VOLKSWAGEN

GROUP OF AMERICA

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By Alameda County Environmental Health 2:22 pm, Apr 30, 2015

Mr. Jerry Wickham, PG, CEG, CHG Alameda County Health Care Services Environmental Health Services Environmental Protection 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502-6577

April 23, 2015

Christopher A. Hahn Senior Manager Real Estate & Facility Services 703-3647202

christopher.hahn@vw.com

TITLE DEPARTMENT PHONE FAX E-MAIL

DATE

NAME

Subject:

Submittal of the Well Decommissioning Report for Volkswagen Automobile Dealership 2740 Broadway Avenue, Oakland, California Fuel Leak Case No. RO0000400 and GeoTracker Global ID T0600100227

Dear Mr. Wickham:

Enclosed please find the well decommissioning report that was prepared by ARCADIS-US for Jones Lang LaSalle Corporate Solutions (JLL) on behalf of Volkswagen Group of America (VWGoA). The well destruction activities that were conducted at the Site in April 2015 are summarized therein. I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

VWGoA, JLL, and ARCADIS appreciate the opportunity to submit the enclosed report to the ACEH as documentation required for certification of case closure. If you have any questions or comments, please call me at (703) 3647202 or James Bryson of ARCADIS at (518) 250-7307.

Sincerely,

12

Christopher Hahn Senior Manager, Real Estate & Facility Services VOLKSWAGEN Group of America

Attachment

VOLKSWAGEN GROUP OF AMERICA, INC 2200 FERDINAND PORSCHE DRIVE HERNDON, VA 20171 PHONE + 1 703 364 7000



Imagine the result

Volkswagen Group of America, Inc. in care of Jones Lang LaSalle Corporate Solutions

Well Decommissioning Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

April 29, 2015

3/mis

Carl Edwards, Geologist

James P. Bryson, P.G. Principal Geologist

Well Decommissioning Report

Volkswagen Automobile Dealership 2740 Broadway Oakland, California

Prepared for: Volkswagen Group of America, Inc.

Prepared by: ARCADIS U.S., Inc. 855 Route 146 Suite 210 Clifton Park New York, 12065 Tel 518.250.7300 Fax 518.250.7301

Our Ref.: EM001048.0003 Date: April 29, 2015

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Figure 1	Site Location Map
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Appendix A	Boring Logs
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Well Decommissioning Report

Volkswagen Automobile Dealership Oakland, California

Acronyms and Abbreviations

ACEH	Alameda County Environmental Health
ACPWA	Alameda County Public Works Agency, Water Resources Section
ARCADIS	ARCADIS U.S., Inc.
bgs	below ground surface
CDWR	California Department of Water Resources
COPBD	City of Oakland Planning and Building Department
Cruz	Cruz Brothers Locators
EM	electromagnetic transmitter and receiver
Gregg	Gregg Drilling and Testing, Inc.
MW	monitoring well
report	Well Decommissioning Report
site	Volkswagen Automobile Dealership located at 2740 Broadway in Oakland, California
SS-SV	sub-slab soil vapor probe
VW	vapor extraction well or soil vapor probe
VWGoA	Volkswagen Group of America
UST	underground storage tank

Well Decommissioning Report

Volkswagen Automobile Dealership Oakland, California

1. Introduction

On behalf of Volkswagen Group of America, Inc. (VWGoA), ARCADIS U.S., Inc. (ARCADIS) prepared this Well Decommissioning Report (report) for the Volkswagen Dealership located at 2740 Broadway in Oakland, California (site; Figure 1). The site was issued "no further action" status by the ACEH under the California State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy (SWRCB 2012) in a letter dated October 14, 2014 (ACEH 2014). The October 2014 ACEH letter required that the remaining wells at the site be abandoned, and that this report, documenting the abandonment, be provided.

