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GROUP OF AMERICA

November 20, 2013

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

Subject:

Submittal of the Groundwater Monitoring 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 groundwater monitoring report that was prepared by ARCADIS-US (the "ARCADIS Letter") for CBRE – Global Corporate Services (CBRE) on behalf of Volkswagen Group of America (VWoA). The results of the groundwater monitoring activities that were conducted at the Site in September 2013 are summarized therein.

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

VWoA, CBRE, and ARCADIS appreciate the opportunity to submit the enclosed report to the ACEH for your consideration, and we look forward to working with you and your team to bring this project to regulatory case closure. VOLKSWAGEN GROUP OF AMERICA, INC. 2200 FERDINAND PORSCHE DRIVE HERNDON, VA 20171 PHONE + 1 703 364 7000

# VOLKSWAGEN

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If you have any questions or comments, please call me at (248) 754 4339 or Ron Goloubow of ARCADIS at (510) 596-9550.

Sincerely,

Eric S. Carlson Director, Group Marketing, Real Estate, and Affiliate Operations

Attachment

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



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

Subject:

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

Dear Mr. Wickham:

ARCADIS U.S., Inc. (ARCADIS) was retained by CBRE – Global Corporate Services (CBRE) on behalf of Volkswagen Group of America (VWoA) to provide environmental consulting services for the Volkswagen Automobile Dealership located at 2740 Broadway Avenue, in Oakland, California (the Site). The environmental services are required at the Site in order to respond to the letter from the Alameda County Health Care Services Agency (ACEH) to CBRE dated November 15, 2012, requesting quarterly groundwater monitoring at the Site. The attached environmental groundwater monitoring report satisfies this requested scope of work. Per the instructions within the ACEH letter, this report is being submitted via the ACEH FTP site and the State Water Resources Control Board (SWRCB) GeoTracker website.

We look forward to working with you on this important project. If you have questions regarding this report, please call Ron Goloubow at 510-596-9550 or Jay Shipley at 562-496-3001.

Sincerely,

ARCADIS U.S., Inc.

Jay M. Shipley, PE Senior Vice President

Ron Goloubow, PG Principal Geologist

ARCADIS U.S., Inc. 2000 Powell Street Suite 700 Emeryville California 94608 Tel 510 652 4500 Fax 510 652 4906 www.arcadis-us.com

Environment

Date: November 25, 2013

Contact: Ron Goloubow

Phone: 510.596.9550

Email: ron.goloubow@arcadis-us.com

Our ref: EM001048.0001.00001

Imagine the result



Imagine the result

## **CBRE – Global Corporate Services**

## Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

November 25, 2013

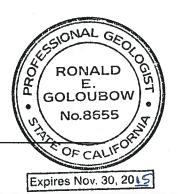


Carthin Bell

Caitlin Bell, PE Project Environmental Engineer

Ron Goloubow, PG Principal Geologist California Professional Geologist (8655)

Jay M. Shipley, PE Senior Vice President



#### Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

CBRE - Global Corporate Services

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

Our Ref.: EM001048.0001

#### Date: November 25, 2013

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# **ARCADIS**

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# **ARCADIS**

#### Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

#### 1. Introduction

ARCADIS U.S., Inc. (ARCADIS) has prepared this groundwater monitoring report for CBRE – Global Corporate Services (CBRE) on behalf of Volkswagen Group of America for the Volkswagen Automobile Dealership located at 2740 Broadway Avenue, in Oakland, California (the Site; Figures 1 and 2). Groundwater monitoring and reporting is being conducted at the Site in response to the letter from the Alameda County Health Care Services Agency – Alameda County Environmental Health (ACEH) to CBRE dated November 15, 2012 (ACEH 2012).

This report presents the data from groundwater samples collected from July 1 to September 30, 2013 (the Reporting Period) and provides the historical chemical concentration data.

#### 2. Background

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 27<sup>th</sup> Street); one 300-gallon capacity UST (Tank B) used to store waste oil (formerly located near the garage near 27<sup>th</sup> Street); one 300-gallon capacity UST (Tank B) used to store waste oil (formerly located along Broadway Avenue); and one 550-gallon capacity UST (Tank C) and one 1,500-gallon capacity UST (Tank D) both used to store gasoline (formerly located along 28<sup>th</sup> Street). Figure 2 illustrates the locations of the former USTs, groundwater monitoring wells, and soil vapor extraction wells, as adapted from historical reports (Environmental Science and Engineering Inc. [ESE] 1991b and QST Environmental 1999) and recent site reconnaissance. The soil vapor extraction wells contain groundwater and groundwater samples have been collected and analyzed from these wells.

Based on the soil samples collected and observations made during the removal of the USTs, a total of six groundwater monitoring wells (MW-1 and MW-3 through MW-7) were installed to a total depth of between 20 and 30 feet below grade in the sidewalk and 28<sup>th</sup> Street near the former USTs C and D. Groundwater monitoring well MW-2 was installed near the former waste oil UST located near Broadway Avenue (Tank B). Reportedly, three wells (MW-4, MW-5, and MW-6) were abandoned in 1994. Additionally, well MW-2 was indicated as an abandoned well in a map included in an ESE report (ESE 1991a) and does not appear in the recent data summary tables. The highest concentrations of total petroleum hydrocarbons as gasoline (TPHg) and



benzene, toluene, ethylbenzene, and total xylenes (BTEX) have historically been detected in groundwater samples collected from well VW-3 located approximately adjacent to former USTs C and D located along 28<sup>th</sup> Street (Mactec 2003).

A soil vapor and groundwater extraction system reportedly operated at the Site from February 1996 through March 1998. The extraction system was comprised of four vapor and groundwater extraction wells (SV-1 through SV-3 and MW-3; Mactec 2003). The details regarding the operational history of this extraction system were not provided (i.e., flow rates, mass of contaminants removed).

In June 2012, ARCADIS coordinated the redevelopment and sampling of the remaining groundwater monitoring and vapor extraction wells on site (ARCADIS 2012). Groundwater monitoring wells MW-1, MW-3, and MW-7 and former soil vapor extraction wells VW-1, VW-2, and VW-3 were redeveloped and sampled (Figure 2). In July 2013 ARCADIS coordinated the installation of wells MW-8 and MW-9 (ARCADIS 2013).

#### 3. Groundwater Elevation

ARCADIS retained Confluence Environmental Inc. to conduct groundwater sampling at the Site on September 26, 2013. Prior to commencement of groundwater sampling, each well was inspected and a depth to groundwater measurements was collected at each well using a water level meter (Table 1). The depth to water level measurement from each well was recorded in the field and the field data are included in Appendix A. The groundwater elevations measured at the Site were used to produce a groundwater elevation contour map (Figure 3). From this information, groundwater direction was determined to be towards the west-northwest under a gradient of 0.01 feet per foot between wells MW-1 and MW-8. This groundwater flow direction and gradient is consistent with the measurements conducted in June 2012 (ARCADIS 2012). A groundwater flow direction to the north has also been reported at the Site (ESE 1991b).

#### 4. Well Sampling

Groundwater purging and sampling was completed using conventional low-flow techniques in accordance with the United States Environmental Protection Agency's (USEPA's) protocol (USEPA 1996). A low-flow peristaltic pump was used to minimize the drawdown during purging. Water quality parameters were monitored during well purging using an in-line monitoring device. Groundwater samples were collected after

#### Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California



the water quality parameters had stabilized for at least three successive readings (Table 2). These water quality parameters were recorded in the field and the field data are included in Appendix A.

Groundwater samples were collected using a low-flow pump into the appropriate laboratory-supplied groundwater sample containers. The sample containers were stored on ice and delivered under chain of custody procedure to Curtis & Tompkins Laboratory located in Berkeley, California. Groundwater samples and a duplicate sample were submitted for the analyses below. An equipment blank and trip blank were collected and submitted to the laboratory, but were not analyzed unless other results were identified as inconsistent.

- TPHg and BTEX using USEPA Method 8260B
- TPH as diesel (TPHd) and TPH as motor oil (TPHmo) using USEPA Method 8015

All investigation-derived waste is currently stored on site in an appropriately labeled 55gallon drum for later characterization and disposal.

#### 5. Groundwater Monitoring Results

Analytical results for groundwater samples collected at the Site indicate that detectable concentrations of petroleum-related compounds are present in the vicinity of the former gasoline USTs formerly located near 28<sup>th</sup> Street. A summary of the analytical results for groundwater samples collected at the Site from historical and recent monitoring events is included in Table 3 and the laboratory analytical report for the samples collected in September 2013 is provided as Appendix B. Concentration contour maps for TPHg and benzene are provided as Figures 4 and 5.

TPHg was detected above laboratory reporting limits in samples collected from wells MW-8, MW-9, VW-2, and VW-3 at concentrations ranging from 850 to 8,300 micrograms per liter ( $\mu$ g/L). TPHd was detected above laboratory reporting limits in the samples collected from wells MW-1, MW-8, MW-9, VW-2, and VW-3 at concentrations ranging from 120 to 2,900  $\mu$ g/L. TPHmo was only detected above the laboratory reporting limit in the sample collected from former vapor extraction well VW-3 at a concentration of 370  $\mu$ g/L. Benzene was detected above laboratory reporting limits in the samples collected from wells MW-3, MW-8, MW-9, VW-2, and VW-3 at a concentration of 370  $\mu$ g/L. Benzene was detected above laboratory reporting limits in the samples collected from wells MW-3, MW-8, MW-9, VW-2, and VW-3 at concentrations ranging from 2.6 to 650  $\mu$ g/L. Toluene was detected above laboratory reporting limits in the samples collected from wells MW-8 and VW-2 at concentrations

#### Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

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#### Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

of 3.3  $\mu$ g/L and 38  $\mu$ g/L, respectively. Ethylbenzene was detected above laboratory reporting limits in the samples collected from wells MW-8, MW-9, and VW-2 at concentrations ranging from 56 to 690  $\mu$ g/L. Total xylenes was detected above laboratory reporting limits in wells MW-8, MW-9, VW-2, and VW-3 at concentrations ranging from 8.3 to 610  $\mu$ g/L.

Detected concentrations were compared to the Tier I Environmental Screening Levels (ESLs) for groundwater that is a current or potential source of drinking water (California Regional Water Quality Control Board 2013). These screening levels were chosen as a conservative comparison. Concentrations of TPHg, TPHd, TPHmo, and/or BTEX, in wells MW-1, MW-8, MW-9, VW-2, and/or VW-3 were detected above the applicable ESL. Table 3 compares the detected groundwater concentrations with the applicable ESL.

#### 6. Conclusion and Further Actions

The results for the September 2013 groundwater monitoring event are consistent with the analytical results for groundwater samples previously collected at the Site. The data suggest that affected groundwater at the Site is located near the former gasoline USTs (C and D) and the north side of 28<sup>th</sup> Street (Figures 4 and 5). Fuel and fuel-related compounds were detected above the applicable ESLs for groundwater samples collected from wells MW-1, MW-8, MW-9, VW-2, and VW-3.

The April 2012 letter from ACEH requested the preparation of a work plan to evaluate whether there is a complete vapor intrusion pathway present at the Site. To this end, a Soil Vapor Sampling Plan was submitted to ACEH in September 2013. Pending ACEH approval of the work plan, this scope will be implemented to assess the potential for a complete vapor intrusion pathway. In the interim, quarterly groundwater monitoring and reporting will continue with the next groundwater monitoring event to take place in December 2013 and the report for that event to be submitted by February 15, 2014.



#### Groundwater Monitoring Report

Volkswagen Automobile Dealership 2740 Broadway Avenue Oakland, California

#### 7. References

- ACEH. 2012. Work Plan Approval and Request for Additional Work for Fuel Leak Case No. RO0000400 and GeoTracker Global ID T0600100227, Broadway Volkswagen, 2740 Broadway Oakland, California. April 6.
- ACEH. 2012. Work Plan Approval and Request for Additional Work for Fuel Leak Case No. RO0000400 and GeoTracker Global ID T0600100227, Broadway Volkswagen, 2740 Broadway Oakland, California. November 15.
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ARCADIS. 2013. Soil and Groundwater Investigation Report. September 10.

- California Regional Water Quality Control Board San Francisco Bay Region. 2008. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. Interim Final – Revised 2013.
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- Mactec. 2003. Sampling and Closure Report, Broadway Volkswagen, 2740 Broadway, Oakland, California. April 21.
- QST Environmental. 1999. Site Closure Report, Property No. 4286, Broadway Volkswagen, 2740 Broadway, Oakland, California. March 1.
- USEPA. 1996. Ground Water Issue: Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures. Office of Solid Waste and Emergency Response. EPA/540/S-95/504. April.

# ARCADIS

Tables

# Table 1Groundwater Elevation DataVolkswagen Automobile Dealership2740 Broadway AvenueOakland, California

Well	Well Casing Elevation <sup>(1)(2)</sup>	Screen Interval feet below ground surface	Well Diameter (inches)	Total Well Depth (feet)	Depth to Product <sup>(3)</sup> 26-Sep-13	Depth to Water <sup>(3)</sup> 26-Sep-13	Groundwater Elevation <sup>(2)</sup> 26-Sep-13
MW-1	31.28	5 to 20	2	19.20	NM	8.17	23.11
MW-3	31.68	5 to 20	2	18.60	NM	9.60	22.08
MW-7	31.53	20 to 25	4	23.50	NM	9.76	21.77
MW-8	32.70	16 to 20	2	20.04	NM	10.67	22.03
MW-9	31.85	11 to 15	2	14.94	NM	9.59	22.26
VW-1	31.67	14.5 to 19.5	4	18.55	NM	9.69	21.98
VW-2	31.71	12 to 16.5	4	16.93	NM	9.55	22.16
VW-3	31.11	5 to 15.5	4	NM	NM	8.66	22.45

#### Notes:

- (1) Survey conducted by PLS Surveys Inc. on July 1, 2013. April 21 and field measurements.
- (2) In reference to feet above mean sea level.
- (3) In feet below top of casing (approximately at ground surface).

