HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

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August 27, 2014

VIA FEDERAL EXPRESS STANDARD

Mr. William F. Jeffers, PE
Hazardous Substances Engineer
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL
Southern California Region
9211 Oakdale Avenue
Chatsworth, CA 91311-6520

Re: Data Submittal for Groundwater Monitoring and Groundwater Extraction and Treatment Pilot Testing, Second Quarter 2014, Raytheon Company (Former Hughes Aircraft Company) Facility, 1901 West Malvern Avenue, Fullerton, California

Dear Mr. Jeffers:

This letter has been prepared for the submittal of groundwater monitoring and groundwater treatment pilot testing data collected during the second quarter 2014 for the former Raytheon Company site located at 1901 West Malvern Avenue, Fullerton, California (the Site) (Figure 1). Groundwater monitoring activities were completed in general accordance with the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)-approved Groundwater Monitoring Workplan and Sampling and Analysis Plan (GMWPSAP) and subsequent addenda (DTSC, 2003 and 2011; Hargis + Associates, Inc. [H+A], 2003, 2011a, and 2011b). Groundwater treatment pilot testing continued throughout the second quarter 2014 in general accordance with the DTSC-approved Groundwater Extraction and Treatment Pilot Testing, Corrective Measures Study Workplan Addendum No. 4A (DTSC, 2009; H+A, 2009a and 2009b). The results of the second quarter 2014 quarterly groundwater monitoring and pilot groundwater extraction and treatment system (GETS) operation from March through May 2014 are included in this data submittal.

GROUNDWATER MONITORING

Groundwater monitoring consists of measuring groundwater levels and collecting groundwater samples from monitor wells and piezometers at the Site (Figure 2). Quarterly water level measurements and groundwater samples were collected in May 2014 at all monitor wells and piezometers in general accordance with the GMWPSAP and Addendum No.1 (H+A, 2003 and 2011a) (Table 1). Monitor well MW-26C was inaccessible and was not sampled in May 2014; extraction well MW-21 had equipment malfunction and was not sampled in May 2014; monitor well MW-29 and extraction well EW-02 were not operational due to the construction and expansion of the treatment facility and were not sampled in May 2014.

Other Offices:
Mesa, AZ
Tucson, AZ

In accordance with the Corrective Measures Study Workplan Update, the construction and installation of the new pilot treatment system and the connection of existing monitor well MW-29 to the treatment system began in the second quarter 2014. Initial startup of extraction well MW-29 will be completed sometime in the third quarter, groundwater monitoring will be conducted as part of the routine operation and monitoring of the pilot GETS (H+A, 2013).

Water Level Measurement and Groundwater Sample Collection

Groundwater monitoring included water level measurements in all Site monitor wells, piezometers, and extraction wells (Figures 2 and 3). Water levels were measured on May 19 and 21, 2014 (Table 2).

Groundwater samples were collected during the period from May 20 through May 21, 2014 (Appendix A). Analytical results are summarized in Table 3 and provided in Appendix B. Additional groundwater monitoring was conducted as part of routine operation and monitoring of the pilot GETS. A summary of the pilot GETS operation and monitoring is provided separately below.

Original and field duplicate groundwater samples were analyzed by Advanced Technology Laboratories, Inc., Signal Hill, California (ATL) (Appendix B). Laboratory split groundwater samples were analyzed by Calscience, Garden Grove, California (Appendix B). Chain-of-custody documentation was enclosed with each sample shipment. Results of groundwater sample volatile organic compound (VOC) and 1,4-dioxane analyses have been summarized (Table 3).

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) samples collected in May 2014 consisted of trip blanks, field duplicates, and laboratory split samples. Trip blanks were provided by ATL. Field duplicate and/or laboratory split samples were collected for analysis of VOCs and 1,4-dioxane from monitor wells MW-31 and MW-36 in May 2014 (Table 3). The relative percent difference was calculated between the results of each field duplicate and each laboratory split sample with its corresponding original sample. This data quality assessment indicated that all QA/QC results for groundwater samples are within acceptable criteria.

There were no detections of VOCs or 1,4-dioxane in the trip and/or laboratory method blanks analyzed with groundwater samples collected during the May 2014 groundwater monitoring event (Table 3; Appendix B).

The data quality assessment also included review of laboratory QA/QC results. Laboratory QA/QC results are within acceptable criteria.

GROUNDWATER EXTRACTION AND TREATMENT PILOT STUDY

This section summarizes the pilot GETS operation within the three-month period of monitoring conducted during the second quarter of 2014. The pilot GETS consists of three groundwater extraction wells, the treatment system, and the disposal system; however, the current phase of pilot testing is operating using only one extraction well, EW-02. The treatment system processes extracted groundwater through an advanced oxidation unit that utilizes ozone and hydrogen peroxide (HiPOx), followed by a granular activated carbon polish prior to disposal to the sanitary sewer. A graphical representation of the system operational time in relation to water level measurements at current extraction well EW-02 and the previously utilized extraction wells MW-21 and EW-01 has been provided (Figure 4).

Initial startup of the pilot GETS took place on Tuesday, July 8, 2008. From July 2008 through November 2009, the pilot GETS was operated with extraction wells EW-01 and MW-21 operating at approximately 10 gallons per minute (gpm) each. Pilot GETS expansion took place between November 2009 and March 2010 in order to incorporate extraction well EW-02 into the extraction well network. The system maximum flowrate was also increased from 20 gpm to 50 gpm. Beginning in March 2010, the pilot GETS was operated at 50 gpm, entirely from extraction well EW-02. During December 2011, a synthetic media pilot test was started. The purpose of the synthetic media pilot test was to evaluate the efficacy of treating water collected from extraction well MW-21 using a synthetic media for contaminant removal. In order to conduct the synthetic media pilot test, extraction wells EW-02 and MW-21 were operated at approximately 40 gpm and 10 gpm, respectively. The synthetic media pilot test was completed on March 9, 2012, and operation of the pilot GETS was restored to 50 gpm, entirely from extraction well EW-02. Extraction wells EW-01 and MW-21 are on standby for the current phase of pilot testing, but may be used for future phases of pilot testing or as part of a full scale pump-and-treat system.

During the second quarter 2014, the pilot GETS was operational approximately 6 percent of the available runtime and approximately 395,641 gallons of groundwater were treated and discharged to the sanitary sewer (Table 4). Downtime during the second quarter of 2014 was associated with expansion and upgrades to the facility. The average monthly discharge flowrate to the sanitary sewer during March 2014 through May 2014 was approximately 3.0 gpm. Since startup of the pilot GETS, approximately 90,712,957 gallons of groundwater have been treated at an average flowrate of 29.2 gpm through the end of May 2014 (Table 4).

Current monthly and quarterly pilot GETS monitoring activities include collecting samples from extraction well EW-02 in addition to collecting samples at treatment system sampling ports: extraction well EW-02, Influent, Post Particulate Filter, Post HiPOx Oxidation, Carbon Breakthrough, and Carbon Effluent (Tables 5 and 6; Figure 5). Samples collected during these activities were sent to ATL. Analytical results of the treatment system samples have been summarized (Table 6; Appendix A).

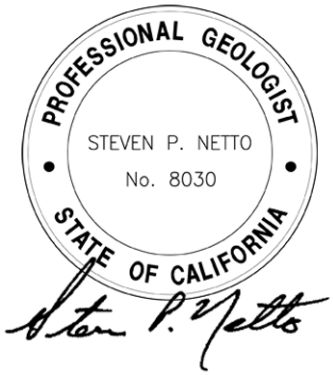
The pilot GETS continues to remove VOCs and 1,4-dioxane from extracted groundwater. The HiPOx advanced oxidation and carbon adsorption treatment units effectively removed VOCs from extracted groundwater. Breakthrough of low-level detections of VOCs was not observed in the second quarter 2014 (Table 6). The effluent sample collected from the HiPOx advanced oxidation treatment unit contained low-level detections of bromate, a secondary by-product, during operations in the second quarter 2014. Carbon adsorption does not effectively remove this compound; however, this compound was detected at concentrations below the pilot GETS permitted sewer discharge limit. The operation of the advanced oxidation system continues to be optimized in an attempt to minimize the formation of bromate (Figure 6).

During the second quarter of 2014, the pilot GETS removed approximately 0.22 pounds of VOCs and 0.16 pounds of 1,4-dioxane from extracted groundwater. Since startup of the pilot GETS in July 2008, approximately 125.95 pounds of VOCs and 24.55 pounds of 1,4-dioxane have been removed from groundwater through May 2014 (Figure 7).

If you have any questions or require additional information, please contact us at 858-455-6500.

Sincerely,

HARGIS + ASSOCIATES, INC.



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REFERENCES

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), 2003. Letter to P. Brewer, Raytheon Systems Company, from A. Plaza, DTSC, re Review of Additional Groundwater Assessment Workplan and Groundwater Monitoring Workplan and Sampling and Analysis Plan. May 20, 2003.

_____, 2009. Letter to P. Brewer, Raytheon Systems Company, from W. Jeffers, DTSC, re Conditional Approval of Groundwater Extraction and Treatment System Pilot Testing, Corrective Measures Study Workplan Addendum No. 4A, Raytheon Company (Former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. June 1, 2009.

_____, 2011. Email from W. Jeffers, DTSC, re: Conditional Approval of Addendum No. 1 to the Ground Water Monitoring Work Plan, Raytheon Fullerton, dated June 7, 2011.

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Enclosures

Tables
Table 1. Groundwater Monitoring Program
Table 2. Groundwater Levels, Second Quarter 2014
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Table 4. Pilot Groundwater Extraction and Treatment System Operational Summary
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Figure 3. Water Level and Water Quality, Unit B, May 2014
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Figure 6. 1,4-Dioxane and Bromate in Influent and Post-Oxidation Samples
Figure 7. Pilot Groundwater Extraction and Treatment System Mass Removal

Appendices
Appendix A. Groundwater Sampling Field Forms (Provided on CD only)
Appendix B. Laboratory Analytical Reports (Provided on CD only)

cc w/encl: (1 copy w-CD)
Mr. Paul Pongetti, Department of Toxic Substances Control, Cypress
Mr. Paul E. Brewer, Raytheon Company
Mr. Carl Bernhardt, California RWQCB, Santa Ana Region
Mr. Dave Mark, Orange County Water District
Mr. Eric Silvers, Regency Centers
Mr. Jeffrey Lochner, Athena Property Management

(2 copies w-CDs)
Mr. Dave Schickling, City of Fullerton

(1 CD only)
Mr.Van Xayarath, City of Fullerton
Mr. Robert Logan, RG, Kennedy/Jenks Consultants
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Ms. Carol Owens, The Morgan Group
Mr. Michael McGee, City of Buena Park

(Via Email Only)
Mr. Duc Nguyen, Orange County Public Works

TABLE 1

GROUNDWATER MONITORING PROGRAM

WELL IDENTIFIER	HYDROGEOLOGIC ZONE	SAMPLED MAY 2014	SAMPLING FREQUENCY			
			QUARTERLY FEB, MAY, AUG, NOV	SEMIANNUAL FEBRUARY, AUGUST	ANNUAL FEBRUARY	BIENNIAL FEB (EVEN YEARS)
P-07	Perched				VOCs; 1,4-Dioxane	
P-09	Perched				VOCs; 1,4-Dioxane	
MW-35A	Other					VOCs; 1,4-Dioxane
MW-17	A		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-18	A			VOCs; 1,4-Dioxane		
MW-19	A					VOCs
MW-22	A					VOCs; 1,4-Dioxane
MW-23	A					VOCs
MW-34A	A			VOCs; 1,4-Dioxane		
MW-35B	A					VOCs; 1,4-Dioxane
MW-38	A	X	VOCs; 1,4-Dioxane			
MW-13	AB				VOCs; 1,4-Dioxane	
MW-15	AB			VOCs		
MW-26A	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-26B	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-32A	AB			VOCs; 1,4-Dioxane		
EW-01	B	X	VOCs; 1,4-Dioxane			
EW-02*	B	X	VOCs; 1,4-Dioxane			
MW-16	B			VOCs; 1,4-Dioxane		
MW-26C	B	X	VOCs; 1,4-Dioxane			
MW-27	B				VOCs; 1,4-Dioxane	
MW-28	B	X	VOCs; 1,4-Dioxane			
MW-29	B	X	VOCs; 1,4-Dioxane			
MW-30A	B	X	VOCs; 1,4-Dioxane			
MW-31	B	X	VOCs; 1,4-Dioxane			
MW-32B	B	X	VOCs; 1,4-Dioxane			
MW-33	B	X	VOCs; 1,4-Dioxane			
MW-34B	B	X	VOCs; 1,4-Dioxane			
MW-35C	B	X	VOCs; 1,4-Dioxane			
MW-36	B	X	VOCs; 1,4-Dioxane			
MW-37**	B	X	VOCs; 1,4-Dioxane			
MW-39	B	X	VOCs; 1,4-Dioxane			
MW-40	B	X	VOCs; 1,4-Dioxane			
MW-21*	BC	X	VOCs; 1,4-Dioxane			
MW-08	BC	X	VOCs; 1,4-Dioxane			
MW-30B	BC	X	VOCs; 1,4-Dioxane			
MW-34C	BC			VOCs; 1,4-Dioxane		
MW-09	C			VOCs; 1,4-Dioxane		
MW-24	C				VOCs; 1,4-Dioxane	
MW-32C	C			VOCs; 1,4-Dioxane		
MW-06	D				VOCs	
MW-20	D			VOCs; 1,4-Dioxane		
MW-25	D		WATER LEVEL MEASUREMENT ONLY			

FOOTNOTES

* = Extraction well monitored monthly as part of the Groundwater Extraction and Treatment System Pilot Testing

** = Uncertainty of Hydrogeologic Zone; current investigation being conducted to determine zone

VOCs = Volatile organic compounds

TABLE 2

GROUNDWATER LEVELS
SECOND QUARTER 2014

Well Identifier	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Remediation System On
Regional Groundwater System Monitor and Extraction Wells					
MW-06	05/19/14	184.70	177.08	7.62	
MW-08	05/19/14	155.91	141.78	14.13	
MW-09	05/19/14	180.10	173.30	6.80	
MW-13	05/19/14	141.84	135.69	6.15	
MW-15	05/19/14	144.95	141.94	3.01	
MW-16	05/19/14	142.40	146.88	-4.48	
MW-17	05/19/14	142.70	142.29	0.41	
MW-18	05/19/14	142.32	142.72	-0.40	
MW-19	05/19/14	142.06	142.39	-0.33	
MW-20	05/19/14	184.19	170.06	14.13	
MW-21	05/19/14	141.18	135.55	5.63	
MW-22	05/19/14	138.65	138.75	-0.10	
MW-23	05/19/14	137.33	138.79	-1.46	
MW-24	05/19/14	142.83	136.72	6.11	
MW-25	05/19/14	142.64	139.46	3.18	
MW-26A	05/19/14	137.04	131.02	6.02	
MW-26B	05/19/14	137.05	133.93	3.12	
MW-26C	05/19/14	137.22	144.05	-6.83	
MW-27	05/19/14	137.16	143.71	-6.55	
MW-28	05/19/14	140.77	147.00	-6.23	
MW-29	05/19/14	139.81	146.85	-7.04	
MW-30A	05/19/14	129.44	138.05	-8.61	
MW-30B	05/19/14	129.39	136.08	-6.69	

TABLE 2

GROUNDWATER LEVELS
SECOND QUARTER 2014

Well Identifier	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Remediation System On
Reginal Groundwater System Monitor and Extraction Wells (continued)					
MW-31	05/19/14	119.60	130.33	-10.73	
MW-32A	05/19/14	92.88	108.72	-15.84	
MW-32B	05/19/14	92.89	106.96	-14.07	
MW-32C	05/19/14	92.88	91.52	1.36	
MW-33	05/19/14	83.19	103.68	-20.49	
MW-34A	05/19/14	153.25	159.82	-6.57	
MW-34B	05/19/14	153.11	163.44	-10.33	
MW-34C	05/19/14	153.29	164.45	-11.16	
MW-35A	05/19/14	93.57	90.45	3.12	
MW-35B	05/19/14	93.56	100.60	-7.04	
MW-35C	05/19/14	93.55	108.54	-14.99	
MW-36	05/19/14	86.65	107.76	-21.11	
MW-37	05/19/14	155.60	157.06	-1.46	
MW-38	05/19/14	154.90	159.11	-4.21	
MW-39	05/19/14	84.25	106.47	-22.22	
MW-40	05/19/14	123.40	131.26	-7.86	
EW-01	05/19/14	141.07	145.42	-4.35	
EW-02	03/04/14	132.97	137.47	-4.50	Pilot GETS
	05/21/14	132.97	140.60	-7.63	Pilot GETS
Perched Zone Water Levels					
P-07	05/19/14	142.31	112.55	29.76	
P-09	05/19/14	183.86	120.69	63.17	

FOOTNOTES

(a) Reference point elevations are relative to City of Fullerton datum.
bls = Below land surface
msl = Mean sea level
UTM = Unable to measure
Pilot GETS = Pilot Groundwater Extraction and Treatment System On

TABLE 3

PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
SECOND QUARTER 2014

Concentration (micrograms per liter)

Well Identifier / Sample Identifier	Date Sampled	QA Code	VOLATILE ORGANIC COMPOUNDS (FEDERAL MCL/CALIFORNIA MCL) Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toulene (1,000/150)	Semi-VOCs 1,4-DIOXANE (3*/1**)
Regional Groundwater System Monitor and Extraction Wells																
MW-08	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**7.4**	**0.83**	< 0.50	< 0.50	< 0.50	**16**	< 0.50	< 0.50	**1.70**
MW-08 Historical Range* **			< 0.50 - 0.95	< 0.50 - <1.0	< 0.50 - 0.86	< 0.50 - 5.1	< 0.50 - 0.99	< 0.50 - 500	< 0.50 - 13	< 0.50 - 1.3	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 480	< 0.50 - 1.0	< 0.50 - < 5.0	<0.20 - 130
MW-28	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-28 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50 - 0.94	< 0.50	<0.50 - 76 E	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 19
MW-30A	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50	< 0.50	< 0.50	< 0.50	**0.86**	< 0.50	< 0.50	< 0.20
MW-30A Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50 - 2.9	< 0.50 - 0.67	< 0.50 - 270	< 0.50	< 0.50 - 0.58	< 0.50	< 0.50 - 1.1	< 0.50 - 1.8	< 0.50	< 0.50	< 0.20 - 95
MW-30B	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**22**	**6.0**	< 0.50	< 0.50	< 0.50	**98**	< 0.50	**0.68**	<0.20
Historical High/Low								**High**	**High**							
MW-30B Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50 - 21E	< 0.50 - 5.9	< 0.50	< 0.50	< 0.50	< 0.50 - 100	< 0.50	< 0.50- 4.5	< 0.20 - 28 E
MW-31	05/21/14	ORG	< 0.50	< 0.50	< 0.50	**3.7**	< 0.50	**370**	**1.0**	**2.5**	< 0.50	**1.2**	**10**	< 0.50	< 0.50	**13**
MW-3100	05/21/14	FD	< 0.50	< 0.50	< 0.50	**3.8**	< 0.50	**390**	**0.88**	**1.2**	< 0.50	**1.2**	**10**	< 0.50	< 0.50	**13**
MW-31	05/21/14	SPT	< 0.50	< 0.50	<1.0	**2.9**	< 0.50	**410**	<1.0	<1.0	<1.0	<1.0	**11**	<10	<1.0	**10**
Historical High/Low						**High**				**High**		**High**				**High**
MW-31 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50 - 3.6	< 0.50	25 - 430	< 0.50 - 1.2	< 0.50 - 0.55	< 0.50	< 0.50	2.2 - 21	< 0.50	< 0.50 - 1.0	<0.20 - 7.0
MW-32B	05/21/14	ORG	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50	**150**	**5.6**	< 0.50	< 0.50	< 0.50	**59**	< 0.50	< 0.50	**0.47**
MW-32B Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50 - 1.4	< 0.50	16 - 160	1.9 - 5.7	< 0.50	< 0.50	< 0.50	24 - 75	< 0.50	< 0.50	0.39 - 3.4
MW-33	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**8.3**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-33 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.7 - 12	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 1.6	< 0.50	< 0.50 - 1.4	< 0.20 - < 2.0
MW-34B	05/21/14	ORG	< 0.50	< 0.50	< 0.50	**3.6**	**0.9**	**290**	< 0.50	**0.54**	< 0.50	**1.7**	**0.66**	< 0.50	< 0.50	**110**
MW-34B Historical Range* **			< 0.50 - <5.0	< 0.50 - <5.0	< 0.50 - <5.0	< 0.50 - 9.8	< 0.50 - 1.1	20 - 1,100	< 0.50 - <5.0	< 0.50 - 1.1	< 0.50 - 1.0	< 0.50 - 2.6	< 0.50 - 1.6	< 0.50 - <5.0	< 0.50 - 2.6	4.1 - 250
MW-35C	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-35C Historical Range* **			< 0.50	< 0.50	< 0.50 - 120	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - < 2.0
MW-36	05/20/14	ORG	< 0.50	< 0.50	< 0.50	**1.7**	< 0.50	**120**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	**14.0**
MW-3600	05/20/14	FD	< 0.50	< 0.50	< 0.50	**1.8**	< 0.50	**130**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	**14.0**
MW-36	05/20/14	SPT	< 0.50	< 0.50	<1.0	**1.2**	< 0.50	**130**	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	**11.0**
Historical High/Low						**High**										**High**
MW-36 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	2.9 - 140	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50 - 5.9	< 0.20 - 8.5
MW-37	05/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-37 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.66	< 0.50	<0.50 - 0.73	<0.20
MW-38	05/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-38 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.20

TABLE 3

PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
SECOND QUARTER 2014

Concentration (micrograms per liter)

Well Identifier / Sample Identifier	Date Sampled	QA Code	VOLATILE ORGANIC COMPOUNDS (FEDERAL MCL/CALIFORNIA MCL) Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toulene (1,000/150)	Semi-VOCs 1,4-DIOXANE (3*/1**)
Regional Groundwater System Monitor and Extraction Wells (cont'd)																
MW-39	05/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**1.3**	< 0.20
Historical High/Low															**High**	
MW-39 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.83	<0.20
MW-40	05/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-40 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
EW-01	05/20/14	ORG	< 0.50	< 0.50	**0.65**	**7.5**	**2.1**	**500**	< 0.50	**1.6**	< 0.50	**3.7**	**1.2**	**0.61**	< 0.50	**380**
Historical High/Low														**High**		
EW-01 Historical Range* **			< 0.50 - 2	< 0.50 - 0.55	< 0.50 - 1.2	< 0.50 - 16	< 0.50 - 4.0	< 0.50 - 1,600 E	< 0.50 - 0.52	< 0.50 - 3.3	< 0.50 - < 2.5	< 0.50 - 10	< 0.50 - 2.8	< 0.50 - 0.52	< 0.50 - 4.6	5.1 - 710
EW-02	03/04/14	ORG	< 0.50	< 0.50	< 0.50	**0.59**	< 0.50	**57**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**41**
EW-02 Historical Range* **			< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	26 - 160	< 0.50	< 0.50	< 0.50	< 0.50 - 0.59	< 0.50	< 0.50	< 0.50 - 0.85	6.4 - 48
QUALITY ASSURANCE/QUALITY CONTROL SAMPLES																
TB-030414	03/04/14	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-05202014A	05/20/14	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-05212014	05/21/14	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-05202014B	05/20/14	TB-SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	NA

NOTE: Detections are shown in **BOLD** type.

FOOTNOTES

1,1-DCA = 1,1-Dichloroethane
1,2-DCA = 1,2-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
PCE = Tetrachloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
1,1,2-TCA = 1,1,2-Trichloroethane
TCE = Trichloroethene
TCFM = Trichlorofluoromethane
(<) = Less than; the value is the Limit of Detection for that compound
* = 1,4-Dioxane Action Level of 3 ug/L
** = California Notification Level for 1,4-Dioxane of 1 ug/L
*** = Historical Range determined using original samples exclusively
Semi-VOCs = Semivolatile organic compounds
NA = Not analyzed for constituent
FD = Field duplicate sample
ORG = Original sample
SPT = Split sample
TB = Trip blank sample
ug/l = Micrograms per liter
MCL = Maximum Contaminant Level
QA = Quality Assurance
E = Data qualified as Estimated in accordance with quality control criteria.

