



HARGIS + ASSOCIATES, INC.

HYDROGEOLOGY • ENGINEERING

La Jolla Gateway
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122
Phone: 858.455.6500
Fax: 858.455.6533

October 28, 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, Third 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 third 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 third 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 third quarter 2014 quarterly groundwater monitoring and pilot groundwater extraction and treatment system (GETS) operation from June through August 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 August 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 wells MW-37 and MW-38 were inaccessible and not sampled in August 2014.

Other Offices:
Mesa, AZ
Tucson, AZ

Mr. William F. Jeffers, PE
October 28, 2014
Page 2

Monitor well MW-41 was installed in August 2014 after the approval of the proposed Additional Groundwater Assessment Work Plan Addendum No. 6 and has been incorporated into the quarterly groundwater monitoring program at the Site (DTSC, 2014; H+A, 2011a and 2013b).

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 is being completed during the fourth quarter; groundwater monitoring will be conducted as part of the routine operation and monitoring of the pilot GETS (H+A, 2013a).

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 August 18th and 20th, 2014 (Table 2).

Groundwater samples were collected during the period from August 18 through August 21, 2014; initial and confirmation groundwater samples were collected from monitor well MW-41 on September 10 and September 24, 2014, respectively (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 August 2014 consisted of trip blanks, field 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-29, MW-30B, MW-32B, and MW-41 in August and September 2014 (Table 3). The relative percent difference (RPD) 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, with the following exceptions:

- The RPD calculated between the original and the duplicate laboratory sampled results for 1,4-dioxane in monitor well MW-32B in August 2014 exceeded acceptance criteria. Therefore, the detections of 1,4-dioxane in the original, duplicate, and split samples were qualified as estimated "E" (Table 3; Appendix B).

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 August 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, with the following exceptions:

Mr. William F. Jeffers, PE
October 28, 2014
Page 3

- The 1,4-dioxane results for split samples collected from monitor wells MW-29 and MW-32B were extracted past the end of the recommended maximum holding time due to re-analysis requested outside of hold time. Therefore, the detections of 1,4-dioxane in the split samples were qualified as "ET" (Table 3; Appendix B).

GROUNDWATER EXTRACTION AND TREATMENT PILOT STUDY

This section summarizes the pilot GETS operation within the three-month period of monitoring conducted during the third quarter of 2014. The pilot GETS consists of four groundwater extraction wells, the treatment system, and the disposal system; however, the current phase of pilot testing is operating using only two extraction wells, EW-02 and MW-29. The treatment system processes extracted groundwater through an advanced oxidation unit that utilizes ultraviolet light and hydrogen peroxide (UV Ox), 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. A second phase of pilot GETS expansion took place between March 2014 and August 2014 in order to incorporate extraction well MW-29 into the extraction well network, as well as, replacing an advanced oxidation unit that used ozone and hydrogen peroxide with a UV Ox system. 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 third quarter 2014, the pilot GETS was operational approximately 2 percent of the available runtime and approximately 107,500 gallons of groundwater were treated and discharged to the sanitary sewer (Table 4). Downtime during the third quarter of 2014 was associated with expansion and upgrades to the facility. The average monthly discharge flowrate to the sanitary sewer during June 2014 through August 2014 was approximately 0.8 gpm. Since startup of the pilot GETS, approximately 90,820,000 gallons of groundwater have been treated at an average flowrate of 28 gpm through the end of August 2014 (Table 4).

Current monthly and quarterly pilot GETS monitoring activities include collecting samples from extraction wells EW-02 and MW-29 in addition to collecting samples at treatment system sampling ports: extraction well EW-02, extraction well MW-29, Influent, Post Particulate Filter, Post UV Ox, 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 B).

The pilot GETS continues to remove VOCs and 1,4-dioxane from extracted groundwater. The UV Ox advanced oxidation and carbon adsorption treatment units effectively removed VOCs from extracted groundwater. Breakthrough of low-level detections of VOCs were observed at concentrations well below the sewer discharge permit limit for 1,4-dioxane and 1,1-dichloroethane in the third quarter 2014 (Table 6). The effluent sample

Mr. William F. Jeffers, PE
October 28, 2014
Page 4

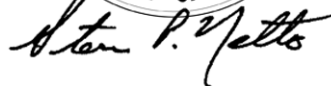
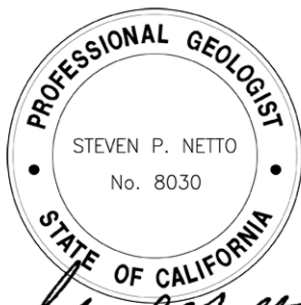
collected from the UV Ox advanced oxidation treatment unit contained low-level detections of bromate, a secondary by-product, and 1,1-dichloroethane during operations in the third quarter 2014. Carbon adsorption does not effectively remove bromate, and 1,1-dichloroethane desorbed from the carbon absorbers; however, both of these compounds were 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).

Due to low runtime of the pilots GETS during the third quarter of 2014, mass removal of VOCs and 1,4-dioxane from extracted groundwater was minimal. Since startup of the pilot GETS in July 2008, approximately 126 pounds of VOCs and 24 pounds of 1,4-dioxane have been removed from groundwater through August 2014 (Figure 7).

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

Sincerely,

HARGIS + ASSOCIATES, INC.

A handwritten signature of Steven P. Netto in black ink.

Steven P. Netto, PG 8030, CHG 872
Senior Hydrogeologist

A handwritten signature of Erin J. Hunter in black ink.

Erin J. Hunter
Hydrogeologist



Marcos E. Rodriguez, PE M35620
Senior Engineer

SPN/EJH/MER/ama

Mr. William F. Jeffers, PE
October 28, 2014
Page 5

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.

_____, 2014. Email from P. Pongetti, DTSC, re: Approval of Additional Groundwater Assessment Work Plan Addendum No. 6, Raytheon Fullerton, dated February 10, 2014.

Hargis + Associates, Inc. (H+A), 2003. Groundwater Monitoring Work Plan and Sampling and Analysis Plan (Revision 1.0), Raytheon Company (former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. April 25, 2003.

_____, 2009a. 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. March 31, 2009.

_____, 2009b. Letter to W. Jeffers, DTSC, from C. Ross and S. Netto, H+A, re Response to DTSC Comments to Addendums to Workplans. July 27, 2009.

_____, 2011a. Letter to W. Jeffers, DTSC, re: Addendum No. 1 to the *Groundwater Monitoring Work Plan and Sampling and Analysis Plan (Revision 1.0)*, by Hargis + Associates, Inc., dated April 25, 2003, for the Raytheon Company, (Former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. February 11, 2011.

_____, 2011b. Letter to W. Jeffers, DTSC, re: Amendment A, Addendum No. 1 to the *Groundwater Monitoring Work Plan and Sampling and Analysis Plan (Revision 1.0)*, by Hargis + Associates, Inc., dated April 25, 2003, for the Raytheon Company, (Former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. June 16, 2011.

_____, 2013a. Corrective Measures Study Work Plan Update, Raytheon Company (Former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. October 4, 2013.

_____, 2013b. Additional Groundwater Assessment Work Plan, Addendum No. 6, Raytheon Company (Former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. December 19, 2013.

_____, 2014. Results of Groundwater Monitoring and Groundwater Extraction and Treatment Pilot Testing, 2013/2014 Annual Report, Raytheon Company (Former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. May 14, 2014.

Mr. William F. Jeffers, PE
October 28, 2014
Page 6

Enclosures

Tables

- Table 1. Groundwater Monitoring Program
- Table 2. Groundwater Levels, Third Quarter 2014
- Table 3. Prevalent Volatile Organic Compounds and 1,4-Dioxane in Groundwater, Third Quarter 2014
- Table 4. Pilot Groundwater Extraction and Treatment System Operational Summary
- Table 5. Pilot Groundwater Extraction and Treatment System Sampling Schedule
- Table 6. Select Compounds Monitored in Pilot Groundwater Extraction and Treatment System Samples, Third Quarter 2014

Figures

- Figure 1. Site Location
- Figure 2. Well and Piezometer Locations
- Figure 3. Water Level and Water Quality, Unit B, August 2014
- Figure 4. Pilot Groundwater and Treatment System Operation and Extraction Well Water Levels
- Figure 5. 1,1-Dichloroethylene and 1,4-Dioxane Concentrations in Extraction Wells
- 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. Duc Nguyen, Orange County Public Works, Via Email Only
Mr. Eric Silvers, Regency Centers
Ms. Denise Gerstenberg, Cushman & Wakefield of California, Inc.