NM = Not measured

# Table 2Groundwater Water Quality ParametersVolkswagon Automobile Dealership2740 Broadway AvenueOakland, California

Well ID	Sample Date	Temp. (Celsius)	Cond. (mS/cm)	DO (mg/L)	рН	ORP (mV)
MW-1	09/26/13	18.6	6.59	0.90	6.5	62
MW-3	09/26/13	18.7	420	7.1	7.5	165
MW-7	09/26/13	19.0	346	1.0	7.1	169
MW-8	09/26/13	19.3	702	2.6	7.0	161
MW-9	09/26/13	19.4	991	1.74	7.1	72
VW-1	09/26/13	18.2	340	2.6	6.8	162
VW-2	09/26/13	18.3	538	1.5	6.9	21
VW-3	09/26/13	18.7	610	1.81	7.7	159

#### Notes:

NA = not analyzed

mg/L = milligrams per liter

Temp. = temperature

Cond. = specific conductance

mS/cm =microSiemens per centimeter

DO = dissolved oxygen

ORP = oxidation-reduction potential

mV = millivolts

Table 3
Summary of Groundwater Analytical Results
Volkswagen Automobile Dealership
2740 Broadway Avenue, Oakland, CA

-

Well Number	Sample Date	TPHg µg/L (C7-C12)	TPHd μg/L (C10 - C24)	ТРНто µg/L (C24-C36)	Benzene µg/L	Toluene µg/L	Ethyl benzene µg/L	Total Xylenes μg/L	MTBE µg/L	TCE μg/L	cDCE µg/L	1,1- Dichlorothene µg/L	1,2- Dichloroethane µg/L	1,3,5- Trimethyl benzene μg/L	1,2,4- Trimethyl benzene µg/L	n-Butyl benzene µg/L	Naphthane µg/L	trans-1,2- Dichloroethene μg/L	TDS μg/L
Tier	I ESL µg/L	100	100	100	1	40	30	20	5	5	6	5	0.5	na	na	na	17	na	na
VI ESL (Fi	Mix) µg/L	No Value	No Value	No Value	270	Sample Soil Gas	3,100	Sample Soil Gas	100,000	1,300	No Value	130,000	1,000	No Value	No Value	No Value	1,600	120,000	No Value
MW-1	01/21/89	ND	na	na	53	13	1.4	8.2		na	na		na	na	na	na	na		na
	05/13/91	130	na	na	ND	ND	ND	ND		58	na		ND	na	na	na	na		na
	10/18/91	ND	na	na	ND	ND	ND	ND		120	na		ND	na	na	na	na		na
	10/27/91 07/13/93	ND ND	na	na	ND ND	ND ND	ND ND	ND ND		11 6.4	na na		ND ND	na	na	na	na		na
	06/27/96	ND	na na	na na	ND	ND	ND	ND		0.4 na	na		na	na na	na na	na na	na na		na na
	09/19/96	ND	na	na	ND	ND	ND	ND		na	na		na	na	na	na	na		na
	12/13/96	ND	na	na	ND	ND	ND	ND		na	na		na	na	na	na	na		na
	10/07/97	ND	na	na	ND	ND	ND	ND	ND	na	na		na	na	na	na	na		na
	08/03/99	ND	na	na	ND	ND	ND	ND	ND	na	na		na	na	na	na	na		na
	06/08/12	<50	290 Y	<300	<0.5	< 0.5	<0.5	<0.5	0.3 J	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<2.0		410
	06/19/13	<50	290 Y	<300	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	na
	09/26/13	<50	120 Y	<310	<0.5	<0.5	<0.5	<0.5	na	na	na	na	na	na	na	na	na	na	na
MW-2*	01/21/89	ND	na	na	ND	ND	ND	ND		na	na		na	na	na	na	na		na
MW-3	01/21/89	32,000	na	na	9,600	8,200	1,800	6,200		na	na		na	na	na	na	na		na
	05/13/91	81,000	na	na	7,800	12,000	1,200	4,000		14	na		380	na	na	na	na		na
	10/18/91	73,000	na	na	9,400	8,600	750	3,300		14	na		8.3	na	na	na	na		na
	10/27/91	37000	na	na	7,100	4,900	970	3,500		ND	na		170	na	na	na	na		na
	07/13/93	41,000	na	na	8,100	6,200	8,100	4,400		14	na		150	na	na	na	na		na
	06/27/96	370	na	na	120	75	6.2	47		na	na		na	na	na	na	na		na
	09/19/96	15,000	na	na	6,000	2,700	450	2,180		na	na		na	na	na	na	na		na
Dup	12/13/96 12/13/96	ND ND	na	na	30 21	10 7	2 1	7.4 4.9		na	na		na	na	na	na	na		na
Dup	12/13/96	ND	na na	na na	ND 21	7 ND	ND	4.9 ND	ND	na na	na na		na na	na na	na na	na na	na na		na na
Dup	10/07/97	ND	na	na	21	7	1	4.9	5.7	na	na		na	na	na	na	na		na
Dup	08/03/99	21,000	na	na	5,500	2,300	470	990		na	na		na	na	na	na	na		na
	06/08/12	<50	56	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<2.0		310
	06/19/13	<50	<50	<300	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<2.0	<0.5	na
	09/26/13	<50	<51	<310	2.6	<0.50	<0.50	<0.50	na	na	na	na	na	na	na	na	na	na	na
MW-4*	01/21/89																		
	05/13/91	13,000			160	690	250	1,100		490			ND						
	10/18/91	ND			11	11	ND	15		450			3.9						
	10/27/91	180			6.4	2.8	1.2	6.2		520			ND						
N04/ 5*	07/13/93	320			36	4.4	1.8	5.3		550			ND						
MW-5*	01/21/89																		
	05/13/91 10/18/91	16.000			2 500	530	670	1 100		120			32						
	10/18/91 10/27/91	16,000 87			3,500 ND	530 ND	670 ND	1,100 ND		120 410			32 ND						
	07/13/93	87 90			ND	ND	ND	ND		530			ND						
	01/13/93	30			ND	ND	ND	ND.		550			ND						

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Table 3
Summary of Groundwater Analytical Results
Volkswagen Automobile Dealership
2740 Broadway Avenue, Oakland, CA

Well Number	Sample Date	TPHg μg/L (C7-C12)	TPHd μg/L (C10 - C24)	TPHmo µg/L (C24-C36)	Benzene µg/L	Toluene µg/L	Ethyl benzene µg/L	Total Xylenes μg/L	MTBE µg/L	TCE μg/L	cDCE µg/L	1,1- Dichlorothene µg/L	1,2- Dichloroethane μg/L	1,3,5- Trimethyl benzene µg/L	1,2,4- Trimethyl benzene µg/L	n-Butyl benzene µg/L	Naphthane µg/L	trans-1,2- Dichloroethene μg/L	TDS μg/L
Tier	r I ESL µg/L	100	100	100	1	40	30	20	5	5	6	5	0.5	na	na	na	17	na	na
MW-6*	01/21/89																		
	05/13/91																		
	10/18/91	28,000			640	2,700	1,100	4,500		230			60						
	10/27/91 07/13/93	1,300 1,100			48 5.1	130 30	55 30	230 230		2,000 2,100			ND ND						
		-			-					2,100			ND						
MW-7	06/27/96	ND	na	na	ND	ND	ND	ND	ND	na	na		na	na	na	na	na		na
	09/19/96	67	na	na	ND	ND	ND	ND	ND	na	na		na	na	na	na	na		na
	12/13/96 10/07/97	ND ND	na	na	ND ND	ND ND	ND ND	ND ND	ND ND	na	na		na	na	na	na	na		na
	06/08/12	<50	na <50	na <300	<0.5	<0.5	<0.5	<0.5	<0.5	na 4.6	na 0.5		na 1.2	na <0.5	na <0.5	na <0.5	na <2.0		na 290
	06/19/13	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	3.2	0.3 J	<0.5	0.5	<0.5	<0.5	<0.5	<2.0	<0.5	na
Dup	06/19/13	<50	<50	<300	3.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.3 J	<0.5	0.5	< 0.5	<0.5	< 0.5	<2.0	<0.5	na
	09/26/13	<50	<49	<290	<0.5	<0.5	<0.5	<0.5	na	na	na	na	na	na	na	na	na	na	na
Dup	09/26/13	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	na	na	na	na	na	na	na	na	na	na	na
MW-8	06/19/13	1,800 Y	650	<300	360	2.3 J	16	2.2 J	1.3 J	<2.5	19	<2.5	2.3 J	<2.5	<2.5	<2.5	<10	<2.5	na
	09/26/13	890	370 Y	<290	330	3.3	66	8.3	na	na	na	na	na	na	na	na	na	na	na
MW-9	06/19/13	5,400	1,100	<300	1,500	19	110	37	<8.3	13	14	<8.3	<8.3	<8.3	10	<8.3	42	<8.3	na
	09/26/13	8,300	2,300	<310	650	<6.3	690	610	na	na	na	na	na	na	na	na	na	na	na
VW-1	06/08/12	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<2.0		210
Dup	06/08/12	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<2.0		210
	06/19/13	<50	70 Y	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	na
	09/26/13	<50	<52	<310	<0.5	<0.5	<0.5	<0.5	na	na	na	na	na	na	na	na	na	na	na
VW-2	06/08/12	36,000	3,400 Y	<300	1,800	3,000	1,200	4,900	<25	<25	<25		<25	240	960	70	480		370
	06/19/13	4,300	830	<300	270	58	280	430	<1.7	<1.7	<1.7	<1.7	1.7	16	260	<1.7	22 J	<1.7	na
	09/26/13	850	240 Y	<310	26	38	56	118	na	na	na	na	na	na	na	na	na	na	na
VW-3	06/08/12	120,000 Y	9,300	2,000	54	<20	84	640	<20	<20	<20		<20	650	2,000	83	240		370
	06/19/13	13,000	6,200	650	72	<7.1	16	119.7	<7.1	<7.1	<7.1	<7.1	<7.1	300	1,000	58	70	<7.1	na
	09/26/13	6,000	2,900	370	100	<1.3	<1.3	43.1	na	na	na	na	na	na	na	na	na	na	na
MIP-1	04/05/13	630 Y	590	<300	52	1.0	0.5 J	0.7	1.6	18	40	0.3 J	2.8	<0.5	<0.5	<0.5	<2.0	0.3 J	
MIP-2	04/05/13	510 Y	450	<300	140	1.1	<1.0	0.7 J	<1.0	42	4.4	<1.0	1.5	<1.0	<1.0	<1.0	<4.0	<1.0	
MIP-3	04/05/13	1,800	600	<300	270	2.1	120	135	1.2 J	270	17	<1.7	1.1 J	<1.7	1.5 J	3.0	17	<1.7	
MIP-4	04/05/13	13,000	4,300	320	15	5.7	510	1,490	<5.0	960	11	<5.0	<5.0	290	850	57	150	<5.0	
Dup	04/05/13	14,000	1,700	<300	29	8.5	670	1,970	<6.3	750	7.0	<6.3	<6.3	340	1,000	73	200	<6.3	
MIP-5	04/05/13	4,200	1,000	<300	9.0	18	46	189	<1.3	170	10	<1.3	1.2 J	58	170	19	18	<1.3	

Notes: Tier I ESL Tier I Environmental Screening Levels (ESLs) for shallow soils of less than 3 meters below ground surface and groundwater that is a current or potential source of drinking water.

TPHg Total Petroleum Hydrocarbons as gasoline TPHd Total Petroleum Hydrocarbons as diesel

TPHmo Total Petroleum Hydrocarbons as motor oil

MTBE Methyl tertiary butyl ether

cDCE cis-1,2-Dichloroethene

EDC 1,2-Dichloroethane (ethylene dichloride)

TCE Trichloroethene

TDS Total dissolved solids

µg/L micrograms per liter

ND Not detected at or above detection limits (historical limits unknown).

----Not analyzed

na historical data not available

Dup Duplicate sample

Wells abandoned

Not detected at or above the laboratory detection limit noted. <

Laboratory reports the sample exhibits chromatographic pattern which does not resemble standard. Υ

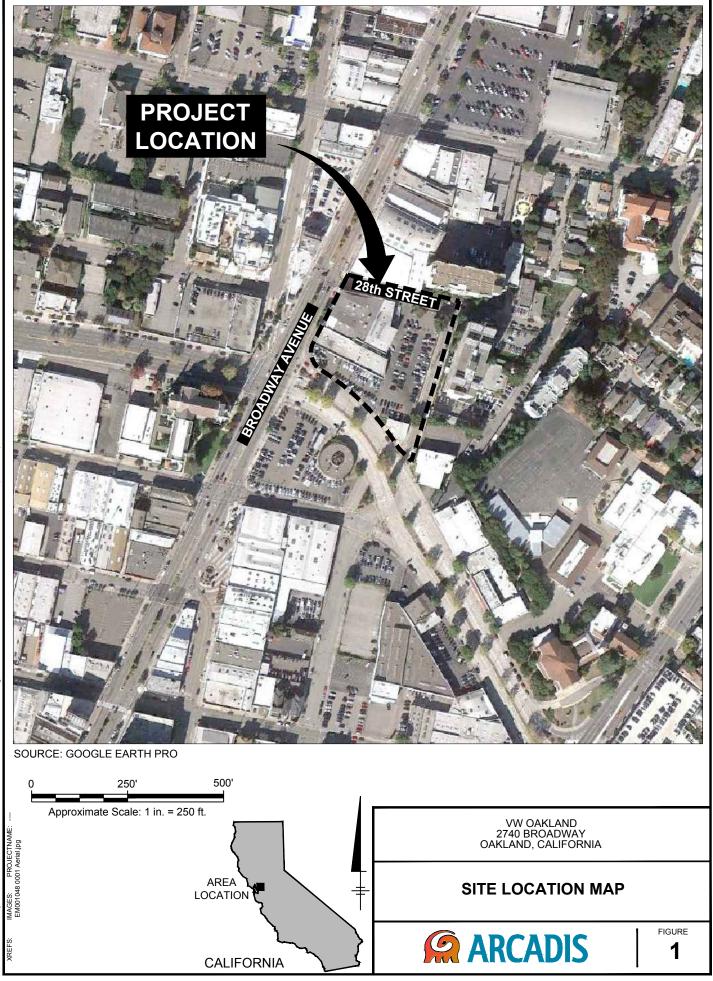
Laboratory reports estimated value. J

VI ESL Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion for Fine to Coarse Media for Commercial/Industrial Land Use Bolded values are above the Tier I ESL Italicized values are above the VI ESL

