DATE FIN	ISHED:	12/05/01	WL (ft. bgs): DATE:	TIME:
DRILLING	METHOD	: 8 in. Hollow Stem Auger	TOTAL DEPTH: 45 feet	
DRILLING	COMPAN	Y: Cascade Drilling	GEOLOGIST: Jed Douglas	
DEPTH (feet) GRAPHIC LOG	SOIL CLASS	GEOLOGI	C DESCRIPTION	WELL DIAGRAM
-557	GW-GC	Asphall and base rock.		
8				perge point
32-	CL	CLAY (CL) - dark yellowish brown (10 20% fine to coarse sand.	DYR 4/4), moist hard, low plasticity; 80% clay,	C-1/E
	GW	WELL-GRADED GRAVEL WITH SAND (dense; 50% fine to coarse subangular coarse sand.	GW) - dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to	
40-	CL	CLAY (CL) - olive brown (2.5Y 4/4), fine sand.	moist, hard, medium plasticity: 80% clay, 20%	
48	-	Bottom of boring at 45 feet bgs.		

	Gettler-Ryan, Inc.	Log of Boring	SP-6S	
PROJECT:	Tosco (76) Service Station No. 4186	LOCATION: 1771 First Street, Livermore, CA		
GR PROJE	CT NO. : 140175.07	CASING ELEVATION:		
DATE STA	RTED: 12/07/01	WL (ft. bgs): DATE:	TIME:	
DATE FIN	ISHED: 12/07/01	WL (ft. bgs): DATE:	TIME:	
DRILLING	METHOD: 8 in. Hollow Stem Auger	TOTAL DEPTH: 25 feet		
DRILLING	COMPANY: Cascade Drilling	GEOLOGIST: Jed Douglas		
DEPTH (feet) GRAPHIC LOG	SSAL CLASS GEOFOGIA	GEOLOGIC DESCRIPTION		
8	GW Asphalt and base rock. WELL-GRADED GRAVEL WITH SAND (G dense: 50% fine to coarse subangular coarse sand. SW WELL-GRADED SAND WITH GRAVEL (S 70% fine to coarse sand, 30% fine gra Bottom of boring at 25 feet bgs.	(W) - dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to (W) - brown (10YR 4/3), dry, very dense; vel.	2/16 Lonestar sand	
40			*	
56-				

Gettler-Ryan, Inc.			Log of Boring SP-7S		
PROJECT:	Tosco	(76) Service Station No. 4186	LOCATION: 1771 First Street, Livermore, CA		
GR PROJE	CT NO. :	140175.07	CASING ELEVATION:	CASING ELEVATION:	
DATE STA	ARTED:	12/06/01	WL (ft. bgs): DATE:	WL (ft. bgs): DATE: TIME:	
DATE FIN	ISHED:	12/06/01	WL (ft. bgs): DATE:	TIME:	
DRILLING	METHOD): 8 in. Hollow Stem Auger	TOTAL DEPTH: 25 feet		
DRILLING	COMPAN	IY: Cascade Drilling	GEOLOGIST: Jed Douglas		
OEPTH (feet) GRAPHIC LOG	S01L CLASS	GEOLOGIC DESCRIPTION		WELL DIAGRAM	
8	<u>SW</u>	Asphalt and base rock. WELL-GRADED GRAVEL WITH SAND (I dense; 50% fine to coarse subangular coarse sand.	GW) - dark brown (10YR 3/2), dry, very to rounded gravel to 3 cm, 50% fine to	blank schedule 80 PVC	
24-	50	WELL-GRADED SAND WITH GRAVEL (70% fine to coarse sand, 30% fine gra Bottom of boring at 25 feet bgs.	SW) - brown (10YR 4/3), dry, very dense. avel.		
32-		4			
40					
48-					
56-			·.		

Gettler-Ryan, Inc.			ler-Ryan, Inc.	Log of Boring SP-8/SP-8S	
PRO	JECT:	Tosc	o (76) Service Station No. 4186	LOCATION: 1771 First Street, Livermore, CA	
GR P	ROJE	CT NO.	: 140175.07	CASING ELEVATION:	
DAT	DATE STARTED: 12/05/01			WL (fl. bgs): DATE: TIME:	
DATI	EFIN	ISHED:	12/05/01	WL (ft. bgs): DATE: TIME;	
DRIL	LING	METHO	D: 8 in. Hollow Stem Auger	TOTAL DEPTH: 45 feet	8
DRIL	LING	a a secondaria de la composición de la			
OEPTH (feet)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION		WELL DIAGRAM
8-		GW	Asphalt and base rock. WELL-GRADED GRAVEL WITH SAND (GW) - dense; 50% fine to coarse subangular to roc coarse sand.	dark brown (10YR 3/2), dry, very inded gravel to 3 cm, 50% fine to	nk schedule 30 PVC
16-		SW	WELL-GRADED SAND WITH GRAVEL (SW) - 70% fine to coarse sand, 30% fine gravel.	brown (10YR 4/3), dry, very dense;	-sperge pount -sperge pount - stitution - 3/4" bla:
24-		CL	CLAY (CL) – dark yellowish brown (10YR 4/ 20% fine to coarse sand.	4), moist hard, low plasticity; 80% clay,	
40		S₩-SC	WELL-GRADED SAND WITH GRAVEL AND CL saturated, very dense; 50% fine to coarse clay.	Tanga California	
40-		CL	CLAY (CL) - olive brown (2.5Y 4/4), moist, fine sand.	hard, medium plasticity: 80% clay, 20%	d adored
48-			Bottom of Doring at 45 feet bgs.		
56-					