(2 copies w-CDs)

Mr. Dave Schickling, City of Fullerton

(1 CD only)

Mr. Chad Blais, City of Fullerton
Mr. Robert Logan, RG, Kennedy/Jenks Consultants
Ms. Jennifer Schaefer, The Morgan Group, Inc.
Rosalind McLeroy, Esq., The Morgan Group, Inc.
Mr. Michael Payne, Prudential Real Estate Investors
Ms. Tizita Bekele, PE, Department of Toxic Substances Control, Cypress
Mr. Michael McGee, City of Buena Park

TABLE 1
GROUNDWATER MONITORING PROGRAM

WELL IDENTIFIER	HYDROGEOLOGIC ZONE	SAMPLED AUG 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	X		VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
MW-19	A					VOCs
MW-22	A					VOCs; 1,4-Dioxane
MW-23	A					VOCs
MW-34A	A	X		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	X		VOCs		
MW-26A	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-26B	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-32A	AB	X		VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
EW-01	B	X	VOCs; 1,4-Dioxane			
EW-02*	B	X	VOCs; 1,4-Dioxane			
MW-16	B	X		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	VOCs; 1,4-Dioxane ^(a)		
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	X		VOCs; 1,4-Dioxane		
MW-09	C	X		VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
MW-24	C				VOCs; 1,4-Dioxane	
MW-32C	C	X		VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
MW-06	D				VOCs	
MW-20	D	X		VOCs; 1,4-Dioxane		
MW-25	D		WATER LEVEL MEASUREMENT ONLY			

FOOTNOTES

(a)= Reduced sampling schedule proposed in the 2013/1014 Annual Report (H+A, 2014)

* = 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
THIRD 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
<u>Regional Groundwater System Monitor and Extraction Wells</u>					
MW-06	08/18/14	184.70	184.60	0.10	
MW-08	08/18/14	155.91	146.40	9.51	
MW-09	08/20/14	180.10	181.10	-1.00	
MW-13	08/18/14	141.84	146.71	-4.87	
MW-15	08/18/14	144.95	147.95	-3.00	
MW-16	08/18/14	142.40	155.65	-13.25	
MW-17	08/18/14	142.70	155.51	-12.81	
MW-18	08/18/14	142.32	155.01	-12.69	
MW-19	08/18/14	142.06	154.73	-12.67	
MW-20	08/18/14	184.19	177.61	6.58	
MW-21	08/18/14	141.18	145.70	-4.52	
MW-22	08/18/14	138.65	150.82	-12.17	
MW-23	08/18/14	137.33	150.88	-13.55	
MW-24	08/18/14	142.83	144.45	-1.62	
MW-25	08/18/14	142.64	149.70	-7.06	
MW-26A	08/18/14	137.04	139.88	-2.84	
MW-26B	08/18/14	137.05	139.80	-2.75	
MW-26C	08/18/14	137.22	157.33	-20.11	
MW-27	08/18/14	137.16	157.02	-19.86	
MW-28	08/18/14	140.77	160.73	-19.96	
MW-29	08/18/14	139.81	160.95	-21.14	
MW-30A	08/18/14	129.44	151.26	-21.82	
MW-30B	08/18/14	129.39	147.46	-18.07	
MW-31	08/18/14	119.60	142.35	-22.75	
MW-32A	08/18/14	92.88	120.55	-27.67	
MW-32B	08/18/14	92.89	118.71	-25.82	

TABLE 2
GROUNDWATER LEVELS
THIRD 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
<u>Reginal Groundwater System Monitor and Extraction Wells (continued)</u>					
MW-32C	08/18/14	92.88	101.60	-8.72	
MW-33	08/18/14	83.19	115.30	-32.11	
MW-34A	08/18/14	153.25	171.15	-17.90	
MW-34B	08/18/14	153.11	177.51	-24.40	
MW-34C	08/18/14	153.29	175.77	-22.48	
MW-35A	08/18/14	93.57	98.60	-5.03	
MW-35B	08/18/14	93.56	111.30	-17.74	
MW-35C	08/18/14	93.55	120.07	-26.52	
MW-36	08/18/14	86.65	120.00	-33.35	
MW-37	08/18/14	155.60	167.65	-12.05	
MW-38	08/18/14	154.90	173.52	-18.62	
MW-39	08/18/14	84.25	118.09	-33.84	
MW-40	08/18/14	123.40	143.09	-19.69	
MW-41					
TemporaryWell (b)	08/19/14	156.02	186.17	-30.15	
MW-41	09/10/14	155.60	185.65	-30.05	
	09/24/14	155.60	186.05	-30.45	
EW-01	08/18/14	141.07	159.40	-18.33	
EW-02	08/18/14	132.97	153.84	-20.87	
<u>Perched Zone Water Levels</u>					
P-07	08/18/14	142.31	112.83	29.48	
P-09	08/18/14	183.86	120.73	63.13	

FOOTNOTES

(a) Reference point elevations are relative to City of Fullerton datum.

(b) Water level measured in MW-41 temporary well casing on 8/19/14 during monitor well MW-41 drilling and construction activities

bls = Below land surface

msl = Mean sea level

Pilot GETS = Pilot Groundwater Extraction and Treatment System On

TABLE 3

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

.....Concentration (micrograms per liter).....																
VOLATILE ORGANIC COMPOUNDS (FEDERAL MCL/CALIFORNIA MCL)															Semi-VOCs	
Well Identifier / Sample Identifier	Date Sampled	QA Code	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)	1,4-DIOXANE (3*/1**)
Regional Groundwater System Monitor and Extraction Wells																
MW-08	08/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.7	0.62	< 0.50	< 0.50	< 0.50	15	< 0.50	< 0.50	0.31
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-09	8/20/2014	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	0.60
MW-09 Historical Range***			< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 0.79	< 0.50 - < 5.0	< 0.50 - 4.9	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 0.96	< 0.50 - 5.3	< 0.50 - < 5.0	< 0.20 - 52 E
MW-15	08/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.9	7.0	< 0.50	NA
MW-15 Historical Range***			< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 12	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 7.8	< 0.50 - 20	< 0.50 - < 5.0	< 0.50 - < 2.0
MW-16	08/20/14	ORG	< 1.0	< 1.0	< 1.0	4.0	< 0.50	820	< 1.0	< 1.0	< 1.0	< 1.0	6.4 High	< 1.0	< 1.0	38
MW-16 Historical Range***			< 0.50 - < 5.0	< 0.50 - 0.58	< 0.50 - 1.1	< 0.50 - 18	< 0.50 - 4.5	49 - 1,900 E	< 0.50 - 0.57	< 0.50 - 2.9	< 0.50 - 28 E	< 0.50 - 10	< 0.50 - 5.7	< 0.50 - < 5.0	< 0.50 - < 5.0	< 2.0 - 440
MW-18	08/20/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.0	< 0.50	< 0.20
MW-18 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.51	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 6.3	< 0.50	< 0.20 - 7.7 E
MW-20	08/21/14	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-20 Historical Range***			< 0.50	< 0.50	< 0.50 - 0.78	< 0.50	< 0.50	< 0.50 - 82	< 0.50	< 0.50	< 0.50 - 0.63	< 0.50	< 0.50	< 0.50 - 0.58	< 0.50	< 0.20 - 3.9
MW-21	8/18/2014	ORG	< 2.5	< 2.5	< 2.5	18	3.4	1,200	< 2.5	3.6	< 2.5	7.0	18	< 2.5	< 2.5	360
MW-21 Historical Range***			< 0.50 - < 25	< 0.50 - 1.9	< 0.50 - 4.6	< 0.50 - 71	< 0.50 - 8.9	200 - 4,900	< 0.50 - 2.4	< 0.50 - 12	< 0.50 - 2.0	< 0.50 - 27	0.96 - 46	< 0.50 - 0.53	< 0.50 - < 10	11 - 1,100
MW-26C	08/19/14	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-26C Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.7	< 0.50	< 0.50 - 120	< 0.50	< 0.50 - 0.79	< 0.50	< 0.50 - 0.77	< 0.50	< 0.50	< 0.50 - 22	< 0.20 - 55 E
MW-28	08/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.8
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-29	08/18/14	ORG	< 0.50	< 0.50	< 0.50	1.9	< 0.50	180	< 0.50	0.58	< 0.50	0.79	4.4	1.0	< 0.50	73
MW-2900	08/18/14	DUP	< 0.50	< 0.50	< 0.50	2.0	< 0.50	170	< 0.50	0.73	< 0.50	0.80	4.3	0.99	< 0.50	74
MW-29	08/18/14	SPT	< 0.50	< 0.50	< 1.0	< 0.50	2.0	160	< 1.0	< 1.0	< 1.0	< 1.0	4.1	< 10	< 1.0	69 ET
MW-29 Historical Range***			< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 0.80	1.1 - 9.2	< 0.50 - 1.4	99 - 900 E	< 0.50 - 0.61	< 0.50 - 6.6	< 0.50 - < 5.0	< 0.50 - 2.3	0.58 - 8.3	< 0.50 - 1.9	< 0.50 - < 5.0	29 - 301
MW-30A	08/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.1	< 0.50	< 0.50	< 0.50	< 0.50	1.9 High	< 0.50	< 0.50	2.1
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	08/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	17	4.4	< 0.50	< 0.50	< 0.50	99	< 0.50	0.84	< 0.20
MW-30B	08/21/14	DUP	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	16	4.1	< 0.50	< 0.50	< 0.50	100	< 0.50	0.78	< 0.20
MW-30B	08/21/14	SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	15	4.7	< 1.0	< 1.0	< 1.0	94	< 10	< 1.0	2.1
MW-30B Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 22	< 0.50 - 6.0	< 0.50	< 0.50	< 0.50	< 0.50 - 100	< 0.50	< 0.50 - 4.5	< 0.20 - 28 E