This report documents the decommissioning of five groundwater monitoring wells (MW-1, MW-3, and MW-7 through MW-9), three vapor extraction wells (VW-1 through VW-3), five sub-slab soil vapor probes (SS-SV-1 through SS-SV-5) and two soil vapor probes (VW-4 and VW-5). The wells were abandoned in accordance with the Alameda County Public Works Agency, Water Resources Section (ACPWA) requirements. Monitoring well destruction activities were conducted pursuant to California Well Standards Bulletin No. 74-81 and Supplement No. 74-90 (California Well Standards) (CDWR 1991), under the supervision and signed by an appropriately licensed California Professional Geologist.

2. Site Description

The site is currently an operating Volkswagen automobile dealership located on the southeast corner of the intersection of Broadway Avenue and 28th Street. Current onsite facilities include a three-story building housing multiple service bays and a showroom. There were ten monitoring wells associated with the site. Current site features are shown on Figure 2.

Based on a review of available historical reports acquired from the ACEH website, soil and groundwater investigation activities have taken place at this Site since 1988 when four underground storage tanks (USTs) were removed from the Site (Engineering Services 1989): one 1,000 gallon capacity UST (Tank A) used to store waste oil (formerly located near the garage near 27th Street); one 300 gallon capacity UST (Tank B) used to store waste oil (formerly located one 1,500 gallon capacity UST (Tank D) both used to store gasoline (formerly located along 28th Street).

Well Decommissioning Report

Volkswagen Automobile Dealership Oakland, California

3. Well Decommissioning Activities

Five existing groundwater monitoring wells (MW-1, MW-3, and MW-7 through MW-9) three vapor extraction wells (VW-1 through VW-3), five sub-slab soil vapor probes (SS-SV-1 through SS-SV-5), and two soil vapor probes (VW-4 and VW-5) were identified at the site for decommissioning. 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 ACPWA prior to initiating the drilling and grouting activities. An encroachment permit was acquired from the City of Oakland Planning and Building Department (COPBD) to perform well destruction activities at MW-1, MW-3, MW-7 through MW-9, and VW-1 through VW-3, which are located in a City of Oakland right-of-way.

3.2 Underground Utility Locating

On March 10, 2015, ARCADIS contacted Underground Service Alert of Northern California to identify any public utilities near the monitoring well locations. On March 24, 2015, 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 and RD-8000 Electronic Locator) 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. ARCADIS staff also conducted a visual inspection of the site to identify potential subsurface obstructions.

3.3 Well Decommissioning by Pressure Grouting

From April 1 through April 2, 2015, five groundwater monitoring wells (MW-1, MW-3, and MW-7 through MW-9) and three vapor extraction wells (VW-1 through VW-3) were successfully decommissioned by pressure-grouting in place. Additionally, five sub-slab soil vapor probes (SS-SV-1 through SS-SV-5) and two soil vapor probes (VW-4 and VW-5) were removed. Gregg Drilling and Testing, Inc. (Gregg), a California-licensed drilling contractor (C-57 License No. 485165), performed the well abandonments in

Well Decommissioning Report

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accordance with ACPWA requirements and the California Well Standards. Available boring logs and well construction diagrams are included as Appendix A.

Prior to well decommissioning, the depth to groundwater and depth to bottom was measured to confirm well construction details (Table 1). The well collar and cover at all well locations were removed with a jackhammer.

Well locations were abandoned using neat cement grout pressurized at approximately 25 pounds per square inch (psi) for five minutes, with the exception of monitoring well MW-3 and vapor extraction wells VW-1 through VW-3, where pressure could not be maintained due to the presence of horizontal conveyances associated with the former dual-phase extraction and treatment system. The grout was delivered from the bottom of the well to the top using a tremie pipe. For wells MW-3 and VW-1 through VW-3, the grout was allowed to settle overnight and additional grout was added the following day until the vertical casings and horizontal conveyances were sealed, as directed by ACPWA.

Following grouting, a 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. For wells MW-1, MW-3, MW-7 and VW-1 through VW-3, annular materials were removed to approximately two feet bgs and the casing was subsequently cut. At wells MW-8 and MW-9, annular materials were removed to 1 foot bgs, due to the close proximity of subsurface electric utilities in 28th Street. Additional grout was added in the annular void from approximately 1 to 2 feet bgs. The surface at all well locations was restored according to the COPBD's permit specifications.