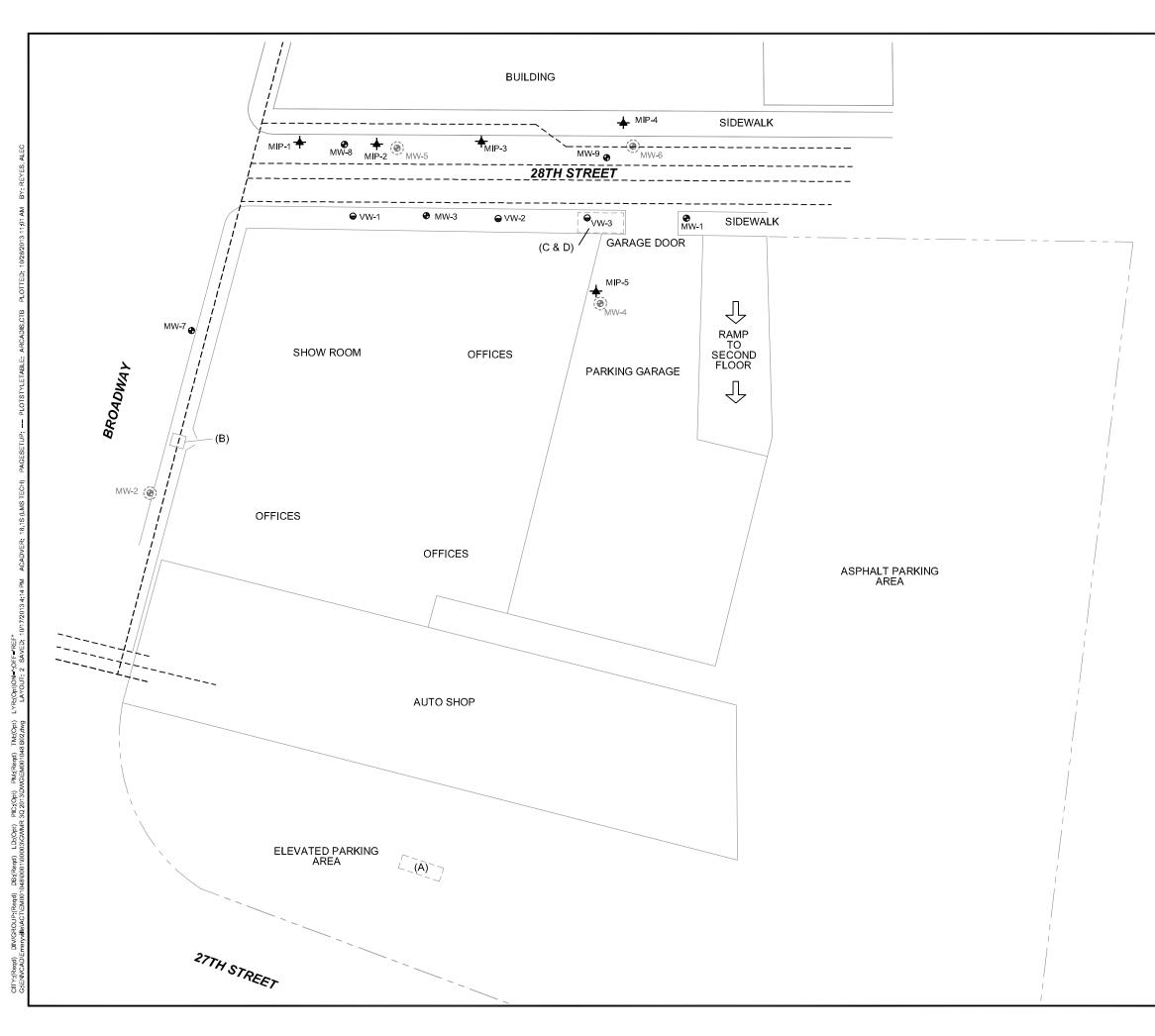
GW Tables\_10242013.xlsx

# ARCADIS

Figures

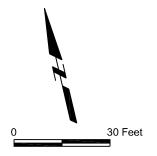


PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/16/2013 1:17 PM BY: REYES, ALEC PIC:(Ob) PM:(Read) TM:(Opi) LYR:(Opi)ON='.OFE='REF' 10 2013/DWGEM001048 N01.049 LAYOUT: 1 SAVED: 4/16/2013 2:00 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: CITY:(Reqd) DN/GROUP:(Reqd) DB:(Reqd) LD:(Opt) G:LENVCAD\Emeryville\ACT\EM001048\0001\00003\GWMR



#### LEGEND

	PROPERTY LINE							
<u> </u>	FENCE LINE							
	UTILITY LINE							
MW-3	MONITORING WELL LOCATION							
MW-5 🛞	ABANDONED MONITORING WELL							
VW-1 😜	VAPOR EXTRACTION WELL							
	FORMER 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							
<sup>MIP-1</sup> ✦	SOIL BORING LOCATIONS WITH EC/MIP CAPABILITIES							
EC/MIP	ELECTRICAL CONDUCTIVITY / MEMBRANE INTERFACE PROBE							



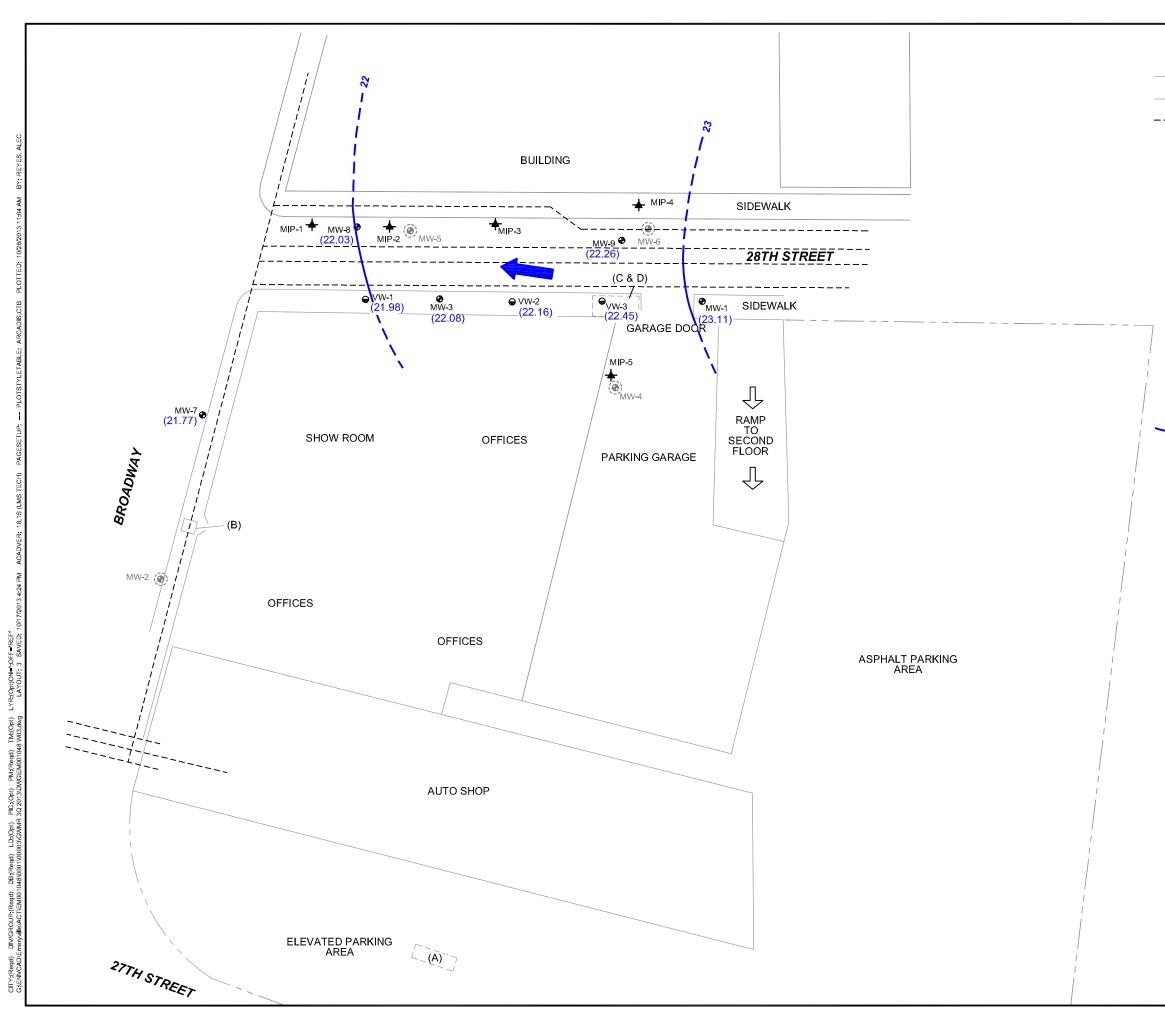
REFERENCES: MAP DIGITIZED FROM A SITE PLAN BY ENVIRONMENTAL SCIENCE & ENGINEERING (6/91) AND A SITE PLAN BY QST ENVIRONMENTAL (12/02/96 -REVISED 12/28/98)

> VW OAKLAND 2740 BROADWAY OAKLAND, CALIFORNIA

### SITE PLAN

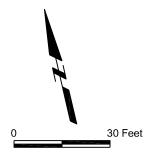


FIGURE



LEGEND

	PROPERTY LINE									
	FENCE LINE									
	UTILIT	Y LINE								
MW-3	MONI	TORING WELL LOCATION								
MW-5 🛞	ABAN	DONED MONITORING WELL								
VW-1 😝	VAPOR EXTRACTION WELL									
	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								
<sup>MIP-1</sup> ∔	SOIL B	ORING LOCATIONS WITH EC/MIP CAPABILITIES								
EC/MIP		RICAL CONDUCTIVITY / RANE INTERFACE PROBE								
(22.16)		NDWATER ELEVATION IN FEET ABOVE SEA LEVEL								
22	CONTO	OUR OF CONSTANT GROUNDWATER ELEVATION								
	INFER	RED GROUNDWATER FLOW DIRECTION								



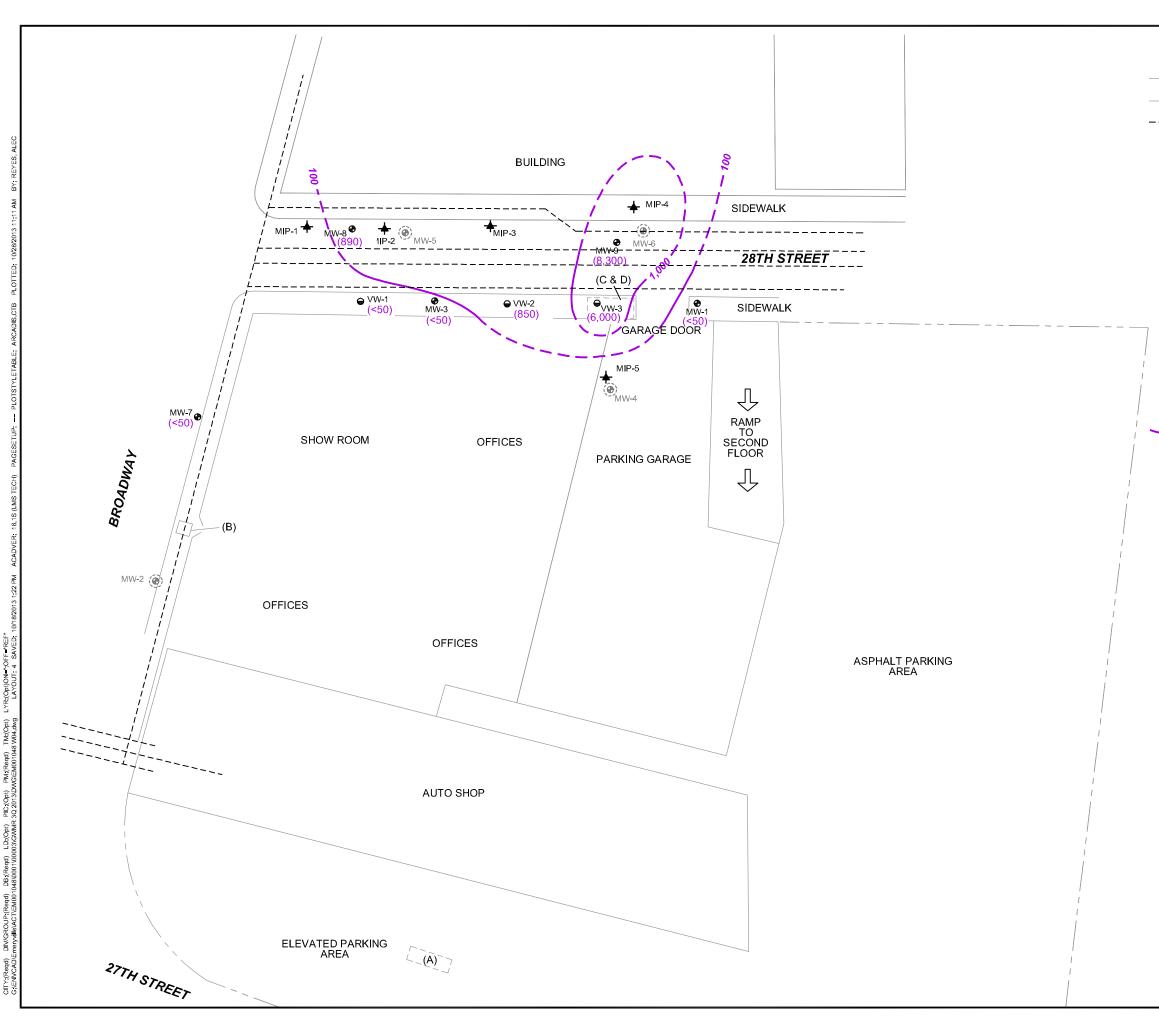
REFERENCES: MAP DIGITIZED FROM A SITE PLAN BY ENVIRONMENTAL SCIENCE & ENGINEERING (6/91) AND A SITE PLAN BY QST ENVIRONMENTAL (12/02/96 -REVISED 12/28/98)

> VW OAKLAND 2740 BROADWAY OAKLAND, CALIFORNIA

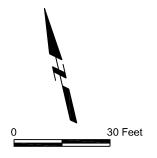
## **GROUNDWATER CONTOUR MAP**







	LEGEND
	PROPERTY LINE
- <u>× × ×</u>	FENCE LINE
	UTILITY LINE
MW-3	MONITORING WELL LOCATION
MW-5 🛞	ABANDONED MONITORING WELL
VW-1 🖨	VAPOR EXTRACTION WELL
	FORMER 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
<sup>MIP-1</sup> ╋	SOIL BORING LOCATIONS WITH EC/MIP CAPABILITIES
EC/MIP	ELECTRICAL CONDUCTIVITY / MEMBRANE INTERFACE PROBE
(6,500)	TPHg CONCENTRATION IN MICROGRAMS PER LITER ( $\mu$ g/L) (SEPTEMBER 2013)
10,000	APPROXIMATE EXTENTS OF CONCENTRATION CONTOUR (DASHED WHERE INFERRED)
TPHg	GASOLINE-RANGE TOTAL PETROLEUM HYDROCARBONS



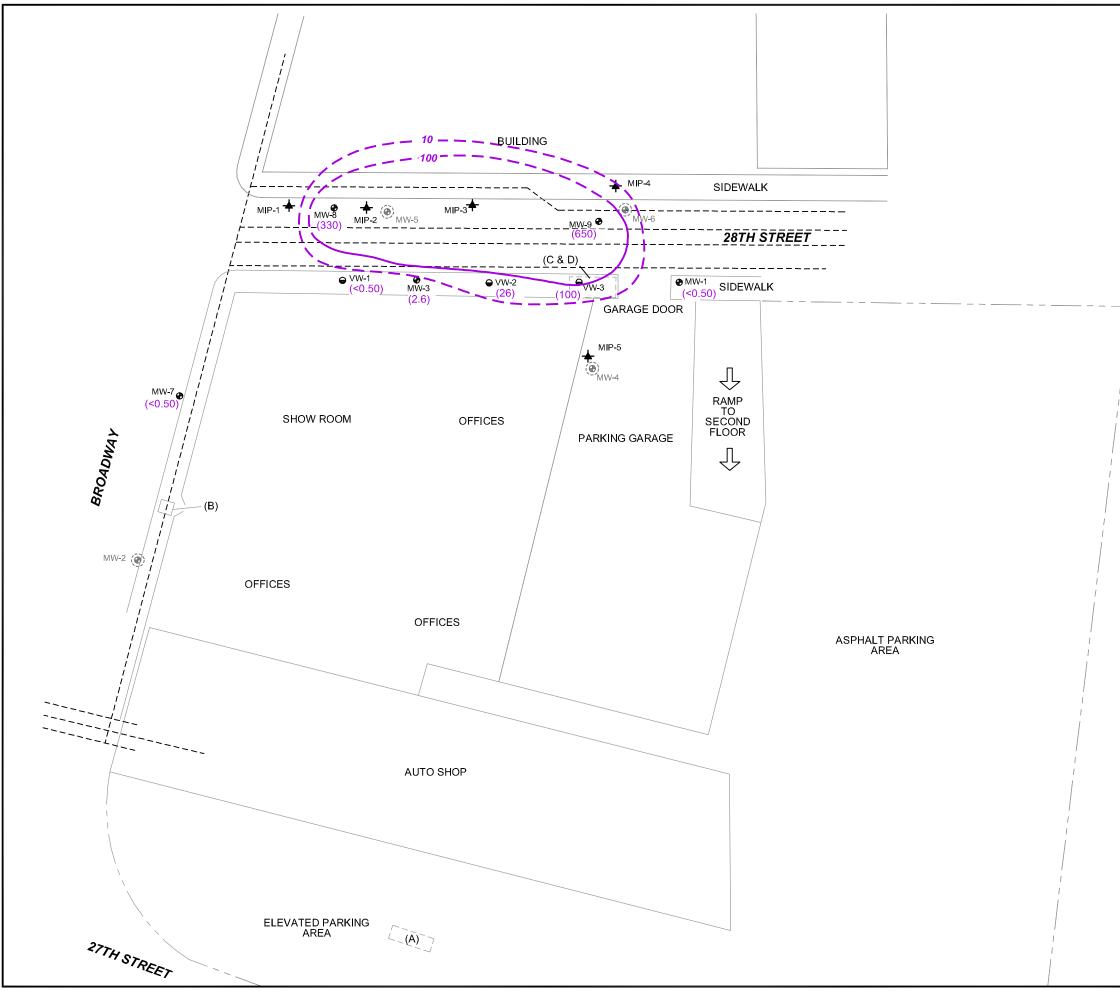
REFERENCES: MAP DIGITIZED FROM A SITE PLAN BY ENVIRONMENTAL SCIENCE & ENGINEERING (6/91) AND A SITE PLAN BY QST ENVIRONMENTAL (12/02/96 -REVISED 12/28/98)