TABLE 4

PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATIONAL SUMMARY

OPERATIONAL PERIOD (MONTH/QUARTER/YEAR)	WELLFIELD PRODUCTION[a] (gallons)	AVERAGE DISCHARGE RATE[b] (gpm)	AVERAGE OPERATIONAL DISCHARGE RATE[c] (gpm)	OPERATIONAL HOURS DURING OPERATIONAL PERIOD	HOURS IN OPERATIONAL PERIOD	% OPERATIONAL
2008[d]	3,659,562	13.8	18.2	3,358	4,416	76%
2009	5,787,848	11.0	18.1	5,319	8,760	61%
2010	14,295,261	27.2	46.4	5,131	8,760	59%
2011	20,456,899	38.9	45.8	7,442	8,760	85%
2012[e]	19,378,122	40.2	47.2	6,850	8,040	85%
2013[f]	21,148,029	40.2	45.7	7,713	8,760	88%
Dec-13	1,948,113	43.6	46.7	695	744	93%
Jan-14	2,021,062	45.3	46.5	725	744	97%
Feb-14	1,622,421	40.2	46.0	588	672	88%
1Q2014	5,591,595	43.1	46.4	2,007	2,160	93%
Mar-14	395,641	8.9	46.1	143	744	19%
Apr-14	0	0.0	0.0	0	720	0%
May-14	0	0.0	0.0	0	744	0%
2Q2014	395,641	3.0	46.1	143	2,208	6%
SINCE INCEPTION	90,712,957	29.2	39.8	37,963	51,864	73%

Notes:

(a) Based on Effluent totalizer readings from CEFF, which also includes relatively small amounts of monitor well purge water from quarterly sampling events, well installations, and aquifer testing.

(b) Total volume of water treated during the operational period divided by the total number of minutes in that operational period.

(c) Total volume of water treated during the operational period divided by the minutes of operation in that operational period.

(d) Operational period beginning 7/1/2008 (first month of system operation).

(e) 2012 Calendar year is from 1/1/2012 through 11/30/2012.

(f) 2013 Calendar year is from 12/1/2012 through 11/30/2013.

gpm = gallons per minute

Refer to previous quarterly reports for detail of 2008 thru 2012 operational summary

Treatment of groundwater from EW-02 initiated in 2010

CEFF = Carbon effluent

HARGIS + ASSOCIATES, INC.

TABLE 5

PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLING SCHEDULE

COMPOUND(S) / CONSITITUENT	ANALYTICAL METHOD	SAMPLE CONTAINER	REPORTING DETECTION LIMITS (milligrams per liter)	SAMPLE FREQUENCY AND LOCATION: Daily Samples[1]: Days 1-5 — System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Weekly Samples[1]: Weeks 1-4 — System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Monthly Samples: Week 5+ — Extraction Wells (Well ID)[2]	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Quarterly Samples: Week 1+ — Extraction Wells (Well ID)[2]	System Influent (INF)	Post-Oxidation (POX)	Post-Carbon (CEFF)
COMPOUNDS/CONSTITUENTS NORMALLY REQUIRED AS PART OF NPDES OR WDR PERMITS, PURSUANT TO CRWQCB REGION 8 ORDER NO. R8-2003-0085																								
Volatile Organic Compounds	EPA 8260B	3 - 40 mL VOA, HCl	QAPP[4]	X		X	X	X	X		X	X	X		X	X		X	X	X				
1,4-Dioxane	EPA 8270 Modified	1 L Amber	0.002	X					X						X	X								
1,4-Dioxane	EPA 8270 SIM	1L Amber	0.0002			X					X							X						
Total Suspended Solids	SM2540D	250 mL poly	10														X						
Total Dissolved Solids	SM2540C	250 mL poly	10																		X	X	X	X
SELECTED METALS																								
Dissolved Metals (Iron, Manganese, Calcium, Sodium, Magnesium)	EPA 6010B	500 mL poly	QAPP[4]	(a)																	X	X		
Selenium	EPA 6010B	500 mL poly, HNO_3	QAPP[4]																		X	X		
SELECTED INORGANIC CONSTITUENTS																								
Hydroxide Alkalinity	SM2320B	250 mL poly	2.0	(a)													X	X			X	X		
Bicarbonate Alkalinity	SM2320B	250 mL poly	2.0	(a)													X	X			X	X		
Carbonate Alkalinity	SM2320B	250 mL poly	2.0	(a)													X	X			X	X		
Total Alkalinity	SM2320B	250 mL poly	2.0	(a)													X	X			X	X		
BROMATE EVALUATION																								
Bromate	EPA 317.0	125 mL poly	0.0005			X					X							X						
Bromide	EPA 300.0	125 mL poly	0.05	(a)					(a)						X	X								
OTHER CONSTITUENTS/COMPOUNDS																								
Total Organic Carbon	SM5310B	3 - 40 mL VOA, HCl	3.0	(a)													X	X			X	X	X	
Anions (Chloride, Sulfate, Nitrate, Nitrite, and Phosphate)	EPA 300.0	500 mL poly	Varies	(a)																	X	X	X	
Chemical Oxygen Demand	EPA 410.4	125 mL poly, H_2SO_4	5.0	(a)																	X	X	X	
UV Absorption (UVA) @254nm	EPA 415.3	250mL glass	N/A		(a)												X				X	X	X	
Field Parameters																								
Dissolve Oxygen (DO)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				
Electrical Conductance (EC)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				
Redox Potential	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				
Temperature	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				
pH	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				
Turbidity	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				
Flow-Meter	N/A	N/A	N/A	X				X	X				X		X	X				X				
Residual Hydrogen Peroxide	N/A	N/A	N/A			(a)	(a)	(a)			X	X	X					X	X	X				

FOOTNOTES

(a) Only one sample to be collected during sampling period.

1 Daily and weekly samples collected during the first month of operation will be repeated after major modifications to system equipment or operating parameters, as detailed in the Workplan.

2 If more than one extraction well is in operation, combined influent samples will be collected in addition to extraction wellhead samples, with the same sampling schedule as the extraction wellheads.

3 series.

4 QAPP, Quality Assurance Project Plan, Appendix B of Additional Groundwater Assessment Workplan, Hargis + Associates, Inc., April 25, 2003.

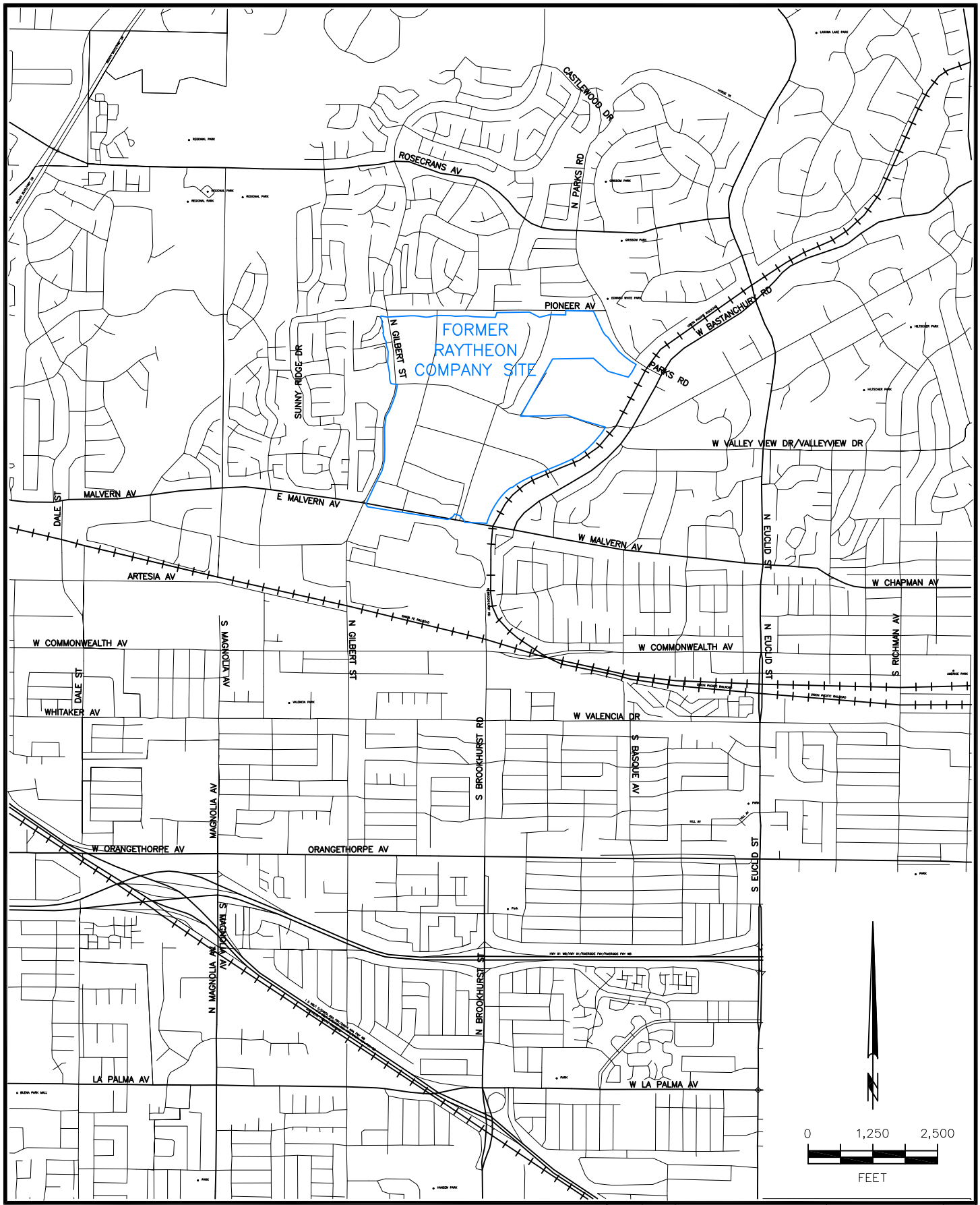
CRWQCB = California Regional Water Quality Control Board, Santa Ana Region 8
NPDES = National Pollutant Discharge Elimination System
WDR = Waste Discharge Requirement
N/A = Not applicable
mL = Milliliter
VOA = Volatile organic analysis
HCl = Hydrochloric acid
HNO_3 = Nitric acid
H_2SO_4 = Sulfuric acid
EPA = U.S. Environmental Protection Agency
SIM = Selected ion monitoring
SM = Standard Method
L = Liter
poly = High density polyethylene bottle
glass = Amber glass bottle

TABLE 6

SELECT COMPOUNDS MONITORED IN
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLES
SECOND QUARTER 2014

Compound	Date	Units	MW-21	EW-01	EW-02	INF*	PF	POX	CBT	CEFF
1,1,2-Trichloroethane	03/04/14	ug/L	--	--	<0.50	--	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	05/20/14	ug/L	--	3.7	--	--	--	--	--	--
1,1-Dichloroethane	03/04/14	ug/L	--	--	0.59	--	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	05/20/14	ug/L	--	7.5	--	--	--	--	--	--
1,1-Dichloroethene	03/04/14	ug/L	--	--	57	--	--	<0.50	<0.50	<0.50
(6 ug/L MCL)	05/20/14	ug/L	--	500	--	--	--	--	--	--
1,2-Dichloroethane	03/04/14	ug/L	--	--	<0.50	--	--	<0.50	<0.50	<0.50
(0.5 ug/L MCL)	05/20/14	ug/L	--	2.1	--	--	--	--	--	--
cis-1,2-Dichloroethene	03/04/14	ug/L	--	--	<0.50	--	--	<0.50	<0.50	<0.50
(6 ug/L MCL)	05/20/14	ug/L	--	<0.50	--	--	--	--	--	--
Tetrachloroethene	03/04/14	ug/L	--	--	<0.50	--	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	05/20/14	ug/L	--	1.6	--	--	--	--	--	--
Trichloroethene	03/04/14	ug/L	--	--	<0.50	--	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	05/20/14	ug/L	--	1.2	--	--	--	--	--	--
1,4-Dioxane	03/04/14	ug/L	--	--	41	--	--	0.68	--	--
(1 ug/L California Notification Level)	05/20/14	ug/L	--	380	--	--	--	--	--	--
Bromide	03/04/14	ug/L	--	--	210	--	--	180	--	190
Bromate (10 ug/L MCL)	03/04/14	ug/L	--	--	0.6	--	--	5	--	5.1
Total Non-Filterable Residue	03/04/14	mg/L	--	--	<3.8	--	<3.7	--	--	--
Total Filterable Residue (500 mg/L MCL)	03/04/14	mg/L	--	--	600	--	--	590	--	600

FOOTNOTES
MCL = Maximum Contaminant Level or Drinking Water Action Level, if applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
(--) = Not scheduled for performance monitoring
(<) = Less than; the numerical value is the Limit of Detection for that compound
INF* = Influent (same as EW-02, when active)
PF = Post Particulate Filter
POX = Post Hipox Oxidation
CBT = Carbon Breakthrough
CEFF = Carbon Effluent



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HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

5/11	RPT NO. 532.31	410-8281	A

FIGURE 1. SITE LOCATION

EXPLANATION

- MW-09 — GROUNDWATER MONITOR WELL
- MW-25 — GROUNDWATER PIEZOMETER
- P-09 — PERCHED ZONE PIEZOMETER
- EW-01 — GROUNDWATER EXTRACTION WELL
- MW-10 — FORMER GROUNDWATER MONITOR WELL (ABANDONED)
- P-04 — FORMER PERCHED ZONE PIEZOMETER (ABANDONED)
- DPE-05 — FORMER PERCHED ZONE DUAL-PHASE EXTRACTION WELL (ABANDONED)
- EB-01 — FORMER GROUNDWATER ASSESSMENT SOIL BORING (ABANDONED)
- PGETS — PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM FACILITY COMPOUND
- 609 — FORMER RAYTHEON BUILDING, DEMOLISHED MID-2000
- CURRENT RESIDENTIAL AND COMMERCIAL BUILDINGS
- DRIVEWAYS, PARKING LOTS AND OTHER HARDSCAPE OF SITE RE-DEVELOPMENT
- SITE BOUNDARY

MW-37 MW-38 MW-34 MW-39 MW-36 MW-33 MW-32 MW-35 MW-31 MW-40

MW-01 MW-02 MW-03 MW-04 MW-05 MW-06 MW-07 MW-08 MW-09 MW-10 MW-11 MW-12 MW-13 MW-14 MW-15 MW-16 MW-17 MW-18 MW-19 MW-20 MW-21 MW-22 MW-23 MW-24 MW-25/EB-03 MW-26/EB-04 MW-27 MW-28 MW-29 MW-30 EW-01 EW-02 P-01 P-02 P-03 P-04 P-06 P-07 DPE-01 DPE-02 DPE-03 DPE-04 DPE-05 DPE-06 EB-01 EB-02

SEE DETAIL BELOW

COOLING TOWER

601 609

STREETS: ROCKLEDGE WAY, MEADOWBROOK WAY, EMERYWOOD DRIVE, KENWOOD AVENUE, MONTICELLO AVENUE, LINKS ROAD, VESTAVIA AVE, FOXBOROUGH PL, BRIGHTON PL, ASHTON PL, ROXBURY DR, BAYBERRY WAY, WILLIAMSBURG RD, SHERIDAN RD, NEWCASTLE LN, NORTHAMPTON WAY, BURNING TREE RD, N. SEVILLE PL, FRANKLIN HILLS DR, MONTEREY PL, CYPRESS POINT DR, RAMADA PLAZA, SUNNY RIDGE DR, CARMEL CIR, N. CANDLEWOOD DR, S. CANDLEWOOD DR, SUNNY RIDGE DR, CREEKSIDE DR, WINDSONG WAY, SANDBAR DR, W. MILLSTREAM DR, BRIDGE WAY, MILLSTREAM DR, HUGHES DRIVE, NORTH GILBERT STREET, STANBURY STREET, STERN-GOODMAN STREET, MALVERN AVENUE, BREA CREEK, MOORE AVENUE, BURNING TREE ROAD, AIRPARK DRIVE, GILBERT STREET, RAYMER AVENUE, LAKEKNOLL DRIVE, OAK STREET, A. T. & S. F. ARTESIA, RAILROAD BLVD, PRITCHARD AVENUE, FULLERTON MUNICIPAL AIRPORT

CITY OF FULLERTON WELL NO. 9

OCWD AIRPORT TEST WELL 3S/11W-36A6

0 250 500 FEET

DETAIL AREA

DPE-06 EB-01 PGETS MW-16 MW-24 MW-25/EB-03 MW-21 EW-01

0 50 100 FEET

Sep 09, 2013 - 9:57am ADE - T:\2013\500-599\532 Raytheon\Hydrogeology\H+A BaseMaps\410-9054.dwg

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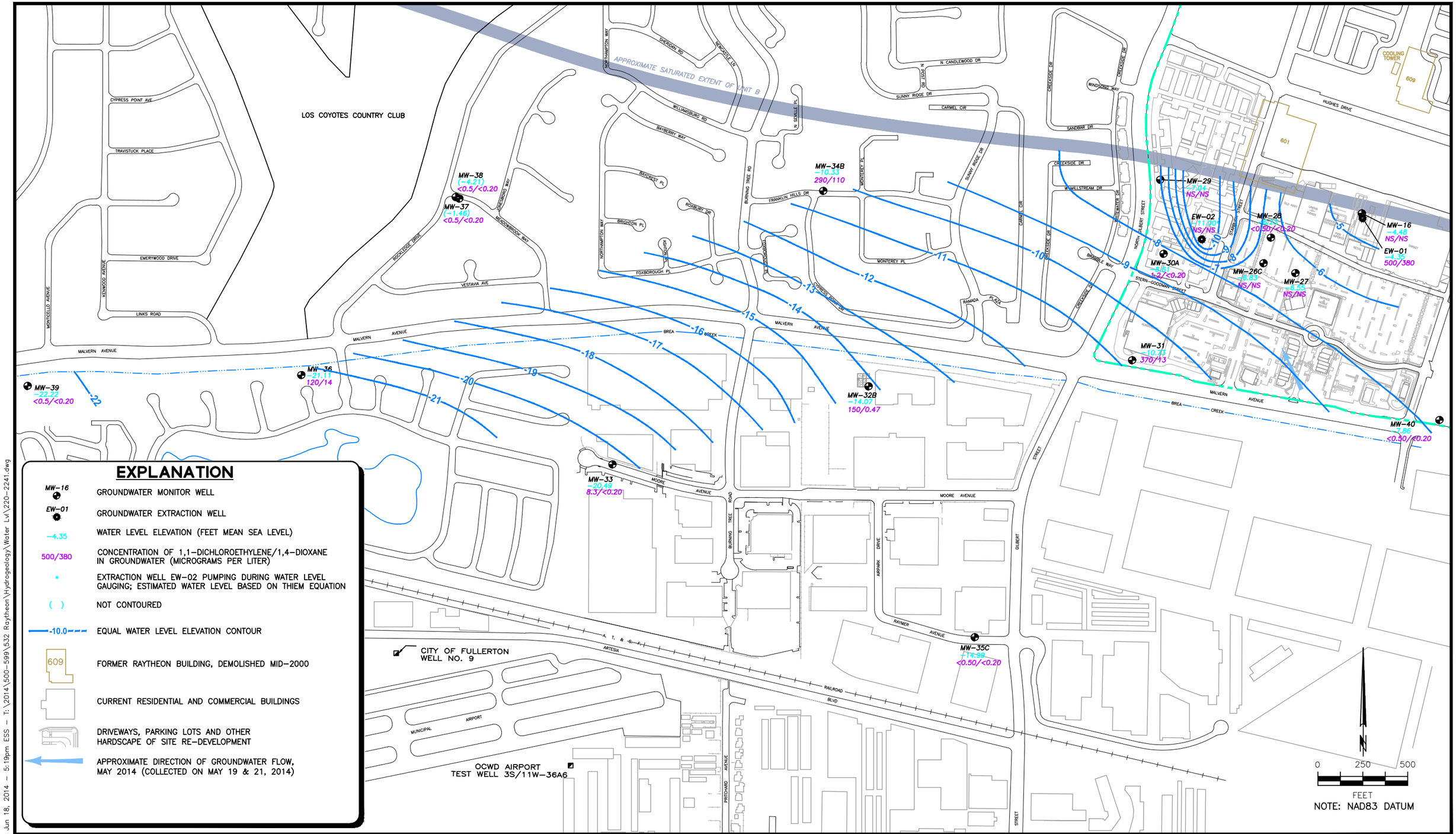
08/13 | RPT NO. 532.31 | 410-9054 | A

FIGURE 2.
WELL AND PIEZOMETER LOCATIONS



EXPLANATION

MW-16	GROUNDWATER MONITOR WELL
EW-01	GROUNDWATER EXTRACTION WELL
-4.35	WATER LEVEL ELEVATION (FEET MEAN SEA LEVEL)
500/380	CONCENTRATION OF 1,1-DICHLOROETHYLENE/1,4-DIOXANE IN GROUNDWATER (MICROGRAMS PER LITER)
*	EXTRACTION WELL EW-02 PUMPING DURING WATER LEVEL GAUGING; ESTIMATED WATER LEVEL BASED ON THIEM EQUATION
( )	NOT CONTOURED
-10.0	EQUAL WATER LEVEL ELEVATION CONTOUR
609	FORMER RAYTHEON BUILDING, DEMOLISHED MID-2000
	CURRENT RESIDENTIAL AND COMMERCIAL BUILDINGS
	DRIVEWAYS, PARKING LOTS AND OTHER HARDSCAPE OF SITE RE-DEVELOPMENT
	APPROXIMATE DIRECTION OF GROUNDWATER FLOW, MAY 2014 (COLLECTED ON MAY 19 & 21, 2014)

Jun 18, 2014 - 5:19pm ESS - T:\2014\500-599\532 Raytheon\Hydrogeology\Water Lvl\220-2241.dwg

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06/14 | RPT NO. 532.31 | 220-2241 | A