TABLE 3

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

.....Concentration (micrograms per liter).....																
VOLATILE ORGANIC COMPOUNDS (FEDERAL MCL/CALIFORNIA MCL)															Semi-VOCs	
Well Identifier / Sample Identifier	Date Sampled	QA Code	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)	1,4-DIOXANE (3*/1**)
Regional Groundwater System Monitor and Extraction Wells (cont'd)																
MW-31	08/21/14	ORG	< 0.50	< 0.50	< 0.50	3.0	< 0.50	350	0.58	0.64	< 0.50	0.75	11	< 0.50	0.81	16
Historical High/Low																
MW-31 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 3.7	< 0.50	25 - 430	< 0.50 - 1.2	< 0.50 - 2.5	< 0.50	< 0.50 - 1.2	2.2 - 21	< 0.50	< 0.50 - 1.0	<0.20 - 13
MW-32A	08/19/14	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-32A 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 - 0.57
MW-32B	08/19/14	ORG	< 0.50	< 0.50	< 0.50	0.88	< 0.50	97	4.5	< 0.50	< 0.50	< 0.50	64	< 0.50	< 0.50	0.62 E
MW-3200B	08/19/14	DUP	< 0.50	< 0.50	< 0.50	0.83	< 0.50	96	4.2	< 0.50	< 0.50	< 0.50	64	< 0.50	< 0.50	6.5 E
MW-32B	08/19/14	SPT	< 0.50	< 0.50	<1.0	<1.0	< 0.50	86	4.3	<1.0	<1.0	<1.0	61	<10	<1.0	3.7 ET, E
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-32C	08/19/14	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-32C Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.56	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 1.0
MW-33	08/21/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.4	< 0.50	< 0.50	< 0.50	< 0.50	1.1	< 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-34A	8/19/201	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.1	< 0.50	< 0.20
MW-34A 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- 1.6	< 0.50 - 2.8	< 0.20 - < 2.0
MW-34B	08/19/14	ORG	< 0.50	< 0.50	< 0.50	2.4	0.66	200	< 0.50	< 0.50	< 0.50	1.3	0.72	< 0.50	< 0.50	99
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-34C	08/19/14	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-34C 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 - 9.6	< 0.20 - < 2.0
MW-35C	08/20/14	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	08/20/14	ORG	< 0.50	< 0.50	< 0.50	0.93	< 0.50	86	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	9.6
MW-36 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.7	< 0.50	2.9 - 140	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50 - 5.9	< 0.20 - 14
MW-39	08/20/14	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	0.99	< 0.20
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 - 1.3	<0.20
MW-40	08/21/14	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

TABLE 3

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

.....Concentration (micrograms per liter).....																
VOLATILE ORGANIC COMPOUNDS (FEDERAL MCL/CALIFORNIA MCL)															Semi-VOCs	
Well Identifier / Sample Identifier	Date Sampled	QA Code	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)	1,4-DIOXANE (3*/1**)
Regional Groundwater System Monitor and Extraction Wells (cont'd)																
MW-41-420	08/19/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.49
MW-4100-420	08/19/14	DUP	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.51
MW-41-420	08/19/14	SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.3
MW-41	09/10/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.49
MW-4100	09/10/14	DUP	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.42
MW-41	09/10/14	SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MW-41	09/24/14	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-4100	09/24/14	DUP	< 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-41	09/24/14	SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MW-41 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 2.6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 0.49
EW-01	08/18/14	ORG	< 2.5	< 2.5	< 2.5	14	4.0	950	< 2.5	3.8	< 2.5	8.4	3.1	< 2.5	< 2.5	970
Historical High/Low										High			High			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 - 0.61	< 0.50 - 4.6	5.1 - 710
EW-02	08/18/14	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.1
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-081814A	08/18/14	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-081814B	08/18/14	TB-SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA
RB-081814	08/18/14	RB	< 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	< 0.25
TB-081914A	08/19/14	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-082014	08/20/14	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
RB-08202014	08/20/14	RB	< 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
RB-08202014B	08/20/14	RB	< 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-082114A	08/21/14	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-082114B	08/21/14	TB-SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA
TB-091014A	09/10/14	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-091014B	09/10/14	TB-SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA
TB-09102014A	09/24/14	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-09102014B	09/24/14	TB-SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 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
 DUP = Field duplicate sample
 ORG = Original sample
 E = Data qualified as Estimated in accordance with quality control criteria.
 ET = Sample was extracted past end of recommended maximum holding time.
 TB = Trip blank sample
 RB = Rinsate blank sample
 ug/l = Micrograms per liter
 MCL = Maximum Contaminant Level
 QA = Quality Assurance
 SPT = Split sample

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%
Jun-14	0	0.0	0.0	0	720	0%
Jul-14	0	0.0	0.0	0	744	0%
Aug-14	107,466	2.4	49.5	36	744	5%
3Q2014	107,466	0.8	49.5	36	2,208	2%
SINCE INCEPTION	90,820,423	28.0	39.8	37,999	54,072	70%

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 2013 operational summary

Treatment of groundwater from EW-02 initiated in 2010

CEFF = Carbon effluent

TABLE 5
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLING SCHEDULE

				SAMPLE FREQUENCY AND LOCATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				Daily Samples ¹ : Days 1-5						Weekly Samples ¹ : Weeks 1-4						Monthly Samples: Week 5+						Quarterly Samples: Week 1+																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT) ³	Post-Carbon (CEFF)		System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT) ³	Post-Carbon (CEFF)		Extraction Wells (Well ID) ²	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT) ³		Post-Carbon (CEFF)	Extraction Wells (Well ID) ²	System Influent (INF)	Post-Oxidation (POX)	Post-Carbon (CEFF)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
COMPOUND(S) / CONSTITUENT	ANALYTICAL METHOD	SAMPLE CONTAINER	REPORTING DETECTION LIMITS (milligrams per liter)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

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 Carbon breakthrough will be collected from the effluent of the first carbon unit in series; when breakthrough of the first unit is detected, the breakthrough sample will be collected from the effluent of the second carbon unit in 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

HNO₃ = Nitric acid

H₂SO₄ = Sulfuric acid

nm = Nanometers

EPA = U.S. Environmental Protection Agency

SIM = Selected ion monitoring

SM = Standard Method

L = Liter

poly = High density polyethylene bottle

Amber = Amber glass bottle

TABLE 6

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

Compound	Date	Units	MW-21	MW-29	EW-01	EW-02	INF*	PF	POX	CBT	CEFF
1,1,2-Trichloroethane (5 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	<0.50	<0.50	--	<0.50
	08/01/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/04/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/05/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/06/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/07/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/08/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/15/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/18/14	ug/L	7.0	0.79	8.4	<0.50	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/29/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
1,1-Dichloroethane (5 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	<0.50	<0.50	--	0.52
	08/01/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.51	0.62
	08/04/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.59	0.70
	08/05/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	0.70
	08/06/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.59	0.68
	08/07/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	0.51
	08/08/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.52	0.62
	08/15/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.57	0.63
	08/18/14	ug/L	18	1.9	14	<0.50	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.68	0.71
	08/29/14	ug/L	--	--	--	--	<0.50	--	<0.50	0.68	0.82
1,1-Dichloroethene (6 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	27	<0.50	--	<0.50
	08/01/14	ug/L	--	--	--	--	21	--	<0.50	<0.50	<0.50
	08/04/14	ug/L	--	--	--	--	30	--	<0.50	<0.50	<0.50
	08/05/14	ug/L	--	--	--	--	28	--	<0.50	<0.50	<0.50
	08/06/14	ug/L	--	--	--	--	28	--	<0.50	<0.50	<0.50
	08/07/14	ug/L	--	--	--	--	30	--	0.54	<0.50	<0.50
	08/08/14	ug/L	--	--	--	--	23	--	<0.50	<0.50	<0.50
	08/15/14	ug/L	--	--	--	--	36	--	2.2	0.57	<0.50
	08/18/14	ug/L	1,200	180	950	5.2	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	23	--	<0.50	<0.50	<0.50
	08/29/14	ug/L	--	--	--	--	34	--	2.8	0.61	<0.50
1,2-Dichloroethane (0.5 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	<0.50	<0.50	--	<0.50
	08/01/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/04/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/05/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/06/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/07/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/08/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/15/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/18/14	ug/L	3.4	<0.50	4.0	<0.50	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/29/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50