> VW OAKLAND 2740 BROADWAY OAKLAND, CALIFORNIA

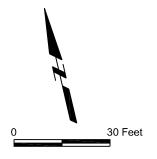
TPHg GROUNDWATER CONCENTRATION CONTOUR MAP



FIGURE **4** 



	LEG	END
	PROP	ERTY LINE
	FENC	ELINE
	UTILIT	Y LINE
MW-3	MONIT	FORING WELL LOCATION
MW-5 🛞	ABAN	DONED MONITORING WELL
VW-1 😝	VAPO	R EXTRACTION WELL
	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
MIP-1 ╋	SOIL B	ORING LOCATIONS WITH EC/MIP CAPABILITIES
EC/MIP		RICAL CONDUCTIVITY / RANE INTERFACE PROBE
(1,330)		NDWATER CONCENTRATION OF BENZENE IN IGRAMS PER LITER (µg/L) (JUNE 2013)
100		DXIMATE EXTENTS OF CONCENTRATION CONTOUR ED WHERE INFERRED)
[50]		ENTRATION OF BENZENE FROM GRAB NDWATER SAMPLES IN $\mu$ g/L (APRIL 2013)



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

#### BENZENE GROUNDWATER CONCENTRATION CONTOUR MAP



FIGURE

# ARCADIS

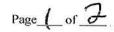
Appendix A

Field Sampling Notes



Confluence Environmental, Inc. 3308 El Camino Ave, Suite 300 # 148 Sacramento, CA 95821 916-760-7641 - main 916-473-8617 - fax www.confluence-env.com

# Chain of Custody



Project Name: VW Dealership, Oakland

Job	Num	ber:

F1-130926

TAT: STANDARD 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 2740 Broadway, C	akland	Confluence PM: Jason Brow	vn
Address: 2323 Fifth St, Berkeley, CA	California Global ID No.: TC	6001002227	Phone / Fax: 916-760-7641	/ 916-473-8617
Contact:	Include EDF w/ Report: (Ye	) No	Confluence Log Code: C	CESC
Phone/ Fax: 510-486-0900	Consultant / PM: Arcadis / Ror	Golobouw	Report to: Ron Golobo	ouw & Caitlin Bell
	Phone / Fax: 510-596-955		Invoice to: Arcadis	
Sample ID Bample	No. of Containers Unpreserved H2SO4	Preservative (0928) X3L8 WO (8012)	Requested Analysis	( Notes and Comments
Wm - Core And Water/Liquid	52	HNO3 HCI NaOH NaOH NaOH		
MW-3 0915 1	52	3 ¥ X		
MW-7 5745	52	3 44		
MW-8 000	50	3 Y X		
MW-9 955	5~	3 Y X		
VW-1 0840	50	3 YX		C
VW-2 935	52	3 14		
VW-3 105	52	3 V X		
臣 了 1055	50	3 YX		
DUP oto L L	50	3 44		
Sampler's Name: A. Feeran	, Relinguished By / A	filiation, Date	Time Accepted By / Affili	ation Date Time
Sampler's Company: Confluence Environmental Shipment Date:	Alical	influence		
Shipment Method:				
Special Instructions:	//	/L/L/		



Confluence Environmental, Inc. 3308 El Camino Ave, Suite 300 #148 Sacramento, CA 95821 916-760-7641 - main 916-473-8617 - fax www.confluence-env.com

**Chain of Custody** 



**Project Name:** VW Dealership, Oakland Job Number:

F1-130926

TAT: STANDARD 5 DAY 2 DAY 24 HOUR OTHER:

	ab: Curtis & Tompkins						Site Address: 2740 Broadway, Oakland Co							Con	Confluence PM: Jason Brown										
Add	ress: 2323 Fifth St, Berkeley	y, CA					California Global	ID N	o.:	TOE	0010	0222	7	 									5-473-86	17	
Cont							Include EDF w/			Yes	1 (	No						fluenc						1/	
Phor	ne/ Fax: 510-486-0900						Consultant / PM:				<i>c</i>							ort to:					& Caitli	n Rell	-
								510-						 0.00				ice to:		rcad		ouw	x Cann	n Ben	
				N	Iatri	ix				I	rese	rvati	ve	Requested Analysis					10	1					
	Sample ID	Time	Date	Soil/Solid	Water/Liquid	Air	Laboratory No.	No. of Containers	Unpreserved	H2SO4	HNO <sub>3</sub>	HCI	NaOH	гРН-G, ВТЕХ (8260)	TPH-D & MO (8015)								Notes a	ad Comme	( ents
	-17		9/26			<		3		H	<u> </u>	H	ž		T			-	_			┞			
		-	100		Х			2				>		Х					_	1					
											a series														
								$\square$											+		-				<u> </u>
								$\neg$				_		 					_	-	-				
		$\left  - \right $						$\vdash$						 			$\vdash$		_						
-																									
														 										All	
Sam	pler's Name: A. Feare.	へ,					Relin	auish	ed By	1 Min	liatio	n /		Dat		Time					(			Date	Time
Sam	pler's Company: Confluenc	Envi	ironme	ntal			A.S.	the state	Y	10	2 mt	( به	14	Dat		Time		<u>A</u>	ccepte	аву	/ Affili	ation		Date	Time
_	ment Date:							1	Į.																
	ment Method:																								
Speci	ial Instructions:																								

#### Confluence Environmental, Inc

## **Equipment Calibration Log**

					ne cambre			1252	and an	
Equipment		Equipment ID/			Calibration		Equipment		Tech	
make/mod	lel	serial number	Date	Time	Standards	Reading	Calibrated	(Ĉ) °F)	init.	Comments
15 7		#(	9/26/13	0700	PH 4p7,(, 2011,718 DO (00%) ORP	4.3,73/00	~	なり	AA	
c	L	1	1	1	DD 600%	240	1.250/2		Ane	
	1. ( ) and									
		1				1				

Notes/comments:

# Drum Log

Drum(s) Location On	Site: 7	nside	NE	Bay	JAN	rge	<u>.</u> J	Door	betron	MW-1-	VW
4 17		# of dru		a and		1					10 10
Date	full	partial	empty	total	Contents (s=soit w=water m=mixed ?=urknows)	labeled (y or n)	label legible (y or n)	tech initial	Notes:		
6/6/12 Arrival		<u> </u>	-	O		<u>,</u>		er			
6/12 Departure	3	1	1	5	W	Y	Y	Sm			
5/13/3 Arrival	43	i	0	5	W	$\checkmark$	+	Æ			
6/13/13 Departure	5	(	(	7	W	4	4	F			
elithis Arrival	10	(	1	12	10/5	4	4	Brl			
///// Departure	11		(	12:	10/5	Ŋ.	9	BM			
	11		1	12	00/5	Ý	y	BH			
6,9,3 Departure	$  _{11}$			12	14/5	1	+	Ba			
1/26/13 Arrival	0	Ð	Ð	0		-	•	Aat			
1/26/13 Departure	Ø		Ð	1	W	Y	Y	ADT			
Arrival											
Departure		25		-							
Arrival											
Departure											
Arnval					e lian					de	
Departure	1	1.0.1									
Arrival											
Departure								<u> </u>			

# Well Maintenance Inspection Form

Client: Av Job #: Fl	<i>cadi</i>	S			Site:	VW	Oa	k	$xh_{(}$	l				<u>jei</u>	Date:	7/26/0
Job #: F	- 13	00	21	0			Techr	nicia	in:	A.	. +	ee v	ey		Page	<u> 1 of (</u>
		Γ	<u> </u>		En	try India	ates De	ficier	ісу				-6			6
Inspection Point	Well Inspected - No Corrective Action Required	Cap non-functional	Lock non- functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs.)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Note (Note any repair on sit	s made while
MW-1				X			3									
MW-3				X	44											
MW-7				X	$\square$	$\angle$	12									
MW-8				X			$\angle$									
MW-9				χ												
VW-1				Х	4 4											
VW-2				X	44											
VW-3				X	44	$\angle$	$\leq$									
					$\angle$	$\angle$	$\angle$					-				
					$\angle$	$\angle$	$\angle$									
						$\angle$	$\angle$									
						$\angle$	$\angle$									
						$\angle$	$\leq$									
						$\angle$	$\leq$									
Notes:	3										(protection)					

Repair codes: rt=retap/ bolts added or replaced as=annular seal repair,

Confluence Environmental, Inc

## Water Level Measurements

ite <sup>.</sup> VW	) Oal	elan	l	200.0	2613						
Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point	x check W/IPP	nbe	
W-1	0637	Э.,			8.17		19.20	Tor			
W-3	0673	Э.			9.60		18.60				
W-7	0616	Ц			9.76		3.50				
	0618	λ			10.67	20.01					
W-9	0629	2			9.59	14.90					
W-1	6621	4			9.69		18.55				
W-2	0676	Ц			9.55		16.93				
W-3	0640	4			8.66		14.10	2	* Shi	en c	Fro
	-										
						1					
	-										
	8.2			-		952					
5				1							1

Confluence Environmental, Inc.

¥

L

Job#: F1-130926 Sampler: A Feeney Client: Arcadis												
well ID: MW - LD	ate: 9/26/13		Site:	VW Deale	ership, C	akland						
Well diam: 1/4" 1" (2") 3			DTW: 8	.17	Total	Depth:	19.20					
Purge equip: ES - diam:	Bladder Peri	Waterra	Positive A	Air Displace	ement	Ext. Syste	m					
	other:					NA						
Purge method: 3-5 Ca												
Pump depth/ intake:         Multipliers: $1"= 0.04$ $2"= 0.16$ $3"= 0.37$ $4"= 0.65$ $5"=1.02$ $6"= 1.47$ Radius <sup>2</sup> X 0.163           (TD												
(TD - DTW X Multiplier = 1 Volume 80% Recovery (TD - DTW X 0.20 + DTW)												
1 Volume = X 3 =	= (Total P	urge)			80%=							
		Purge Rate (gai	Volume Removed	D0	ORP	DTW	Notes					
		ormL/min	(gal //L)	DO (mg/l)	(mv)	0	Δ					
1006 18.97.06	36 7	2w	GWVac	1. >	65	848	odor					
1009 18.76.66	538 7		1.20	0.99	70	8.50						
1312 18.76.56	506		1.80	0.92	63	8.50						
1315 18.76.56	526		2.40	0.91	62	8.50						
1018 18.66.56	596		36	0.90	62	8.50						
	10											
Did well dewater? YES	NO	Total vol	ume remov	ed: -	Ś (	(gal / 上))						
Sample method: Disp Baile		New Tu	bing Ext.	Port Ot	her:	<u> </u>						
Ola i An	Sample time: 10	,20	)	DTW at s	ample:	8.50	2					
Sample ID: MW - \			Lab: C&T			r of bottles	5					
Analysis: TPH-G, BTEX, TPH-D & MO												
	@	Field bla	nk ID	@								
Duplicate ID:		Pre-purg			Post pu	irge DO:						
Fe2 <sup>+</sup> :		Pre-purg	e ORP:		Post pu	irge ORP:						
	/olume of NAPL:			Volum	e remov	ed:	ml					

## Confluence Environmental, Inc

Job#: F1-130926 Sampler: A Feeney Client: Arcadis													
Well I	D: MV			9/26/13		Site:							
Well d	iam: 1/4	" 1"/2	3"4"	6" Other:						18.60			
					Waterra	a Positive	Air Displac	ement	Ext. Syste				
1000	er teflo	1.1.1	AV			: OD:		edicated	NA				
						Extraction			100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100				
	Pump depth/intake:         Multipliers: 1"= 0.04         2"= 0.16         3"= 0.37         4"= 0.65         5"=1.02         6"= 1.47         Radius <sup>2</sup> X 0.163           (TD - DTW X Multiplier = 1 Volume         80% Recovery (TD - DTW X 0.20 + DTW)												
		166				<u></u>	DIWAC	80%=	vv)				
	Temp		Cond	Turbidity		Volume Removed		ORP					
Time	© (°F)	pH 7-	(mS/((S))	(NTU)	or mL/ min)	(gal/ED	DO (mg/l)		DTW	Notes			
907	18.5	1.5	467	11	au.	600mc	7.4		9.83				
0905	18.9	7.5	421	6	1	1.26	7.1	166	10.10				
0908 18.6 7.5 470 6 1.86 7.1 165 10.11													
0911	(8:7	7.5	420	6	1	7.40	$Z_1$	165	10.11				
					0		<del></del>						
Did well	dewater?	YES	NO		Total volu	ume remove	ed: 7	. 4 (	gal / ()				
Sample	method:	Disp Ba	-	d. Tubing	New Tub	oing Ext. I	Port Ot	her:					
Sample	date: 9/	26/3	Sample tir	me: 09	5		DTW at s	ample:	10.11				
Sample	^	1W-	3			Lab: C&T			of bottles	5			
Analysis		TPH-G,	BTEX, TP	H-D & MO									
Equipme	quipment blank ID @ Field blank ID @												
Duplicate	e ID:				Pre-purge	0.0000		Post pur	ge DO:				
Fe2 <sup>+</sup> :	e2 <sup>+</sup> : Pre-purge ORP: Post purge ORP:												
NAPL de	epth:		Volume of	NAPL:			Volume	e remove	d:	ml			