FIGURE 3.
WATER LEVEL AND WATER QUALITY UNIT B
MAY 2014

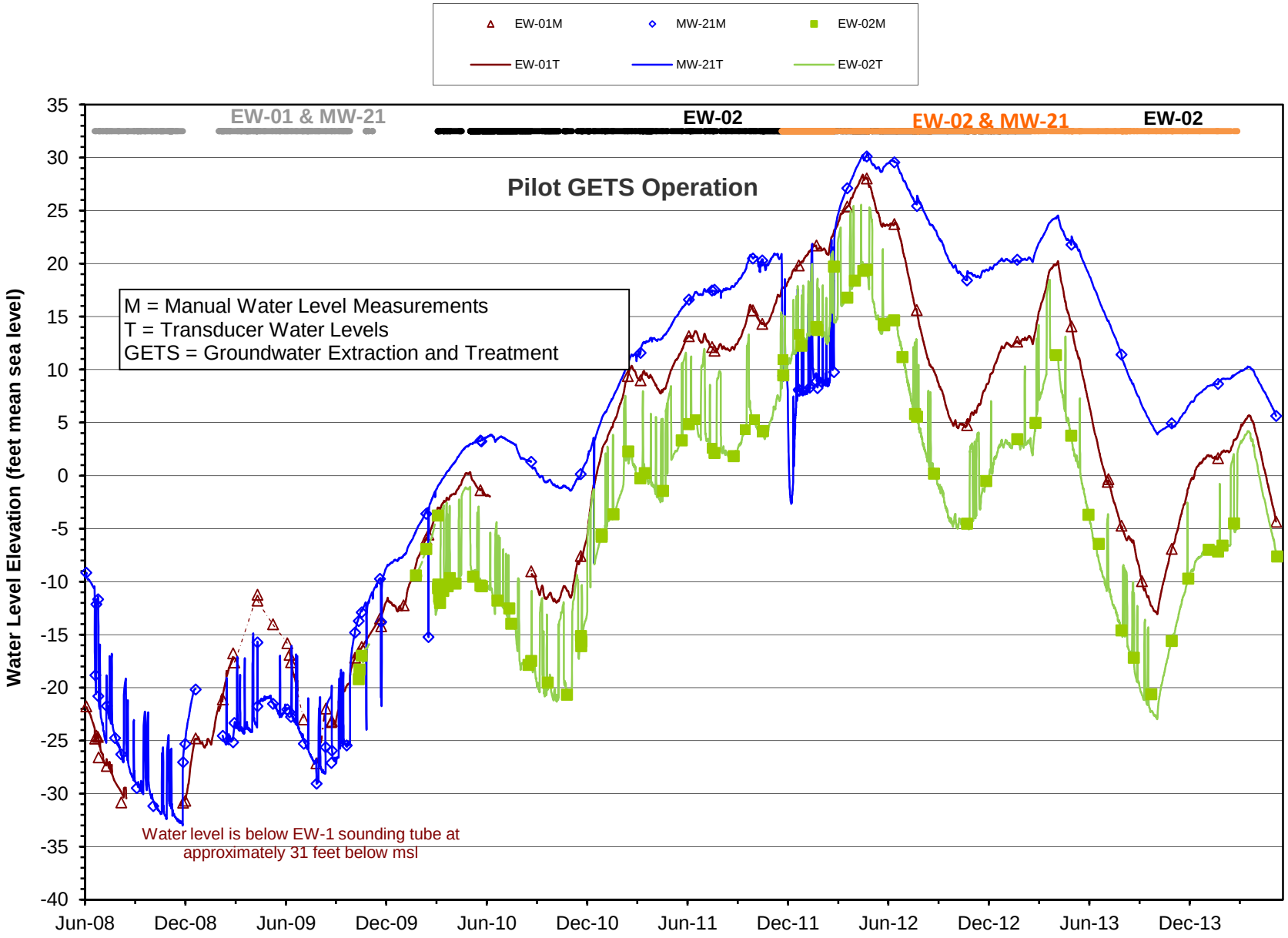


FIGURE 4.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATION AND EXTRACTION WELL WATER LEVELS

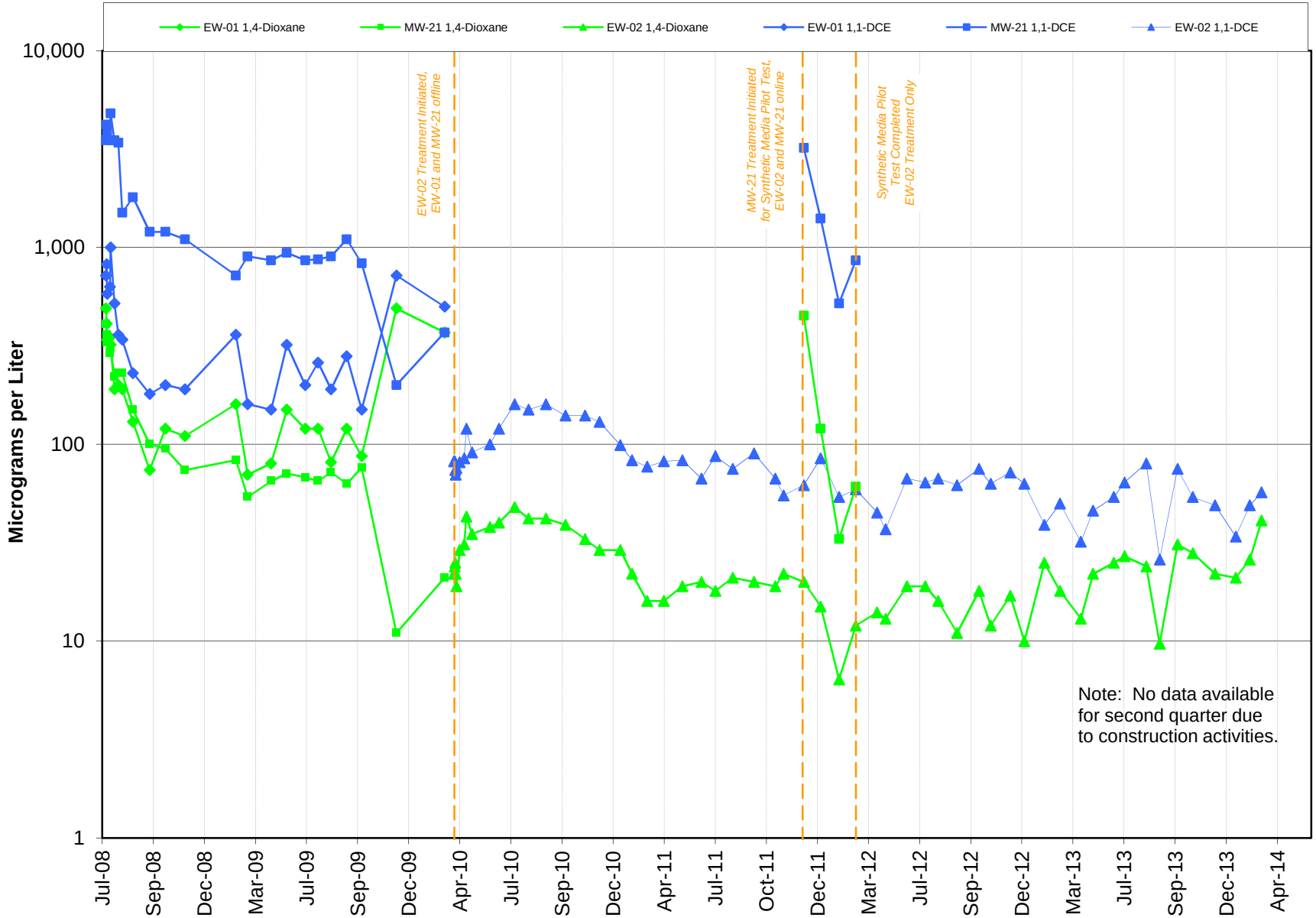
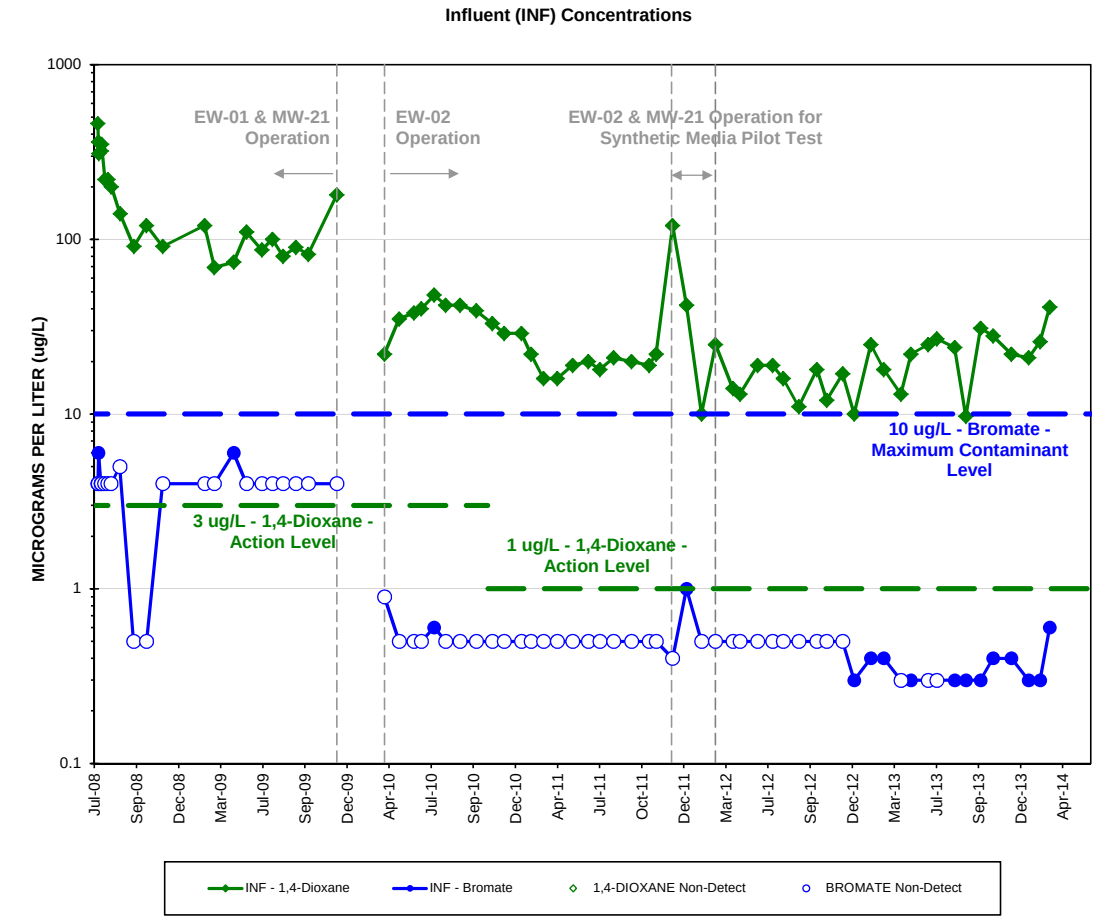


FIGURE 5.
1,1-DICHLOROETHYLENE AND 1,4-DIOXANE CONCENTRATIONS IN EXTRACTION WELLS

1,1-DCE = 1,1-Dichloroethylene



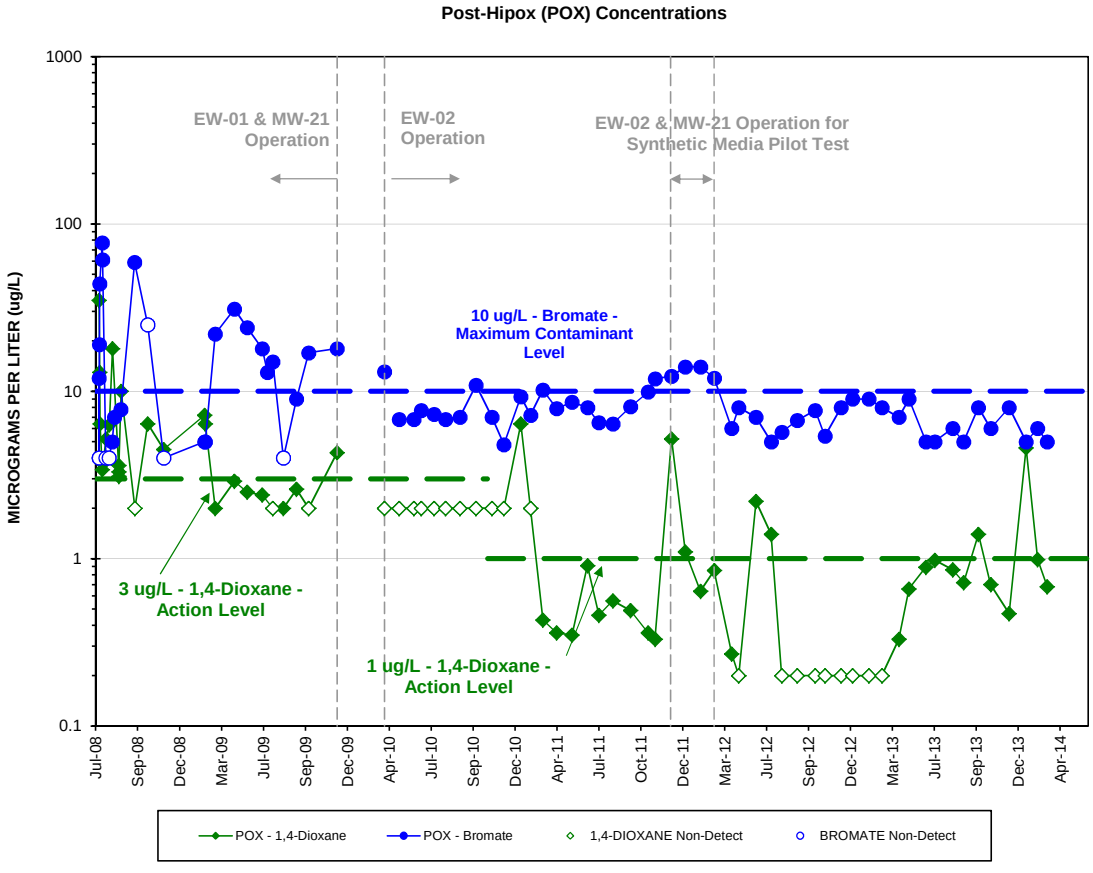


FIGURE 6.
1,4-DIOXANE AND BROMATE IN INFLUENT AND POST-OXIDATION SAMPLES

NOTE: No data available for second quarter due to construction activities.

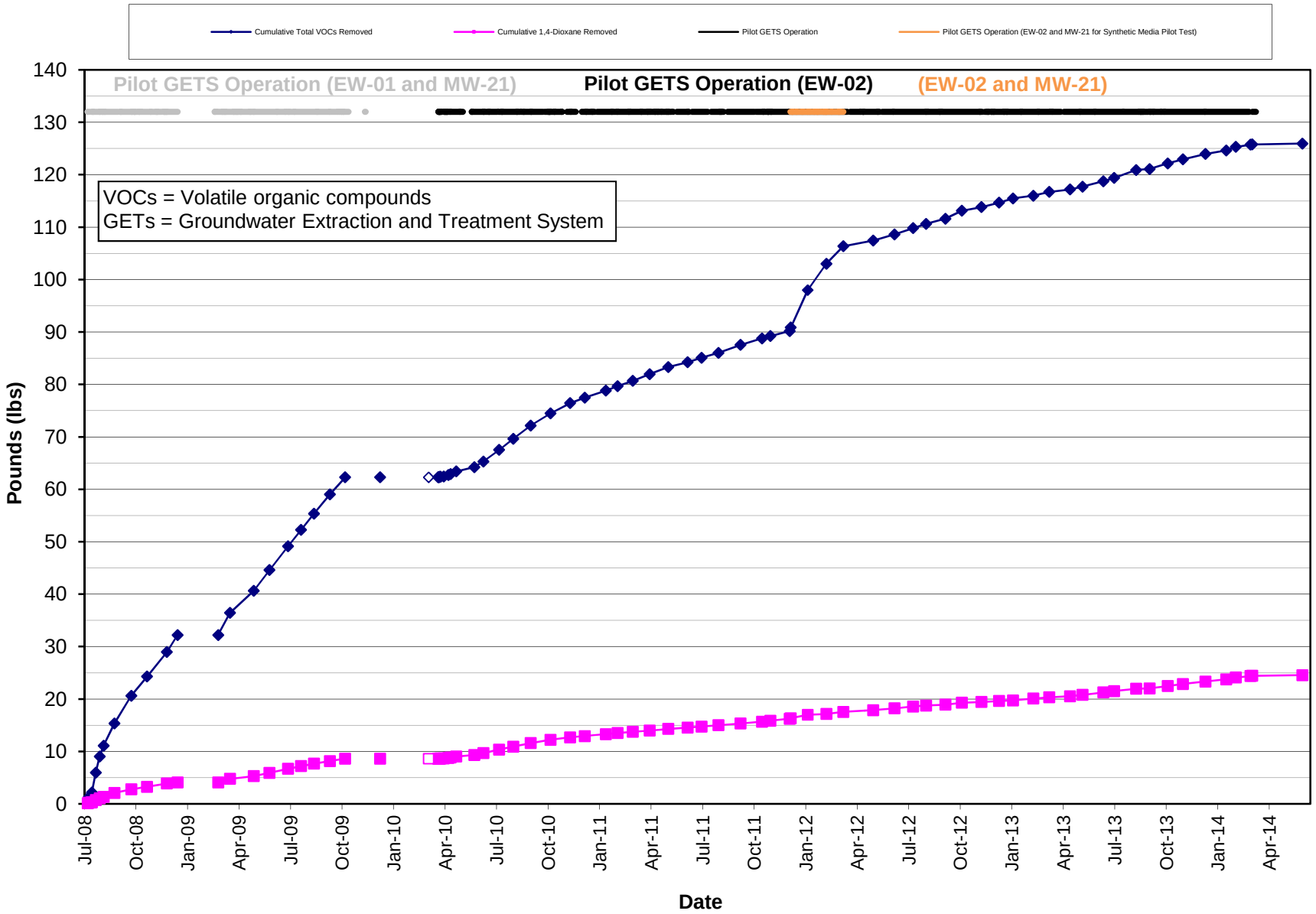


FIGURE 7.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM MASS REMOVAL

APPENDIX A

GROUNDWATER SAMPLING FIELD FORMS

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: / / 05/20/14 **TASK:** 532.30 **WELL ID:** EW-01

Time 1306 Static DTW (ft below reference point)	145.80	Casing Volume (CV) (gallons) 30	3 CV (gallons) 90	Weather Conditions	Initials: CLK / SCS
Casing Total Depth (ft below reference point)	195	Purging Device PED Pump	Sampling Device Disp Sample Pump	Time 1300 Temp. 75°F	Begin Purge 1347 End Purge 1401
Water Column (feet)	49	Pump: Depth (ft brp) ~14 Type	Voltage HP	Skies clear	Gallons Purged 140 CVs Purged 4.7
Casing Capacity (Diameter 4 ") (gallons per foot)	0.66	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 0-5 From SW	DTW (ft brp) 145.85 Time 1407

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
1347	~~1347~~ ~~145.82~~	~0 ~~276406~~	0			Pump ON — Readings Started					
1349	146.20	~15 ~~276421~~	0.5	24.48	7.76	1.305	187.4	9.66	NM		Q=10.0
1351	146.30	~30 ~~276436~~	1.0	23.60	7.54	1.267	144.3	7.05	0.00	N/A	
1352	146.18	~45 ~~276451~~	1.5	22.65	7.52	1.268	176.4	8.11	0.00	N/A	
1354	146.31	~60 ~~276466~~	2.0	~~2K~~ 2235	7.54	1.262	141.2	6.69	0.00	N/A	
1355	146.24	~75 ~~276481~~	2.5	22.48	7.50	1.269	152.2	6.97	0.00	N/A	
1357	146.38	~90 ~~276496~~	3.0	22.57	7.48	1.277	170.6	6.90	0.00	N/A	
1401				PUMP OFF							

SAMPLE COLLECTION SAMPLE TIME 1400

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA w/ HCl
~~8270 SIM 1,4 dioxane~~		~~1 L Amber~~
8270 MOD 1,4 dioxane	1	1 L Amber

DUPLICATES / SPLITS / BLANKS? Y (N)
If yes, complete appropriate forms.

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

EW-01 @ 1400

Start: ~~276406~~ gallons

Disregard → END: 276496 gallons

90 gallons

- Flow Totalizer in well not working.
- Flow measured at 10gpm

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 05/20/2014 **TASK:** 532.30 **WELL ID:** ~~5~~ MW-08

Time 1549 Static DTW (ft below reference point)	141.86	Casing Volume (CV) (gallons) 4	3 CV (gallons) 12	Weather Conditions	Initials: SLK / SCS
Casing Total Depth (ft below reference point)	163.79	Purging Device Redi flo	Sampling Device Dedi tub	Time 1544 Temp. 70°F	Begin Purge 1607 End Purge 1620
Water Column (feet)	21.93	Pump: Depth (ft brp) 160 Type Grundfos Voltage 115 HP 0.5		Skies Cloudy	Gallons Purged 13 CVs Purged 3.25
Casing Capacity (Diameter 2") (gallons per foot)	0.17	Monitor Well Recharge Rate: Slow ____ Fast X		Wind (mph) 0-5 From West	DTW (ft brp) ~~146~~ SLK 146.92 @ 1630 Time

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
1607	—	0	0	—		Pump Started					→
1608	NM	2	0.5	21.94	7.66	0.986	157.1	0.80	38.3	287	Q = 1.5 gpm
1610	NM	4	1.0	22.33	7.62	0.976	121.1	0.61	31.2	287	Q = 1.5 gpm
1612	NM	6	1.5	23.11	7.62	1.301	125.5	1.10	20.0	287	Q = 1.0 gpm
1614	NM	8	2.0	23.43	7.57	1.317	106.3	0.85	14.3	287	Q = 1.0 gpm
1616	NM	10	2.5	23.56	7.60	1.325	114.4	1.15	16.0	287	Q ≈ 1.0 gpm
1618	NM	12	3.0	23.76	7.62	1.351	111.4	1.07	10.3	287	Q ≈ 1.0 gpm
1620	NM	13	3.25	—		Pump OFF / Samples Taken					Q ≈ 0.5 gpm

SAMPLE COLLECTION SAMPLE TIME 1620

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
~~8270 MOD 1,4 dioxane~~		~~1 L Amber~~

DUPLICATES / SPLITS / BLANKS? Y (N)
If yes, complete appropriate forms.

AIR MONITORING PID/FID ppm: VAULT NA / BKGD NA / BREATHING ZONE NA / DISCHARGE WATER NA /

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

DED TUBing in Well

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 05/20/14 **TASK:** 532.30 **WELL ID:** MW-21

Time N/A Static DTW (ft below reference point)	N/A	Casing Volume (CV) (gallons) ___ 3 CV (gallons) ___	Weather Conditions	Initials: SCK/SCS
Casing Total Depth (ft below reference point)	195	Purging Device ___ Sampling Device ___	Time ___ Temp. ___	Begin Purge ___ End Purge ___
Water Column (feet)	N/A	Pump: Depth (ft brp) Pump Non-Operational Type ___ Voltage ___ HP ___	Skies ___	Gallons Purged ___ CVs Purged ___
Casing Capacity (Diameter ") (gallons per foot)	N/A	Monitor Well Recharge Rate: Slow ___ Fast ___	Wind (mph) ___ From ___	DTW (ft brp) ___ Time ___

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS

Unable to Sample MW-21 was non-operational

SAMPLE COLLECTION SAMPLE TIME ___

ANALYSIS	QUANTITY	TYPE
8260B VOCs		40 ml VOA
8270 SIM 1,4 dioxane		1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? Y N
If yes, complete appropriate forms.

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 5/21/2014 TASK: _____ WELL ID: MW-26C

Time _____ Static DTW (ft below reference point)	Casing Volume (CV) (gallons) _____ 3 CV (gallons) _____	Weather Conditions	Initials: EJH/ASF
Casing Total Depth (ft below reference point)	Purging Device _____ Sampling Device _____	Time _____ Temp. _____	Begin Purge _____ End Purge _____
Water Column (feet)	Pump: Depth (ft brp) _____ Type _____ Voltage _____ HP _____	Skies _____	Gallons Purged _____ CVs Purged _____
Casing Capacity (Diameter ") (gallons per foot)	Monitor Well Recharge Rate: Slow _____ Fast _____	Wind (mph) _____ From _____	DTW (ft brp) _____ Time _____

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
			Unable to sample MW-26C								
		Well was inaccessible during sampling round									

SAMPLE COLLECTION SAMPLE TIME _____

ANALYSIS	QUANTITY	TYPE
8260B VOCs	_____	40 ml VOA
8270 SIM 1,4 dioxane	_____	1 L Amber
8270 MOD 1,4 dioxane	_____	1 L Amber
_____	_____	_____
_____	_____	_____

DUPLICATES / SPLITS / BLANKS? Y N
If yes, complete appropriate forms.