TABLE 6
SELECT COMPOUNDS MONITORED IN
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLES
THIRD QUARTER 2014

Compound	Date	Units	MW-21	MW-29	EW-01	EW-02	INF*	PF	POX	CBT	CEFF
cis-1,2-Dichloroethene (6 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	<0.50	<0.50	--	<0.50
	08/01/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/04/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/05/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/06/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/07/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/08/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/15/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/18/14	ug/L	<2.5	<0.50	<2.5	<0.50	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/29/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
Tetrachloroethene (5 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	<0.50	<0.50	--	<0.50
	08/01/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/04/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/05/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/06/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/07/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/08/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/15/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/18/14	ug/L	3.6	0.58	3.8	<0.50	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/29/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
Trichloroethene (5 ug/L MCL)	07/30/14	ug/L	--	--	--	--	--	<0.50	<0.50	--	<0.50
	08/01/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/04/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/05/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/06/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/07/14	ug/L	--	--	--	--	0.60	--	<0.50	<0.50	<0.50
	08/08/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/15/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/18/14	ug/L	18	4.4	3.1	<0.50	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	<0.50	--	<0.50	<0.50	<0.50
	08/29/14	ug/L	--	--	--	--	0.65	--	<0.50	<0.50	<0.50
1,4-Dioxane (1 ug/L California Notification Level)	07/30/14	ug/L	--	--	--	--	--	8.3	0.66	--	0.81
	08/01/14	ug/L	--	--	--	--	9.7	--	1.0	--	--
	08/04/14	ug/L	--	--	--	--	12	--	2.2	--	--
	08/05/14	ug/L	--	--	--	--	11	--	0.80	--	--
	08/06/14	ug/L	--	--	--	--	11	--	2.1	--	--
	08/07/14	ug/L	--	--	--	--	11	--	1.8	--	--
	08/08/14	ug/L	--	--	--	--	8.8	--	2.0	--	--
	08/15/14	ug/L	--	--	--	--	13	--	9.8	--	--
	08/18/14	ug/L	360	73	970	5.1	--	--	--	--	--
	08/22/14	ug/L	--	--	--	--	8.5	--	1.2	--	--
	08/29/14	ug/L	--	--	--	--	15	--	11	--	--

TABLE 6

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

Compound	Date	Units	MW-21	MW-29	EW-01	EW-02	INF*	PF	POX	CBT	CEFF
Bromide	08/01/14	mg/L	--	--	--	--	<0.05	--	--	--	--
	08/08/14	mg/L	--	--	--	--	0.41	--	--	--	--
Bromate (10 ug/L MCL)	08/01/14	ug/L	--	--	--	--	--	--	1.1	--	--
	08/04/14	ug/L	--	--	--	--	--	--	1.0	--	--
	08/05/14	ug/L	--	--	--	--	--	--	<0.3	--	--
	08/06/14	ug/L	--	--	--	--	--	--	<0.3	--	--
	08/07/14	ug/L	--	--	--	--	--	--	<0.3	--	--
	08/08/14	ug/L	--	--	--	--	--	--	<0.3	--	--
	08/15/14	ug/L	--	--	--	--	--	--	<0.3	--	--
	08/22/14	ug/L	--	--	--	--	--	--	<0.3	--	--
	08/29/14	ug/L	--	--	--	--	--	--	<0.3	--	--
Total Non-Filterable Residue	--	mg/L	--	--	--	--	--	--	--	--	--
Total Filterable Residue (500 mg/L MCL)	--	mg/L	--	--	--	--	--	--	--	--	--

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)

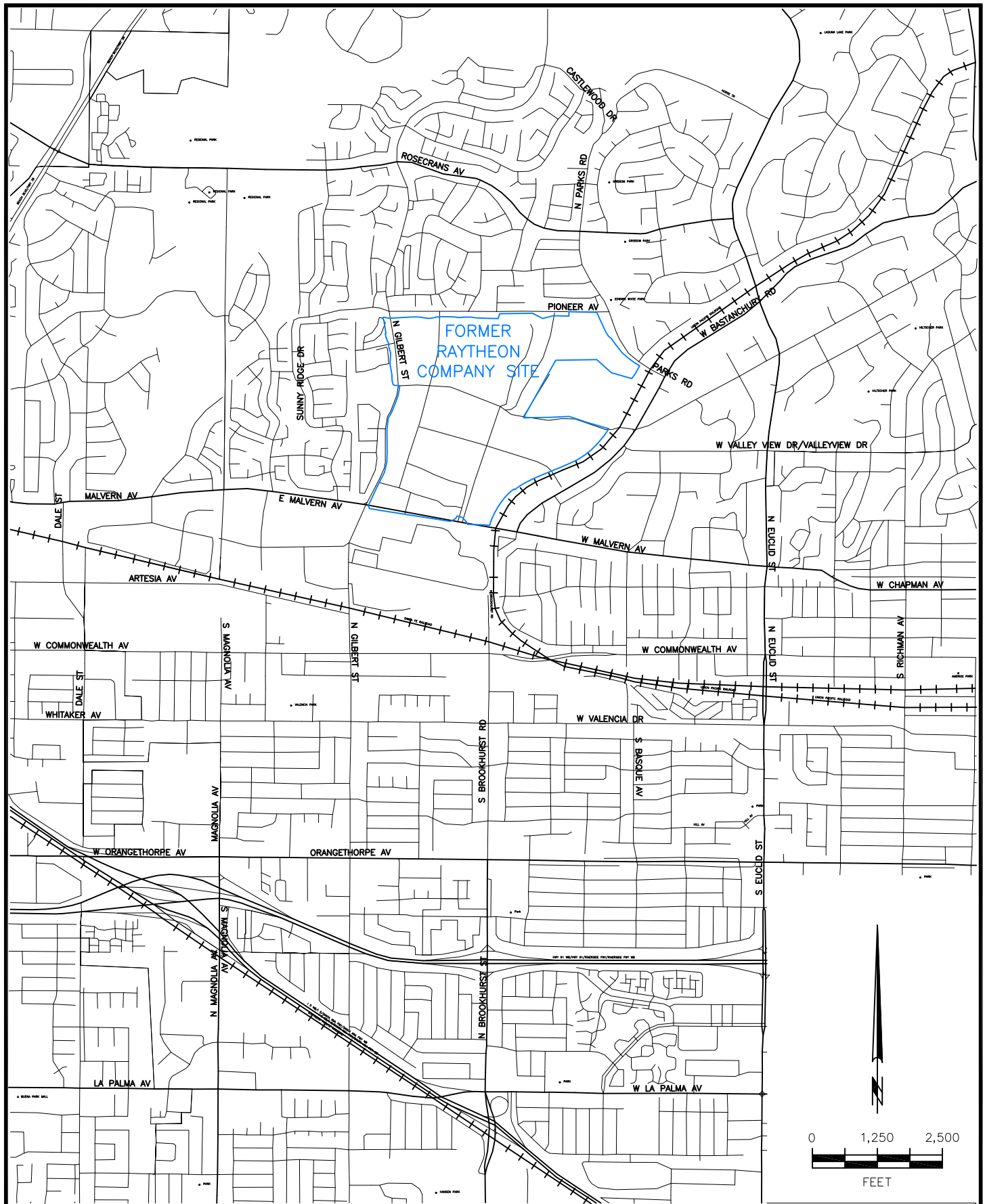
PF = Post Particulate Filter

POX = Post Hipox Oxidation

CBT = Carbon Breakthrough

CEFF = Carbon Effluent

May 11, 2011 - 10:09am ADE - T: \2011\500-599\532 Raytheon\Hydrogeology\H+A BaseMaps\410-8281.dwg