For the soil vapor probes and sub-slab soil vapor probes, the tubing, lid and support ring of the flush-mount well boxes was removed. The surface at each location was finished using concrete to match existing conditions.

4. Management of Investigation-Derived Waste

Construction waste generated as part of the well destruction activities was properly contained in one 55-gallon Department of Transportation (DOT) approved steel drum. The drum was labeled as non-hazardous construction debris and left onsite for removal. The drum will be transported offsite by Integrated Wastestream Management

Well Decommissioning Report

Volkswagen Automobile Dealership Oakland, California

to a Republic Services disposal facility in Livermore, 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 by ARCADIS on April 24, 2015. Copies of the Well Completion Reports are included as Appendix B.

6. Summary

ARCADIS oversaw the decommissioning of five groundwater monitoring wells, three vapor extraction wells, five sub-slab soil vapor probes and two soil vapor probes at the site in April 2015. The wells were decommissioned in accordance with ACPWA requirements and the California Well Standards. Once the waste disposal documentation has been received from the disposal facility, that information will be provided to ACEH under separate cover.

Well Decommissioning Report

Volkswagen Automobile Dealership Oakland, California

7. Certification

All hydrogeologic and geologic information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by an ARCADIS California Professional Geologist.

James P. Bryson, P.G. Principal Geologist



A professional geologist's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.

Well Decommissioning Report

Volkswagen Automobile Dealership Oakland, California

8. References

- ACEH, 2014. Well Destruction for Fuel Leak Case No. RO0000400 and GeoTracker Global ID T0600100227, Broadway Volkswagen, 2740 Broadway, Oakland, CA 94612. October 14.
- California Department of Water Resources (CDWR), 1991. *California Well Standards, Bulletin 74-90, Supplement to Bulletin 74-81.* June.
- California State Water Resources Control Board (SWRCB), 2012. Low-Threat Underground Storage Tank Case Closure Policy. April 19.
- Engineering Services, Inc. 1989. *Removal of Four Underground Storage Tanks at Broadway Volkswagen, Oakland, California*. February 3.



Table

Table 1 Well Construction Details VW Oakland 2740 Broadway Oakland, California

Monitoring Well ID	Well Installation Date	Well Destruction Date	Borehole Diameter (inches)	PVC diameter (inches)	Total Depth (feet bgs)	Screen Interval (feet bgs)
MW-1	1/20/1989	4/2/2015	8	2	20	5-20
MW-3	1/19/1989	4/2/2015	8	2	20	5-20
MW-7	3/18/1994	4/2/2015	10	4	25	19.5-24.5
MW-8	6/13/2013	4/2/2015	8	2	20	16-20
MW-9	6/13/2013	4/2/2015	8	2	20	11-15
VW-1	3/18/1994	4/2/2015	10	4	20	14.5-19.5
VW-2	3/18/1994	4/2/2015	10	4	17	12-16.5
VW-3	3/18/1994	4/2/2015	10	4	16	5.5-15.5

Notes:

bgs = below ground surface btoc = below top of casing

Figures



PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/16/2013 1:17 PM BY: REYES, ALEC PIC:(Ob) PM:(Read) TM:(Opi) LYR:(Opi)ON='.OFE='REF' 10 2013/DWGEM001048 N01.049 LAYOUT: 1 SAVED: 4/16/2013 2:00 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: CITY:(Reqd) DN/GROUP:(Reqd) DB:(Reqd) LD:(Opt) G:LENVCAD\Emeryville\ACT\EM001048\0001\00003\GWMR