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: / / 05/20/2014 **TASK:** 532.30 **WELL ID:** MW-28

Time 1127 Static DTW (ft below reference point)	147.45	Screen SV Casing ~~Volume (CV)~~ (gallons) 27	3 SV ~~CV~~ (gallons) 81	Weather Conditions	Initials: SLK/SCS
Casing Total Depth (ft below reference point)	375	Purging Device DED Pump	Sampling Device DED Pipe Stinger	Time 1125 Temp. 70°F	Begin Purge 1129 End Purge 1144
Pump to Screen ~~Water Column~~ (feet)	45	Pump: Depth (ft brp) 330 Type Grundfos Voltage 240 HP		Skies Cloudy	Gallons Purged 98 CVs Purged 3.6
Casing Capacity (Diameter 4") (gallons per foot)	0.66	Monitor Well Recharge Rate: Slow Fast X		Wind (mph) 0-5 From West	DTW (ft brp) 147.48 Time 1151

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
~~1130~~ 1129					Pump	Start					
1131	153.30	14	0.5	22.07	7.53	1.122	196.1	5.35	5.79	N/A	Q = 7.0 gpm
1133	153.51	28	1.0	21.63	7.54	0.907	166.7	3.21	0.00	N/A	
1135	153.55	42	1.5	21.71	7.50	1.063	170.4	3.96	0.00	N/A	
1137	153.58	56	2.0	21.83	7.48	1.066	171.6	4.05	0.00	N/A	
1139	153.63	70	2.5	21.83	7.48	1.044	172.1	4.11	0.00	N/A	
1141	153.65	84	3.0	21.87	7.47	1.035	171.8	4.22	0.00	N/A	
1144				Pump OFF							

SAMPLE COLLECTION SAMPLE TIME 1142

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA w/ HCl
8270 SIM 1,4 dioxane	〃	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

AIR MONITORING PID/FID ppm: VAULT NA / BKGD NA / BREATHING ZONE NA / DISCHARGE WATER NA /

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

MW-28 @ 1142

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 1 / 05/20/2014 **TASK:** 532.30 **WELL ID:** MW-30A

Time 1049 Static DTW (ft below reference point)	138.33	Screen ~~Casing~~ Volume (~~CV~~) (gallons) 17.6	3 CV (gallons) 52.8	Weather Conditions
Casing Total Depth (ft below reference point) Screen ~~bottom~~ to Pump ~~Water Column~~ (feet)	564	Purging Device DED Pump	Sampling Device 0-10 DED Pipe Stand	Time 1045 Temp. 70°F
	44	Pump: Depth (ft brp) 520 Type Grundfos Voltage 240 HP		Skies Cloudy
Casing Capacity (Diameter 3 ") (gallons per foot)	0.40	Monitor Well Recharge Rate: Slow Fast X		Wind (mph) 0-5 From West

Initials: SCK / SCS

Begin Purge 1054 End Purge 1108

Gallons Purged 70.7 CVs Purged 4.0

DTW (ft brp) 138.40 Time 1110

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
1054				Pump Start							
1056	130.26	9	0.5	21.17	8.52	0.771	65.0	0.19	1.84	N/A	Q ≅ 4.5 gpm
1058	140.06	18	1.0	21.18	7.85	0.760	31.5	0.19	0.53 ~~0.00~~ SLVC	N/A	
1100	140.05	27	1.5	21.35	7.73	0.763	43.5	0.26	0.69	N/A	
1102	140.08	36	2.0	21.47	7.68	0.763	57.8	0.30	0.00	N/A	
1104	140.09	45	2.5	21.50	7.68	0.762	61.5	0.32	0.00	N/A	
1106	140.10	54	3.0	21.56	7.67	0.760	65.6	0.34	0.00	N/A	
1108				Pump OFF							

SAMPLE COLLECTION SAMPLE TIME 1107

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA w/ HCl
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

AIR MONITORING PID/FID ppm: VAULT NA / BKGD NA / BREATHING ZONE NA / DISCHARGE WATER NA /

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

MW-30A @ 1107

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 1 / 05/20/2014 **TASK:** 532.30 **WELL ID:** MW-30B

Time 1442 Static DTW (ft below reference point)	136.25	Screen SV Casing Volume (CV) (gallons) 40	3 CV (gallons) 120
Casing Total Depth (ft below reference point) TOP of Screen to Pump ~~Water Column~~ (feet)	619	Purging Device DED. Pump	Sampling Device 10-100 DED Pump Stand
	99	Pump: Depth (ft brp) 520	Type Grundfos Voltage 240 HP
Casing Capacity (Diameter 3 ") (gallons per foot)	0.40	Monitor Well Recharge Rate: Slow ____	Fast X

Weather Conditions: Time 1450 Temp. 70°F; Skies Cloudy; Wind (mph) 0-5 From West

Initials: SCK / SCS; Begin Purge 1448 End Purge 1517; Gallons Purged 130 CVs Purged 3.25; DTW (ft brp) 142.78 Time 1521

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
1448	136.25	Ø				Pump Start					
1452	152.25	20	0.5	21.22	8.77	1.098	-28.0	0.87	0.00	N/A	Q ≈ 5.0 gpm
1456	153.89	40	1.0	21.50	7.50	1.610	52.6	1.82	0.00	N/A	
1500	154.96	60	1.5	21.57	7.42	1.469	102.9	3.25	0.00	N/A	
1505	155.65	80	2.0	21.60	7.46	1.340	105.5	3.02	0.00	N/A	
1510	156.27	100	2.5	21.64	7.45	1.327	109.0	2.96	0.00	N/A	
1515	156.68	120	3.0	21.64	7.44	1.326	111.0	2.96	0.00	N/A	
1517	—	130				Pump OFF					

SAMPLE COLLECTION SAMPLE TIME 1516

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA w/ HCl
8270 SIM 1,4 dioxane	1	1 L Amber
~~8270 MOD 1,4 dioxane~~		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

~~AIR MONITORING PID/FID ppm: VAULT NA~~ ~~BKGD NA~~ ~~BREATHING ZONE NA~~ DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

MW-30B @ 1516

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: / / 5/21/14 **TASK:** 532.30 **WELL ID:** MW-31

Time 0822 Static DTW (ft below reference point)	130.90	Screen ~~Casing~~ Volume (CV) (gallons) 81 3 CV (gallons) 243	Weather Conditions	Initials: SLK
Casing Total Depth (ft below reference point)	996	Purging Device DED PUMP Sampling Device DED PIPE STAND	Time 0820 Temp. 70°F	Begin Purge 0831 End Purge 0900
Screen to Pump ~~Water Column (feet)~~	541	Pump: Depth (ft brp) 992 Type Grundfos Voltage 240 HP	Skies Clear	Gallons Purged 295 CVs Purged 3.6
Casing Capacity (Diameter 6 ") (gallons per foot)	1.5	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-2 From WSW	DTW (ft brp) 131.25 Time 0902

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
0831					Pump	Start					
0837	132.95	78	0.96	21.21	9.02	1.286	134.6	1.62	57.1	N/A	Q≅ 13.0 gpm
0840	132.90	117	1.4	21.30	7.85	1.127	165.2	1.64	69.0	N/A	Q≅ 8.0 gpm
0842	132.92	141	1.7	21.35	7.84	1.032	146.0	1.35	44.0	N/A	Q≅ 12.0 gpm
~~0847~~ ~~0845~~	132.92	160	2.0	21.41	7.88	0.962	99.6	1.13	20.0	N/A	~~Q≅ 12.0 gpm~~ SLK Q≅ 10.0 gpm
0851	132.92	200	2.5	21.41	7.92	0.944	95.2	1.16	5.27	N/A	
0856	132.92	243	3.0	21.42	7.79	0.928	100.3	1.22	8.70	N/A	
0900				Pump		OFF					

SAMPLE COLLECTION SAMPLE TIME 0857

ANALYSIS	QUANTITY	TYPE
8260B VOCs	9	40 ml VOA
8270 SIM 1,4 dioxane	3	1 L Amber
~~8270 MOD 1,4 dioxane~~		~~1 L Amber~~

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. (Y) N

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

ORG/SPT · MW-31 @ 0857

DUP: MW-3100 @ 0957

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 5/21/2014 TASK: 532.30 WELL ID: ~~MW-32C~~ MW-32B

Time 1155 Static DTW (ft below reference point) 107.70
Casing Total Depth (ft below reference point) 999
screen Water Column (feet) 439
Casing Capacity (Diameter 4") (gallons per foot) 0.66
~~Casing~~ screen Volume (SV) (gallons) 2635 3 SV (gallons) 790.2
Purging Device ded. pump Sampling Device ded. ~100 sample pump
Pump: Depth (ft brp) 500 Type grundfos Voltage 240 HP
Monitor Well Recharge Rate: Slow ____ Fast X

Weather Conditions
Time 1204 Temp. 68
Skies overcast
Wind (mph) 2-5 From NW

Initials: EJH/ASF
Begin Purge 1202 End Purge 1325
Gallons Purged 80 CVs Purged 3.04
DTW (ft brp) 113.10 Time 13:28

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
1202	107.70	Ø	Ø	—	—	Pump	on	—	—		
1205	119.20	33	0.13	20.89	7.90	1.091	-310.1	1.16	2.47		Q ≅ 11gpm
1218	120.22	148	0.56	21.05	7.89	0.989	-319.9	0.07	1.37		Q ≅ 8.8gpm
1233	120.78	298	1.13	21.36	7.87	1.154	-334.9	0.10	11.06		Q ≅ 10gpm
2:47 ~~1347~~ (BD)	121.03	429	1.63	21.38	7.88	1.153	-343.7	0.11	21.1		Q ≅ 9.4gpm
13:00	121.17	621	2.36	21.48	7.89	1.120	-349.3	0.12	4.34		Q ≅ 10gpm
13:23	121.34	791	3.00	21.49	7.90	1.114	-353.3	0.12	4.49		
13:25	NM	801	3.04	—	—	Pump	off	—	—		

SAMPLE COLLECTION SAMPLE TIME 1325

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? Y (N)
If yes, complete appropriate forms.

~~AIR MONITORING PID/FID~~ ppm: VAULT NA BKGD NA ~~BREATHING ZONE~~ NA ~~DISCHARGE WATER~~ NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 5/20/2014 **TASK:** 532.30 **WELL ID:** MW-33

Time 15:28 Static DTW (ft below reference point)	103.52	screen SV Casing Volume (CV) (gallons) 291 3 SV (gallons) 873	Weather Conditions	Initials: ASF/EJH
SCREEN Casing Total Depth (ft below reference point)	1020	Purging Device ded. pump Sampling Device 0-10 ded. pipe/stand	Time 15:31 Temp. 65°F	Begin Purge 15:31 End Purge 17:00
SCREEN Water Column (feet)	485	Pump: Depth (ft brp) 535 Type Grundfos Voltage 240 HP	Skies mostly cloudy	Gallons Purged 899 CVs Purged 3.1
Casing Capacity (Diameter 4 ") (gallons per foot)	0.6	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-5 From W	DTW (ft brp) 103.77 Time 17:02

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
15:31	103.52	0	0	BEGIN PUMPING							
15:33	104.58	14	0.05	20.14	8.01	0.751	-264	3.15	51.6		Q≅7 gpm
15:49	104.67	178	0.61	20.76	7.81	0.747	-324	0.30	1.03		Q≅10.25 gpm
16:06	104.72	342	1.18	21.00	7.79	0.739	-308	0.04	0.75		Q≅10.25 gpm
16:23	104.78	529	1.82	21.03	7.76	0.739	-302	0.72	1.02		Q≅11 gpm
16:40	104.78	695	2.39	21.03	7.77	0.740	-302	0.73	1.42		Q≅10.5 gpm
16:57	104.85	881	3.03	21.04	7.78	0.741	-302	0.74	0.66		Q≅10.9 gpm
17:00	104.03	899	3.09	END PUMPING							

SAMPLE COLLECTION SAMPLE TIME 17:00

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

~~AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA~~

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 5/21/2014 **TASK:** 532.30 **WELL ID:** MW-34B

Time 10 (ASD) 11:01 Static DTW (ft below reference point)	163.92	Screen SV Casing Volume (cv) (gallons) 46 3 SV (gallons) 137	Weather Conditions	Initials: ASF/EJH
534 Casing Total Depth (ft below reference point)	534	Purging Device Ded. pump Sampling Device >100 ded. pipe stand	Time 11:10 Temp. 65°F	Begin Purge 11:10 End Purge 11:25
SCREEN Water Column (feet)	74	Pump: Depth (ft brp) 400 Type Grundfos Voltage 240 HP	Skies partly cloudy	Gallons Purged 189 CVs Purged 4.10
Casing Capacity (Diameter 4 ") (gallons per foot)	0.100	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-5 From W	DTW (ft brp) 164.56 Time 1126

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
11:10	163.92	0	0	—	PUMP ON						
11:12	165.79	26	13 0.50 est	21.60	7.49	1.058	-345.2	2.88	12.10		Q≅ 13gpm
11:14	165.83	53	1.15	21.87	7.55	1.108	-265.2	4.20	225		Q≅13gpm water red/brown sulfer odor
11:16	165.83	78	1.66	21.90	7.57	1.103	-262.8	4.29	66.8		Q≅ 13gpm
11:18	165.83	102	2.22	21.97	7.58	1.102	-263.4	4.31	45.1		Q≅ 12gpm
11:20	165.83	132	2.87	21.98	7.59	1.104	-260.4	4.31	29.1		Q≅ 13gpm
11:22	165.84	159	3.45	22.00	7.60	1.105	-259.0	4.30	28.4		
11:25	NM	189	4.10	—	—	PUMP OFF	—	—	—		

SAMPLE COLLECTION SAMPLE TIME 1125

ANALYSIS	QUANTITY	TYPE
8260B VOCs	9	40 ml VOA
8270 SIM 1,4 dioxane	3	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. MS/MSD (Y) N

~~AIR MONITORING PID/FID ppm: VAULT~~ NA ~~BKGD~~ NA ~~BREATHING ZONE~~ NA ~~DISCHARGE WATER~~ NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

MS/MSD collected

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 5/20/2014 **TASK:** 532.30 **WELL ID:** MW-35C

Time 9:10 Static DTW (ft below reference point)	109.01	Casing Volume (ØV) (gallons) 348	3 CV (gallons) 1044
SCREEN Casing Total Depth (ft below reference point)	990	Purging Device ded. pump	Sampling Device ND ded. pipe stand
(A-P) screen Water Column (feet)	580	Pump: Depth (ft brp) 410 Type Grundfos	Voltage 240 HP
Casing Capacity (Diameter 4 ") (gallons per foot)	0.60	Monitor Well Recharge Rate: Slow	Fast X

Weather Conditions
Time 9:20 Temp. 60 °F
Skies partly cloudy
Wind (mph) 0-5 From W

Initials: ASF/TSA
Begin Purge 9:35 End Purge 12:07
Gallons Purged 1070 CVs Purged 3.08
DTW (ft brp) 108.72 Time 12:08

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
9:35	109.01	0	0	BEGIN PUMPING							
9:37	111.38	38	0.11	20.34	6.86	1.034	-242	3.26	60.06		FLOWRATE ≅ 14 gpm
9:52	111.32	232	0.67	20.59	7.45	1.019	-213.6	2.17	0.44		FLOWRATE ≅ 15 gpm
~~10:06~~ 10:02 (A-P)				TURN PUMP OFF							BEGIN PUMPING @ 10:18
10:33	111.03	636	1.81	20.68	7.67	0.809	-197.1	3.36	9.49		Flowrate ≅ 15 gpm
10:41	111.66	698	2.01	20.69	7.70	0.809	-198.6	3.31	9.67		
10:43	NM	742	2.13	TURN PUMP OFF							
11:43	108.42	742	2.13	TURN PUMP ON							
11:48	110.95	770	2.21	20.29	7.92	0.808	-193	5.19	14.8		FLOWRATE ≅ 14 gpm
11:52	110.95	856	2.46	20.61	7.79	0.804	-245	3.59	41.6		Q ≅ 14 gpm
11:57	110.95	924	2.66	20.70	7.77	0.808	-243	3.43	6.97		Q ≅ 14 gpm

SAMPLE COLLECTION SAMPLE TIME 12:05

ANALYSIS	QUANTITY	TYPE
8260B VOCs	9	40 ml VOA
8270 SIM 1,4 dioxane	3	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. MS/MSD (Y) N

AIR MONITORING PID/FID ppm: VAULT NA / BKGD NA / BREATHING ZONE NA / DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

MS/MSD collected.
Transducer pulled @ 9:15; Replaced @
Purge water has vinegar odor (acidic)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: / /

TASK:

WELL ID: MW-35C

Time_____ Static DTW (ft below reference point)

Casing Total Depth (ft below reference point)

Water Column (feet) SEE

Casing Capacity (Diameter ") (gallons per foot)

Casing Volume (CV) (gallons) _____ 3 CV (gallons) _____

Purging Device PREVIOUS Sampling Device SAMPLE

Pump Depth (ft brp) _____ Type SHEET Voltage _____ HP _____

Monitor Well Recharge Rate: Slow _____ Fast _____

Weather Conditions

Time _____ Temp. _____

Skies _____

Wind (mph) _____ From _____

Initials:

Begin Purge _____ End Purge _____

Gallons Purged _____ CVs Purged _____

DTW (ft brp) _____ Time _____

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (C)	pH	EC (uS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
12:05	110.97	1044	3.0	20.74	7.76	0.809	-249	3.37	5.51		
12:07	108.72	1072	3.08	END	PUMPING						
						SEE PREVOUS SAMPLE SHEET					

SAMPLE COLLECTION SAMPLE TIME _____

ANALYSIS	QUANTITY	TYPE
8260B VOCs		40 ml VOA
8270 SIM 1,4 dioxane		1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? Y N
If yes, complete appropriate forms.

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 5/20/2014 **TASK:** 532.30 **WELL ID:** MW-36

Time 13:13 Static DTW (ft below reference point)	107.33	screen SV Casing Volume (CV) (gallons) 320.4 3 CV (gallons) 961.2	Weather Conditions 72°F
SCREEN Casing Total Depth (ft below reference point)	994.3	Purging Device ded. pump Sampling Device 10-100 ded. pipe stand	Time 13:30 Temp. 66° F (RP)
SCREEN Water Column (feet)	535	Pump: Depth (ft brp) 400 Type GRUNDFOS Voltage 240 HP	Skies mostly cloudy
Casing Capacity (Diameter 4 ") (gallons per foot)	0.60	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-5 From W

Initials: ASF/EJH

Begin Purge 13:18 End Purge 14:46

Gallons Purged 962 CVs Purged 3.0

DTW (ft brp) 108.47 Time 14:47

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
13:18	107.33	0	0	BEGIN PUMPING							
13:20	109.55	20	0.06	20.85	7.96	0.732	-310	2.87	0.98		Q ≅ 10 gpm
13:38	109.90	210	0.660	21.55	7.83	0.730	-348	0.11	1.02		Q ≅ 11 gpm
13:56	110.00	410	1.28	21.98	7.66	0.964	-341	0.18	0.83		Q ≅ 11 gpm
14:13	110.22	599	1.87	21.95	7.67	0.968	-342	0.21	0.73		Q ≅ 11 gpm
4:29	110.22	770	2.41	21.92	7.69	0.976	-340	0.21	0.61		Q ≅ 11 gpm
14:45	110.22	962	3.00	21.89	7.70	0.987	-343	0.22	0.43		
14:46					Pump off						

SAMPLE COLLECTION SAMPLE TIME 1445

ANALYSIS	QUANTITY	TYPE
8260B VOCs	9	40 ml VOA
8270 SIM 1,4 dioxane	2	1 L Amber
8270 MOD 1,4 dioxane	1	1 L Amber

DUPLICATES / SPLITS / BLANKS? (Y) N
If yes, complete appropriate forms.

~~AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA~~

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

DUP: MW-3000 @ 1400

SPT: MW-36 @ 1445

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 05 / 21 / 2014 **TASK:** 532.30 **WELL ID:** MW-37

Time 10:10 Static DTW (ft below reference point)	157.42	SCREEN Casing Volume (CV) (gallons) 180	3 CV (gallons) 540	Weather Conditions
Casing Total Depth (ft below reference point)	820	Purging Device Ded. pump	Sampling Device ND ded. pipestand	Time 10:15 Temp. 60°F
Water Column (feet)	300	Pump: Depth (ft brp) 520 Type Grundfos	Voltage 240 HP	Skies mostly cloudy
Casing Capacity (Diameter 4 ") (gallons per foot)	0.60	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 0-5 From W

Initials: ASF/EJH

Begin Purge 10:13 End Purge 1055

Gallons Purged 548 CVs Purged 3.04

DTW (ft brp) 157.87 Time 10:55

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (° C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
10:13	157.42	0	0	BEGIN PUMPING						1	
10:15	160.35	20	0.11	21.59	8.27	0.708	-317	2.27	4.44		Q≅ 14gpm
10:23	160.61	132	0.73	22.69	8.20	0.535	-343	0.09	3.17		Q≅ 14gpm
10:30	160.65	225	1.25	22.91	8.32	0.450	-346 (ASD)	0.06	2.42		Q≅ 13gpm
10:38	160.00	331	1.84	22.97	8.28	0.450	-348	0.07	34.6		Q≅ 13gpm
10:47	160.70	459	2.55	22.99	8.20	0.451	-350	0.08	47.4		Q≅ 14gpm
10:53	160.70	540	3.00	23.00	8.20	0.452	-351	0.07	30.0		
10:55	157.87	548	3.04	END PUMPING						1	

SAMPLE COLLECTION SAMPLE TIME 10:55

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

AIR MONITORING PID/FID ppm: ~~VAULT NA~~ ~~BKGD NA~~ ~~BREATHING ZONE NA~~ ~~DISCHARGE WATER NA~~

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: / / 5/20/14 **TASK:** 532.30 **WELL ID:** MW-38

Time 0934 Static DTW (ft below reference point)	159.44	~~Screen~~ Casing Volume (CV) (gallons) 26.77	3 CV (gallons) 80.0
Casing Total Depth (ft below reference point)	200	Purging Device DED Pump	Sampling Device ND DED Pump Stand
~~Screen to~~ Water Column (feet)	40.56	Pump: Depth (ft brp) 190 Type Grundfos	Voltage 240 HP
Casing Capacity (Diameter 4") (gallons per foot)	0.66	Monitor Well Recharge Rate: Slow	Fast X

Weather Conditions: Time 0940 Temp. 70°F; Skies Clear; Wind (mph) 0-5 From West

Initials: SJC | SCS

Begin Purge 0942 End Purge 1007; Gallons Purged 87.6 CVs Purged 3.3; DTW (ft brp) 159.60 Time 1008

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
				....FIELD PARAMETERS....							
0942		~~15~~	0.0 ~~0.5~~	Pump	Start						
0946	159.72	15	0.5	22.01	7.27	1.381	54.8	0.77	35.2	N/A	Q≅4.0 gpm
0950	159.84	30	1.0	22.13	7.26	1.360	57.2	0.54	10.12	N/A	Q≅4.0 gpm
0955	159.78	45	1.5	22.17	7.26	1.349	58.3	0.49	0.74	N/A	
0959	159.86	60	2.0	22.05	7.26	1.372	19.9	0.44	0.00	N/A	
1002	159.85	75	2.5	22.05	7.26	1.370	34.2	0.45	0.00	N/A	
1004	159.81	80	3.0	22.13	7.26	1.364	35.6	0.45	0.00	N/A	
1007					Pump	OFF					

SAMPLE COLLECTION SAMPLE TIME 1000

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA w/HCL
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

MW-38 @ 1006

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE 05/21/2014 **TASK:** 53230 **WELL ID:** MW-39

Time 8:24 Static DTW (ft below reference point)	107.15	Casing Volume (CV) (gallons) 271.2	3 CV (gallons) 813.6	Weather Conditions	Initials: ASF/EJH
Casing Total Depth (ft below reference point)	1080	Purging Device ded. Pump	Sampling Device ded. ND pipe stand	Time 8:25 Temp. 60°F	Begin Purge 8:36 End Purge 9:36
Water Column (feet)	520	Pump: Depth (ft brp) 500 Type Grundfos Voltage 240 HP		Skies mostly cloudy	Gallons Purged 875 CVs Purged 3.23
Casing Capacity (Diameter 4") (gallons per foot)	0.66	Monitor Well Recharge Rate: Slow Fast X		Wind (mph) 0-5 From W	DTW (ft brp) 108.60 Time 9:36

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
8:36	107.15	0	0	BEGIN PUMPING							
8:38	110.05	37	0.14	20.44	8.52	0.433	-335	1.94	1.90		Q ≅ 14 gpm
8:49	~~110.71~~ 110.02	190	0.70	21.84	10.55	0.004	-376	0.07	1.40		Q ≅ 14 gpm
9:00	116.73	346	1.28	22.51	9.96	0.485	-357	0.00	1.12		Q ≅ 14 gpm
9:11	116.95	503	1.86	22.59	9.48	0.457	-359	0.07	1.28		Q ≅ 14 gpm
9:22	117.02	663	2.47	22.58	9.32	0.454	-361	0.07	0.92		Q ≅ 14 gpm
9:33	117.14	826	3.05	22.02	9.22	0.452	-362	007	0.84		Q ≅ 14 gpm
9:36	108.60	875	3.23	END PUMPING							

SAMPLE COLLECTION SAMPLE TIME 9:35

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? Y (N)
If yes, complete appropriate forms.