HARGIS+ASSOCIATES, INC.
Hydrogeology/Engineering

FIGURE 1. SITE LOCATION

5/11 | RPT NO. 532.31 | 410-8281 | A

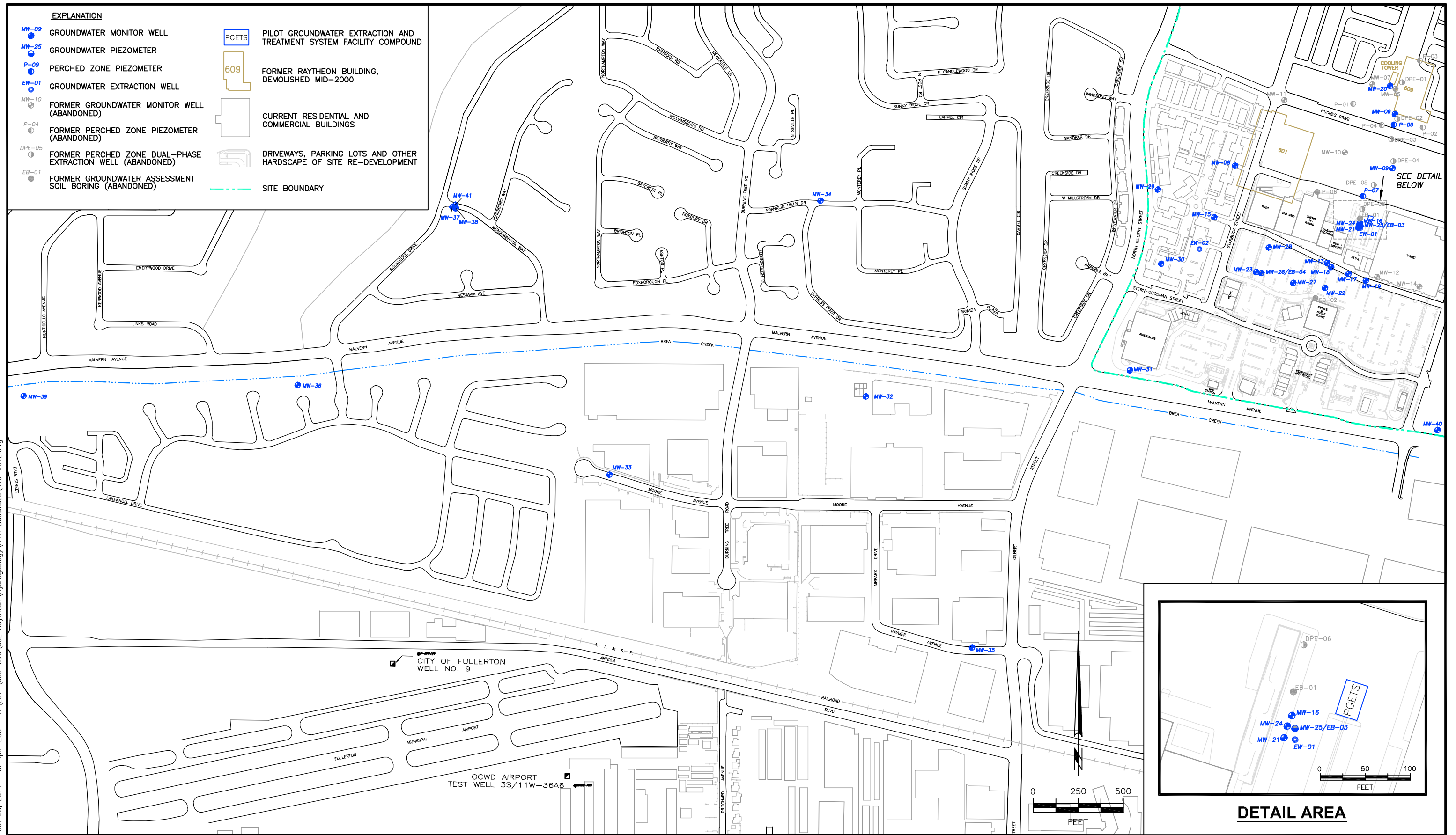
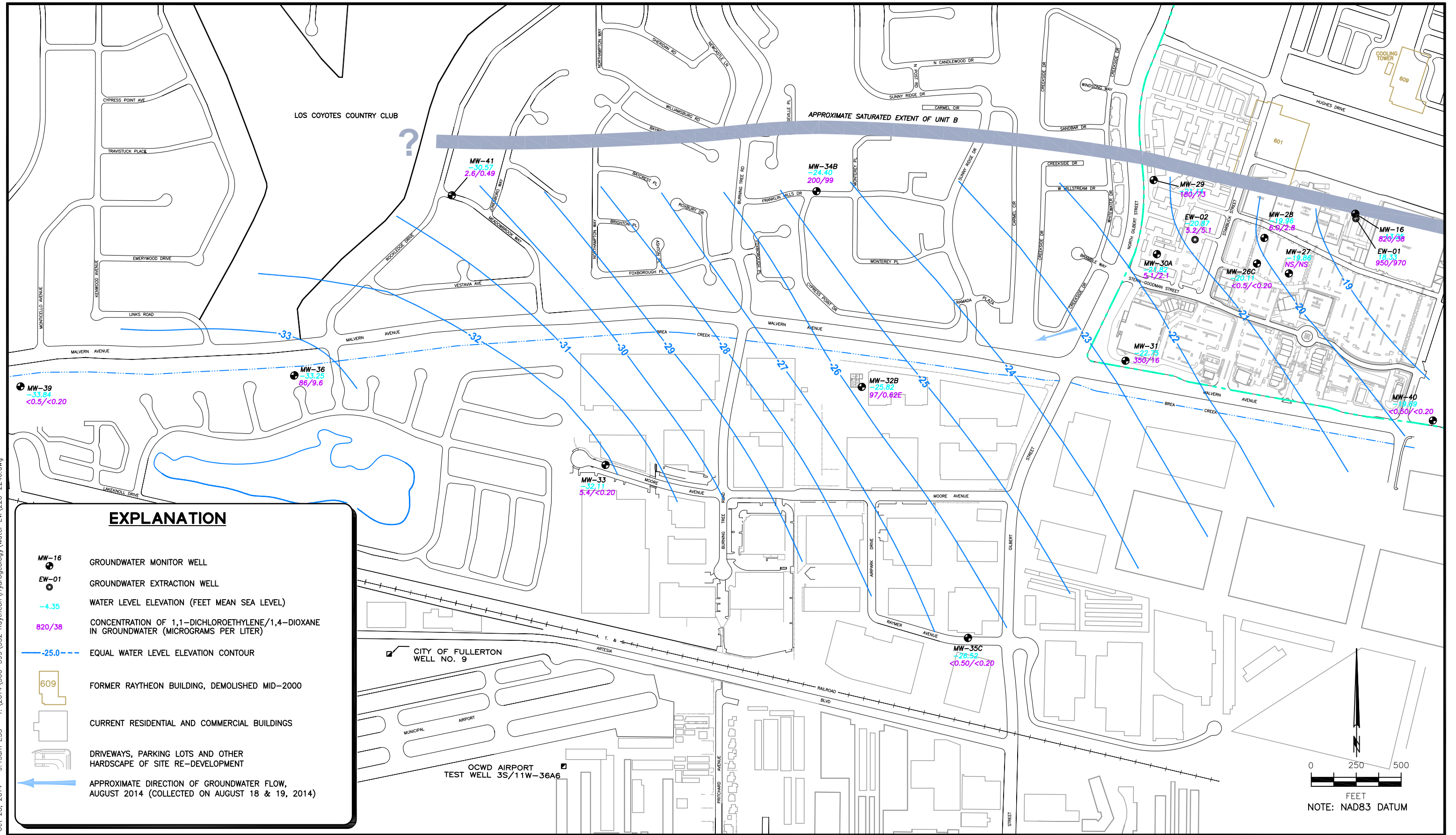