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			1	r:	0000-000-00-000		Client:	Arcadis				
Well II	): Mu	1-7	Date:	9/26/13		Site:	VW Deale	ership, C	Dakland			
	÷.		12/17/2013	5" Other:		dtw: 9.	76	Total	Depth:	23.50		
						Positive /	Air Displace	ement	Ext. Syste			
disp baile			other:				New Q	edicated	NA			
						Extraction		65 5"-1 (	02 6"- 1 47	Radius <sup>2</sup> X 0.163		
			1 Volume			overy (TD -				Nau 23 / 0.105		
			A			<u></u>		80%=				
1 Volume	e =	X ·	3 =	(Total F	urge)			00%	<u> </u>			
	Temp		Cond	Turbidity	Purge Rate (gal	Volume Removed		ORP				
Time	(C)( °F)	pН	(mS /(S)	(NTU)	or mL/min	(gal/LD	DO (mg/l)	(mv)	DTW	Notes		
0727	18.3	8.9	3567	7	Jush	Gosmi	5.8	159	9.93			
0730	18.5	IL	349	6	1	1.20	23	168	10.01			
\$773	10.7	7.1	348	C		1.86	17	171	10.07			
177)	19.8	7.		01			1.1	169				
0770	19.1	1.1	346	2		2.41	1.1		10.01			
0759	[9.]	1.	545	2		36	1.0		10.01			
0742	19.0	7.1	346	5	,	4.2	1.0	169	10.01			
Did well	dewater	? YES	(NO)		Total vo	lume remov	ed: 4,	2	(gal / (Ê)			
	method:		ailer Øe	d. Tubing	New Tu	ibing Ext.	Port O	ther:				
			Sample t		45		DTW at	sample:	10.0	1		
	٨	<u> </u>	-7			Lab: C&T			r of bottles	s: 5		
Sample					 1	1000.001						
Analysis				PH-D & MO	1		@					
	ent blank		<u>@</u>	0750	Field bla		Post purge DO:					
Duplicat	te ID:	VUP	6	5130	Pre-purg				urge ORP:			
Fe2 <sup>+</sup> :	lonth .	-	Volume o	MADI ·	Pre-purg	JE URP.	Volum	ne remov	Context.	ml		
NAPL d	ieptn:		Tvolume C	JI INAF L.			L. Volum					

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Job#: F1-130926 Sampler:	Sampler: A Feeney			Client: Arcadis					
Well ID: MIA /- 8 Date:		VW Dealership, Oakland							
Well diam: 1/4"     1"     2"     3"     4"     6"     Other:     DTW:     10.67     Total Depth:     20.0(									
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System									
disp bailer teflon bailer other: <b>Tubing:</b> OD: New Dedicated NA									
Purge method: 3-5 Case Volume Micro/Low-Flow Extraction Other:									
Pump depth/ intake:         Multipliers: 1"= 0.04         2"= 0.16         3"= 0.37         4"= 0.65         5"=1.02         6"= 1.47         Radius <sup>2</sup> X 0.163           (TD - DTW X Multiplier = 1 Volume         80% Recovery (TD - DTW X 0.20 + DTW)									
1 Volume = X 3 =	(Total Purge)			80%=					
Temp Cond Tu Time ((°Ĝ)/ °F) pH (ms (/is)	Purge Irbidity Rate (موا (۱۳۵) or شلر/ min)	Volume Removed (ງາ/ມົງ	DO (mg/l)	ORP (mv)	DTW	Notes			
0800 18.7 6.7 687	7 200	Goora	3.5	168	10.88				
asoz 19.1 6.8 694	6	1.24	2.6	163	10.88	30			
0806 19.1 6.8 706	4	1.80	2.6	168	10.91				
0809 1937.0699	4	2.41	2.6	161	10.92				
0812 (937.0701	4	3i	2.6	161	(3.93				
0815 19.37.0702	4	3.62	2.6	161	13.92				
				•					
		-				15.0°,			
						)			
			0	6					
Did well dewater? YES (NO) Total volume removed: 3. 6 (gal /(L))									
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:									
Sample date: 9/96/13 Sample time	: 0870		DTW at s	ample:	10.4	<u>~</u>			
Sample ID: MW - 8		Lab: C&T Number of bottles: 5							
Analysis: TPH-G, BTEX, TPH-D & MO									
Equipment blank ID @	Field blar	nk ID	@	1					
Duplicate ID:	Pre-purg	e DO:	and a	Post pu	rge DO:				
Fe2 <sup>+</sup> :	Pre-purg	e ORP:	1	Post pu	rge ORP:				
NAPL depth: Volume of NAPL: Volume removed: ml									

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Job#: F1-130926 Sampler:	Sampler: A Feeney			Client: Arcadis				
Well ID: MW-9 Date: 9/26/1				VW Dealership, Oakland				
Well diam: 1/4"         1"         2"         3"         4"         6"         Other:         DTW: 9.59         Total Depth:								
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System						m		
disp bailer teflon bailer other: <b>Tubing:</b> OD: New Dedicated NA								
Purge method: 3-5 Case Volume Micro/Low-Flow Extraction Other:								
Pump depth/ intake: Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius <sup>2</sup> X 0.163								
(TD - DTW X Multiplier = 1 Volume 80% Recovery (TD - DTW X 0.20 + DTW)								
1 Volume = X 3 = (Tota	I Purge)			80%=	<del>,</del>			
Temp Cond Turbidit Time (°C)/ °F) pH (ms / µS) (NTU)	Purge y Rate (gal or mL/ min)	Volume Removed (gai / 🕥	DO (mg/l)	ORP (mv)	DTW	Notes		
0940 19.17.3947 7	200	Goune	2.15	65	4.98			
0943 19.4 7.2 986 6	1	1.20	1.85	F	10.01			
0946 19.4 7.1 990 5		1.80	1.75	72	10.01			
0949 19.3 7.1 991 5		2.41	1.74	73	13.01			
0957 19:4 7.1 991 5		36	1.74	72	10.01			
	1							
	_							
				2				
Did well dewater? YES (NO) Total volume removed: (gal / b)								
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:								
Sample date 9/26/13 Sample time: 0955 DTW at sample: 10.00								
Sample ID: MW - 9 Lab: C&T Number of bottles: )						s: <b>&gt;</b>		
Analysis: TPH-G, BTEX, TPH-D & MO								
Equipment blank ID @	Field bla	ink ID	@					
Duplicate ID:	Pre-purç	ge DO:	Post purge DO:					
Fe2 <sup>+</sup> :	Pre-pure	ge ORP:		Post pu	irge ORP:			
NAPL depth: Volume of NAPL: Volume removed: ml					ml			

Job#: F1-130926	Sampler:	1	A Feeney		Client:		Arcadis		
					VW Dealership, Oakland				
Well diam: 1/4" 1" 2" 3" (4) 6" Other: DTW: 9.69 Total Depth: 18.55									
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System									
disp bailer teflon bailer other: <b>Tubing:</b> OD: New Dedicated NA									
Purge method: 3-5 Case Volume Micro/Low-Flow Extraction Other:									
Pump depth/ intake:         Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius <sup>2</sup> X 0.163           (TD - DTW X Multiplier = 1 Volume         80% Recovery (TD - DTW X 0.20 + DTW)									
(TD - DTW X Multiplier =	1 Volume		80% Rec	overy (TD -			<u>vv)</u>	10	
1 Volume = X	3 =	(Total P	'urge)			80%=			
			Purge	Volume					
Temp		Turbidity (NTU)	Rate (gal or mL/ min)	Removed	DO (mg/l)		DTW	Notes	
Time (9/°F) pH	(mS /(µS))	0	0	(gal /( <u>C</u> )	112	17-	ags	Hotes	
0827 18.0 6.9	201		200	6000	4.0	170	(0)		
0832 [8.1 6.8	345	6	1	1.20	5.0	166	9.91		
0833 18.2 6.7	340	5		1.80	2.7	164	9.92		
1836 18.26.8	341	5		2.40	2.6	160	9.93		
0839 18-26.8	340	1		R	2.6	162	9.93		
0039 10-8 0.0	540	<u> </u>		71			9.02	J	
			1	3.6C	J.1	160	9.93		
Did well dewater? YES NO Total volume removed: 3.6 (gal / k)									
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:									
Sample date: 9/26/13 Sample time: 0840 DTW at sample: 9.93									
Sample ID: VW-1 Lab: C&T Number of bottles: 5					5				
Analysis: TPH-G, BTEX, TPH-D & MO									
Equipment blank ID @ Field blank ID @									
			Pre-purg		Post purge DO:				
Fe2 <sup>+</sup> : Pre-purge C							rge ORP:		
NAPL depth:	Volume of	NAPL	parg	<u> </u>	Volum	e remov	19450	ml	

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Job#: F1-130926	Sampler:	A Feeney		Client:		Arcadis		
Well ID: VW-7	Site: VW Dealership, Oakland							
Well diam: 1/4" 1" 2" 3" 4" 6" Other: DTW: 9-55 Total Depth: 16.93								
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System								
disp bailer teflon bailer other: <b>Tubing:</b> OD: New Dedicated NA								
Purge method: 3-5 Case Volume Micro/Low-Flow Extraction Other:								
Pump depth/ intake: Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius <sup>2</sup> X 0.163								
(TD - DTW X Multiplier = 1 Volume 80% Recovery (TD - DTW X 0.20 + DTW)								
1 Volume = X	3 = (Total	Purge)			80%=			
		Purge	Volume					
Temp Time (°C / °F) pH	Cond Turbidity (mS / µS) (NTU)	Rate (gal	Removed (gal /(Ľ))	DO (mg/l)	ORP (mv)	DTW	Notes	
0921 18.2 7.2	542 7	20]	GUAC	1.1	65	9.78		
0924 18.3 7.0	539 6		1.2	0.98	38	9.81		
092718.36.9	538 5		(-8	1.6	20	9.81		
0930 18.36.9	538 5		24	1.5	21	9.81		
				\$.A.				
Did well dewater? YES (NO) Total volume removed:					4	gal /(Ĺ))		
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:								
Sample date: 9/26/13 Sample time: 0935 DTW at sample: 9.8(								
Sample ID: VW-2 Lab: C&T Number of bottles: 5								
Analysis: TPH-G, BTEX, TPH-D & MO								
Equipment blank ID	@	Field bla	nk ID	@				
Duplicate ID:	Pre-purg	e DO:		Post pu	rge DO:	1.0		
Fe2 <sup>+</sup> :		Pre-purg		Post purge ORP:				
NAPL depth:			Volum	e remov	58-98-280 a - 209 h 114	ml		

# **Purging And Sampling Data Sheet**

Job#: F1-130926 Sampler:	A Feeney	Client: Arcadis	
well ID: VW - 3 Date: 9/20	6/13 Site:	VW Dealership, Oakland	
Well diam: 1/4" 1" 2" 3" (4") 6" Oth	ner: DTW:	3.66 Total Depth: 14	.10
9	$\sim$	Air Displacement Ext. System	
disp bailer teflon bailer other:	Tubing: OD:	New Dedicated NA	
Purge method: 3-5 Case Volume M			
-		$3^{*}=0.37$ $4^{*}=0.65$ $5^{*}=1.02$ $6^{*}=1.47$ Radius	<sup>2</sup> X 0.163
(TD - DTW X Multiplier = 1 Volume		- DTW X 0.20 + DTW)	
1 Volume = X 3 = (To	otal Purge)	80%=	
Temp Cond Turbio Time (°C/°F) pH (ms/µS) (NTU			Votes
	robe prior		
1034 186 7.8 607 6		260175867 54	Sp 14 defector wng odsr
137 18.8 7.7 6.9 5	1.24	1.87 16 18.67	Jos
1340187777610 5	1.84	1.81 159 8.67	
1043 18.7 7.7610 5	7.46	1.81 159 8.67	
10 10 10 7 7. 7 0 0 3	1 0.10	1-01 10.07	
· · · · · · · · · · · · · · · · · · ·			
Did well dewater? YES (NO)	Total volume remov	red: 7.4 (gal/())	
Sample method: Disp Bailer Ded. Tubi	ng New Tubing Ext.	Port Other:	
Sample date: 9/26/13 Sample time:	1045	DTW at sample: 8 - 67	
Sample ID: VW-3	Lab: C&T	Number of bottles: 5	
Analysis: TPH-G, BTEX, TPH-D &	MO		
Equipment blank ID E B @ 1055	Field blank ID	@	
Duplicate ID:	Pre-purge DO:	Post purge DO:	
Fe2 <sup>+</sup> :	Pre-purge ORP:	Post purge ORP:	
NAPL depth: Volume of NAPL		Volume removed:	_ml

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# ARCADIS

Appendix B

Laboratory Analytical Report



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### Laboratory Job Number 249459 ANALYTICAL REPORT

Arcadis	Project : EM001048.0001-0001
2000 Powell St.	Location : VW Dealership, Oakland
Emeryville, CA 94608	Level : II

<u>Sample ID</u>	<u>Lab ID</u>
MW-1	249459-001
MW-3	249459-002
MW-7	249459-003
MW-8	249459-004
MW-9	249459-005
VW-1	249459-006
VW-2	249459-007
VW-3	249459-008
EB	249459-009
DUP	249459-010
ТВ	249459-011

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Jsabelle (hi

Signature:

Isabelle Choy Project Manager isabelle.choy@ctberk.com

Date: <u>10/07/2013</u>

NELAP # 01107CA



### CASE NARRATIVE

Laboratory number: Client: Project: Location: Request Date: Samples Received: 249459 Arcadis EM001048.0001-0001 VW Dealership, Oakland 09/27/13 09/27/13

This data package contains sample and QC results for nine water samples, requested for the above referenced project on 09/27/13. The samples were received cold and intact.

### TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

#### Volatile Organics by GC/MS (EPA 8260B):

High surrogate recoveries were observed for 1,2-dichloroethane-d4 in MW-7 (lab # 249459-003) and VW-1 (lab # 249459-006); no target analytes were detected in these samples. No other analytical problems were encountered.