~~AIR MONITORING PID/FID ppm: VAULT~~ NA ~~BKGD~~ NA ~~BREATHING ZONE~~ NA ~~DISCHARGE WATER~~ NA

NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: / / 05/21/2014 **TASK:** 532.30 **WELL ID:** MW-40

Time 0947 Static DTW (ft below reference point)	131.75	Screen ~~Casing~~ Volume (CV) (gallons) 75	3 CV (gallons) 225	Weather Conditions	Initials: SCK / CJLW
Casing Total Depth (ft below reference point)	970	Purging Device DED PUMP	Sampling Device DED PUMP	Time 0955 Temp: 70°C	Begin Purge 0959 End Purge 1033
~~Water~~ Pump TO Screen Column (feet)	50	Pump: Depth (ft brp) 920 Type Grundfos Voltage 240 HP		Skies Pt. Cloudy	Gallons Purged 242 CVs Purged 3.2
Casing Capacity (Diameter 6 ") (gallons per foot)	1.5	Monitor Well Recharge Rate: Slow ____ Fast X		Wind (mph) 0-2 From WES	DTW (ft brp) 131.90 Time 1033

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	....FIELD PARAMETERS.... Temp. (C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)	Pump Frequency Hz	COMMENTS
0959	—	Ø	Ø	—	—	Pump Start	—	—	—	—	
1004	—	~~35~~	—	Pump	OFF	—	—	—	—	—	
1008	132.55	35	0.5	21.06	7.81	0.821	-131.9	0.23	3.92	N/A	
1012	132.60	75	1.0	21.24	7.72	0.806	-120.7	0.24	3.42	N/A	Q ≅ 10 gpm
1017	132.60	112	1.5	21.45	7.70	0.809	-124.7	0.38	3.55	N/A	Q ≅ 8 gpm
1022	132.60	150	2.0	21.43	7.69	0.809	-130.8	0.44	3.48	N/A	
1026	132.60	190	2.5	21.44	7.67	0.807	-130.5	0.46	3.80	N/A	
1031	132.60	225	3.0	21.44	7.67	0.806	-132.6	0.46	3.71	N/A	
1033	—	—	—	—	Pump	OFF	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1032

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
~~8270 MOD 1,4 dioxane~~		~~1 L Amber~~

DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms. Y (N)

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA

NOTES (Color, odor, sand and silt content, ~~factors possibly affecting samples~~, condition of vault, wellhead, sampling apparatus, etc.)

MW-40 @ 1032

APPENDIX B

LABORATORY ANALYTICAL REPORTS

GROUNDWATER SAMPLING ANALYTICAL RESULTS

ADVANCED TECHNOLOGY LABORATORIES

May 29, 2014

Steve Netto
Hargis & Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122
Tel: (619) 249-3166
Fax:(858) 455-6533

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1401505
Client Reference : RAYTHEON, 532.30

Enclosed are the results for sample(s) received on May 20, 2014 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-05202014A	1401505-01	Lab H2O	5/20/14 7:45	5/20/14 18:02
MW-35C	1401505-02	Groundwater	5/20/14 12:05	5/20/14 18:02
MW-36	1401505-03	Groundwater	5/20/14 14:45	5/20/14 18:02
MW-3600	1401505-04	Groundwater	5/20/14 14:00	5/20/14 18:02
MW-33	1401505-05	Groundwater	5/20/14 17:00	5/20/14 18:02
MW-38	1401505-06	Groundwater	5/20/14 10:06	5/20/14 18:02
MW-30A	1401505-07	Groundwater	5/20/14 11:07	5/20/14 18:02
MW-28	1401505-08	Groundwater	5/20/14 11:42	5/20/14 18:02
EW-01	1401505-09	Groundwater	5/20/14 14:00	5/20/14 18:02
MW-30B	1401505-10	Groundwater	5/20/14 15:16	5/20/14 18:02
MW-08	1401505-11	Groundwater	5/20/14 16:20	5/20/14 18:02

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID TB-05202014A

Lab ID: 1401505-01

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID TB-05202014A

Lab ID: 1401505-01

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*125 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*92.2 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*94.1 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*77.8 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-35C

Lab ID: 1401505-02

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-35C

Lab ID: 1401505-02

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*130 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*87.8 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*93.7 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*76.4 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-35C

Lab ID: 1401505-02

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/27/14 18:57	
Surrogate: 1,2-Dichlorobenzene-d4	*61.9 %*		*47 - 117*		B4E0534	05/23/2014	*05/27/14 18:57*	
Surrogate: 2-Fluorobiphenyl	*67.6 %*		*48 - 121*		B4E0534	05/23/2014	*05/27/14 18:57*	
Surrogate: 4-Terphenyl-d14	*99.7 %*		*58 - 142*		B4E0534	05/23/2014	*05/27/14 18:57*	
Surrogate: Nitrobenzene-d5	*74.4 %*		*27 - 151*		B4E0534	05/23/2014	*05/27/14 18:57*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-36

Lab ID: 1401505-03

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	**1.7**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**120**	1.0	NA	2	B4E0483	05/22/2014	05/22/14 15:41	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-36

Lab ID: 1401505-03

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*136 %*		*64 - 146*		B4E0483	05/22/2014	*05/22/14 15:41*	
Surrogate: 1,2-Dichloroethane-d4	*124 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*88.5 %*		*60 - 128*		B4E0483	05/22/2014	*05/22/14 15:41*	
Surrogate: 4-Bromofluorobenzene	*92.8 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*92.4 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*93.9 %*		*72 - 141*		B4E0483	05/22/2014	*05/22/14 15:41*	
Surrogate: Toluene-d8	*79.9 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*77.4 %*		*61 - 124*		B4E0483	05/22/2014	*05/22/14 15:41*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-36

Lab ID: 1401505-03

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**14**	0.40	NA	2	B4E0534	05/23/2014	05/28/14 15:32	
Surrogate: 1,2-Dichlorobenzene-d4	*78.7 %*	*47 - 117*			B4E0534	05/23/2014	*05/28/14 15:32*	
Surrogate: 2-Fluorobiphenyl	*89.3 %*	*48 - 121*			B4E0534	05/23/2014	*05/28/14 15:32*	
Surrogate: 4-Terphenyl-d14	*109 %*	*58 - 142*			B4E0534	05/23/2014	*05/28/14 15:32*	
Surrogate: Nitrobenzene-d5	*53.9 %*	*27 - 151*			B4E0534	05/23/2014	*05/28/14 15:32*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-3600

Lab ID: 1401505-04

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	**1.8**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**130**	1.0	NA	2	B4E0483	05/22/2014	05/22/14 16:05	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-3600

Lab ID: 1401505-04

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*131 %*		*64 - 146*		B4E0483	05/22/2014	*05/22/14 16:05*	
Surrogate: 1,2-Dichloroethane-d4	*139 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*90.3 %*		*60 - 128*		B4E0483	05/22/2014	*05/22/14 16:05*	
Surrogate: 4-Bromofluorobenzene	*89.8 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*99.4 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*94.9 %*		*72 - 141*		B4E0483	05/22/2014	*05/22/14 16:05*	
Surrogate: Toluene-d8	*76.4 %*		*61 - 124*		B4E0483	05/22/2014	*05/22/14 16:05*	
Surrogate: Toluene-d8	*77.1 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-3600

Lab ID: 1401505-04

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**14**	0.40	NA	2	B4E0534	05/23/2014	05/28/14 16:00	
Surrogate: 1,2-Dichlorobenzene-d4	*73.2 %*	*47 - 117*			B4E0534	05/23/2014	*05/28/14 16:00*	
Surrogate: 2-Fluorobiphenyl	*84.0 %*	*48 - 121*			B4E0534	05/23/2014	*05/28/14 16:00*	
Surrogate: 4-Terphenyl-d14	*98.9 %*	*58 - 142*			B4E0534	05/23/2014	*05/28/14 16:00*	
Surrogate: Nitrobenzene-d5	*53.6 %*	*27 - 151*			B4E0534	05/23/2014	*05/28/14 16:00*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-33

Lab ID: 1401505-05

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**8.3**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-33

Lab ID: 1401505-05

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*132 %*	*64 - 146*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*94.2 %*	*60 - 128*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*98.7 %*	*72 - 141*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*76.1 %*	*61 - 124*			B4E0450	05/23/2014	*05/23/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-33

Lab ID: 1401505-05

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/27/14 20:18	
Surrogate: 1,2-Dichlorobenzene-d4	*71.7 %*		*47 - 117*		B4E0534	05/23/2014	*05/27/14 20:18*	
Surrogate: 2-Fluorobiphenyl	*74.8 %*		*48 - 121*		B4E0534	05/23/2014	*05/27/14 20:18*	
Surrogate: 4-Terphenyl-d14	*93.8 %*		*58 - 142*		B4E0534	05/23/2014	*05/27/14 20:18*	
Surrogate: Nitrobenzene-d5	*79.6 %*		*27 - 151*		B4E0534	05/23/2014	*05/27/14 20:18*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-38

Lab ID: 1401505-06

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-38

Lab ID: 1401505-06

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*141 %*	*64 - 146*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*89.6 %*	*60 - 128*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*98.0 %*	*72 - 141*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*76.4 %*	*61 - 124*			B4E0450	05/23/2014	*05/23/14 13:43*	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
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Client Sample ID MW-38

Lab ID: 1401505-06

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/27/14 20:45	
Surrogate: 1,2-Dichlorobenzene-d4	*55.7 %*	*47 - 117*			B4E0534	05/23/2014	*05/27/14 20:45*	
Surrogate: 2-Fluorobiphenyl	*67.6 %*	*48 - 121*			B4E0534	05/23/2014	*05/27/14 20:45*	
Surrogate: 4-Terphenyl-d14	*94.1 %*	*58 - 142*			B4E0534	05/23/2014	*05/27/14 20:45*	
Surrogate: Nitrobenzene-d5	*71.3 %*	*27 - 151*			B4E0534	05/23/2014	*05/27/14 20:45*	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-30A

Lab ID: 1401505-07

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**1.2**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-30A

Lab ID: 1401505-07

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	**0.86**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*133 %*	*64 - 146*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*88.7 %*	*60 - 128*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*97.1 %*	*72 - 141*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*76.3 %*	*61 - 124*			B4E0450	05/23/2014	*05/23/14 13:43*	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-30A

Lab ID: 1401505-07

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/28/14 12:49	
Surrogate: 1,2-Dichlorobenzene-d4	*47.1 %*		*47 - 117*		B4E0534	05/23/2014	*05/28/14 12:49*	
Surrogate: 2-Fluorobiphenyl	*55.4 %*		*48 - 121*		B4E0534	05/23/2014	*05/28/14 12:49*	
Surrogate: 4-Terphenyl-d14	*84.9 %*		*58 - 142*		B4E0534	05/23/2014	*05/28/14 12:49*	
Surrogate: Nitrobenzene-d5	*48.8 %*		*27 - 151*		B4E0534	05/23/2014	*05/28/14 12:49*	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-28

Lab ID: 1401505-08

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

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Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-28

Lab ID: 1401505-08

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*145 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*92.3 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*98.9 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*76.7 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-28

Lab ID: 1401505-08

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/27/14 21:39	
Surrogate: 1,2-Dichlorobenzene-d4	*55.9 %*		*47 - 117*		B4E0534	05/23/2014	*05/27/14 21:39*	
Surrogate: 2-Fluorobiphenyl	*65.7 %*		*48 - 121*		B4E0534	05/23/2014	*05/27/14 21:39*	
Surrogate: 4-Terphenyl-d14	*99.3 %*		*58 - 142*		B4E0534	05/23/2014	*05/27/14 21:39*	
Surrogate: Nitrobenzene-d5	*60.2 %*		*27 - 151*		B4E0534	05/23/2014	*05/27/14 21:39*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID EW-01

Lab ID: 1401505-09

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	**3.7**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	**7.5**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**500**	10	NA	20	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	**2.1**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	**0.65**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID EW-01

Lab ID: 1401505-09

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	**1.6**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	**1.2**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	**0.61**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*133 %*	*64 - 146*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 1,2-Dichloroethane-d4	*130 %*	*64 - 146*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*89.8 %*	*60 - 128*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*91.2 %*	*60 - 128*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*95.5 %*	*72 - 141*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*97.6 %*	*72 - 141*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*79.0 %*	*61 - 124*			B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*76.6 %*	*61 - 124*			B4E0450	05/23/2014	*05/23/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID EW-01

Lab ID: 1401505-09

1,4-Dioxane by EPA 8270: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**380**	2.0	NA	1	B4E0550	05/27/2014	05/28/14 23:57	
Surrogate: 1,2-Dichlorobenzene-d4	*39.6 %*	*42 - 106*			B4E0550	05/27/2014	*05/28/14 23:57*	S2
Surrogate: 2-Fluorobiphenyl	*44.4 %*	*55 - 117*			B4E0550	05/27/2014	*05/28/14 23:57*	S2
Surrogate: 4-Terphenyl-d14	*79.4 %*	*52 - 142*			B4E0550	05/27/2014	*05/28/14 23:57*	
Surrogate: Nitrobenzene-d5	*42.7 %*	*43 - 116*			B4E0550	05/27/2014	*05/28/14 23:57*	S2

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-30B

Lab ID: 1401505-10

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**22**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	**6.0**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-30B

Lab ID: 1401505-10

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	**0.68**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	**98**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*134 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*89.8 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*97.2 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*72.3 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-30B

Lab ID: 1401505-10

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/28/14 11:01	
Surrogate: 1,2-Dichlorobenzene-d4	*52.0 %*		*47 - 117*		B4E0534	05/23/2014	*05/28/14 11:01*	
Surrogate: 2-Fluorobiphenyl	*65.4 %*		*48 - 121*		B4E0534	05/23/2014	*05/28/14 11:01*	
Surrogate: 4-Terphenyl-d14	*102 %*		*58 - 142*		B4E0534	05/23/2014	*05/28/14 11:01*	
Surrogate: Nitrobenzene-d5	*63.3 %*		*27 - 151*		B4E0534	05/23/2014	*05/28/14 11:01*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-08

Lab ID: 1401505-11

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloroethene	**7.4**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
2-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Chlorotoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Benzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromodichloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromoform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Bromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Carbon tetrachloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chlorobenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloroform	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Chloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,2-Dichloroethene	**0.83**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dibromochloromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	

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San Diego , CA 92122	Reported : 05/29/2014

Client Sample ID MW-08

Lab ID: 1401505-11

Volatile Organic Compounds by EPA 8260B **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Ethylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Isopropylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
m,p-Xylene	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Methylene chloride	ND	1.0	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
n-Propylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Naphthalene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
o-Xylene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
sec-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Styrene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
tert-Butylbenzene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Tetrachloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Toluene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichloroethene	**16**	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Vinyl chloride	ND	0.50	NA	1	B4E0450	05/23/2014	05/23/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	*142 %*		*64 - 146*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: 4-Bromofluorobenzene	*88.7 %*		*60 - 128*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Dibromofluoromethane	*98.6 %*		*72 - 141*		B4E0450	05/23/2014	*05/23/14 13:43*	
Surrogate: Toluene-d8	*74.5 %*		*61 - 124*		B4E0450	05/23/2014	*05/23/14 13:43*	

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Lab ID: 1401505-11

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**1.7**	0.20	NA	1	B4E0534	05/23/2014	05/28/14 11:28	
Surrogate: 1,2-Dichlorobenzene-d4	*66.8 %*	*47 - 117*			B4E0534	05/23/2014	*05/28/14 11:28*	
Surrogate: 2-Fluorobiphenyl	*85.2 %*	*48 - 121*			B4E0534	05/23/2014	*05/28/14 11:28*	
Surrogate: 4-Terphenyl-d14	*106 %*	*58 - 142*			B4E0534	05/23/2014	*05/28/14 11:28*	
Surrogate: Nitrobenzene-d5	*46.9 %*	*27 - 151*			B4E0534	05/23/2014	*05/28/14 11:28*	

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QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0450 - MSVOAW_LL									
Blank (B4E0450-BLK1)				Prepared: 5/23/2014 Analyzed: 5/23/2014					
1,1,1,2-Tetrachloroethane	ND	0.50			NR				
1,1,1-Trichloroethane	ND	0.50			NR				
1,1,2,2-Tetrachloroethane	ND	0.50			NR				
1,1,2-Trichloroethane	ND	0.50			NR				
1,1-Dichloroethane	ND	0.50			NR				
1,1-Dichloroethene	ND	0.50			NR				
1,1-Dichloropropene	ND	0.50			NR				
1,2,3-Trichloropropane	ND	0.50			NR				
1,2,3-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trimethylbenzene	ND	0.50			NR				
1,2-Dibromo-3-chloropropane	ND	0.50			NR				
1,2-Dibromoethane	ND	0.50			NR				
1,2-Dichlorobenzene	ND	0.50			NR				
1,2-Dichloroethane	ND	0.50			NR				
1,2-Dichloropropane	ND	0.50			NR				
1,3,5-Trimethylbenzene	ND	0.50			NR				
1,3-Dichlorobenzene	ND	0.50			NR				
1,3-Dichloropropane	ND	0.50			NR				
1,4-Dichlorobenzene	ND	0.50			NR				
2,2-Dichloropropane	ND	0.50			NR				
2-Chlorotoluene	ND	0.50			NR				
4-Chlorotoluene	ND	0.50			NR				
4-Isopropyltoluene	ND	0.50			NR				
Benzene	ND	0.50			NR				
Bromobenzene	ND	0.50			NR				
Bromodichloromethane	ND	0.50			NR				
Bromoform	ND	0.50			NR				
Bromomethane	ND	0.50			NR				
Carbon tetrachloride	ND	0.50			NR				
Chlorobenzene	ND	0.50			NR				
Chloroethane	ND	0.50			NR				
Chloroform	ND	0.50			NR				
Chloromethane	ND	0.50			NR				
cis-1,2-Dichloroethene	ND	0.50			NR				
cis-1,3-Dichloropropene	ND	0.50			NR				
Dibromochloromethane	ND	0.50			NR				
Dibromomethane	ND	0.50			NR				
Dichlorodifluoromethane	ND	0.50			NR				

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0450 - MSVOAW_LL (continued)									
Blank (B4E0450-BLK1) - Continued					Prepared: 5/23/2014 Analyzed: 5/23/2014				
Ethylbenzene	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	*30.30*		*25.0000*		*121*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*23.41*		*25.0000*		*93.6*	*60 - 128*			
Surrogate: Dibromofluoromethane	*23.04*		*25.0000*		*92.2*	*72 - 141*			
Surrogate: Toluene-d8	*19.49*		*25.0000*		*78.0*	*61 - 124*			
LCS (B4E0450-BS1)					Prepared: 5/23/2014 Analyzed: 5/23/2014				
1,1-Dichloroethene	22.5600	0.50	20.0000		113	56 - 131			
Benzene	25.0800	0.50	20.0000		125	69 - 139			
Chlorobenzene	23.5500	0.50	20.0000		118	73 - 127			
MTBE	21.5900	0.50	20.0000		108	68 - 133			
Toluene	24.4700	0.50	20.0000		122	62 - 133			
Trichloroethene	23.9300	0.50	20.0000		120	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*26.39*		*25.0000*		*106*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*21.33*		*25.0000*		*85.3*	*60 - 128*			
Surrogate: Dibromofluoromethane	*20.69*		*25.0000*		*82.8*	*72 - 141*			
Surrogate: Toluene-d8	*19.15*		*25.0000*		*76.6*	*61 - 124*			
Matrix Spike (B4E0450-MS1)			**Source: 1401505-02**		Prepared: 5/23/2014 Analyzed: 5/23/2014				
1,1-Dichloroethene	21.2900	0.50	20.0000	ND	106	56 - 131			
Benzene	23.9600	0.50	20.0000	ND	120	69 - 139			
Chlorobenzene	22.2500	0.50	20.0000	ND	111	73 - 127			
MTBE	22.4300	0.50	20.0000	ND	112	68 - 133			
Toluene	23.3000	0.50	20.0000	ND	116	62 - 133			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0450 - MSVOAW_LL (continued)									
Matrix Spike (B4E0450-MS1) - Continued			**Source: 1401505-02**		Prepared: 5/23/2014 Analyzed: 5/23/2014				
Trichloroethene	23.3000	0.50	20.0000	ND	116	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*26.28*		*25.0000*		*105*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.40*		*25.0000*		*89.6*	*60 - 128*			
Surrogate: Dibromofluoromethane	*20.71*		*25.0000*		*82.8*	*72 - 141*			
Surrogate: Toluene-d8	*19.12*		*25.0000*		*76.5*	*61 - 124*			
Matrix Spike Dup (B4E0450-MSD1)			**Source: 1401505-02**		Prepared: 5/23/2014 Analyzed: 5/23/2014				
1,1-Dichloroethene	21.2300	0.50	20.0000	ND	106	56 - 131	0.282	20	
Benzene	23.0800	0.50	20.0000	ND	115	69 - 139	3.74	20	
Chlorobenzene	21.9600	0.50	20.0000	ND	110	73 - 127	1.31	20	
MTBE	19.7800	0.50	20.0000	ND	98.9	68 - 133	12.6	20	
Toluene	22.5200	0.50	20.0000	ND	113	62 - 133	3.40	20	
Trichloroethene	22.2300	0.50	20.0000	ND	111	72 - 139	4.70	20	
Surrogate: 1,2-Dichloroethane-d4	*29.09*		*25.0000*		*116*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.40*		*25.0000*		*89.6*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.60*		*25.0000*		*86.4*	*72 - 141*			
Surrogate: Toluene-d8	*19.83*		*25.0000*		*79.3*	*61 - 124*			
Batch B4E0483 - MSVOAW_LL									
Blank (B4E0483-BLK1)					Prepared: 5/22/2014 Analyzed: 5/22/2014				
1,1,1,2-Tetrachloroethane	ND	0.50			NR				
1,1,1-Trichloroethane	ND	0.50			NR				
1,1,2,2-Tetrachloroethane	ND	0.50			NR				
1,1,2-Trichloroethane	ND	0.50			NR				
1,1-Dichloroethane	ND	0.50			NR				
1,1-Dichloroethene	ND	0.50			NR				
1,1-Dichloropropene	ND	0.50			NR				
1,2,3-Trichloropropane	ND	0.50			NR				
1,2,3-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trimethylbenzene	ND	0.50			NR				
1,2-Dibromo-3-chloropropane	ND	0.50			NR				
1,2-Dibromoethane	ND	0.50			NR				
1,2-Dichlorobenzene	ND	0.50			NR				
1,2-Dichloroethane	ND	0.50			NR				
1,2-Dichloropropane	ND	0.50			NR				
1,3,5-Trimethylbenzene	ND	0.50			NR				
1,3-Dichlorobenzene	ND	0.50			NR				
1,3-Dichloropropane	ND	0.50			NR				
1,4-Dichlorobenzene	ND	0.50			NR				