FIGURE 2.
WELL AND PIEZOMETER LOCATIONS



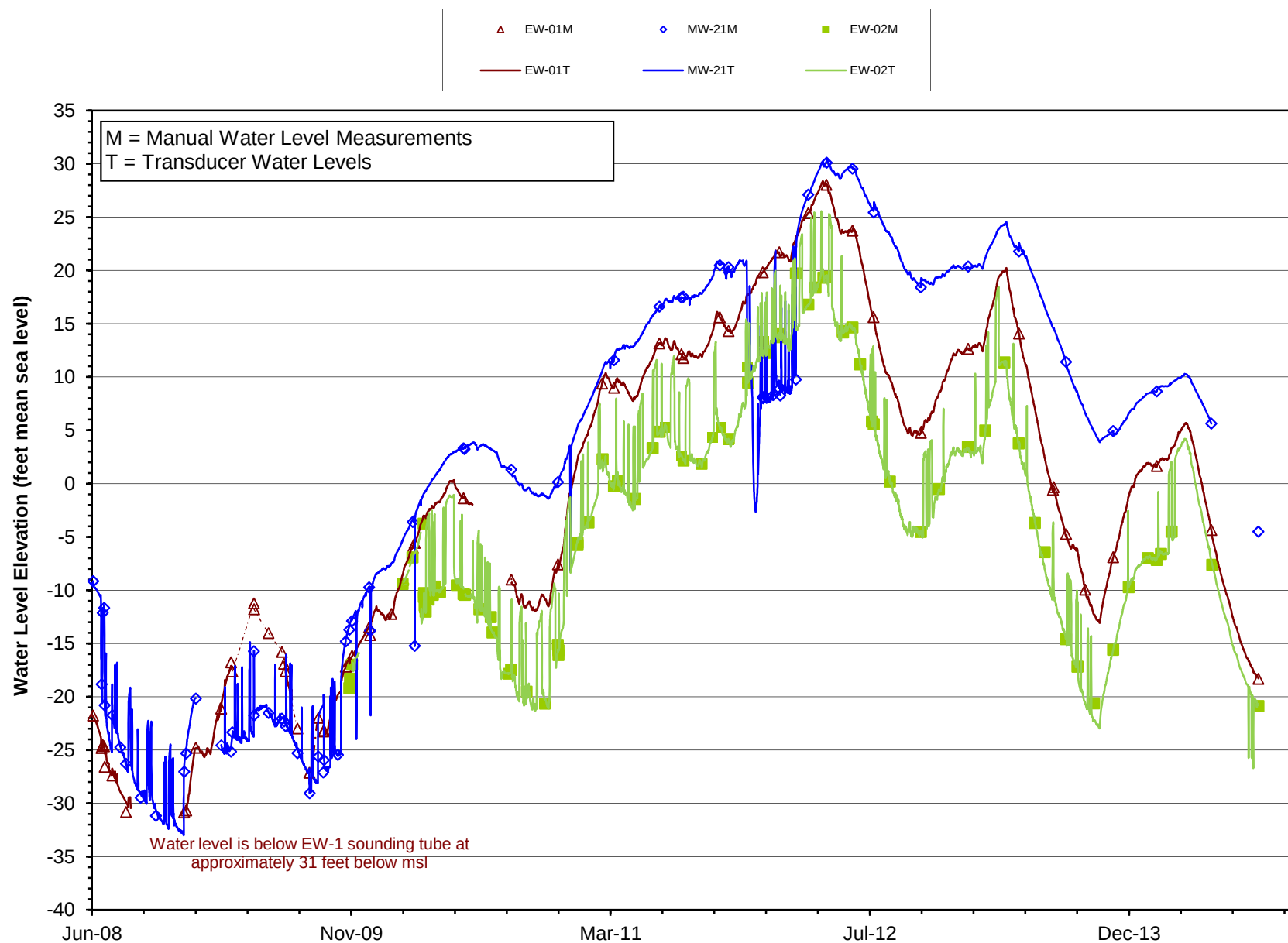


FIGURE 4.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATION
AND EXTRACTION WELL WATER LEVELS

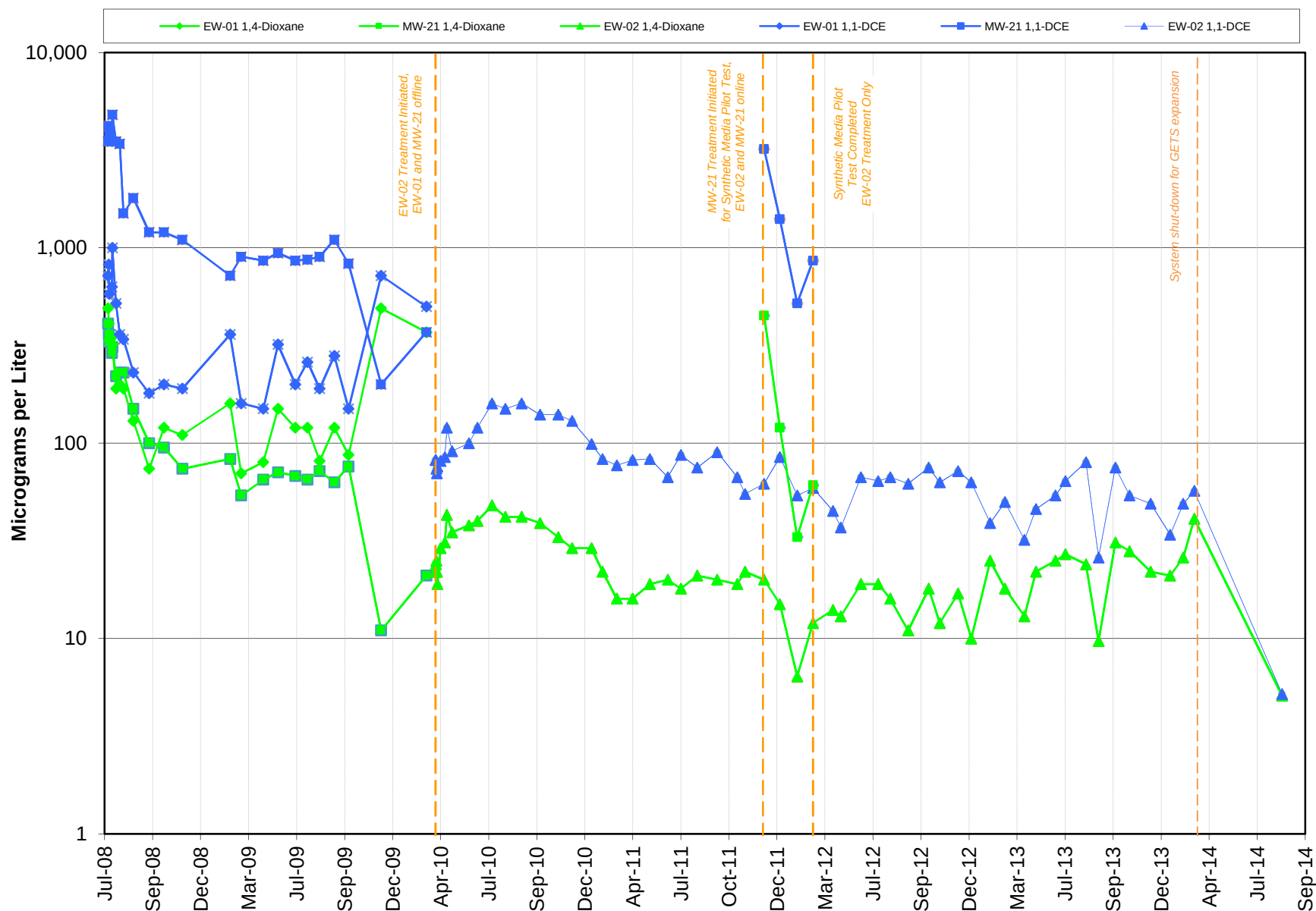


FIGURE 5.
1,1-DICHLOROETHYLENE AND 1,4-DIOXANE CONCENTRATIONS IN
EXTRACTION WELLS

1,1-DCE = 1,1-Dichloroethylene

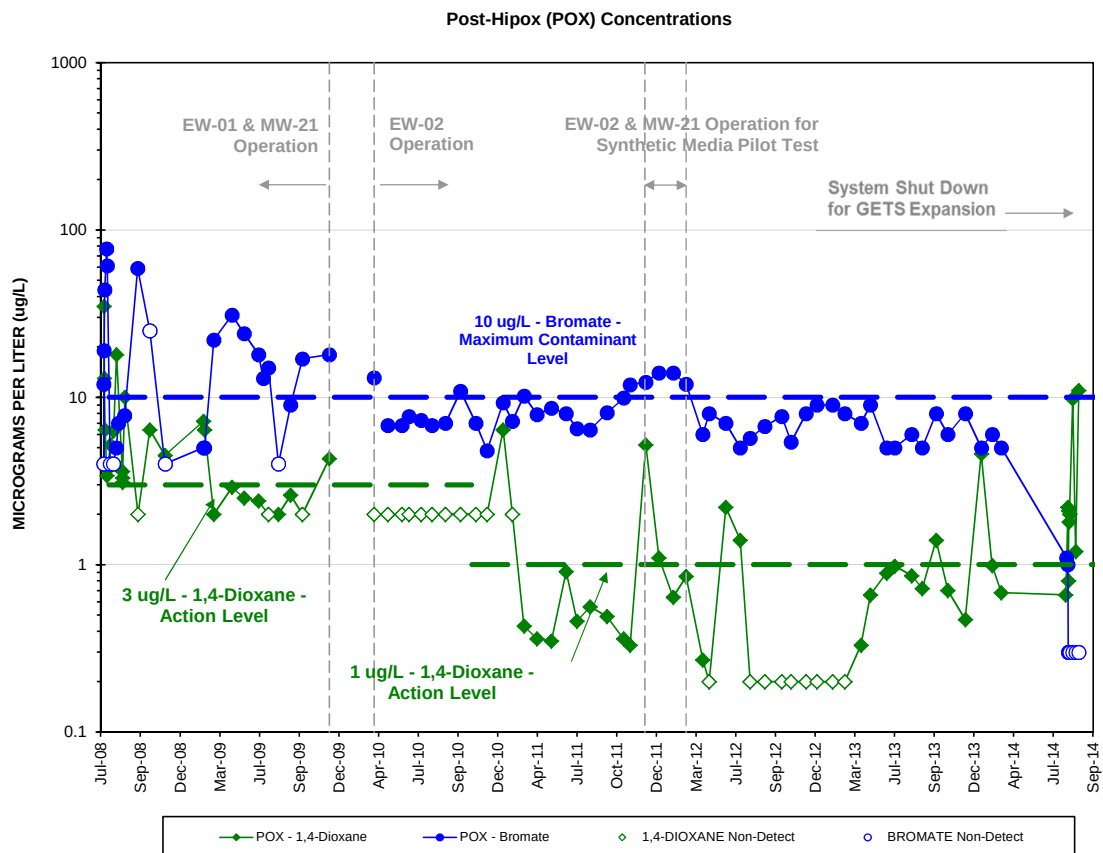
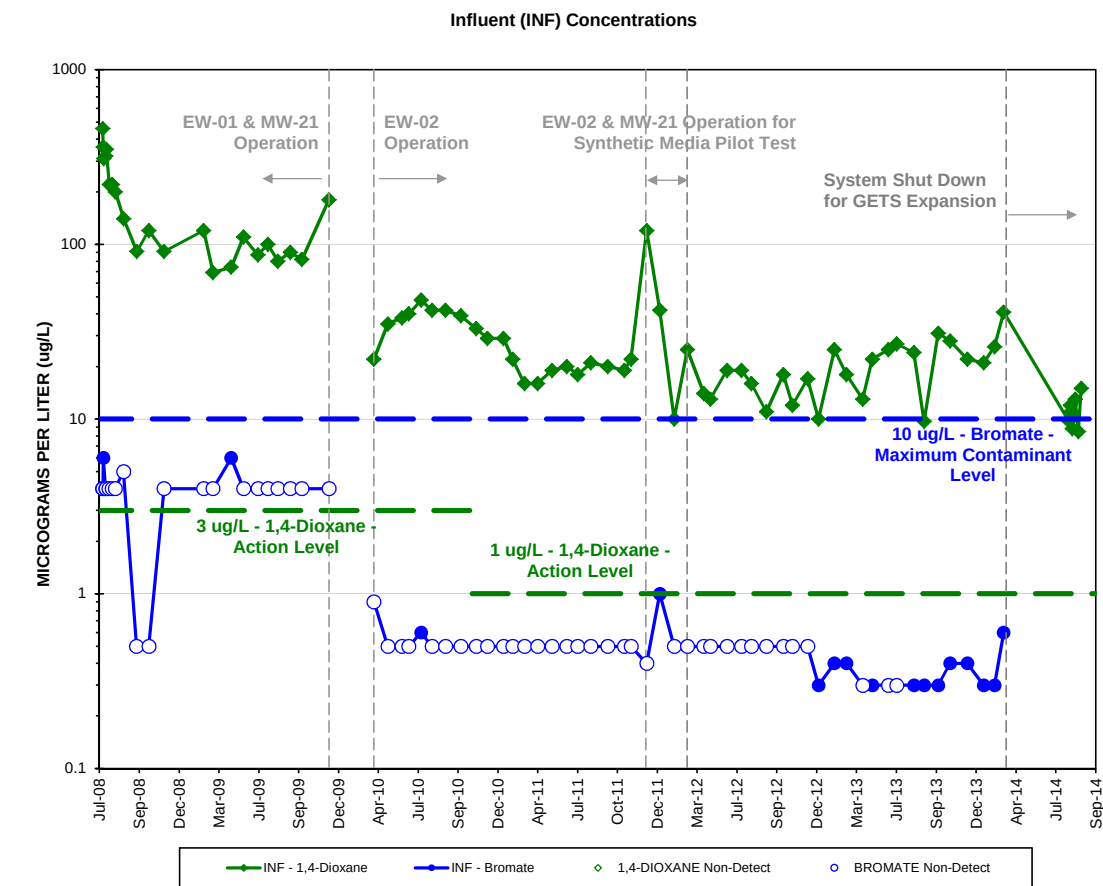