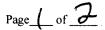
3 of 34

Confluence Environmental, Inc. 3308 El Camino Ave, Suite 300 #148 Sacramento, CA 95821 916-760-7641 - main 916-473-8617 - fax www.confluence-env.com

# **Chain of Custody**

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Project Name: VW Dealership, Oakland

Job Number:  $\mathcal{F}[-1]$ 

F1-130926

TAT: STANDARD 5 DAY 2 DAY 24 HOUR OTHER:

Lab:	Curtis & Tompkins					Site	e Address: 2740	0 Bro	badwa	ay, O	akland	1						Co	nfluer	nce Pl	M: Jas	son B	Brow	'n				
Addr	ess: 2323 Fifth St, Berkel	ey, CA				Cal	lifornia Global I	ID N	o.:	TO	50010	0222	7					Pho	one / ]	Fax: 9	916-76	60-76	541/	916-4	73-86	7		
Conta	act:					Inc	lude EDF w/	Repo	ort: (	Yes	) N	lo						Co	nflue	ence l	Log (	Code	: <b>C</b>	ESC				
Phon	e/ Fax: 510-486-0900					Co	nsultant / PM:	Arca	adis /	Ron	Golot	oouw						Re	port to	D:	Ron	Gol	obo	uw &	Caitli	n Bell		
						Pho	one / Fax:	510-	-596-9	9550								Inv	Invoice to: Arcadis									
				M	atrix					]	Presei	rvativ	/e				Red	jueste	d Ana	alysis								
	Sample ID	Time	Date	Soil/Solid	Water/Liquid	Air Ta	aboratory No.	No. of Containers	Unpreserved	H2SO4	HNO3	HCI	VaOH		TPH-G, BTEX (8260)	TPH-D & MO (8015)								N	otes ai	d Com	ment	s
	Mw-l	1020	9/26		স			5	7			3			$\mathbf{\hat{v}}$	X				T		Ħ						
2	MW-3	0915			(			3	2			3			Ý	X												
3	MW.7	0743						5	2			3			$\mathbf{\mathbf{\nabla}}$	V				1								
4	MW-8	090			$\square$		· · · · · · · · · · · · · · · · · · ·	5	b		1	3			Ý	X										•,		
5	MW-9	agss						5	5		1	3			$\bigtriangledown$	X												
6	VW-1	0840			$\square$			3	0			3			$\checkmark$	Ń												
7	VW.Z	0935			<b>1</b>			5	2			3			$\dot{\boldsymbol{\zeta}}$	$\overline{\mathbf{b}}$			1	$\square$								
Ö	11W-3	125			<b>1</b>			5	2		1	3			Ĭ.	Ń			1									
9	हित	1055	$\square$		$\uparrow\uparrow$			5	3			3			1	Ň				1								
10	DUP	ots	Z		I			5	2			3			ŔŹ	Ý												
Samp	ler's Name: A. Fecu	~1		<u></u>	-		, Relin		hed B	y/ Afi	filiatio	n.			Da	ite	Time			Acc	epted	By/A	الــــــــــــــــــــــــــــــــــــ	ation		Dat	e	Time
Sampler's Company: Confluence Environmental							A Confinence 1/2713								713	و ک	0	La l	1/	2-	- (	77			9/27	3	(330	
Shipment Date:							1mg 2 CT 9/7/13 1630																					
	Shipment Method:																											
Specia	al Instructions:	· · · · · · · · · · · · · · · · · · ·																									<u> </u>	

Maat Caretion 1.1 date printed: 9/23/13

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CON	FLUENCE

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4 of 34

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# **Chain of Custody**

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Page	of_	/

VW Dealership, Oakland **Project Name:** Job Number:

F1-130926

249459

TAT: STANDARD 5 DAY 2 DAY 24 HOUR **OTHER:** 

Lab:	Curtis & Tompkins					Site	Site Address: 2740 Broadway, Oakland												Confluence PM: Jason Brown									
Addr	ress: 2323 Fifth St, Berkeley	, CA				Cal	lifornia Global I	D No	).: 	JQ6	00100	)2227	7						Phon	e / Fa	ax: 9	16-76	0-76	541/	916-4	73-861	7	
Cont	act:					Inc	lude EDF w/ l	Repo	ort: (	Yes	) N	0							Cont	fluer	nce L	.og C	ode	: C	ESC			
Phon	ne/ Fax: 510-486-0900					Co	nsultant / PM:	Arca	dis / I	Ron (	Golob	ouw							Repo	ort to:		Ron	Gol	obo	ouw & Caitlin Bell			
							Phone / Fax: 510-596-9550										1	Invoi	ice to	:	Arca	dis						
				Matrix						P	reser	vativ	e				Re	eque	sted	Anal	ysis							
	Sample ID	Time	Date	Soil/Solid	water/Liquid	La	aboratory No.	No. of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO3	HCI	NaOH		ГРН-G, ВТЕХ (8260)	ГРН-D & MO (8015)									N	otes an	d Comm	ents
N	12		926		<	1		3				3						1	Ť				-	-1				
			U. V	╟──┼╯	+			_				/		_	$\wedge$			-+					+	-				
				╟─┼╴										_				_					$\rightarrow$					
				╟─┼╴																			+					
																		$\rightarrow$	-+				$\rightarrow$					
						_																						
			·															+										
Same	pler's Name: A. Feave	<u></u>			<u></u>	┥┝━			<u> </u>		I			$\neg$				—ł							<u> </u>			Time
	pler's Company: Confluence		ironme	ntal		╢──	Relin	guist	ed By	/ Anîî 77	Diation	<del>لر</del>	14		Da 9/27		Tin			1	Acce	epted l	By / /	Affili:			Date ログマングラ	11me
	Shipment Date:						then 2	<u>~</u>	<u>I</u>	<u>, c</u>			~		9/2	7/13	162		/	- And		80	$\checkmark$	~	1		9.27 13	1330 1630
Shipr	ment Method:			hay 2 cit 9/27/13 1623									1	/		09-												
Speci	al Instructions:						· · · · ·																					

Mast Gold RE

Subject: RE: EM001048.0001-0001 - C&T Login Summary (249459) From: "Goloubow, Ron" <Ron.Goloubow@arcadis-us.com> Date: 9/29/2013 8:02 PM To: Tracy Babjar <tracy.babjar@ctberk.com> CC: "Bell, Caitlin" <Caitlin.Bell@arcadis-us.com>

Please place the equipment blank & trip blank on hold.

## Ron.

Ron Goloubow | Principal Geologist | <u>ron.goloubow@arcadis-us.com</u> ARCADIS U.S., Inc. | 2000 Powell Street, Suite 700 | Emeryville, CA 94608 T: 510 596 9550 | M: 510 501 1789 | F: 510 652 4906 Connect with us! <u>www.arcadis-us.com</u> | <u>LinkedIn</u> | <u>Twitter</u> | <u>Facebook</u> ARCADIS, Imagine the result

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com] Sent: Friday, September 27, 2013 6:49 PM To: Goloubow, Ron Subject: EM001048.0001-0001 - C&T Login Summary (249459)

# C&T Login Summary for 249459

Project: EM001048.0001-0001 Site: VW Dealership, Oakland	Report To: Arcadis	Bill To: Arcadis
Lab Login #: 249459	2000 Powell St.	630 Plaza Drive
Report Level: II	7th Floor	Suite 600
Report Due: 10/04/13	Emeryville, CA 94608	Highlands Ranch, CO 80129
PO#:	ATTN: Ron Goloubow	ATTN: Accounts Payable
C&T Proj Mgr: Tracy Babjar	(510) 652-4500	(720) 344-3500

## Client ID Lab ID Sampled Received Matrix Analyses COC # Comments

		1		
MW-1	001	09/26	09/27	
				Water MSTVH
				Water TEHM
MW-3	002	09/26	09/27	
				Water MSTVH
				Water TEHM
MW-7	003	09/26	09/27	
				Water MSTVH
				Water TEHM
MW-8	004	09/26	09/27	
	•			Water MSTVH
				Water TEHM
MW-9	005	09/26	09/27	
				Water MSTVH
				Water TEHM
VW-1	006	09/26	09/27	
				Water MSTVH
				Water TEHM

Login #249459 AvcadisDate Received 9. 27.B ProjectNumber of coolersClientAvcadisProjectVWDealershipDate Opened9.27.13 By (print)By (print)N TR(sign)ModelDate Logged in9/27/13 By (print)By (print)TR(sign)Two Raskan
Date Opened $9.27.13$ By (print) $PV$ (sign) $PV$ Date Logged in $9/2712$ By (print) $TR$ (sign) $Trans Parton$
1. Did cooler-come with a shipping slip (airbill, etc)YES YOYES
2A. Were custody seals present?  YES (circle) on cooler on samples How many Name Date
2B. Were custody seals intact upon arrival?       YES NO         3. Were custody papers dry and intact when received?       YES NO         4. Were custody papers filled out properly (ink, signed, etc)?       YES NO         5. Is the project identifiable from custody papers? (If so fill out top of form)       YES NO         6. Indicate the packing in cooler: (if other, describe)       YES NO
☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels 7. Temperature documentation: * Notify PM if temperature exceeds 6°C
Type of ice used: $\square$ Wet $\square$ Blue/Gel $\square$ None Temp(°C) $\square$
□ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun
Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present?YES NO
9. Did all bottles arrive unbroken/unopened? NO
10. Are there any missing / extra samples?       YES NO         11. Are samples in the appropriate containers for indicated tests?       YES NO
12. Are sample labels present, in good condition and complete?
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested?Y NO
15. Are the samples appropriately preserved? NO N/A
16. Did you check preservatives for all bottles for each sample?YES NO X7A
17. Did you document your preservative check?YES NO NA
18. Did you change the hold time in LIMS for unpreserved VOAs?       YES NO YA         19. Did you change the hold time in LIMS for preserved terracores?       YES NO YA
19. Did you change the hold time in LIMS for preserved terracores?       YES NO N/A         20. Are bubbles > 6mm absent in VOA samples?       YES NO N/A
21. Was the client contacted concerning this sample delivery?YES
If YES, Who was called? By Date:

COMMENTS

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		Total Extra	ctable Hydrod	arbons	3
Lab #: Client: Project#:	249459 Arcadis EM001048.0	001-0001	Location: Prep: Analysis:	H H	W Dealership, Oakland EPA 3520C EPA 8015B
Matrix: Units: Diln Fac: Batch#:	Water ug/L 1.000 203651		Sampled: Received: Prepared: Analyzed:	(	09/26/13 09/27/13 10/02/13 10/04/13
Field ID: Type:	MW-1 SAMPLE		Lab ID:	2	249459-001
Diesel C10-C2		Result 120		<b>RL</b> 52	
Motor Oil C24	1-C36	ND		310	
Sur o-Terphenyl	rrogate	%REC         Limit           96         62-11			
Field ID: Type:	MW-3 SAMPLE		Lab ID:	2	249459-002
Ar Diesel C10-C2	nalyte	Result ND	t	<b>RL</b> 51	
Motor Oil C24		ND		310	
o-Terphenyl	rrogate	<b>%REC Limi</b> 102 62-13			
0-lerphenyi		102 02-1.	33		
Field ID: Type:	MW-7 SAMPLE		Lab ID:	2	249459-003
Ar Diesel C10-C2	nalyte	Result ND	t	<b>RL</b> 49	
Motor Oil C24		ND		290	
Sur o-Terphenyl	rrogate	<b>%REC Limi</b> 91 62-13			
Field ID: Type:	MW-8 SAMPLE		Lab ID:	2	249459-004
Ar Diesel C10-C2 Motor Oil C24		Result 370 ND		<b>RL</b> 49 290	
Sur o-Terphenyl	rrogate	<b>%REC Limi</b> 94 62-1			



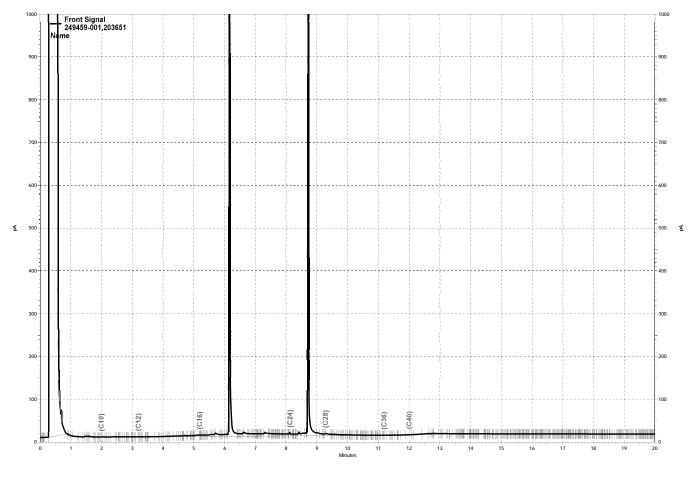
		Total Extracta	able Hydroca	arbon	S
Lab #: Client: Project#:	249459 Arcadis EM001048.0	0001-0001	Location: Prep: Analysis:		VW Dealership, Oakland EPA 3520C EPA 8015B
Matrix: Units: Diln Fac: Batch#:	Water ug/L 1.000 203651		Sampled: Received: Prepared: Analyzed:		09/26/13 09/27/13 10/02/13 10/04/13
Field ID: Type:	MW-9 SAMPLE		Lab ID:		249459-005
Diesel C10-C24 Motor Oil C24		<b>Result</b> 2,300 ND		<b>RL</b> 52 310	
	rogate	<b>%REC Limits</b> 104 62-133			
Field ID: Type:	VW-1 SAMPLE		Lab ID:		249459-006
Diesel C10-C24		Result ND		<b>RL</b> 52	
Motor Oil C24-	-C36 rogate	ND %REC Limits		310	
o-Terphenyl		100 62-133			
Field ID: Type:	VW-2 SAMPLE		Lab ID:		249459-007
Diesel C10-C24		Result 240 Y		<b>RL</b> 52	
Motor Oil C24-	rogate	ND %REC Limits		310	
o-Terphenyl		105 62-133			
Field ID: Type:	VW-3 SAMPLE		Lab ID:		249459-008
Ana Diesel C10-C24 Motor Oil C24		<b>Result</b> 2,900 370		<b>RL</b> 49 290	
	rogate	%REC         Limits           99         62-133			



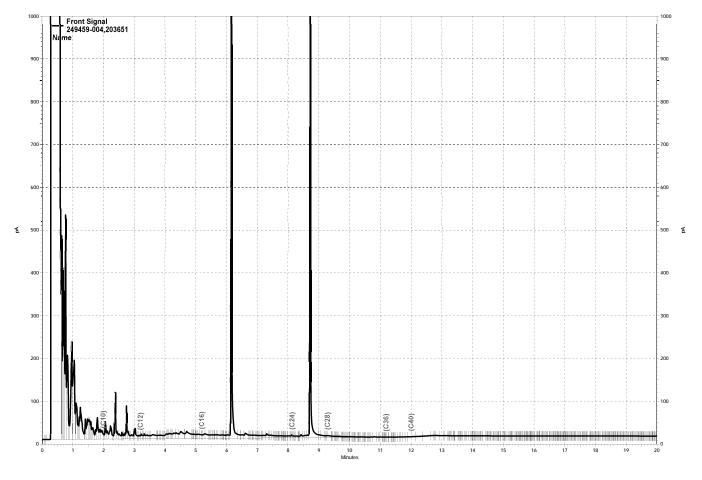
	T	otal Extract	able Hydroc	arboi	ns
Lab #: Client: Project#:	249459 Arcadis EM001048.0001-	-0001	Location: Prep: Analysis:		VW Dealership, Oakland EPA 3520C EPA 8015B
Matrix: Units: Diln Fac: Batch#:	Water ug/L 1.000 203651		Sampled: Received: Prepared: Analyzed:		09/26/13 09/27/13 10/02/13 10/04/13
Field ID: Type:	DUP SAMPLE		Lab ID:		249459-010
Ana Diesel C10-C24	lyte	Result ND		<b>RL</b> 50	
Motor Oil C24-0	236	ND		300	
Surro o-Terphenyl	ogate	%REC         Limits           99         62-133			
0 rerpitellyr		<u> </u>			
Туре:	BLANK		Lab ID:		QC710163
Anal	lyte	Result		RL	
Diesel C10-C24 Motor Oil C24-C	236	ND ND		50 300	
Surro o-Terphenyl	ogate	%REC         Limits           98         62-133			



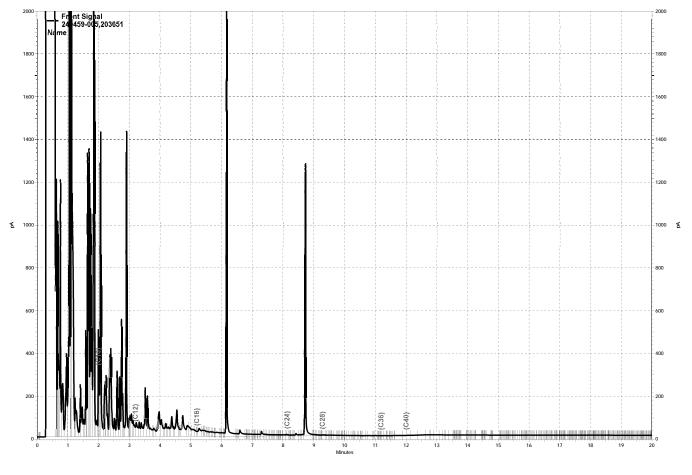
		Total I	Extracta	ble Hydrocarbo	ns			
Lab #:	249459			Location:	VW Dealership	, Oakland	1	
Client:	Arcadis			Prep:	EPA 3520C			
Project#:	EM001048.000	1-0001		Analysis:	EPA 8015B			
Matrix:	Water			Batch#:	203651			
Units:	ug/L			Prepared:	10/02/13			
Diln Fac:	1.000			Analyzed:	10/05/13			
Type: Lab ID:	BS QC710164			Cleanup Method:	EPA 3630C			
	Analyte		Spiked	Result	%REC	Limits		
Diesel C10-	C24		2,500	2,087	83	59-120		
S	Surrogate	%REC	Limits					
o-Terphenyl		91	62-133					
Type: Lab ID:	BSD QC710165			Cleanup Method:	EPA 3630C			
	Analyte		Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-	C24		2,500	2,095	84	59-120	0	46
	urrogate	%REC	Limits					
o-Terphenyl		90	62-133					