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0483 - MSVOAW_LL (continued)									
Blank (B4E0483-BLK1) - Continued				Prepared: 5/22/2014 Analyzed: 5/22/2014					
2,2-Dichloropropane	ND	0.50			NR				
2-Chlorotoluene	ND	0.50			NR				
4-Chlorotoluene	ND	0.50			NR				
4-Isopropyltoluene	ND	0.50			NR				
Benzene	ND	0.50			NR				
Bromobenzene	ND	0.50			NR				
Bromodichloromethane	ND	0.50			NR				
Bromoform	ND	0.50			NR				
Bromomethane	ND	0.50			NR				
Carbon tetrachloride	ND	0.50			NR				
Chlorobenzene	ND	0.50			NR				
Chloroethane	ND	0.50			NR				
Chloroform	ND	0.50			NR				
Chloromethane	ND	0.50			NR				
cis-1,2-Dichloroethene	ND	0.50			NR				
cis-1,3-Dichloropropene	ND	0.50			NR				
Dibromochloromethane	ND	0.50			NR				
Dibromomethane	ND	0.50			NR				
Dichlorodifluoromethane	ND	0.50			NR				
Ethylbenzene	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	*33.93*		*25.0000*		*136*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*23.60*		*25.0000*		*94.4*	*60 - 128*			
Surrogate: Dibromofluoromethane	*24.71*		*25.0000*		*98.8*	*72 - 141*			
Surrogate: Toluene-d8	*20.20*		*25.0000*		*80.8*	*61 - 124*			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0483 - MSVOAW_LL (continued)									
LCS (B4E0483-BS1)				Prepared: 5/22/2014 Analyzed: 5/22/2014					
1,1-Dichloroethene	17.0300	0.50	20.0000		85.2	56 - 131			
Benzene	22.4400	0.50	20.0000		112	69 - 139			
Chlorobenzene	19.6600	0.50	20.0000		98.3	73 - 127			
MTBE	18.5300	0.50	20.0000		92.6	68 - 133			
Toluene	20.5800	0.50	20.0000		103	62 - 133			
Trichloroethene	20.2000	0.50	20.0000		101	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*30.67*		*25.0000*		*123*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*20.93*		*25.0000*		*83.7*	*60 - 128*			
Surrogate: Dibromofluoromethane	*22.56*		*25.0000*		*90.2*	*72 - 141*			
Surrogate: Toluene-d8	*19.07*		*25.0000*		*76.3*	*61 - 124*			
LCS Dup (B4E0483-BSD1)				Prepared: 5/22/2014 Analyzed: 5/22/2014					
1,1-Dichloroethene	18.6600	0.50	20.0000		93.3	56 - 131	9.13	20	
Benzene	22.4700	0.50	20.0000		112	69 - 139	0.134	20	
Chlorobenzene	20.5400	0.50	20.0000		103	73 - 127	4.38	20	
MTBE	19.8300	0.50	20.0000		99.2	68 - 133	6.78	20	
Toluene	21.8700	0.50	20.0000		109	62 - 133	6.08	20	
Trichloroethene	20.4400	0.50	20.0000		102	72 - 139	1.18	20	
Surrogate: 1,2-Dichloroethane-d4	*29.50*		*25.0000*		*118*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.95*		*25.0000*		*91.8*	*60 - 128*			
Surrogate: Dibromofluoromethane	*22.20*		*25.0000*		*88.8*	*72 - 141*			
Surrogate: Toluene-d8	*20.52*		*25.0000*		*82.1*	*61 - 124*			

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

1,4-Dioxane by EPA 8270: Isotope Dilution Technique - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0550 - MSSEMI_ISOTOPEDILN									
Blank (B4E0550-BLK1)					Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*66.31*		*100.000*		*66.3*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*77.79*		*100.000*		*77.8*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*104.9*		*100.000*		*105*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*73.00*		*100.000*		*73.0*	*43 - 116*			
LCS (B4E0550-BS1)					Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	101.630	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	*67.70*		*100.000*		*67.7*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*87.08*		*100.000*		*87.1*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*100.8*		*100.000*		*101*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*79.75*		*100.000*		*79.8*	*43 - 116*			
Matrix Spike (B4E0550-MS1)		**Source: 1401512-04**			Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	213.730	2.0	100.000	105.540	108	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	*61.49*		*100.000*		*61.5*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*75.34*		*100.000*		*75.3*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*95.64*		*100.000*		*95.6*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*69.85*		*100.000*		*69.8*	*43 - 116*			
Matrix Spike Dup (B4E0550-MSD1)		**Source: 1401512-04**			Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	213.410	2.0	100.000	105.540	108	62 - 127	0.150	20	
Surrogate: 1,2-Dichlorobenzene-d4	*55.65*		*100.000*		*55.6*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*76.87*		*100.000*		*76.9*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*97.84*		*100.000*		*97.8*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*65.25*		*100.000*		*65.2*	*43 - 116*			

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/29/2014

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0534 - MSSEMI_ISOTOPEDILN									
Blank (B4E0534-BLK1)					Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*0.6743*		*1.00000*		*67.4*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.7665*		*1.00000*		*76.7*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*1.040*		*1.00000*		*104*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.8420*		*1.00000*		*84.2*	*27 - 151*			
LCS (B4E0534-BS1)					Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	1.48210	0.20	1.00000		148	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	*0.5373*		*1.00000*		*53.7*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.6144*		*1.00000*		*61.4*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*0.9046*		*1.00000*		*90.5*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.7595*		*1.00000*		*76.0*	*27 - 151*			
Matrix Spike (B4E0534-MS1)		**Source: 1401505-02**			Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	1.39277	0.20	1.00000	ND	139	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	*0.5608*		*1.00000*		*56.1*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.5350*		*1.00000*		*53.5*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*0.8136*		*1.00000*		*81.4*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.6847*		*1.00000*		*68.5*	*27 - 151*			
Matrix Spike Dup (B4E0534-MSD1)		**Source: 1401505-02**			Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	1.45330	0.20	1.00000	ND	145	58 - 151	4.25	20	
Surrogate: 1,2-Dichlorobenzene-d4	*0.5556*		*1.00000*		*55.6*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.6027*		*1.00000*		*60.3*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*0.9046*		*1.00000*		*90.5*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.7133*		*1.00000*		*71.3*	*27 - 151*			

Certificate of Analysis

Hargis & Associates, Inc.		Project Number :	RAYTHEON, 532.30
9171 Towne Centre Drive, Suite 375		Report To :	Steve Netto
San Diego , CA 92122		Reported :	05/29/2014

Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysisconfirms low recovery caused by matrix effects.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 5/20/14 PAGE 1 OF 2

PROJECT NAME: RAYTHEON	PROJECT No./TASK No.: 532.30
PROJECT MANAGER: STEVE NETTO	Phone No.: 858-455-6500
QA MANAGER:	Fax No.: 858-455-6533
SAMPLER (SIGNATURE): EH / AF	SAMPLER (PRINTED): EEIN HUNTER, ARIELLE FERBER

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	Time	MATRIX: Soil	Ground-water	Surface water	Lab H2O	PRESERVATION: HCl	HNO3	NaOH	H2SO4	Ice	SAMPLE CONTAINERS: 40 ml VOA	1 L Amber	ANALYSIS REQUESTED: VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S: 0-10	10-100	100-1,000	1,000-10,000	>10,000	SPECIAL HANDLING: STANDARD TAT	MS	MSD
1401505-1	TB-052020 14A	5/20/14	7:45				X	X				X	2		X			X					X		
-2	MW-35C		12:05		X			X				X	3		X			X					X	X	X
	↓		↓		X							X		3			X						X	X	X
-3	MW-36		14:45		X			X				X	3		X				X				X		
	↓		↓		X							X		1			X						X		
-4	MW-3600		14:00		X			X				X	3		X				X				X		
	↓		↓		X							X		1			X						X		
-5	MW-33		17:00		X			X				X	3		X			X					X		
	↓		↓		X							X		1			X						X		
Total number of Containers per analysis:													20	6									Total No. of Containers: 26 / 50		

REMARKS: ATL; Attn: Rachelle Arada

Relinquished by:	Date	Received by:	Date
EH / AF	5/20/14		5-20-14
H+A, Inc (Company)	Time 1802	Advanced Tech Labs (Company)	Time 18:02
Relinquished by:	Date 5-20-14	Received by:	Date
Advanced Tech Labs (Company)	Time 19:10	(Company)	Time

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt:
- ☐ No. of containers correct
- ☐ custody seals secure
- Temp. @ receipt 2.1 °C
- ☐ received good condition/cold
- ☐ conforms to COC document

Shipment Method:

Send Results to: Steve Netto

☒ 9171 TOWNE CENTRE DRIVE, SUITE 375, SAN DIEGO, CA 92122 (858) 455-6500

☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209, MESA, AZ 85204 (480) 345-0888

☐ 1820 EAST RIVER ROAD, SUITE 220, TUCSON, AZ 85718 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 5/20/14 PAGE 2 OF 2

PROJECT NAME	PROJECT No./TASK No.
Raytheon Main	532.30
PROJECT MANAGER Steve Netto	**Phone No.** 858-455-6500
QA MANAGER	**Fax No.** 858-455-6533
SAMPLER (SIGNATURE) Shayne L. Kappus / Steve Stewart	**SAMPLER (PRINTED)** Shayne L. Kappus / STEVE STEWART

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	SAMPLE COLLECTION Time	MATRIX: Soil	MATRIX: Ground-water	MATRIX: Surface water	MATRIX: Lab H20	PRESERVATION: HCl	PRESERVATION: HNO_3	PRESERVATION: NaOH	PRESERVATION: H_2SO_4	PRESERVATION: Ice	SAMPLE CONTAINERS: 40 ml VOA	SAMPLE CONTAINERS: 1 L Amber	ANALYSIS REQUESTED: VOCs by EPA 8260B	ANALYSIS REQUESTED: 1,4-Dioxane 8270 MOD	ANALYSIS REQUESTED: 1,4 Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S: 0-10	10-100	100-1,000	>1,000	SPECIAL HANDLING: Standard TAT	MS	MSD	REMARKS
1401505-6	MW-3B	5/20/14	1006		X			X				X	3		X			X							
	↓	↓	↓		X							X		1			X								
-7	MW-30A		1107		X			X				X	3		X			X							
	↓		↓		X							X		1			X								
-8	MW-2B		1142		X			X				X	3		X			X							
	↓		↓		X							X		1			X								
-9	EW-01		1400		X			X				X	3		X					X					
	↓		↓		X							X		1		X									
-10	MW-30B		1516		X			X				X	3		X				X						
	↓		↓		X							X		1			X								
-11	MW-0B		1620		X			X				X	3		X				X						
	↓	↓	↓		X							X		1			X								
Total number of Containers per analysis:													18	6											**Total No. of Containers:** 24/50

LABORATORY INFORMATION

Calscience
Attn: Virendra Patel
714-895-5494

Relinquished by:	Date	Received by:	Date
	5/21/14		5-20-14
H+A, INC. (Company)	Time 1802	Advanced Tech Labs (Company)	Time 18:02
Relinquished by:	Date	Received by:	Date
	5-20-14		
Advanced Tech Labs (Company)	Time 19:10	(Company)	Time

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt:
- ☐ No. of containers correct
- ☐ custody seals secure
- **Temp. @ receipt** ____ °C
- ☑ received good condition/cold
- ☐ conforms to COC document

Shipment Method: Courier
Send Results to: Steve Netto

☒ 9171 TOWNE CENTRE DRIVE, SUITE 375
SAN DIEGO, CA 92122 (858) 455-6500

☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209
MESA, AZ 85204 (480) 345-0888

☐ 1820 EAST RIVER ROAD, SUITE 220
TUCSON, AZ 85718 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

May 30, 2014

Steve Netto
Hargis & Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122
Tel: (619) 249-3166
Fax:(858) 455-6533

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1401512
Client Reference : Raytheon, 532.30

Enclosed are the results for sample(s) received on May 21, 2014 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Hargis & Associates, Inc.		Project Number :	Raytheon, 532.30
9171 Towne Centre Drive, Suite 375		Report To :	Steve Netto
San Diego , CA 92122		Reported :	05/30/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-05212014	1401512-01	Lab H2O	5/21/14 8:00	5/21/14 15:23
MW-39	1401512-02	Groundwater	5/21/14 9:35	5/21/14 15:23
MW-37	1401512-03	Groundwater	5/21/14 10:55	5/21/14 15:23
MW-34B	1401512-04	Groundwater	5/21/14 11:25	5/21/14 15:23
MW-32B	1401512-05	Groundwater	5/21/14 13:25	5/21/14 15:23
MW-31	1401512-06	Groundwater	5/21/14 8:57	5/21/14 15:23
MW-3100	1401512-07	Groundwater	5/21/14 9:57	5/21/14 15:23
MW-40	1401512-08	Groundwater	5/21/14 10:32	5/21/14 15:23

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID TB-05212014

Lab ID: 1401512-01

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
2-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
4-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Benzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Bromobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Bromodichloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Bromoform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Bromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Carbon tetrachloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Chlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Chloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Chloroform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Chloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Dibromochloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID TB-05212014

Lab ID: 1401512-01

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Ethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Isopropylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
m,p-Xylene	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Methylene chloride	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
n-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
n-Propylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Naphthalene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
o-Xylene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
sec-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Styrene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
tert-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Tetrachloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Toluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Trichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Vinyl chloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 17:39	
Surrogate: 1,2-Dichloroethane-d4	*137 %*	*64 - 146*			B4E0557	05/28/2014	*05/28/14 17:39*	
Surrogate: 4-Bromofluorobenzene	*96.9 %*	*60 - 128*			B4E0557	05/28/2014	*05/28/14 17:39*	
Surrogate: Dibromofluoromethane	*98.4 %*	*72 - 141*			B4E0557	05/28/2014	*05/28/14 17:39*	
Surrogate: Toluene-d8	*79.2 %*	*61 - 124*			B4E0557	05/28/2014	*05/28/14 17:39*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-39

Lab ID: 1401512-02

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
2-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
4-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Benzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Bromobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Bromodichloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Bromoform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Bromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Carbon tetrachloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Chlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Chloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Chloroform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Chloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Dibromochloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	

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San Diego , CA 92122	Reported : 05/30/2014

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Lab ID: 1401512-02

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Ethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Isopropylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
m,p-Xylene	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Methylene chloride	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
n-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
n-Propylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Naphthalene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
o-Xylene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
sec-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Styrene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
tert-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Tetrachloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Toluene	**1.3**	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Trichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Vinyl chloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 20:53	
Surrogate: 1,2-Dichloroethane-d4	*141 %*	*64 - 146*			B4E0557	05/28/2014	*05/28/14 20:53*	
Surrogate: 4-Bromofluorobenzene	*95.7 %*	*60 - 128*			B4E0557	05/28/2014	*05/28/14 20:53*	
Surrogate: Dibromofluoromethane	*100 %*	*72 - 141*			B4E0557	05/28/2014	*05/28/14 20:53*	
Surrogate: Toluene-d8	*78.7 %*	*61 - 124*			B4E0557	05/28/2014	*05/28/14 20:53*	

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San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-39

Lab ID: 1401512-02

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/28/14 12:21	
Surrogate: 1,2-Dichlorobenzene-d4	*55.5 %*		*47 - 117*		B4E0534	05/23/2014	*05/28/14 12:21*	
Surrogate: 2-Fluorobiphenyl	*69.2 %*		*48 - 121*		B4E0534	05/23/2014	*05/28/14 12:21*	
Surrogate: 4-Terphenyl-d14	*98.9 %*		*58 - 142*		B4E0534	05/23/2014	*05/28/14 12:21*	
Surrogate: Nitrobenzene-d5	*57.9 %*		*27 - 151*		B4E0534	05/23/2014	*05/28/14 12:21*	

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Lab ID: 1401512-03

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
2-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
4-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Benzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Bromobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Bromodichloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Bromoform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Bromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Carbon tetrachloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Chlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Chloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Chloroform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Chloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Dibromochloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	

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San Diego , CA 92122	Reported : 05/30/2014

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Lab ID: 1401512-03

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Ethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Isopropylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
m,p-Xylene	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Methylene chloride	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
n-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
n-Propylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Naphthalene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
o-Xylene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
sec-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Styrene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
tert-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Tetrachloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Toluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Trichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Vinyl chloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:17	
Surrogate: 1,2-Dichloroethane-d4	*129 %*		*64 - 146*		B4E0557	05/28/2014	*05/28/14 21:17*	
Surrogate: 4-Bromofluorobenzene	*100 %*		*60 - 128*		B4E0557	05/28/2014	*05/28/14 21:17*	
Surrogate: Dibromofluoromethane	*103 %*		*72 - 141*		B4E0557	05/28/2014	*05/28/14 21:17*	
Surrogate: Toluene-d8	*81.8 %*		*61 - 124*		B4E0557	05/28/2014	*05/28/14 21:17*	

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Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-37

Lab ID: 1401512-03

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/28/14 13:16	
Surrogate: 1,2-Dichlorobenzene-d4	*78.5 %*		*47 - 117*		B4E0534	05/23/2014	*05/28/14 13:16*	
Surrogate: 2-Fluorobiphenyl	*89.2 %*		*48 - 121*		B4E0534	05/23/2014	*05/28/14 13:16*	
Surrogate: 4-Terphenyl-d14	*105 %*		*58 - 142*		B4E0534	05/23/2014	*05/28/14 13:16*	
Surrogate: Nitrobenzene-d5	*58.2 %*		*27 - 151*		B4E0534	05/23/2014	*05/28/14 13:16*	

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San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-34B

Lab ID: 1401512-04

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,1,2-Trichloroethane	**1.7**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,1-Dichloroethane	**3.6**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,1-Dichloroethene	**290**	5.0	NA	10	B4E0584	05/29/2014	05/29/14 13:15	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2-Dichloroethane	**0.90**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
2-Chlorotoluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
4-Chlorotoluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Benzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Bromobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Bromodichloromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Bromoform	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Bromomethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Carbon tetrachloride	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Chlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Chloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Chloroform	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Chloromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Dibromochloromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-34B

Lab ID: 1401512-04

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Ethylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Isopropylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
m,p-Xylene	ND	1.0	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Methylene chloride	ND	1.0	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
n-Butylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
n-Propylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Naphthalene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
o-Xylene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
sec-Butylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Styrene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
tert-Butylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Tetrachloroethene	**0.54**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Toluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Trichloroethene	**0.66**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Vinyl chloride	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:18	
Surrogate: 1,2-Dichloroethane-d4	*119 %*		*64 - 146*		B4E0584	05/29/2014	*05/29/14 13:15*	
Surrogate: 1,2-Dichloroethane-d4	*121 %*		*64 - 146*		B4E0584	05/29/2014	*05/29/14 19:18*	
Surrogate: 4-Bromofluorobenzene	*95.3 %*		*60 - 128*		B4E0584	05/29/2014	*05/29/14 13:15*	
Surrogate: 4-Bromofluorobenzene	*97.7 %*		*60 - 128*		B4E0584	05/29/2014	*05/29/14 19:18*	
Surrogate: Dibromofluoromethane	*100 %*		*72 - 141*		B4E0584	05/29/2014	*05/29/14 19:18*	
Surrogate: Dibromofluoromethane	*93.4 %*		*72 - 141*		B4E0584	05/29/2014	*05/29/14 13:15*	
Surrogate: Toluene-d8	*78.2 %*		*61 - 124*		B4E0584	05/29/2014	*05/29/14 19:18*	
Surrogate: Toluene-d8	*77.3 %*		*61 - 124*		B4E0584	05/29/2014	*05/29/14 13:15*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-34B

Lab ID: 1401512-04

1,4-Dioxane by EPA 8270: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**110**	2.0	NA	1	B4E0550	05/27/2014	05/28/14 23:29	
Surrogate: 1,2-Dichlorobenzene-d4	*41.5 %*	*42 - 106*			B4E0550	05/27/2014	*05/28/14 23:29*	S2
Surrogate: 2-Fluorobiphenyl	*53.0 %*	*55 - 117*			B4E0550	05/27/2014	*05/28/14 23:29*	S2
Surrogate: 4-Terphenyl-d14	*97.5 %*	*52 - 142*			B4E0550	05/27/2014	*05/28/14 23:29*	
Surrogate: Nitrobenzene-d5	*46.0 %*	*43 - 116*			B4E0550	05/27/2014	*05/28/14 23:29*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-32B

Lab ID: 1401512-05

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,1-Dichloroethane	**1.2**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,1-Dichloroethene	**150**	2.5	NA	5	B4E0584	05/29/2014	05/29/14 16:50	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
2-Chlorotoluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
4-Chlorotoluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Benzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Bromobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Bromodichloromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Bromoform	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Bromomethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Carbon tetrachloride	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Chlorobenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Chloroethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Chloroform	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Chloromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
cis-1,2-Dichloroethene	**5.6**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Dibromochloromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-32B

Lab ID: 1401512-05

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Ethylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Isopropylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
m,p-Xylene	ND	1.0	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Methylene chloride	ND	1.0	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
n-Butylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
n-Propylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Naphthalene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
o-Xylene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
sec-Butylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Styrene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
tert-Butylbenzene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Tetrachloroethene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Toluene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Trichloroethene	**59**	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Vinyl chloride	ND	0.50	NA	1	B4E0584	05/29/2014	05/29/14 19:41	
Surrogate: 1,2-Dichloroethane-d4	*116 %*		*64 - 146*		B4E0584	05/29/2014	*05/29/14 16:50*	
Surrogate: 1,2-Dichloroethane-d4	*124 %*		*64 - 146*		B4E0584	05/29/2014	*05/29/14 19:41*	
Surrogate: 4-Bromofluorobenzene	*93.1 %*		*60 - 128*		B4E0584	05/29/2014	*05/29/14 16:50*	
Surrogate: 4-Bromofluorobenzene	*92.4 %*		*60 - 128*		B4E0584	05/29/2014	*05/29/14 19:41*	
Surrogate: Dibromofluoromethane	*94.6 %*		*72 - 141*		B4E0584	05/29/2014	*05/29/14 16:50*	
Surrogate: Dibromofluoromethane	*96.4 %*		*72 - 141*		B4E0584	05/29/2014	*05/29/14 19:41*	
Surrogate: Toluene-d8	*73.0 %*		*61 - 124*		B4E0584	05/29/2014	*05/29/14 16:50*	
Surrogate: Toluene-d8	*68.8 %*		*61 - 124*		B4E0584	05/29/2014	*05/29/14 19:41*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-32B

Lab ID: 1401512-05

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**0.47**	0.20	NA	1	B4E0534	05/23/2014	05/28/14 13:43	
Surrogate: 1,2-Dichlorobenzene-d4	*74.4 %*	*47 - 117*			B4E0534	05/23/2014	*05/28/14 13:43*	
Surrogate: 2-Fluorobiphenyl	*83.1 %*	*48 - 121*			B4E0534	05/23/2014	*05/28/14 13:43*	
Surrogate: 4-Terphenyl-d14	*96.4 %*	*58 - 142*			B4E0534	05/23/2014	*05/28/14 13:43*	
Surrogate: Nitrobenzene-d5	*51.5 %*	*27 - 151*			B4E0534	05/23/2014	*05/28/14 13:43*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-31

Lab ID: 1401512-06

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,1,2-Trichloroethane	**1.2**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,1-Dichloroethane	**3.7**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,1-Dichloroethene	**370**	10	NA	20	B4E0557	05/29/2014	05/29/14 00:58	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
2-Chlorotoluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
4-Chlorotoluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Benzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Bromobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Bromodichloromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Bromoform	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Bromomethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Carbon tetrachloride	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Chlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Chloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Chloroform	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Chloromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
cis-1,2-Dichloroethene	**1.0**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Dibromochloromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-31

Lab ID: 1401512-06

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Ethylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Isopropylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
m,p-Xylene	ND	1.0	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Methylene chloride	ND	1.0	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
n-Butylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
n-Propylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Naphthalene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
o-Xylene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
sec-Butylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Styrene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
tert-Butylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Tetrachloroethene	**2.5**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Toluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Trichloroethene	**10**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Vinyl chloride	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 06:44	
Surrogate: 1,2-Dichloroethane-d4	*136 %*		*64 - 146*		B4E0557	05/29/2014	*05/29/14 00:58*	
Surrogate: 1,2-Dichloroethane-d4	*131 %*		*64 - 146*		B4E0604	05/30/2014	*05/30/14 06:44*	
Surrogate: 4-Bromofluorobenzene	*94.2 %*		*60 - 128*		B4E0557	05/29/2014	*05/29/14 00:58*	
Surrogate: 4-Bromofluorobenzene	*96.7 %*		*60 - 128*		B4E0604	05/30/2014	*05/30/14 06:44*	
Surrogate: Dibromofluoromethane	*103 %*		*72 - 141*		B4E0604	05/30/2014	*05/30/14 06:44*	
Surrogate: Dibromofluoromethane	*97.6 %*		*72 - 141*		B4E0557	05/29/2014	*05/29/14 00:58*	
Surrogate: Toluene-d8	*76.0 %*		*61 - 124*		B4E0604	05/30/2014	*05/30/14 06:44*	
Surrogate: Toluene-d8	*75.9 %*		*61 - 124*		B4E0557	05/29/2014	*05/29/14 00:58*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-31