FIGURE 6.
1,4-DIOXANE AND BROMATE IN INFLUENT AND POST-OXIDATION SAMPLES

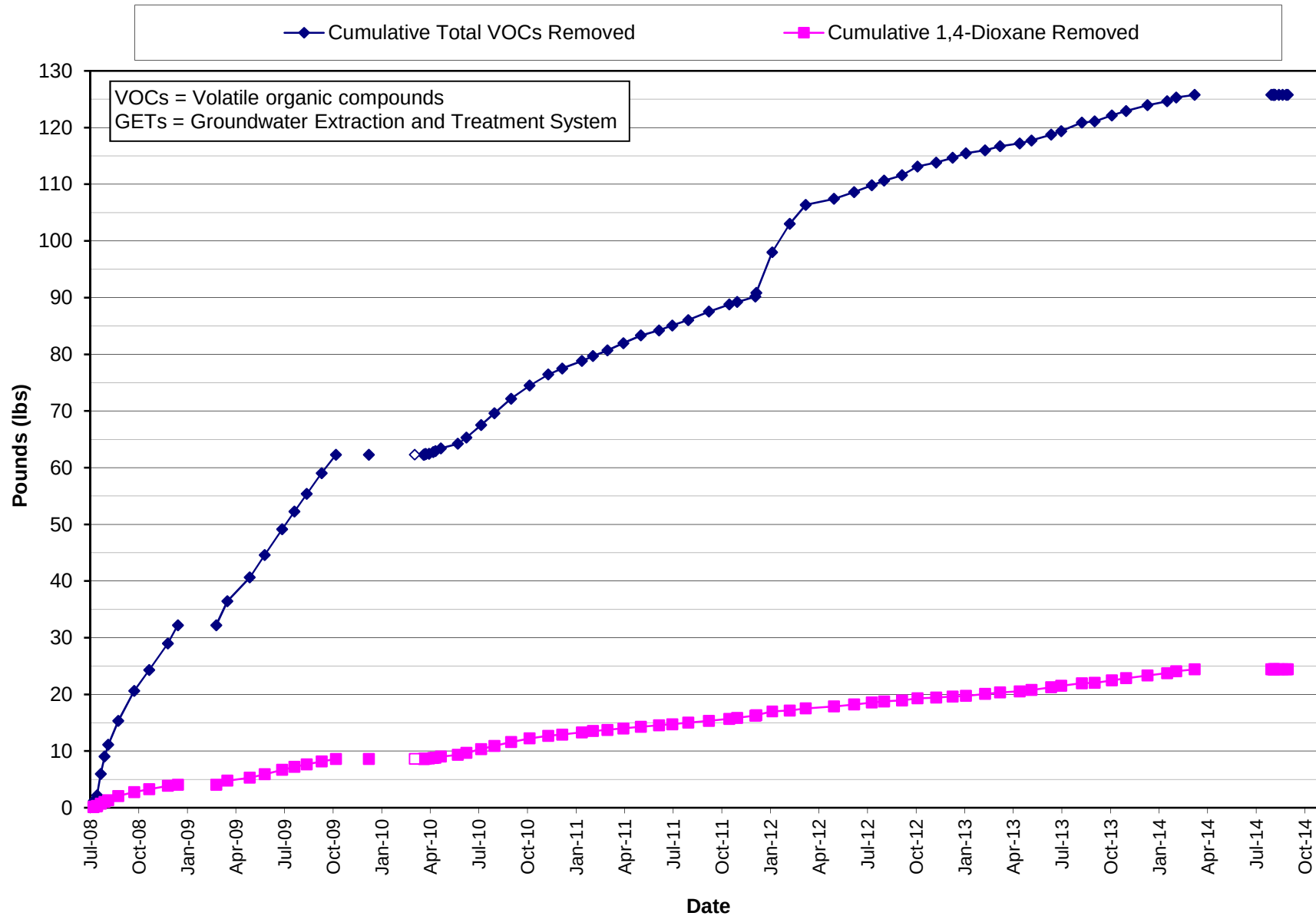


FIGURE 7.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM MASS REMOVAL

APPENDIX A

GROUNDWATER SAMPLING FIELD FORMS

GROUNDWATER SAMPLING INFORMATION

DATE: 8/10/14

TASK: 532.30

WELL ID: EW-01

Time 1407	Static DTW (ft below reference point) 159.4	Casing Volume (CV) (gallons) 189	3 CV (gallons) 567	Weather Conditions	Initials: EJA/KOF
Casing Total Depth (ft below reference point) 188	Purging Device det pump	Sampling Device det sampler	Time 1430	Temp. 85	Begin Purge 1425
Water Column (feet) 28.6	Pump: Depth (ft brp) NT	Type	Skies sunny	Gallons Purged 182	CVs Purged 7.7
Casing Capacity (Diameter 4") (gallons per foot) 0.6x	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 0	From S	DTW (ft brp) 159.95
					Time 1453

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	FIELD PARAMETERS....						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1425	159.4	0	0	—	—	Pump on	—	—	—	—	TOT = 5577840 276710
14:32	159.77	73	3.0	28.8	7.23	1.70	81.0	3.93	2.78	—	TOT = 276715
1452	NT	182	7.7	—	—	Pump off	—	—	—	—	TOT = 276822

SAMPLE COLLECTION SAMPLE TIME 1444			AIR MONITORING PID/FID ppm. VAULT NA			BKGD NA			BREATHING ZONE NA			DISCHARGE WATER NA		
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)											
8260B VOCs	3	40 ml VOA	TARGET TOT: 276710.5											
8270-GM 1,4 dioxane	1	1" L Amber												
8270 MOD 1,4 dioxane	1	1 L Amber												
DUPLICATES / SPLITS / BLANKS? Y			N											
If yes, complete appropriate forms.														

GROUNDWATER SAMPLING INFORMATION

DATE: 08/18/14

TASK: 532.30

WELL ID: EW-02

Time <u>1030</u> Static DTW (ft below reference point) <u>153.84</u>	Casing Volume (CV) (gallons) <u>183.7</u> 3 CV (gallons) <u>551</u>	Weather Conditions	Initials: <u>EJH/KOL</u>
Casing Total Depth (ft below reference point) <u>460</u>	Purging Device <u>ded. pump</u> Sampling Device <u>ded. sample</u>	Time <u>1510</u> Temp. <u>85</u>	Begin Purge <u>1515</u> End Purge <u>1527</u>
Water Column (feet) <u>306.16</u>	Pump: Depth (ft brp) <u>NA</u> Type <u>_____</u> Voltage <u>_____</u> HP <u>_____</u>	Skies <u>sunny</u>	Gallons Purged <u>_____</u> CVs Purged <u>✓</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>_____</u> Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>159.78</u> Time <u>1528</u>

[illegible]

SAMPLE COLLECTION		SAMPLE TIME	AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA			
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
8260B VOCs	3	40 ml VOA				
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.						