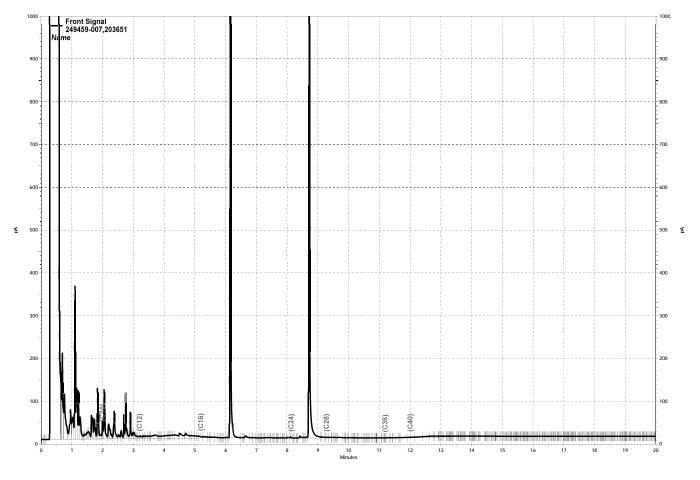
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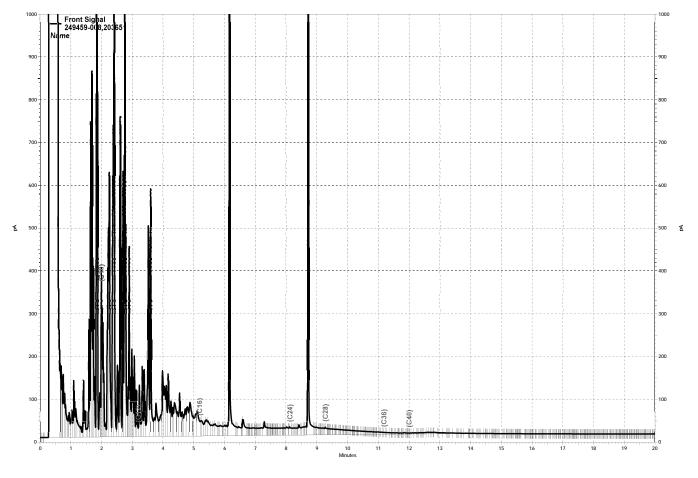
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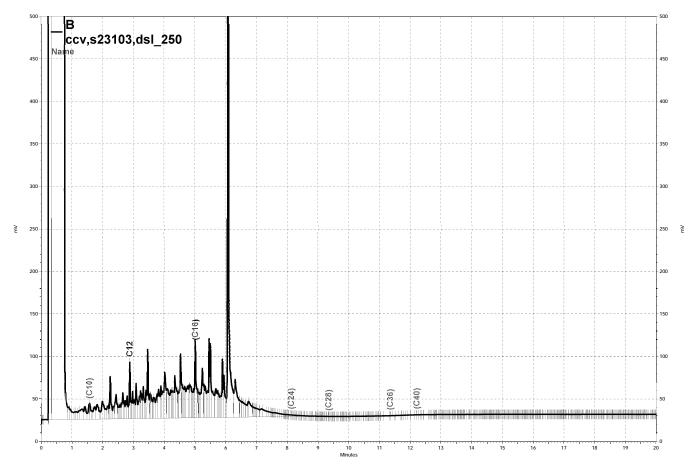
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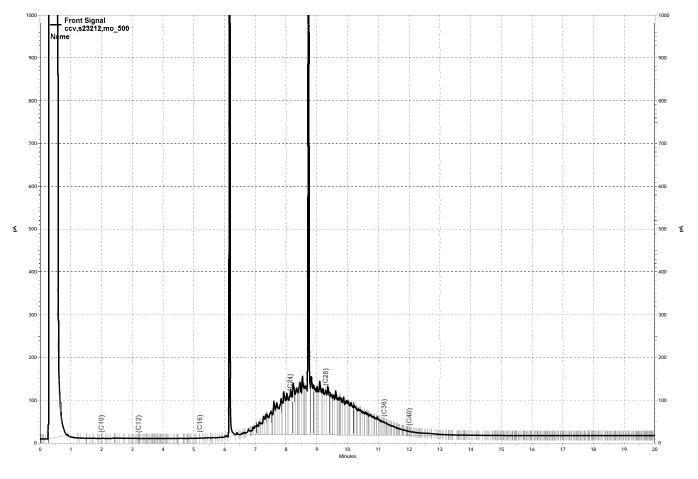
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Purgeable Organics by GC/MS					
Lab #:	249459	Location:	VW Dealership, Oakland		
Client:	Arcadis	Prep:	EPA 5030B		
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B		
Matrix:	Water	Sampled:	09/26/13		
Units:	ug/L	Received:	09/27/13		

Field ID:	MW-1	Diln Fac:	1.000
Туре:	SAMPLE	Batch#:	203507
Lab ID:	249459-001	Analyzed:	09/30/13

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	ND	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes	ND	0.50	
m,p-Xylenes o-Xylene	ND	0.50	

Surrogate	%REC	Limits	
Dibromofluoromethane	117	77-134	
1,2-Dichloroethane-d4	136	72-140	
Toluene-d8	96	80-120	
Bromofluorobenzene	91	80-120	

Field ID:	MW-3	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	203615
Lab ID:	249459-002	Analyzed:	10/02/13

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	2.6	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes o-Xylene	ND	0.50	
o-Xylene	ND	0.50	

Surrogate	%REC	Limits
Dibromofluoromethane	92	77-134
1,2-Dichloroethane-d4	97	72-140
Toluene-d8	88	80-120
Bromofluorobenzene	91	80-120

\*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit
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	Purgeable	Organics by GC	/MS
Lab #:	249459	Location:	VW Dealership, Oakland
Client:	Arcadis	Prep:	EPA 5030B
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	09/26/13
Units:	ug/L	Received:	09/27/13

Field ID:	MW-7	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	203507
Lab ID:	249459-003	Analyzed:	09/30/13

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	ND	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes	ND	0.50	
o-Xylene	ND	0.50	

Surrogate	%REC	Limits	
Dibromofluoromethane	117	77-134	
1,2-Dichloroethane-d4	144 *	72-140	
Toluene-d8	94	80-120	
Bromofluorobenzene	97	80-120	

Field ID:	MW-8	Diln Fac:	4.000
Type:	SAMPLE	Batch#:	203615
Lab ID:	249459-004	Analyzed:	10/02/13

	<b>D</b>		
Analyte	Result	RL	
Gasoline C7-C12	890	200	
Benzene	330	2.0	
Toluene	3.3	2.0	
Ethylbenzene	66	2.0	
m,p-Xylenes	8.3	2.0	
o-Xylene	ND	2.0	

Surrogate	%REC	Limits
Dibromofluoromethane	91	77-134
1,2-Dichloroethane-d4	91	72-140
Toluene-d8	91	80-120
Bromofluorobenzene	92	80-120

\*= Value outside of QC limits; see narrative ND= Not Detected RL= Reporting Limit Page 2 of 6



	Purgeable	Organics by GC/	/MS
Lab #:	249459	Location:	VW Dealership, Oakland
Client:	Arcadis	Prep:	EPA 5030B
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	09/26/13
Units:	ug/L	Received:	09/27/13

Field ID:	MW-9	Diln Fac:	12.50
Туре:	SAMPLE	Batch#:	203615
Lab ID:	249459-005	Analyzed:	10/02/13

Analyte	Result	RL	
Gasoline C7-C12	8,300	630	
Benzene	650	6.3	
Toluene	ND	6.3	
Ethylbenzene	690	6.3	
m,p-Xylenes	600	6.3	
m,p-Xylenes o-Xylene	10	6.3	

Surrogate	%REC	Limits	
Dibromofluoromethane	94	77-134	
1,2-Dichloroethane-d4	96	72-140	
Toluene-d8	88	80-120	
Bromofluorobenzene	90	80-120	

Field ID:	VW-1	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	203507
Lab ID:	249459-006	Analyzed:	09/30/13

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	ND	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes o-Xylene	ND	0.50	
o-Xylene	ND	0.50	

Surrogate	%REC	Limits
Dibromofluoromethane	124	77-134
1,2-Dichloroethane-d4	145 *	72-140
Toluene-d8	105	80-120
Bromofluorobenzene	93	80-120

\*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit
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		_				
		Purgea	able Org	anics by G	C/MS	
Lab #:	249459			Location:		VW Dealership, Oakland
Client:	Arcadis			Prep:		EPA 5030B
Project#:	EM001048.000	01-0001		Analysis:		EPA 8260B
Matrix:	Water			Sampled:		09/26/13
Units:	ug/L			Received:		09/27/13
Field ID:	VW-2			Diln Fac:		10.00
Type:	SAMPLE			Batch#:		203507
Lab ID:	249459-007			Analyzed:		09/30/13
A	nalyte		Result		RL	
Gasoline C7-	C12		850		500	
Benzene			26		5.0	)
Toluene			38		5.0	)
Ethylbenzene			56		5.0	)
m,p-Xylenes			99		5.0	)
o-Xylene			19		5.0	)
Su	rrogate	%REC	Limits			
Dibromofluor		112	77-134			
1,2-Dichloro		139	72-140			
Toluene-d8		96	80-120			
Bromofluorob	077070	89	80-120			

Field ID:	VW-3	Diln Fac:	2.500
Type:	SAMPLE	Batch#:	203671
Lab ID:	249459-008	Analyzed:	10/03/13

Analyte	Result	RL	
Gasoline C7-C12	6,000	130	
Benzene	100	1.3	
Toluene	ND	1.3	
Ethylbenzene	11	1.3	
m,p-Xylenes o-Xylene	39	1.3	
o-Xylene	4.1	1.3	

Surrogate	%REC	Limits
Dibromofluoromethane	90	77-134
1,2-Dichloroethane-d4	92	72-140
Toluene-d8	90	80-120
Bromofluorobenzene	90	80-120

\*= Value outside of QC limits; see narrative ND= Not Detected RL= Reporting Limit Page 4 of 6



Purgeable Organics by GC/MS				
Lab #:	249459	Location:	VW Dealership, Oakland	
Client:	Arcadis	Prep:	EPA 5030B	
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B	
Matrix:	Water	Sampled:	09/26/13	
Units:	ug/L	Received:	09/27/13	
Matrix:	Water	Sampled:	09/26/13	

Field ID:	DUP	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	203615
Lab ID:	249459-010	Analyzed:	10/02/13

Analyte	Result	RL
Gasoline C7-C12	ND	50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits	
Dibromofluoromethane	92	77-134	
1,2-Dichloroethane-d4	94	72-140	
Toluene-d8	88	80-120	
Bromofluorobenzene	91	80-120	

Type:	BLANK	Batch#:	203507
Lab ID:	QC709599	Analyzed:	09/30/13
Diln Fac:	1.000		

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	ND	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes	ND	0.50	
o-Xylene	ND	0.50	

Surrogate	%REC	Limits
Dibromofluoromethane	111	77-134
1,2-Dichloroethane-d4	131	72-140
Toluene-d8	97	80-120
Bromofluorobenzene	92	80-120

\*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit
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Purgeable Organics by GC/MS				
249459	Location:	VW Dealership, Oakland		
Arcadis	Prep:	EPA 5030B		
EM001048.0001-0001	Analysis:	EPA 8260B		
Water	Sampled:	09/26/13		
ug/L	Received:	09/27/13		
	249459 Arcadis EM001048.0001-0001 Water	249459Location:ArcadisPrep:EM001048.0001-0001Analysis:WaterSampled:		

Type:	BLANK	Batch#:	203615
Lab ID:	QC710032	Analyzed:	10/02/13
Diln Fac:	1.000		

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	ND	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes	ND	0.50	
o-Xylene	ND	0.50	

Surrogate	%REC	Limits	
Dibromofluoromethane	90	77-134	
1,2-Dichloroethane-d4	87	72-140	
Toluene-d8	88	80-120	
Bromofluorobenzene	89	80-120	

Туре:	BLANK	Batch#:	203671
Lab ID:	QC710267	Analyzed:	10/03/13
Diln Fac:	1.000		

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Benzene	ND	0.50	
Toluene	ND	0.50	
Ethylbenzene	ND	0.50	
m,p-Xylenes	ND	0.50	
o-Xylene	ND	0.50	

Surrogate	%REC	Limits
Dibromofluoromethane	90	77-134
1,2-Dichloroethane-d4	91	72-140
Toluene-d8	89	80-120
Bromofluorobenzene	88	80-120

\*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit
Page 6 of 6



Purgeable Organics by GC/MS					
Lab #:	249459	Location:	VW Dealership, Oakland		
Client:	Arcadis	Prep:	EPA 5030B		
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B		
Matrix:	Water	Batch#:	203507		
Units:	ug/L	Analyzed:	09/30/13		
Diln Fac:	1.000				

Type:

BS

Lab ID: QC709597

Analyte	Spiked	Result	%REC	Limits
Benzene	12.50	12.52	100	78-125
Toluene	12.50	11.09	89	79-123
Ethylbenzene	12.50	12.39	99	80-126
m,p-Xylenes	25.00	25.75	103	80-123
o-Xylene	12.50	11.87	95	75-120

Surrogate	%REC	Limits
Dibromofluoromethane	108	77-134
1,2-Dichloroethane-d4	128	72-140
Toluene-d8	91	80-120
Bromofluorobenzene	85	80-120

Type:

BSD

Lab ID:

QC709598

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	12.50	12.28	98	78-125	2	20
Toluene	12.50	12.54	100	79-123	12	20
Ethylbenzene	12.50	13.31	107	80-126	7	20
m,p-Xylenes	25.00	26.44	106	80-123	3	20
o-Xylene	12.50	12.63	101	75-120	6	20

%REC	Limits	
108	77-134	
123	72-140	
96	80-120	
92	80-120	
	108 123 96	108 77-134 123 72-140 96 80-120



	Purgeable	Organics by GC/	ms
Lab #:	249459	Location:	VW Dealership, Oakland
Client:	Arcadis	Prep:	EPA 5030B
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	203507
Units:	ug/L	Analyzed:	09/30/13
Diln Fac:	1.000		

Type:

BS

Lab ID: QC709614

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	960.5	96	80-120

Surrogate	%REC	Limits
Dibromofluoromethane 1	104	77-134
1,2-Dichloroethane-d4 1	125	72-140
Toluene-d8 9	98	80-120
Bromofluorobenzene	93	80-120