	LEG	END
	PROP	ERTY LINE
<u>× × × </u>	FENC	ELINE
	UTILIT	Y LINE
	FORM	ER UNDERGROUND STORAGE TANK LOCATION
	(A)	WASTE OIL (1,000 GAL); TANK REMOVED, SITE CLEAN
	(B)	WASTE OIL (550 GAL); TANK REMOVED
	(C&D)	WASTE OIL (550 GAL) AND UNLEADED GASOLINE (3,000 GAL); TANKS REMOVED
MW-3 😛	ABAN	DONED MONITORING WELL LOCATION (APRIL 2015)
MW-5	PREV	OUSLY ABANDONED MONITORING WELL
VW-1 😑	ABAN	DONED VAPOR EXTRACTION WELL (APRIL 2015)
∨W-6 /	ABAN	DONED SOIL VAPOR PROBE (APRIL 2015)
S-SV-1 ⊞	SUB-S	SLAB SOIL VAPOR PROBE



REFERENCES: MAP DIGITIZED FROM A SITE PLAN BY ENVIRONMENTAL SCIENCE & ENGINEERING (6/91) AND A SITE PLAN BY QST ENVIRONMENTAL (12/02/96 -REVISED 12/28/98)

> VW OAKLAND 2740 BROADWAY OAKLAND, CALIFORNIA

SITE PLAN SHOWING ABANDONED WELLS



FIGURE

Appendix A

Boring Logs

					_	LOG OF BORING NO. MW-1 PAGE 1 of 1		
	ENVIRONM	ENT			_	PROJECT NO: 02-258-003 DATE: 1/20/89		
597 Center Avenue, Suite 350						CLIENT: Semco/Broadway VW REF. ELEV.		
	Martinez 41	, Co 5:	alifa 372	rnia 94553 3637		SITE LOCATION: Broadway & 27th St., METHOD: Hollow—St Oakland, Co. Auger	tem	
F	0	Т	(Md		ION I	BORING LOCATION: HOLE DIA: 8.25"	NOL	
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EPTI	GRA	BLO	POR	SAN TY DE	ASSII	LOGGED BY: J. BRYSON SUPERVISOR: S. WICKHAM R.G. #3851 Susan Writha	nat	2
			VA		70	DESCRIPTION	ЩĈ	5
0-						4" Concrete at surface		_
						_	200	A
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4						— · · · · · · · · · · · · · · · · · · ·		
						_	Ξ.	=
6-						_		
		14		Ring @ 7'	CL	As above, sandy		
8–								
10-						Odor detected at approx. 10'		
12—								
14-								
						— ·		
16								
						-		
18-						As above		
20-						3	=	=
1						Total depth 20'		
22-						_Groundwater measured at 7.5 feet		
						0.02" slotted 2" PVC 20-5', blank 2"PVC		_
24-						_concrete (5% bentonite) 3-0.5',		_

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5	ENVIRONM 97 Cente Martinez 41	<i>ENT</i> r A , C	venu alifo	ERVICES , INC. Jue, Suite 350 ornia 94553 -3637		LOG OF BORING NO.MW-2 PAGE <u>1</u> of <u>1</u> PROJECT NO: 02-258-003 DATE: 1/19/89 CLIENT: Semco/Broadway VW REF. ELEV. SITE LOCATION: Broadway & 27th St., METHOD: Hollow-St Oakland, Co. Auger	em	
ОЕРТН (FT)	CRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	BORING LOCATION: DRILLER: ASE LOGGED BY: J. BRYSON SUPERVISOR: S. WICKHAM R.G. #3851 Susan Witch DESCRIPTION	WEIEL CONSTRUCTION	
0-						4" Concrete at surface		Ŀ
2-					CL	CLAY, dark brown, silty, soft, slightly moist, no odor	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	A A A A A A
4		10			0			2
6-		12		King @ 5	CL	As above, with some medium sond		
8-						_		
10—					CL	As above, light greenish—brown —		
12—								
14					CL	As above, light brown		
16—								
18—								
20-					CL	As above		
22						_Total depth 20' Groundwater measured at 11.1 feet 		
24-	-					-5-0'/#3 sand 20-4', 0.5 bentonite 4-3', _concrete (5% bentonite) 3-0.5', Allen key well box		-