Lab ID: 1401512-06

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**13**	0.40	NA	2	B4E0534	05/23/2014	05/29/14 00:31	
Surrogate: 1,2-Dichlorobenzene-d4	*82.5 %*	*47 - 117*			B4E0534	05/23/2014	*05/29/14 00:31*	
Surrogate: 2-Fluorobiphenyl	*89.9 %*	*48 - 121*			B4E0534	05/23/2014	*05/29/14 00:31*	
Surrogate: 4-Terphenyl-d14	*110 %*	*58 - 142*			B4E0534	05/23/2014	*05/29/14 00:31*	
Surrogate: Nitrobenzene-d5	*91.6 %*	*27 - 151*			B4E0534	05/23/2014	*05/29/14 00:31*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-3100

Lab ID: 1401512-07

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,1,2-Trichloroethane	**1.2**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,1-Dichloroethane	**3.8**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,1-Dichloroethene	**390**	10	NA	20	B4E0557	05/29/2014	05/29/14 01:24	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
2-Chlorotoluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
4-Chlorotoluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Benzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Bromobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Bromodichloromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Bromoform	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Bromomethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Carbon tetrachloride	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Chlorobenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Chloroethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Chloroform	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Chloromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
cis-1,2-Dichloroethene	**0.88**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Dibromochloromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-3100

Lab ID: 1401512-07

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Ethylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Isopropylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
m,p-Xylene	ND	1.0	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Methylene chloride	ND	1.0	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
n-Butylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
n-Propylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Naphthalene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
o-Xylene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
sec-Butylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Styrene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
tert-Butylbenzene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Tetrachloroethene	**1.2**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Toluene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Trichloroethene	**10**	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Vinyl chloride	ND	0.50	NA	1	B4E0604	05/30/2014	05/30/14 07:10	
Surrogate: 1,2-Dichloroethane-d4	*135 %*		*64 - 146*		B4E0557	05/29/2014	*05/29/14 01:24*	
Surrogate: 1,2-Dichloroethane-d4	*135 %*		*64 - 146*		B4E0604	05/30/2014	*05/30/14 07:10*	
Surrogate: 4-Bromofluorobenzene	*95.7 %*		*60 - 128*		B4E0604	05/30/2014	*05/30/14 07:10*	
Surrogate: 4-Bromofluorobenzene	*101 %*		*60 - 128*		B4E0557	05/29/2014	*05/29/14 01:24*	
Surrogate: Dibromofluoromethane	*103 %*		*72 - 141*		B4E0604	05/30/2014	*05/30/14 07:10*	
Surrogate: Dibromofluoromethane	*101 %*		*72 - 141*		B4E0557	05/29/2014	*05/29/14 01:24*	
Surrogate: Toluene-d8	*76.9 %*		*61 - 124*		B4E0604	05/30/2014	*05/30/14 07:10*	
Surrogate: Toluene-d8	*79.6 %*		*61 - 124*		B4E0557	05/29/2014	*05/29/14 01:24*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-3100

Lab ID: 1401512-07

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	**13**	0.40	NA	2	B4E0534	05/23/2014	05/28/14 16:28	
Surrogate: 1,2-Dichlorobenzene-d4	*78.6 %*	*47 - 117*			B4E0534	05/23/2014	*05/28/14 16:28*	
Surrogate: 2-Fluorobiphenyl	*85.7 %*	*48 - 121*			B4E0534	05/23/2014	*05/28/14 16:28*	
Surrogate: 4-Terphenyl-d14	*113 %*	*58 - 142*			B4E0534	05/23/2014	*05/28/14 16:28*	
Surrogate: Nitrobenzene-d5	*80.1 %*	*27 - 151*			B4E0534	05/23/2014	*05/28/14 16:28*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-40

Lab ID: 1401512-08

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,1,1-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,1,2-Trichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,1-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,1-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,1-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2,3-Trichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2-Dibromoethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2-Dichloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,3-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,3-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
1,4-Dichlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
2,2-Dichloropropane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
2-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
4-Chlorotoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
4-Isopropyltoluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Benzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Bromobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Bromodichloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Bromoform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Bromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Carbon tetrachloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Chlorobenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Chloroethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Chloroform	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Chloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Dibromochloromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-40

Lab ID: 1401512-08

Volatile Organic Compounds by EPA 8260B **Analyst: DP**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Dichlorodifluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Ethylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Hexachlorobutadiene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Isopropylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
m,p-Xylene	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Methylene chloride	ND	1.0	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
n-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
n-Propylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Naphthalene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
o-Xylene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
sec-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Styrene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
tert-Butylbenzene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Tetrachloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Toluene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Trichloroethene	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Trichlorofluoromethane	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Vinyl chloride	ND	0.50	NA	1	B4E0557	05/28/2014	05/28/14 21:40	
Surrogate: 1,2-Dichloroethane-d4	*143 %*	*64 - 146*			B4E0557	05/28/2014	*05/28/14 21:40*	
Surrogate: 4-Bromofluorobenzene	*95.2 %*	*60 - 128*			B4E0557	05/28/2014	*05/28/14 21:40*	
Surrogate: Dibromofluoromethane	*101 %*	*72 - 141*			B4E0557	05/28/2014	*05/28/14 21:40*	
Surrogate: Toluene-d8	*77.4 %*	*61 - 124*			B4E0557	05/28/2014	*05/28/14 21:40*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

Client Sample ID MW-40

Lab ID: 1401512-08

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique **Analyst: MFR**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	NA	1	B4E0534	05/23/2014	05/28/14 15:05	
Surrogate: 1,2-Dichlorobenzene-d4	*68.1 %*	*47 - 117*			B4E0534	05/23/2014	*05/28/14 15:05*	
Surrogate: 2-Fluorobiphenyl	*75.4 %*	*48 - 121*			B4E0534	05/23/2014	*05/28/14 15:05*	
Surrogate: 4-Terphenyl-d14	*93.9 %*	*58 - 142*			B4E0534	05/23/2014	*05/28/14 15:05*	
Surrogate: Nitrobenzene-d5	*54.0 %*	*27 - 151*			B4E0534	05/23/2014	*05/28/14 15:05*	

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0557 - MSVOAW_LL									
Blank (B4E0557-BLK1)				Prepared: 5/28/2014 Analyzed: 5/28/2014					
1,1,1,2-Tetrachloroethane	ND	0.50			NR				
1,1,1-Trichloroethane	ND	0.50			NR				
1,1,2,2-Tetrachloroethane	ND	0.50			NR				
1,1,2-Trichloroethane	ND	0.50			NR				
1,1-Dichloroethane	ND	0.50			NR				
1,1-Dichloroethene	ND	0.50			NR				
1,1-Dichloropropene	ND	0.50			NR				
1,2,3-Trichloropropane	ND	0.50			NR				
1,2,3-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trimethylbenzene	ND	0.50			NR				
1,2-Dibromo-3-chloropropane	ND	0.50			NR				
1,2-Dibromoethane	ND	0.50			NR				
1,2-Dichlorobenzene	ND	0.50			NR				
1,2-Dichloroethane	ND	0.50			NR				
1,2-Dichloropropane	ND	0.50			NR				
1,3,5-Trimethylbenzene	ND	0.50			NR				
1,3-Dichlorobenzene	ND	0.50			NR				
1,3-Dichloropropane	ND	0.50			NR				
1,4-Dichlorobenzene	ND	0.50			NR				
2,2-Dichloropropane	ND	0.50			NR				
2-Chlorotoluene	ND	0.50			NR				
4-Chlorotoluene	ND	0.50			NR				
4-Isopropyltoluene	ND	0.50			NR				
Benzene	ND	0.50			NR				
Bromobenzene	ND	0.50			NR				
Bromodichloromethane	ND	0.50			NR				
Bromoform	ND	0.50			NR				
Bromomethane	ND	0.50			NR				
Carbon tetrachloride	ND	0.50			NR				
Chlorobenzene	ND	0.50			NR				
Chloroethane	ND	0.50			NR				
Chloroform	ND	0.50			NR				
Chloromethane	ND	0.50			NR				
cis-1,2-Dichloroethene	ND	0.50			NR				
cis-1,3-Dichloropropene	ND	0.50			NR				
Dibromochloromethane	ND	0.50			NR				
Dibromomethane	ND	0.50			NR				
Dichlorodifluoromethane	ND	0.50			NR				

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0557 - MSVOAW_LL (continued)									
Blank (B4E0557-BLK1) - Continued				Prepared: 5/28/2014 Analyzed: 5/28/2014					
Ethylbenzene	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	*31.46*		*25.0000*		*126*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*24.35*		*25.0000*		*97.4*	*60 - 128*			
Surrogate: Dibromofluoromethane	*24.40*		*25.0000*		*97.6*	*72 - 141*			
Surrogate: Toluene-d8	*19.67*		*25.0000*		*78.7*	*61 - 124*			
LCS (B4E0557-BS1)				Prepared: 5/28/2014 Analyzed: 5/28/2014					
1,1-Dichloroethene	21.3300	0.50	20.0000		107	56 - 131			
Benzene	21.3700	0.50	20.0000		107	69 - 139			
Chlorobenzene	20.8100	0.50	20.0000		104	73 - 127			
MTBE	17.8700	0.50	20.0000		89.4	68 - 133			
Toluene	20.9500	0.50	20.0000		105	62 - 133			
Trichloroethene	18.9800	0.50	20.0000		94.9	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*25.95*		*25.0000*		*104*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.51*		*25.0000*		*90.0*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.25*		*25.0000*		*85.0*	*72 - 141*			
Surrogate: Toluene-d8	*19.30*		*25.0000*		*77.2*	*61 - 124*			
LCS Dup (B4E0557-BSD1)				Prepared: 5/28/2014 Analyzed: 5/28/2014					
1,1-Dichloroethene	20.4800	0.50	20.0000		102	56 - 131	4.07	20	
Benzene	21.8200	0.50	20.0000		109	69 - 139	2.08	20	
Chlorobenzene	21.4400	0.50	20.0000		107	73 - 127	2.98	20	
MTBE	18.4400	0.50	20.0000		92.2	68 - 133	3.14	20	
Toluene	21.9000	0.50	20.0000		110	62 - 133	4.43	20	

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Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0557 - MSVOAW_LL (continued)									
LCS Dup (B4E0557-BSD1) - Continued				Prepared: 5/28/2014 Analyzed: 5/28/2014					
Trichloroethene	19.2500	0.50	20.0000		96.2	72 - 139	1.41	20	
Surrogate: 1,2-Dichloroethane-d4	*28.15*		*25.0000*		*113*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*21.89*		*25.0000*		*87.6*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.16*		*25.0000*		*84.6*	*72 - 141*			
Surrogate: Toluene-d8	*18.92*		*25.0000*		*75.7*	*61 - 124*			
Batch B4E0584 - MSVOAW_LL									
Blank (B4E0584-BLK1)				Prepared: 5/29/2014 Analyzed: 5/29/2014					
1,1,1,2-Tetrachloroethane	ND	0.50			NR				
1,1,1-Trichloroethane	ND	0.50			NR				
1,1,2,2-Tetrachloroethane	ND	0.50			NR				
1,1,2-Trichloroethane	ND	0.50			NR				
1,1-Dichloroethane	ND	0.50			NR				
1,1-Dichloroethene	ND	0.50			NR				
1,1-Dichloropropene	ND	0.50			NR				
1,2,3-Trichloropropane	ND	0.50			NR				
1,2,3-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trimethylbenzene	ND	0.50			NR				
1,2-Dibromo-3-chloropropane	ND	0.50			NR				
1,2-Dibromoethane	ND	0.50			NR				
1,2-Dichlorobenzene	ND	0.50			NR				
1,2-Dichloroethane	ND	0.50			NR				
1,2-Dichloropropane	ND	0.50			NR				
1,3,5-Trimethylbenzene	ND	0.50			NR				
1,3-Dichlorobenzene	ND	0.50			NR				
1,3-Dichloropropane	ND	0.50			NR				
1,4-Dichlorobenzene	ND	0.50			NR				
2,2-Dichloropropane	ND	0.50			NR				
2-Chlorotoluene	ND	0.50			NR				
4-Chlorotoluene	ND	0.50			NR				
4-Isopropyltoluene	ND	0.50			NR				
Benzene	ND	0.50			NR				
Bromobenzene	ND	0.50			NR				
Bromodichloromethane	ND	0.50			NR				
Bromoform	ND	0.50			NR				
Bromomethane	ND	0.50			NR				
Carbon tetrachloride	ND	0.50			NR				
Chlorobenzene	ND	0.50			NR				
Chloroethane	ND	0.50			NR				

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Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0584 - MSVOAW_LL (continued)									
Blank (B4E0584-BLK1) - Continued					Prepared: 5/29/2014 Analyzed: 5/29/2014				
Chloroform	ND	0.50			NR				
Chloromethane	ND	0.50			NR				
cis-1,2-Dichloroethene	ND	0.50			NR				
cis-1,3-Dichloropropene	ND	0.50			NR				
Dibromochloromethane	ND	0.50			NR				
Dibromomethane	ND	0.50			NR				
Dichlorodifluoromethane	ND	0.50			NR				
Ethylbenzene	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	*28.50*		*25.0000*		*114*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*23.93*		*25.0000*		*95.7*	*60 - 128*			
Surrogate: Dibromofluoromethane	*24.08*		*25.0000*		*96.3*	*72 - 141*			
Surrogate: Toluene-d8	*19.49*		*25.0000*		*78.0*	*61 - 124*			
LCS (B4E0584-BS1)					Prepared: 5/29/2014 Analyzed: 5/29/2014				
1,1-Dichloroethene	21.9600	0.50	20.0000		110	56 - 131			
Benzene	22.6500	0.50	20.0000		113	69 - 139			
Chlorobenzene	21.3800	0.50	20.0000		107	73 - 127			
MTBE	18.5700	0.50	20.0000		92.8	68 - 133			
Toluene	20.8200	0.50	20.0000		104	62 - 133			
Trichloroethene	21.0600	0.50	20.0000		105	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*25.06*		*25.0000*		*100*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*23.74*		*25.0000*		*95.0*	*60 - 128*			
Surrogate: Dibromofluoromethane	*22.26*		*25.0000*		*89.0*	*72 - 141*			
Surrogate: Toluene-d8	*19.02*		*25.0000*		*76.1*	*61 - 124*			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0584 - MSVOAW_LL (continued)									
LCS Dup (B4E0584-BSD1)				Prepared: 5/29/2014 Analyzed: 5/29/2014					
1,1-Dichloroethene	21.5700	0.50	20.0000		108	56 - 131	1.79	20	
Benzene	23.1900	0.50	20.0000		116	69 - 139	2.36	20	
Chlorobenzene	23.1200	0.50	20.0000		116	73 - 127	7.82	20	
MTBE	16.0100	0.50	20.0000		80.0	68 - 133	14.8	20	
Toluene	23.4500	0.50	20.0000		117	62 - 133	11.9	20	
Trichloroethene	21.5500	0.50	20.0000		108	72 - 139	2.30	20	
Surrogate: 1,2-Dichloroethane-d4	*26.68*		*25.0000*		*107*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.64*		*25.0000*		*90.6*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.29*		*25.0000*		*85.2*	*72 - 141*			
Surrogate: Toluene-d8	*19.73*		*25.0000*		*78.9*	*61 - 124*			
Matrix Spike (B4E0584-MS1)		**Source: 1401512-04**		Prepared: 5/29/2014 Analyzed: 5/29/2014					
1,1-Dichloroethene	480.900	5.0	200.000	294.400	93.2	56 - 131			
Benzene	212.100	5.0	200.000	ND	106	69 - 139			
Chlorobenzene	211.200	5.0	200.000	ND	106	73 - 127			
MTBE	150.500	5.0	200.000	ND	75.2	68 - 133			
Toluene	214.000	5.0	200.000	ND	107	62 - 133			
Trichloroethene	204.700	5.0	200.000	ND	102	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*24.65*		*25.0000*		*98.6*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.70*		*25.0000*		*90.8*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.15*		*25.0000*		*84.6*	*72 - 141*			
Surrogate: Toluene-d8	*19.27*		*25.0000*		*77.1*	*61 - 124*			
Matrix Spike (B4E0584-MS2)		**Source: 1401512-04RE1**		Prepared: 5/29/2014 Analyzed: 5/29/2014					
Benzene	19.8400	0.50	20.0000	ND	99.2	69 - 139			
Chlorobenzene	20.3100	0.50	20.0000	ND	102	73 - 127			
MTBE	15.2600	0.50	20.0000	ND	76.3	68 - 133			
Toluene	19.9000	0.50	20.0000	ND	99.5	62 - 133			
Trichloroethene	19.5900	0.50	20.0000	0.660000	94.6	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*24.27*		*25.0000*		*97.1*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.44*		*25.0000*		*89.8*	*60 - 128*			
Surrogate: Dibromofluoromethane	*20.85*		*25.0000*		*83.4*	*72 - 141*			
Surrogate: Toluene-d8	*18.91*		*25.0000*		*75.6*	*61 - 124*			
Matrix Spike Dup (B4E0584-MSD1)		**Source: 1401512-04**		Prepared: 5/29/2014 Analyzed: 5/29/2014					
1,1-Dichloroethene	451.800	5.0	200.000	294.400	78.7	56 - 131	6.24	20	
Benzene	210.000	5.0	200.000	ND	105	69 - 139	0.995	20	
Chlorobenzene	209.500	5.0	200.000	ND	105	73 - 127	0.808	20	
MTBE	147.600	5.0	200.000	ND	73.8	68 - 133	1.95	20	
Toluene	209.100	5.0	200.000	ND	105	62 - 133	2.32	20	
Trichloroethene	197.700	5.0	200.000	ND	98.8	72 - 139	3.48	20	
Surrogate: 1,2-Dichloroethane-d4	*25.69*		*25.0000*		*103*	*64 - 146*			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0584 - MSVOAW_LL (continued)									
Matrix Spike Dup (B4E0584-MSD1) - Continued		**Source: 1401512-04**		Prepared: 5/29/2014 Analyzed: 5/29/2014					
Surrogate: 4-Bromofluorobenzene	*21.96*		*25.0000*		*87.8*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.36*		*25.0000*		*85.4*	*72 - 141*			
Surrogate: Toluene-d8	*18.93*		*25.0000*		*75.7*	*61 - 124*			
Matrix Spike Dup (B4E0584-MSD2)		**Source: 1401512-04RE1**		Prepared: 5/29/2014 Analyzed: 5/29/2014					
Benzene	19.2800	0.50	20.0000	ND	96.4	69 - 139	2.86	20	
Chlorobenzene	19.4600	0.50	20.0000	ND	97.3	73 - 127	4.27	20	
MTBE	14.1400	0.50	20.0000	ND	70.7	68 - 133	7.62	20	
Toluene	19.3200	0.50	20.0000	ND	96.6	62 - 133	2.96	20	
Trichloroethene	18.7100	0.50	20.0000	0.660000	90.2	72 - 139	4.60	20	
Surrogate: 1,2-Dichloroethane-d4	*26.24*		*25.0000*		*105*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.13*		*25.0000*		*88.5*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.21*		*25.0000*		*84.8*	*72 - 141*			
Surrogate: Toluene-d8	*18.99*		*25.0000*		*76.0*	*61 - 124*			
Batch B4E0604 - MSVOAW_LL									
Blank (B4E0604-BLK1)				Prepared: 5/30/2014 Analyzed: 5/30/2014					
1,1,1,2-Tetrachloroethane	ND	0.50			NR				
1,1,1-Trichloroethane	ND	0.50			NR				
1,1,2,2-Tetrachloroethane	ND	0.50			NR				
1,1,2-Trichloroethane	ND	0.50			NR				
1,1-Dichloroethane	ND	0.50			NR				
1,1-Dichloroethene	ND	0.50			NR				
1,1-Dichloropropene	ND	0.50			NR				
1,2,3-Trichloropropane	ND	0.50			NR				
1,2,3-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trimethylbenzene	ND	0.50			NR				
1,2-Dibromo-3-chloropropane	ND	0.50			NR				
1,2-Dibromoethane	ND	0.50			NR				
1,2-Dichlorobenzene	ND	0.50			NR				
1,2-Dichloroethane	ND	0.50			NR				
1,2-Dichloropropane	ND	0.50			NR				
1,3,5-Trimethylbenzene	ND	0.50			NR				
1,3-Dichlorobenzene	ND	0.50			NR				
1,3-Dichloropropane	ND	0.50			NR				
1,4-Dichlorobenzene	ND	0.50			NR				
2,2-Dichloropropane	ND	0.50			NR				
2-Chlorotoluene	ND	0.50			NR				
4-Chlorotoluene	ND	0.50			NR				

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0604 - MSVOAW_LL (continued)									
Blank (B4E0604-BLK1) - Continued				Prepared: 5/30/2014 Analyzed: 5/30/2014					
4-Isopropyltoluene	ND	0.50			NR				
Benzene	ND	0.50			NR				
Bromobenzene	ND	0.50			NR				
Bromodichloromethane	ND	0.50			NR				
Bromoform	ND	0.50			NR				
Bromomethane	ND	0.50			NR				
Carbon tetrachloride	ND	0.50			NR				
Chlorobenzene	ND	0.50			NR				
Chloroethane	ND	0.50			NR				
Chloroform	ND	0.50			NR				
Chloromethane	ND	0.50			NR				
cis-1,2-Dichloroethene	ND	0.50			NR				
cis-1,3-Dichloropropene	ND	0.50			NR				
Dibromochloromethane	ND	0.50			NR				
Dibromomethane	ND	0.50			NR				
Dichlorodifluoromethane	ND	0.50			NR				
Ethylbenzene	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	*30.47*		*25.0000*		*122*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*23.97*		*25.0000*		*95.9*	*60 - 128*			
Surrogate: Dibromofluoromethane	*24.06*		*25.0000*		*96.2*	*72 - 141*			
Surrogate: Toluene-d8	*19.45*		*25.0000*		*77.8*	*61 - 124*			
LCS (B4E0604-BS1)				Prepared: 5/29/2014 Analyzed: 5/29/2014					
1,1-Dichloroethene	20.6900	0.50	20.0000		103	56 - 131			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0604 - MSVOAW_LL (continued)									
LCS (B4E0604-BS1) - Continued					Prepared: 5/29/2014 Analyzed: 5/29/2014				
Benzene	20.8200	0.50	20.0000		104	69 - 139			
Chlorobenzene	21.2800	0.50	20.0000		106	73 - 127			
MTBE	14.4900	0.50	20.0000		72.4	68 - 133			
Toluene	21.0800	0.50	20.0000		105	62 - 133			
Trichloroethene	20.0300	0.50	20.0000		100	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	*26.58*		*25.0000*		*106*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*22.36*		*25.0000*		*89.4*	*60 - 128*			
Surrogate: Dibromofluoromethane	*21.07*		*25.0000*		*84.3*	*72 - 141*			
Surrogate: Toluene-d8	*19.25*		*25.0000*		*77.0*	*61 - 124*			
LCS Dup (B4E0604-BSD1)					Prepared: 5/30/2014 Analyzed: 5/30/2014				
1,1-Dichloroethene	18.2100	0.50	20.0000		91.0	56 - 131	12.8	20	
Benzene	19.6400	0.50	20.0000		98.2	69 - 139	5.83	20	
Chlorobenzene	20.6400	0.50	20.0000		103	73 - 127	3.05	20	
MTBE	15.0200	0.50	20.0000		75.1	68 - 133	3.59	20	
Toluene	20.6800	0.50	20.0000		103	62 - 133	1.92	20	
Trichloroethene	18.5800	0.50	20.0000		92.9	72 - 139	7.51	20	
Surrogate: 1,2-Dichloroethane-d4	*26.23*		*25.0000*		*105*	*64 - 146*			
Surrogate: 4-Bromofluorobenzene	*21.85*		*25.0000*		*87.4*	*60 - 128*			
Surrogate: Dibromofluoromethane	*20.46*		*25.0000*		*81.8*	*72 - 141*			
Surrogate: Toluene-d8	*19.09*		*25.0000*		*76.4*	*61 - 124*			