Type: BSD			Lab ID:	QC	2709615			
Analyte		Spiked		Result	%REC	Limits	RPD	Lim
Gasoline C7-C12		1,000		908.5	91	80-120	6	20
Surrogate	%REC	Limits						
Dibromofluoromethane	101	77-134						
1,2-Dichloroethane-d4	129	72-140						
Toluene-d8	97	80-120						
Bromofluorobenzene	88	80-120						



	Purgeable Org	anics by GC/MS	
Lab #:	249459	Location:	VW Dealership, Oakland
Client:	Arcadis	Prep:	EPA 5030B
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	203615
Units:	ug/L	Analyzed:	10/02/13
Diln Fac:	1.000		

Type:

BS

Lab ID: QC710030

Analyte	Spiked	Result	%REC	Limits
Benzene	25.00	25.91	104	78-125
Toluene	25.00	26.12	104	79-123
Ethylbenzene	25.00	25.92	104	80-126
m,p-Xylenes	50.00	56.63	113	80-123
o-Xylene	25.00	28.61	114	75-120

Surrogate	%REC	Limits
Dibromofluoromethane	92	77-134
1,2-Dichloroethane-d4	91	72-140
Toluene-d8	88	80-120
Bromofluorobenzene	92	80-120

Type:

BSD

QC710031

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	25.00	24.20	97	78-125	7	20
Toluene	25.00	24.01	96	79-123	8	20
Ethylbenzene	25.00	25.22	101	80-126	3	20
m,p-Xylenes	50.00	52.59	105	80-123	7	20
o-Xylene	25.00	26.98	108	75-120	6	20

Lab ID:

Surrogate	%REC	Limits
Dibromofluoromethane	90	77–134
1,2-Dichloroethane-d4	89	72-140
Toluene-d8	90	80-120
Bromofluorobenzene	92	80-120



	Purgeable Org	ganics by GC/MS	
Lab #:	249459	Location:	VW Dealership, Oakland
Client:	Arcadis	Prep:	EPA 5030B
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	203615
Units:	ug/L	Analyzed:	10/02/13
Diln Fac:	1.000		

Type:

BS

Lab ID:

QC710033

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	917.8	92	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	90	77-134
1,2-Dichloroethane-d4	89	72-140
Toluene-d8	87	80-120
Bromofluorobenzene	91	80-120

Type: BSI	)		Lab ID:	QCT	710034			
Analyte		Spiked		Result	%REC	Limits	RPD	Lim
Gasoline C7-C12		1,000		843.2	84	80-120	8	20
Surrogate	e %REC	Limits						
Dibromofluoromethar	ne 90	77-134						
1,2-Dichloroethane-	-d4 88	72-140						
Toluene-d8	89	80-120						

80-120

87

Bromofluorobenzene



	Purgeable Organics by GC/MS					
Lab #:	249459	Location:	VW Dealership, Oakland			
Client:	Arcadis	Prep:	EPA 5030B			
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B			
Matrix:	Water	Batch#:	203671			
Units:	ug/L	Analyzed:	10/03/13			
Diln Fac:	1.000					

Type:

BS

Lab ID: QC710265

Analyte	Spiked	Result	%REC	Limits
Benzene	25.00	25.97	104	78-125
Toluene	25.00	24.90	100	79-123
Ethylbenzene	25.00	25.91	104	80-126
m,p-Xylenes	50.00	55.77	112	80-123
o-Xylene	25.00	28.09	112	75-120

Surrogate	%REC	Limits
Dibromofluoromethane	91	77-134
1,2-Dichloroethane-d4	93	72-140
Toluene-d8	87	80-120
Bromofluorobenzene	86	80-120

Type:

BSD

Lab ID:

QC710266

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	25.00	23.10	92	78-125	12	20
Toluene	25.00	23.54	94	79-123	6	20
Ethylbenzene	25.00	24.41	98	80-126	6	20
m,p-Xylenes	50.00	51.08	102	80-123	9	20
o-Xylene	25.00	26.75	107	75-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	91	77–134
1,2-Dichloroethane-d4	89	72-140
Toluene-d8	91	80-120
Bromofluorobenzene	88	80-120



Purgeable Organics by GC/MS						
Lab #:	249459	Location:	VW Dealership, Oakland			
Client:	Arcadis	Prep:	EPA 5030B			
Project#:	EM001048.0001-0001	Analysis:	EPA 8260B			
Matrix:	Water	Batch#:	203671			
Units:	ug/L	Analyzed:	10/03/13			
Diln Fac:	1.000					

Type:

BS

Lab ID:

QC710268

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	910.1	91	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	90	77-134
1,2-Dichloroethane-d4	89	72-140
Toluene-d8	90	80-120
Bromofluorobenzene	89	80-120

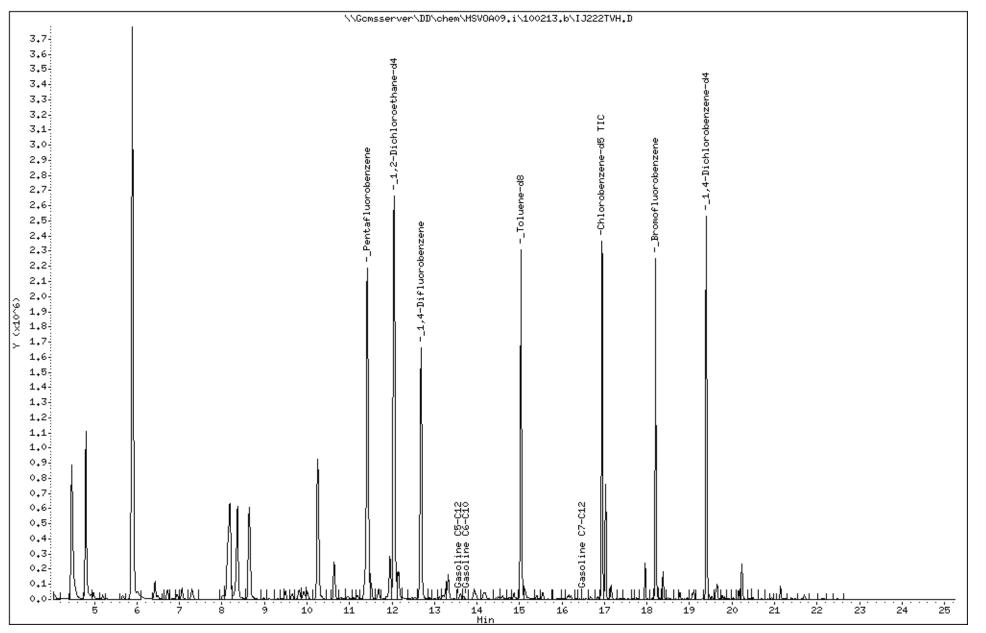
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Gasoline C7-C12		1,000		873.3	87	80-120	4	20
Surrogate	%REC	Limits						
Dibromofluoromethane	89	77-134						
1,2-Dichloroethane-d4	86	72-140						
Toluene-d8	87	80-120						
Bromofluorobenzene	90	80-120						

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Instrument: MSVOA09.i

### Operator: VOC

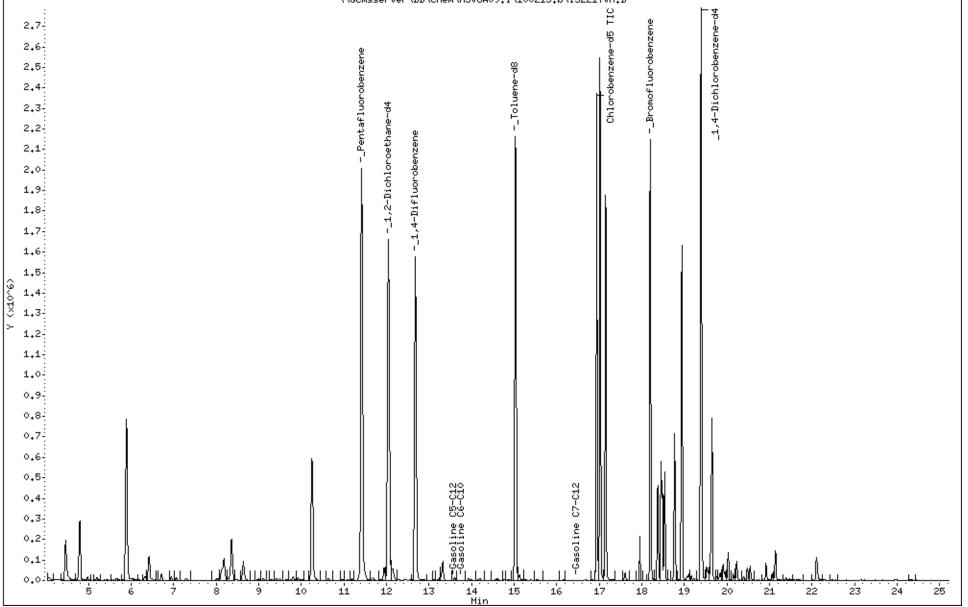
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Column phase:

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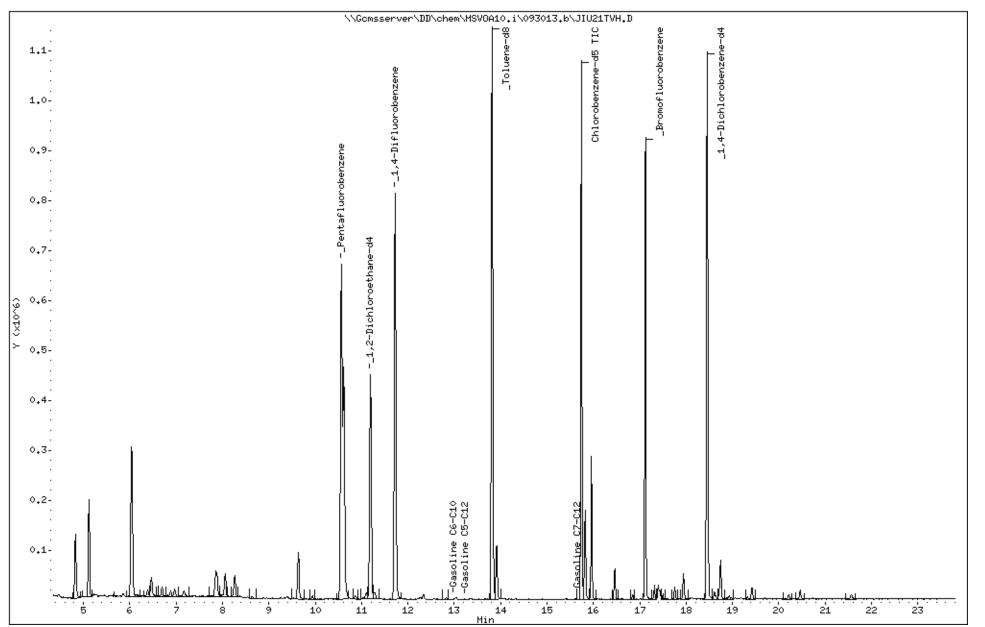
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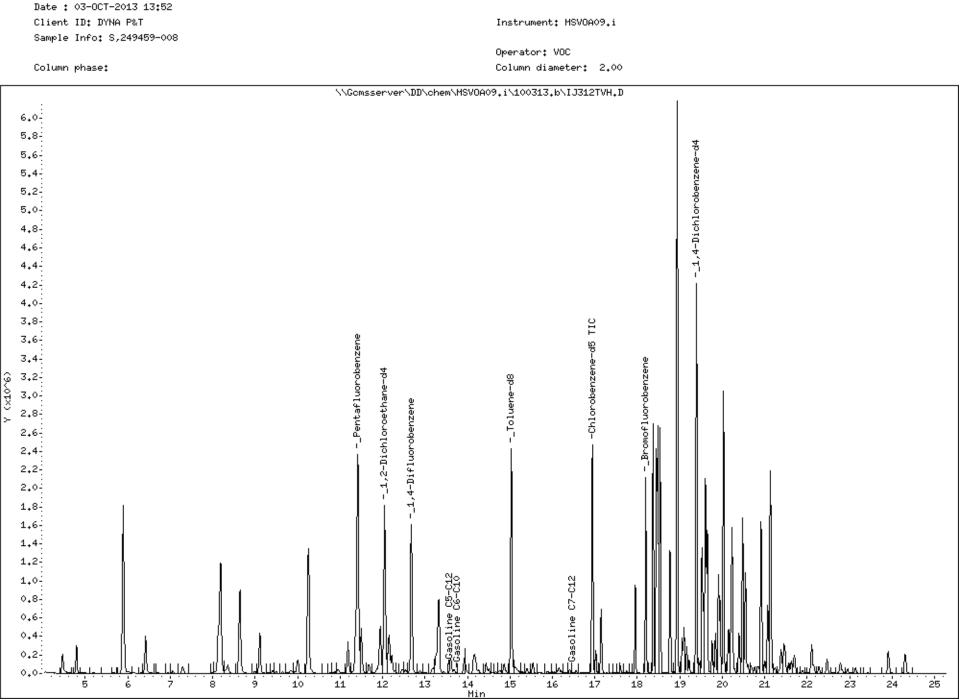
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### Operator: VOA

Column diameter: 2.00



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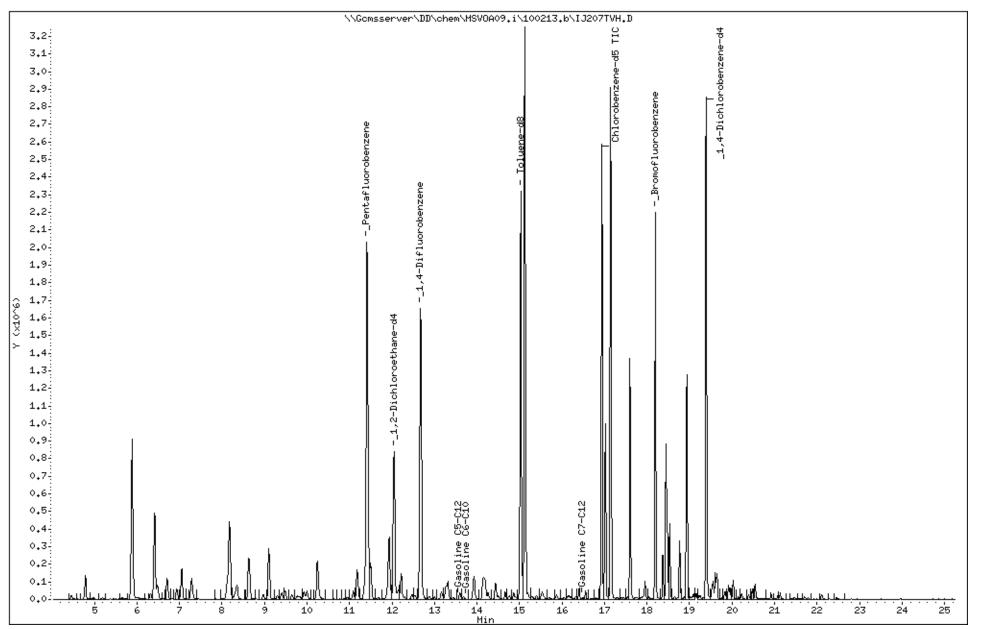
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Column phase:

Instrument: MSVOA09.i

### Operator: VOC

Column diameter: 2.00



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