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5	ENVIRONM 97 Cente Martinez 41	<i>ENT.</i> r A , C	AL S venu alifo 372-	SERVICES, INC. ue, Suite 350 ornia 94553 -3637		LOG OF BORING NO. MW-3 PAGE <u>1</u> of <u>1</u> PROJECT NO: 02-258-003 DATE: 1/19/89 CLIENT: Semco/Broadway VW REF. ELEV. SITE LOCATION: Broadway & 27th St., METHOD: Hollow-St Oakland Ca	tem
DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	BORING LOCATION: DRILLER: ASE LOGGED BY: J. BRYSON SUPERVISOR: S. WICKHAM R.G. #3851 SUSAN WICHAA DESCRIPTION	WEIGL CONSTRUCTION
0-					CL	_4" Concrete at surface CLAY, light brown, firm, slightly moist, no odor	
2-							44444444444444444444444444444444444444
4-					SP	SAND, light brown, medium dense, slightly —moist, no odor	
6-		23		Ring @ 7'	SP	- As above, some gravel	
8-		-					
10							
12—						4	
14—							
16-						CLAT, SITY, light brown, firm, moist, no odor	
18—					0		
20-						CLAT, Sondy, light brown, hinn, wet, no odor	
22 24						Total depth 20' Groundwater measured at 11.7 feet 0.02" slotted 2" PVC 20-5', blank 2"PVC 5-0'/#3 sand 20-4', 0.5 bentonite 4-3', concrete (5% bentonite) 3-0.5', Allen key well box	

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-		+	12			100	Minor welness observed (not sati	irated)
15-		†	23					
	CLAY, brown, dry, moderate plasticity, no odor	Ia	22	19/1/1/1/1/1/1/		1500	Well installed to depth of 17 feet	Comonad
_		+				"	over target sand lens No sample	s submitted
-		+						
20-		+					-	
	3	+						
		II					SISTENED LEOL	
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35 -		†					-	

6	Environmental)		1				1	
	Science & Engineering, Inc.			WE	BORING LOG AND WELL COMPLETION SUMMARY				
w	ELL COMPLETION			Project N	ame: Voreloo		Project No: 6-93-5093		
C	ompletion Depth: 16 Feet			Location:	2740 Broadway Oakland, California			Page 1 of 1	
Cá	SiZe/Type From asing: 4" Diam, Blank PVC O Feet	5.5 F	eet	-					
So	4" Diam, Blank PVC 15 5 Feet reen: 4" Diam, Stotted (0.030") PVC 5.5 Feet	16.0 16.6	Feet	Driller: Ex Method:	ploration Geoservice Mobile B61 Hollow-S	es, Inc. Iem Aud	er	Dates:	
Se	al: Bentonite Pellets 1.5 Feet Grout 1.0 Feet	16.0 4.5 F 1.5 F	Feet eet	Hole Dian Bef. Eleva	Hole Diameter; 10 Inches Total Depth: 16 0 Feet			Start: 3-17-94 Finish: 3-18-94	
W	all Cap or Box: Ernco-Wheaton (15/16-inch bolts)		001	Logged 8	y: Bart Miller				
E				Graphic Lo	9		Remarks		
Dept	Linologie Descripson	nsc	Sample/	Lithology	Lithology Well Installation		Water, drilling/completion, summ	tary, sample type	
		1	Diogra	A DECEMBER OF THE OWNER O				START 17:00	
0-	CONCRETE FILL, rounded gravel fragments with clavey sand matrix, dry, no	+		~~~~~			-		
	odor	Ť		*****			-		
		Ť		*****	383 183		-		
		Ī		XXXXX	383 BX				
5-		I			3 🖷				
-		4				u			
· -		+		******					
-		+		8888888					
-	FILL, psa gravel, no fines, dry, slight petroleum hydrocarban odor.	+	2	******			 Standing water with high concentr 	ation of dissolved	
10		+	23	88888			product.		
		+					-		
		Ť	1				hat .		
	EORMATIONAL SEDIMENTS SAND, wet, well graded, fine to coarse grained, strong petroleum	sw	5		1 🗖 🛛				
15-	hydrocarbon odor.	II	16 16						
_	CLAY, brown, dry, moderate plasticity, no odor.	- CL	30	<u>BERARARARA</u>		20	Well installed to dooth of 16 feet in	assofine LIST	
		+					backfill Screened over interval of standing water. No samples submi	impacted	
-		+ .					-		
-		+					-		
20-		+					STERED GEO		
		+				ł	- 5	ES	
		II					MICHAEL E		
		II				1		14	
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Project Number: EM001048.0001 Template: boring_well HSA_template_3.ldfx Data File: MW-8.dat Date:7/16/2013 Jennifer H Johnson