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

1,4-Dioxane by EPA 8270: Isotope Dilution Technique - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0550 - MSSEMI_ISOTOPEDILN									
Blank (B4E0550-BLK1)					Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*66.31*		*100.000*		*66.3*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*77.79*		*100.000*		*77.8*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*104.9*		*100.000*		*105*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*73.00*		*100.000*		*73.0*	*43 - 116*			
LCS (B4E0550-BS1)					Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	101.630	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	*67.70*		*100.000*		*67.7*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*87.08*		*100.000*		*87.1*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*100.8*		*100.000*		*101*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*79.75*		*100.000*		*79.8*	*43 - 116*			
Matrix Spike (B4E0550-MS1)		**Source: 1401512-04**			Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	213.730	2.0	100.000	105.540	108	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	*61.49*		*100.000*		*61.5*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*75.34*		*100.000*		*75.3*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*95.64*		*100.000*		*95.6*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*69.85*		*100.000*		*69.8*	*43 - 116*			
Matrix Spike Dup (B4E0550-MSD1)		**Source: 1401512-04**			Prepared: 5/27/2014 Analyzed: 5/28/2014				
1,4-Dioxane	213.410	2.0	100.000	105.540	108	62 - 127	0.150	20	
Surrogate: 1,2-Dichlorobenzene-d4	*55.65*		*100.000*		*55.6*	*42 - 106*			
Surrogate: 2-Fluorobiphenyl	*76.87*		*100.000*		*76.9*	*55 - 117*			
Surrogate: 4-Terphenyl-d14	*97.84*		*100.000*		*97.8*	*52 - 142*			
Surrogate: Nitrobenzene-d5	*65.25*		*100.000*		*65.2*	*43 - 116*			

Certificate of Analysis

Hargis & Associates, Inc.	Project Number : Raytheon, 532.30
9171 Towne Centre Drive, Suite 375	Report To : Steve Netto
San Diego , CA 92122	Reported : 05/30/2014

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4E0534 - MSSEMI_ISOTOPEDILN									
Blank (B4E0534-BLK1)					Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*0.6743*		*1.00000*		*67.4*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.7665*		*1.00000*		*76.7*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*1.040*		*1.00000*		*104*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.8420*		*1.00000*		*84.2*	*27 - 151*			
LCS (B4E0534-BS1)					Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	1.48210	0.20	1.00000		148	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	*0.5373*		*1.00000*		*53.7*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.6144*		*1.00000*		*61.4*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*0.9046*		*1.00000*		*90.5*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.7595*		*1.00000*		*76.0*	*27 - 151*			
Matrix Spike (B4E0534-MS1)		**Source: 1401505-02**			Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	1.39277	0.20	1.00000	ND	139	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	*0.5608*		*1.00000*		*56.1*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.5350*		*1.00000*		*53.5*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*0.8136*		*1.00000*		*81.4*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.6847*		*1.00000*		*68.5*	*27 - 151*			
Matrix Spike Dup (B4E0534-MSD1)		**Source: 1401505-02**			Prepared: 5/23/2014 Analyzed: 5/27/2014				
1,4-Dioxane	1.45330	0.20	1.00000	ND	145	58 - 151	4.25	20	
Surrogate: 1,2-Dichlorobenzene-d4	*0.5556*		*1.00000*		*55.6*	*47 - 117*			
Surrogate: 2-Fluorobiphenyl	*0.6027*		*1.00000*		*60.3*	*48 - 121*			
Surrogate: 4-Terphenyl-d14	*0.9046*		*1.00000*		*90.5*	*58 - 142*			
Surrogate: Nitrobenzene-d5	*0.7133*		*1.00000*		*71.3*	*27 - 151*			

Certificate of Analysis

Hargis & Associates, Inc.		Project Number :	Raytheon, 532.30
9171 Towne Centre Drive, Suite 375		Report To :	Steve Netto
San Diego , CA 92122		Reported :	05/30/2014

Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysisconfirms low recovery caused by matrix effects.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 5/21/14 PAGE 1 OF 2

PROJECT NAME: Raytheon	PROJECT No./TASK No.: 532.30
PROJECT MANAGER: Steve Netto	Phone No.: 858-455-6500
QA MANAGER	Fax No.: 858-455-6533
SAMPLER (SIGNATURE): Shayre L. Kappus, Erin Hunter, Arielle Ferber	SAMPLER (PRINTED): Shayre Kappus, Erin Hunter, Arielle Ferber

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	Time	MATRIX: Soil	Ground-water	Surface water	Lab H2O	PRESERVATION: HCl	HNO_3	NaOH	H_2SO_4	Ice	SAMPLE CONTAINERS: 40 ml VOA	1 L Amber	ANALYSIS REQUESTED: VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S: 0-10	10-100	100-1,000	1,000-10,000	>10,000	SPECIAL HANDLING: Standard TAT	MS	MSD
140152 -1	TB-05212014	5/21/14	8:00				X	X				X	2		X			X					X		
-2	MW-39		9:35		X			X				X	3		X			X					X		
	↓		↓		X							X		1			X						X		
-3	MW-37		10:55		X			X				X	3		X			X					X		
	↓		↓		X							X		1			X						X		
-4	MW-34B		11:25		X			X				X	9		X					X			X	X	X
	↓		↓		X							X		3		X							X	X	X
-5	MW-32B		13:25		X			X				X	3		X					X			X		
	↓		↓		X							X		1			X						X		
-6	MW-31		0857		X			X				X	3		X					X			X		
	↓		↓		X							X		1			X			~~X~~ SLK			X		
-7	MW-3100		0957		X			X				X	3		X					X			X		
	↓	↓	↓		X							X		1			X			~~X~~ SLK			X		
Total number of Containers per analysis:													26	8									Total No. of Containers: 44/48		

LABORATORY INFORMATION: ATL; Attn: Rachelle Arada

REMARKS:

Relinquished by:	Date	Time	Company	Received by:	Date	Time	Company
	5/21/14	1523	H+H/INC		5-21-14	1523	Advanced Tech Labs
	5-21-14	16:10	Advanced Tech Labs		5/21/14	1610	ATL

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt: Temp. @ receipt 5.4 °C

- ☐ No. of containers correct
- ☐ custody seals secure
- ☑ received good condition/cold
- ☐ conforms to COC document

Shipment Method: Coast

Send Results to: Steve Netto

☒ 9171 TOWNE CENTRE DRIVE, SUITE 375, SAN DIEGO, CA 92122 (858) 455-6500

☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209, MESA, AZ 85204 (480) 345-0888

☐ 1820 EAST RIVER ROAD, SUITE 220, TUCSON, AZ 85718 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

ORIGINAL: LABORATORY YELLOW: QA MANAGER PINK: FIELD/TASK MANAGER

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 5/21/14 PAGE 2 OF 2

PROJECT NAME: Raytheon	PROJECT No./TASK No.: 532.30
PROJECT MANAGER: Steve Netto	Phone No.: 858-455-6500
QA MANAGER	Fax No.: 858-455-6533
SAMPLER (SIGNATURE):	SAMPLER (PRINTED): Shayne Kappus

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	SAMPLE COLLECTION Time	MATRIX: Soil	Ground-water	Surface water	Lab H20	PRESERVATION: HCl	HNO_3	NaOH	H_2SO_4	Ice	SAMPLE CONTAINERS: 40 ml VOA	1 L Amber	ANALYSIS REQUESTED: VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S: 0-10	10-100	100-1,000	1,000-10,000	>10,000	SPECIAL HANDLING: Standard TAT	MS	MSD
1401512-8	MW-40	5/21/14	1032		X			X				X	3		X			X							
1	↓	↓	↓		X							X		1			X								
Total number of Containers per analysis:													3	1											

LABORATORY INFORMATION: ATL; Attn: Rachelle Arada

REMARKS

Total No. of Containers: 4 48

Relinquished by:	Date	Time	Received by:	Date	Time
Company: HHA, Inc	5/21/14	1523	Company: Advanced Tech Lab	5-21-14	1523
Relinquished by:	Date	Time	Received by:	Date	Time
Company: Advanced Tech Labs	5-21-14	16:10	Company: AR	5/21/14	16:10

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt:

- ☐ No. of containers correct
- ☐ custody seals secure
- Temp. @ receipt 5.4 °C
- ☑ received good condition/cold
- ☐ conforms to COC document

Shipment Method: Courier

Send Results to: Steve Netto

☒ 9171 TOWNE CENTRE DRIVE, SUITE 375
SAN DIEGO, CA 92122 (858) 455-6500

☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209
MESA, AZ 85204 (480) 345-0888

☐ 1820 EAST RIVER ROAD, SUITE 220
TUCSON, AZ 85718 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

ORIGINAL - LABORATORY YELLOW: QA MANAGER PINK: FIELD/TASK MANAGER

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 14-05-1622

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Hargis + Associates, Inc.

Client Project Name: Raytheon Main / 532.30

Attention: Steve Netto
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Approved for release on 05/29/2014 by:
Virendra Patel
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Raytheon Main / 532.30
Work Order Number: 14-05-1622

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 14-05-1622 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 05/21/14. They were assigned to Work Order 14-05-1622.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Return to Contents

Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Hargis + Associates, Inc. 9171 Towne Centre Drive, Suite 375 San Diego, CA 92122-6215	Work Order:	14-05-1622
		Project Name:	Raytheon Main / 532.30
		PO Number:	
		Date/Time Received:	05/21/14 14:58
		Number of Containers:	10
Attn:	Steve Netto		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-05202014B	14-05-1622-1	05/20/14 07:45	2	Aqueous
MW-36	14-05-1622-2	05/20/14 14:45	4	Aqueous
MW-31	14-05-1622-3	05/21/14 08:57	4	Aqueous

Return to Contents

Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Hargis + Associates, Inc. 9171 Towne Centre Drive, Suite 375 San Diego, CA 92122-6215	Work Order: Project Name: Received:	14-05-1622 Raytheon Main / 532.30 05/21/14
Attn:	Steve Netto		Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
MW-36 (14-05-1622-2)						
1,1-Dichloroethane	1.2		1.0	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	130		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	11		1.0	ug/L	EPA 8270C (M) Isotope Dilution	EPA 3510C
MW-31 (14-05-1622-3)						
1,1-Dichloroethane	2.9		1.0	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	410		5.0	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	11		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	10		1.0	ug/L	EPA 8270C (M) Isotope Dilution	EPA 3510C

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Calscience Environmental Laboratories, Inc.

Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-36	**14-05-1622-2-D**	**05/20/14 14:45**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 15:42**	**140522L06**

Parameter	Result	RL	DF	Qualifiers
1,4-Dioxane	11	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Nitrobenzene-d5	82	56-123	
1,4-Dioxane-d8(IDS-IS)	43	30-120	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-31	**14-05-1622-3-D**	**05/21/14 08:57**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 15:58**	**140522L06**

Parameter	Result	RL	DF	Qualifiers
1,4-Dioxane	10	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Nitrobenzene-d5	79	56-123	
1,4-Dioxane-d8(IDS-IS)	36	30-120	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-216-131**	**N/A**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 14:39**	**140522L06**

Parameter	Result	RL	DF	Qualifiers
1,4-Dioxane	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Nitrobenzene-d5	83	56-123	
1,4-Dioxane-d8(IDS-IS)	40	30-120	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-05202014B	**14-05-1622-1-A**	**05/20/14 07:45**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 15:51**	**140522L056**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1.00	
Benzene	ND	0.50	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	1.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	1.0	1.00	
Bromomethane	ND	10	1.00	
2-Butanone	ND	10	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	0.50	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	10	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	1.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	1.0	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	
2,2-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1.00	
c-1,3-Dichloropropene	ND	0.50	1.00	
t-1,3-Dichloropropene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	10	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	10	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	1.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	1.0	1.00	
1,2,4-Trichlorobenzene	ND	1.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
Trichloroethene	ND	1.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	1.0	1.00	
1,3,5-Trimethylbenzene	ND	1.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	0.50	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	80-120	
Dibromofluoromethane	94	78-126	
1,2-Dichloroethane-d4	98	75-135	
Toluene-d8	100	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-36	**14-05-1622-2-A**	**05/20/14 14:45**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 16:21**	**140522L056**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1.00	
Benzene	ND	0.50	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	1.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	1.0	1.00	
Bromomethane	ND	10	1.00	
2-Butanone	ND	10	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	0.50	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	10	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	1.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	1.0	1.00	
1,1-Dichloroethane	1.2	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
1,1-Dichloroethene	130	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	
2,2-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1.00	
c-1,3-Dichloropropene	ND	0.50	1.00	
t-1,3-Dichloropropene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	10	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	10	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	1.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	1.0	1.00	
1,2,4-Trichlorobenzene	ND	1.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
Trichloroethene	ND	1.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	1.0	1.00	
1,3,5-Trimethylbenzene	ND	1.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	0.50	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	95	78-126	
1,2-Dichloroethane-d4	99	75-135	
Toluene-d8	99	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-31	**14-05-1622-3-A**	**05/21/14 08:57**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 19:52**	**140522L056**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1.00	
Benzene	ND	0.50	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	1.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	1.0	1.00	
Bromomethane	ND	10	1.00	
2-Butanone	ND	10	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	0.50	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	10	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	1.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	1.0	1.00	
1,1-Dichloroethane	2.9	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	
2,2-Dichloropropane	ND	1.0	1.00	
1,1-Dichloropropene	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Parameter	Result	RL	DF	Qualifiers
c-1,3-Dichloropropene	ND	0.50	1.00	
t-1,3-Dichloropropene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	10	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	10	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	1.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	1.0	1.00	
1,2,4-Trichlorobenzene	ND	1.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
Trichloroethene	11	1.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	1.0	1.00	
1,3,5-Trimethylbenzene	ND	1.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	0.50	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	80-120	
Dibromofluoromethane	94	78-126	
1,2-Dichloroethane-d4	102	75-135	
Toluene-d8	99	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-31	**14-05-1622-3-B**	**05/21/14 08:57**	**Aqueous**	**GC/MS LL**	**05/23/14**	**05/23/14 17:06**	**140523L052**

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloroethene	410	5.0	5.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	97	80-120	
Dibromofluoromethane	92	78-126	
1,2-Dichloroethane-d4	114	75-135	
Toluene-d8	104	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-001-14180**	**N/A**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 15:21**	**140522L056**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1.00	
Benzene	ND	0.50	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	1.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	1.0	1.00	
Bromomethane	ND	10	1.00	
2-Butanone	ND	10	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	0.50	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	10	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	1.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	1.0	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	
2,2-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1.00	
c-1,3-Dichloropropene	ND	0.50	1.00	
t-1,3-Dichloropropene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	10	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	10	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	1.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	1.0	1.00	
1,2,4-Trichlorobenzene	ND	1.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
Trichloroethene	ND	1.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	1.0	1.00	
1,3,5-Trimethylbenzene	ND	1.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	0.50	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	95	78-126	
1,2-Dichloroethane-d4	96	75-135	
Toluene-d8	100	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-001-14197**	**N/A**	**Aqueous**	**GC/MS LL**	**05/23/14**	**05/23/14 15:12**	**140523L052**

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloroethene	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	
Dibromofluoromethane	92	78-126	
1,2-Dichloroethane-d4	106	75-135	
Toluene-d8	96	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Project: Raytheon Main / 532.30

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-05-1609-6	**Sample**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 17:01**	**140522S06**
14-05-1609-6	**Matrix Spike**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 17:48**	**140522S06**
14-05-1609-6	**Matrix Spike Duplicate**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 18:04**	**140522S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,4-Dioxane	ND	20.00	16.65	83	16.21	81	50-130	3	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-36	**Sample**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 16:21**	**140522S036**
MW-36	**Matrix Spike**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 17:22**	**140522S036**
MW-36	**Matrix Spike Duplicate**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 17:52**	**140522S036**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	50.20	100	51.92	104	74-122	3	0-21	
Carbon Tetrachloride	ND	50.00	49.52	99	51.86	104	60-144	5	0-21	
Chlorobenzene	ND	50.00	53.18	106	53.64	107	73-120	1	0-22	
1,2-Dibromoethane	ND	50.00	54.62	109	54.92	110	80-122	1	0-20	
1,2-Dichlorobenzene	ND	50.00	53.25	106	55.03	110	70-120	3	0-26	
1,2-Dichloroethane	ND	50.00	54.25	109	56.66	113	64-142	4	0-20	
1,1-Dichloroethene	128.4	50.00	183.0	109	187.1	118	52-136	2	0-21	
Ethylbenzene	ND	50.00	51.63	103	52.27	105	77-125	1	0-24	
Toluene	ND	50.00	50.67	101	51.69	103	72-126	2	0-23	
Trichloroethene	ND	50.00	49.90	100	51.08	102	74-128	2	0-22	
Vinyl Chloride	ND	50.00	50.70	101	53.41	107	67-133	5	0-20	
p/m-Xylene	ND	100.0	105.8	106	105.9	106	63-129	0	0-25	
o-Xylene	ND	50.00	54.69	109	55.42	111	62-128	1	0-24	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	48.90	98	51.20	102	68-134	5	0-21	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-05-1707-1	**Sample**	**Aqueous**	**GC/MS LL**	**05/23/14**	**05/23/14 15:40**	**140523S028**
14-05-1707-1	**Matrix Spike**	**Aqueous**	**GC/MS LL**	**05/23/14**	**05/23/14 16:09**	**140523S028**
14-05-1707-1	**Matrix Spike Duplicate**	**Aqueous**	**GC/MS LL**	**05/23/14**	**05/23/14 16:37**	**140523S028**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	49.54	99	47.64	95	74-122	4	0-21	
Carbon Tetrachloride	ND	50.00	62.71	125	60.45	121	60-144	4	0-21	
Chlorobenzene	ND	50.00	54.70	109	54.26	109	73-120	1	0-22	
1,2-Dibromoethane	ND	50.00	52.19	104	50.97	102	80-122	2	0-20	
1,2-Dichlorobenzene	ND	50.00	52.81	106	50.65	101	70-120	4	0-26	
1,2-Dichloroethane	ND	50.00	60.18	120	55.17	110	64-142	9	0-20	
1,1-Dichloroethene	ND	50.00	62.11	124	60.53	121	52-136	3	0-21	
Ethylbenzene	ND	50.00	56.50	113	54.88	110	77-125	3	0-24	
Toluene	ND	50.00	52.67	105	50.77	102	72-126	4	0-23	
Trichloroethene	ND	50.00	52.62	105	51.52	103	74-128	2	0-22	
Vinyl Chloride	6.448	50.00	59.34	106	60.02	107	67-133	1	0-20	
p/m-Xylene	ND	100.0	123.5	123	119.3	119	63-129	3	0-25	
o-Xylene	ND	50.00	64.06	128	60.27	121	62-128	6	0-24	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	52.97	106	52.71	105	68-134	0	0-21	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Project: Raytheon Main / 532.30

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-131	**LCS**	**Aqueous**	**GC/MS DDD**	**05/22/14**	**05/23/14 14:55**	**140522L06**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
1,4-Dioxane	20.00	16.22	81	50-130	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Project: Raytheon Main / 532.30

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-14180	**LCS**	**Aqueous**	**GC/MS JJ**	**05/22/14**	**05/22/14 13:28**	**140522L056**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	53.11	106	80-120	73-127	
Carbon Tetrachloride	50.00	52.96	106	67-139	55-151	
Chlorobenzene	50.00	55.01	110	78-120	71-127	
1,2-Dibromoethane	50.00	54.91	110	80-120	73-127	
1,2-Dichlorobenzene	50.00	55.99	112	63-129	52-140	
1,2-Dichloroethane	50.00	57.11	114	70-130	60-140	
1,1-Dichloroethene	50.00	48.12	96	66-126	56-136	
Ethylbenzene	50.00	52.92	106	80-123	73-130	
Toluene	50.00	53.11	106	80-120	73-127	
Trichloroethene	50.00	54.29	109	80-122	73-129	
Vinyl Chloride	50.00	46.33	93	70-130	60-140	
p/m-Xylene	100.0	109.4	109	75-123	67-131	
o-Xylene	50.00	56.41	113	74-122	66-130	
Methyl-t-Butyl Ether (MTBE)	50.00	50.80	102	69-129	59-139	

Total number of LCS compounds: 14
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Hargis + Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

Project: Raytheon Main / 532.30

Date Received: 05/21/14
Work Order: 14-05-1622
Preparation: EPA 5030C
Method: EPA 8260B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-14197	**LCS**	**Aqueous**	**GC/MS LL**	**05/23/14**	**05/23/14 14:12**	**140523L052**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	47.52	95	80-120	73-127	
Carbon Tetrachloride	50.00	57.99	116	67-139	55-151	
Chlorobenzene	50.00	52.13	104	78-120	71-127	
1,2-Dibromoethane	50.00	49.85	100	80-120	73-127	
1,2-Dichlorobenzene	50.00	50.63	101	63-129	52-140	
1,2-Dichloroethane	50.00	54.84	110	70-130	60-140	
1,1-Dichloroethene	50.00	53.82	108	66-126	56-136	
Ethylbenzene	50.00	53.36	107	80-123	73-130	
Toluene	50.00	49.14	98	80-120	73-127	
Trichloroethene	50.00	50.16	100	80-122	73-129	
Vinyl Chloride	50.00	46.76	94	70-130	60-140	
p/m-Xylene	100.0	114.9	115	75-123	67-131	
o-Xylene	50.00	59.53	119	74-122	66-130	
Methyl-t-Butyl Ether (MTBE)	50.00	46.99	94	69-129	59-139	

Total number of LCS compounds: 14
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 14-05-1622 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 8260B	EPA 5030C	876	GC/MS JJ	2
EPA 8260B	EPA 5030C	876	GC/MS LL	2
EPA 8270C (M) Isotope Dilution	EPA 3510C	897	GC/MS DDD	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 14-05-1622 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 5/20/14 PAGE 1 OF 1

14-05-1622

PROJECT NAME	RAYTHEON MAIN
PROJECT No./TASK No.	532.30
PROJECT MANAGER	STEVE NETTO
Phone No.	858-455-6500
QA MANAGER	
Fax No.	858-455-6533
SAMPLER (SIGNATURE)	Shayne E. Kipp
SAMPLER (PRINTED)	Shayne Kipps
	ARLENE FERRER

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	Time	MATRIX Soil	Ground-water	Surface water	Lab H2O	PRESERVATION HCl	HNO3	NaOH	H2SO4	Ice	SAMPLE CONTAINERS 40 ml VOA	1 L Amber	ANALYSIS REQUESTED VOCs by EPA 8260B	1,4-Dioxane 8270 MOD	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S 0-10	10-100	100-1,000	>1,000	SPECIAL HANDLING STANDARD TAT	MS	MSD	LABORATORY INFORMATION
	TB-052020148	5/20/14	7:45				X	X				X	2		X		X				X			
	MW-36		14:45		X			X				X	3		X			X			X			
	↓	↓	↓		X							X		1		X					X			
	MW-31	5/21/14	0857		X			X				X	3		X	X			X		X			
	↓	↓	↓		X							X		1		X					X			
Total number of Containers per analysis:													8	2							**Total No. of Containers:**			10

REMARKS

Relinquished by:	Date	Time	Company	Received by:	Date	Time	Company
EJH	5/21/14	1423	H+A, Inc	[illegible]	5/21/14	1423	CEL
[illegible]	5/21/14	1458	CEL	[illegible]	5/21/14	1458	CEL

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt:
- ☐ No. of containers correct
- ☐ custody seals secure
- Temp. @ receipt _____ °C
- ☐ received good condition/cold
- ☐ conforms to COC document

Shipment Method: Courier
Send Results to: Steve Netto

☒ 9171 TOWNE CENTRE DRIVE, SUITE 375
SAN DIEGO, CA 92122 (858) 455-6500

☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209
MESA, AZ 85204 (480) 345-0888

☐ 1820 EAST RIVER ROAD, SUITE 220
TUCSON, AZ 85718 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

ORIGINAL: LABORATORY YELLOW: QA MANAGER PINK: FIELD/TASK MANAGER

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 14-05-1622

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Hargis & Assoc. DATE: 05/21/14

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 3.8 °C - 0.3 °C (CF) = 3.5 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Checked by: 828

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: 828

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: LS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☑VOAh (3) ☐VOA**na**$_2$ ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB ☐1AGB**na**$_2$ ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na**$_2$ ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:** N/A **Labeled/Checked by:** LS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 689

Preservative: **h:** HCL **n:** HNO_3 **na**$_2$:$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 689

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