Project Number: EM001048.0001 Template: boring_well HSA_template_3.ldfx Data File: MW-9.dat Date:7/16/2013 Jennifer H Johnson

Sector Boring/Well ID: $\sqrt{W-4}$ Page		Permit No. W:	1013-1042					
Depth Date: $2 - 11 - 14$ End $2 - 11 - 14$ Depth: $5 \cdot 5'$ Hole Depth to Sampling Device: Length: Diameter: Interval: Depth to Hammer Hammer Dolling Contractor: Configure Configure Depth to Device: Length: Diameter: Interval: Dentities Contractor: Configure Configure Depth: Device: Device: Contractor: Configure Contractor: Configure Device: Device:<	Boring/Well ID: VW-4 Page of 3							
Sum 2-11-14 End 2-11-14 Deate: $2\cdot 5 \cdot 5'$ Diameter: $2''$ Depth to Sampling Device: Length: Diameter: Interval: Hammer Hammer Contractor: Confluence Drilling Drilling Drilling Fluid Drilling End Diameter: $3 \cdot 5'$ Diameter: Unterval: Hammer Drilling Drilling Fluid Drilling End Drilling Drilling Hand Ayeger Used: Destription Destription Depth $\frac{5}{2} \cdot \frac{5}{2} $	Client: VW , Oak	land, CA	EM001048.	0001	Denth te			
Sampling Sampling Device: Length: Diameter: Interval: Hammer Drilling Drilling Drilling Drilling Drilling Drilling Drilling Drilling Drilling Method: HanA Drilling Drilling Drilling Drilling Method: HanA Logged A. Shah Reviewed By: Depth Reviewed By: Date By: A. Shah Reviewed By: Depth Sample ID Depth: Principal Components. (angulanty, plasticity, clastercy: Color(Mursel Chart), Additional Comments. 1 Q Q Q'-12 - Converter S1ab (3 Slabs) 1' Q'-2' - SAA Q'-3' - SAA Q'-3' - SAA 3' Q'-3' - SAA Q'-3' - SAA Q'-3' - SAA 3' Q'-3' - SAA Q'-3' - SAA Q'-3' - SAA 4' Q'-3' - SAA Q'-3' - SAA Q'-3' - SAA 3' Q'-3' - SAA Q'-3' - SAA Q'-3' - SAA 4' Q'-3' - SAA Q'-3' - SAA Q'-3' - SAA 4'	Date: 2-11-14 Da	te: 2-11-14 Dep	h: 5.5'	Diameter: 3"	1 st Water:	-		
Hammer Hammer Drilling Drilling Contractor: Confluence Drilling Drilling Drilling Method: Hand Auger Drilling Fluid Diffing Method: Hand Auger Drilling Fluid Used: Driller: Jason / Tony Helper(s): Date Logged A. Shah Reviewed By: Date By: A. Shah Reviewed By: Date Deth Begins Time Sample ID Description Description Description Description Description 1 Image: Sample ID Description Description Components, (angularty, elasticity, diatency): diatency: diatency: Source & Stab (3 stabs) Image: Sample ID 1 Image: Sample ID Description Description Components, (angularty, elasticity, diatency: Manor Components, (angularty, elasticity, diatency: Source & Stab (3 stabs) Image: Sample ID 1 Image: Sample ID Description Description 2 Image: Sample ID Description Components, (angularty, elasticity, diatency: stab (3 stabs) 1 Image: Sample ID Image: Sample ID Image: Sample ID <td>Device:</td> <td>Length:</td> <td>Diameter:</td> <td>Interval:</td> <td></td> <td>-</td>	Device:	Length:	Diameter:	Interval:		-		
Drilling Method: Hand Auger Drilling Fluid Driller: Jason / Tony Helper(s): Logged A. Shah Reviewed By: Date By: A. Shah Reviewed By: Date By: Time Sample ID Depth Principal Components, (angularity, plasticity, diatency): More Components, (angularity, plasticity, diatency): Solir, More Components, (angularity, plasticity, diatency): More Components, (angularity, plasticity, diatency): More Components, (angularity, plasticity, diatency): Solir, More Components, (angularity, plasticity, diatency): Mor	Hammer Weight:	Hammer Drop:		Contractor: CO	nfluence			
Driller: Jason / Tony Helper(s): Date Logged A. Shah Reviewed By: Date Depth For an and a strength of the streng	Drilling Rig:	Drilling Method:	d Auger	Drilling Fluid Used:				
Logged By:A. ShahReviewed By:Date Reviewed:DepthTime gSample IDDepth Principal Components. (angularity. plasticity. diatency): Sorting. Mosture Content: Consistency/Density. Color (Munsel Chard). Additional Comments.1' $0 - q'' - Concrete Slab (3 slabs)$ 1' $0 - q'' - Concrete Slab (3 slabs)$ 1' $0' - 12'' - SAA$ a' $3' - 4' - 2' - SAA$ 3' $3' - 4' - SAA$ 4' $3' - 4' - SAA$ 4' $5 - 5.5'$ 6' $5' - 5.8' - 5AA$, termingte at 5.5'	Driller: Jason 1 Ton	V Help	er(s):					
Depth reg o o o o Depth: Principal Components, (angularity, plasticity, dilatency); More Components, (angularity, plasticity, dilatency); Sorting. Mosture Content. Consistency/Density. Color (Munsel Charl). Additional Comments. o <t< td=""><td>By: A. Shah</td><td>Revi</td><td>ewed By:</td><td></td><td>Date Reviewed:</td><td></td></t<>	By: A. Shah	Revi	ewed By:		Date Reviewed:			
$\begin{array}{c} 0 - q^{1/} - Convrete Slab (3 slabs) \\ q^{\prime} 12^{4\prime} - Sandy silt \\ 1 - 2^{\prime} - 2^{\prime} - SAA \\ q^{\prime} - 2^{\prime} - 2^{\prime} - SAA \\ q^{\prime} - 2^{\prime} - 2$	Depth Drive Interval Recovery (in) Recovery (in)	Sample ID Depth: Prin dilatency);	cipal Components, (angulari Sorting, Moisture Content, C	Description ty, plasticity, dilatency); Min onsistency/Density, Color (I	or Components, (angularity, pla Munsel Chart), Additional Comr	sticity, British Stream St Stream Stream St Stream Stream St Stream Stream St Stream Stream St Stream Stream St Stream Stream St		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		0-9'	/ - Concrete	Slab (3 sla	Ls)			
$\begin{array}{c} 1 \\ 2' - 2' - SAA \\ 2' - 3' - SAA \\ 3' \\ 3' \\ 4' \\ 4' \\ 5' \\ 5' \\ 5' \\ 5' \\ 5' \\ 5$	¥	9-12*	- Sandy s	;1+				
a' = 2' - 3' - SAA $a' = 3' - 4' - SAA$ $a' = 4' - 5' - 5AA - 5anAy silt and fill, some gravel$ $s' = 5' - SAA - 5anAy - 5S'$ $b' = 5' - SAA - 5S'$		2'-2	- SAA	na senten en antinen en				
3' = 3' - 3A' $3' - 4' - 5AA$ $4' = 4' - 5' - 5AA - 5andy silt and fill, some grovel 5' - 5.5' - 5AA, terminate at 5.5' 6' = 4$								
3' - 4' - 5AA $4' - 4' - 5AA - 5and - 5ilt and fill, some gravel$ $5' - 5AA - 5and - 5ilt and fill, some gravel$ $5' - 5AA - terminate a + 5.5'$ $6' - 4$		23.	- SAA					
4' 4' 4' 5'		3'-4'	- SAA					
s' = 5' - sAA, terminate at 5.s'	·	ц <u>́</u> , (/	LAA Col I	the and Bin a	al accuel			
6'	,	7-0-7	STUD SUNAY S	itt and till, so	she girrei	restriction of the second s		
		51-5.5	-sAA, ter	minate at 5	···S*			
	,							
				n an an an an an ann ann ann ann ann an				
Remarks/Notes:	emarks/Notes:							

Permit No. W2014 - 0141

	buildings	Bor	ing/Well ID:	<mark>₩-5</mark> F	Page	 of	3	
Project/ Client: VW, C	Jakland, CA		EMO	01048.00	01			
Start Date: 2-11-14	End Date: 2-11-14	Total Depth:	5.5'	Hole Diameter:	311	Depth to 1 st Water:	-	
Sampling				Sam	pling			
Device:	Length:		Diameter:	Inter	rval:			
Hammer	Hamme	r		Drilling	1.	China		
Weight:	Drop:			Contractor:	000	fluence		
Drilling	Drilling	N 1		Drilling Flui	id			
Rig:	Method	Hand	Auger	Used:				
Driller: Jason	ITONY	Helper(s):					
Logged						Date		
By:	2666	Reviewe	ed By:			Reviewed:		
s al n.)								O

Depth (ft)	Drive Interv	Blows per (Recovery (Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.
 1'						04-3" - concrete stab 3"-12", dark clay
					1997 - 1997 - 1997 - 1997 - 1997 - 1996 - 1997 - 19	1'-2' - dark clay
2´						2-3' -light brown/orange silty sand
3						3'-4'-light brown Sandy Silt
4' <u> </u>						41-51 orange sandy silt
s′						5'-s.s' orange sandy silt, terminate a) s.s'
6'						
	-					
	-					
	-					
	-					
Remarks/N	lotes	:				

Permit No, w2014-0141

Infrastructure, environment, buildings	Boring/Well ID: \underline{V}	W76 Page_	<u>}</u> of	3
Project/	T M noto	HA Anal		
Client: VW/ Currand / / /	ENOUID	18.0001		
Start End	Total r c /	Hole	 Depth to 	
Date: 2-11-19 Date: 2-11-14	Depth: >.>	Diameter: 5	1 st Water:	-
Sampling		Sampling		
Device: Length:	Diameter:	Interval:		
Hammer Hammer		Drilling	0.	
Weight: Drop:		Contractor: 60	nfluence	
Drilling Drilling	11	Drilling Fluid		
Rig: Method:	Hand Auger	Used:		
	9			
Driller: Jason/ tony	Helper(s):			
Logged			Date	
By: Royen	Reviewed By:		Reviewed:	
<i>v</i> ,				

Depth (ft)	Drive Interval	Blows per 6	Recovery (in.	Time	Sample ID	Description Depth: Principal Components, (angularity, plasticity, dilatency); Minor Components, (angularity, plasticity, dilatency); Sorting, Moisture Content, Consistency/Density, Color (Munsel Chart), Additional Comments.
1'	Drive		Reco			dilatency): Sorting. Moisture Control Consistency/Density. Color (Munsel Charl). Additional Comments. 0. 4" - Concrete Slab 4"-1)" - dark clay 2 2' - dark clay 2 3' dark clay 3' - 3.5' - tight brown clay. 3. 5' - 4' - 5i Ity Sand, light brown 4' - 5' - light brown 3i Ity Sand terminate @ 5.5'
Remarks/N	lotes					

Appendix B

Well Completion Reports

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

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