GROUNDWATER SAMPLING INFORMATION

DATE: 8/21/2014

TASK: 532.30

WELL ID: MW-08

Time <u>0835</u> Static DTW (ft below reference point)	<u>146.59</u>	Casing Volume (CV) (gallons) <u>3</u> 3 CV (gallons) <u>9</u>	Weather Conditions	Initials: <u>EJA/SCS</u>
Casing Total Depth (ft below reference point)	<u>163.79</u>	Purging Device <u>red dip</u> Sampling Device <u>ded. tub</u>	Time <u>0834</u> Temp. <u>70</u>	Begin Purge <u>0844</u> End Purge <u>0909</u>
Water Column (feet)	<u>17.23</u>	Pump: Depth (ft brp) <u>160</u> Type <u>gravel</u> Voltage <u>115</u> HP <u>0.5</u>	Skies <u>sunny</u>	Gallons Purged <u>10</u> CVs Purged <u>3.3</u>
Casing Capacity (Diameter <u>2"</u>) (gallons per foot)	<u>0.17</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>149.9</u> Time <u>0915</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (mS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
<u>0844</u>	<u>146.59</u>	<u>0</u>	<u>0</u>	—	—	<u>Pump on</u>		—	—	—	<u>Q = ~0.5 gpm</u>
<u>0848</u>	<u>NM</u>	<u>1.5</u>	<u>0.5</u>	<u>21.9</u>	<u>7.51</u>	<u>1.86</u>	<u>56.0</u>	<u>4.11</u>	<u>89.1</u>		
<u>0851</u>	<u>NM</u>	<u>3.0</u>	<u>1.0</u>	<u>22.4</u>	<u>7.43</u>	<u>1.87</u>	<u>49.3</u>	<u>1.31</u>	<u>33.4</u>		
<u>0856</u>	<u>NM</u>	<u>4.5</u>	<u>1.5</u>	<u>23.6</u>	<u>7.43</u>	<u>1.90</u>	<u>35.8</u>	<u>1.16</u>	<u>4.43</u>		
<u>0901</u>	<u>NM</u>	<u>6.0</u>	<u>2.0</u>	<u>23.9</u>	<u>7.43</u>	<u>1.89</u>	<u>24.3</u>	<u>1.06</u>	<u>13.8</u>		
<u>0905</u>	<u>NM</u>	<u>7.5</u>	<u>2.5</u>	<u>24.4</u>	<u>7.45</u>	<u>1.84</u>	<u>0.9</u>	<u>0.60</u>	<u>2.39</u>		
<u>0909</u>	<u>NM</u>	<u>9.0</u>	<u>3.0</u>	<u>24.5</u>	<u>7.44</u>	<u>1.86</u>	<u>0.2</u>	<u>0.61</u>	<u>1.87</u>		
<u>0912</u>	<u>NM</u>	<u>10.0</u>	<u>3.3</u>	—	—	<u>Pump off</u>		—	—		

SAMPLE COLLECTION SAMPLE TIME 0910

ANALYSIS QUANTITY TYPE

8260B VOCs 3 40 ml VOA

8270 SIM 1,4 dioxane 1 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.)

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/2014

TASK: 532.30

WELL ID: MW-09

Time 8:19 Static DTW (ft below reference point) 181.10	Casing Volume (CV) (gallons) 1.68 3.0 CV (gallons)	Weather Conditions	Initials: DM/KDF
Casing Total Depth (ft below reference point) 191	Purging Device Quick E Bailor Sampling Device Dash Bailor	Time 8:20 Temp 75°	Begin Purge 8:58 End Purge 9:24
Water Column (feet) 9.9	Pump: Depth (ft brp) NA Type Voltage HP	Skies CLOUDY	Gallons Purged 1.9 CVs Purged 1.13
Casing Capacity (Diameter 2") (gallons per foot) 0.17	Monitor Well Recharge Rate: Slow X Fast	Wind (mph) 0.5 From W	DTW (ft brp) 181.47 Time 12:22

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
8:58	181.10				Begins	Bailors					
9:00	NM	0.25	0.15	23.4	7.00	2.24	42.6	1.83	10.67		
9:03	NM	0.75	0.45	22.8	7.11	2.13	34.1	1.63	NM		
9:15	NM	1.25	0.74	22.8	7.12	2.10	28.8	1.65	NM		
9:22	NM	1.75	1.04	22.4	7.11	2.08	28.9	1.79	NM		
9:24	NM	1.9	1.14		Well	Dry					
11:24 ^{KF}	181.15			24.1	7.38	2.04	82	2.94	49.1		Samples/Parameters collected
12:07											

SAMPLE COLLECTION SAMPLE TIME 12:17

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.)

only 1 CV purged before sampling

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/14 - 8/21/14

TASK: 532.30

WELL ID: MW-15

Time 16:30 Static DTW (ft below reference point) 148.16	Casing Volume (CV) (gallons) 3.84 3 CV (gallons) 11.52	Weather Conditions	Initials: DM/KDF
Casing Total Depth (ft below reference point) 166.8	Purging Device Groundwater Pump Sampling Device dual tubing	Time 16:30 Temp. 80	Begin Purge 18:44 End Purge 17:23
Water Column (feet) 22.6	Pump: Depth (ft brp) 168.8 Type Voltage HP	Skies Clear	Gallons Purged 3.0 CVs Purged 1.0
Casing Capacity (Diameter 2") (gallons per foot) 0.17	Monitor Well Recharge Rate: Slow Fast ☒	Wind (mph) 0 From 0	DTW (ft brp) 148.12 Time 0740

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1644	148.16	—	—	Pump On						309	Q ≈ 0.5 gpm
1649	NM	2.0	—	22.3	7.08	1.18	48.1	3.47	118		
1651	—	23.1	1.0	Pump PPA STOPPED							well dry. pump on ~1721
1723	NM	3.8	1.0	22.6	7.11	1.21	62.8	3.92	191	309	Q ≈ 0.5 gpm
1725	—	—	—	Pump off; well dry							
8/21/14 140746	148.12	4.0	1.0	21.5	7.06	1.90	79.2	4.29	42.3		

SAMPLE COLLECTION SAMPLE TIME 0805 @ 8/21/14

ANALYSIS	QUANTITY	TYPE
8260B VOCs	6	40 ml VOA
8270 SIM 1,4 dioxane		1 L Amber
8270 MOD 1,4 dioxane		1 L Amber

DUPLICATES / SPLITS / BLANKS? ☒ 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.)

Rinse Blank collected at 16:35

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/14

TASK: 532.30

WELL ID: MW-16

Time <u>9:44</u> Static DTW (ft below reference point)	<u>155.81</u>	Casing Volume (CV) (gallons) <u>14.98</u> 3 CV (gallons) <u>44.93</u>	Weather Conditions Time <u>9:44</u> Temp. <u>78</u>	Initials: <u>DM/KDF</u>
Casing Total Depth (ft below reference point)	<u>178.50</u>	Purging Device <u>Grundfos Pump</u> Sampling Device <u>Well Tubing</u>	Skies <u>Clear</u>	Begin Purge <u>10:23</u> End Purge <u>11:31</u>
Water Column (feet)	<u>22.69</u>	Pump: Depth (ft brp) <u>176.5</u> Type _____ Voltage _____ HP _____	Wind (mph) <u>0</u> From <u>0</u>	Gallons Purged <u>47.5</u> CVs Purged <u>3.17</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot)	<u>0.66</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>		DTW (ft brp) <u>164.84</u> Time <u>11:42</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	FIELD PARAMETERS....						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (mS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
10:23	155.81				Pump	On				313	
10:26	162.05	5.25	0.35	23.4	7.54	1.06	35.2	4.50	101	313	Q ≈ 1.75 gpm
10:28	164.45	8.75	0.58	23.3	7.48	1.05	31.8	3.70	20.7	313	Q ≈ 1.5 gpm
10:33	168.18	16.25	1.08	23.6	7.46	1.06	20.8	3.44	23.1	313	Q ≈ 1.4 gpm
10:36	169.71	20.25	1.35	23.8	7.45	1.08	16.4	3.08	15.9	293	Q ≈ 0.5 gpm
10:56	169.79	30	2	25.96	7.48	1.11	8.1	2.13	11.22	293	Q ≈ 0.5 gpm
11:26	167.65	45	3	28.6	7.47	1.08	30.1	2.87	5.26	293	Q ≈ 0.5 gpm
11:31					Pump	Off					

SAMPLE COLLECTION SAMPLE TIME <u>11:30</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>6</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>(Y)</u> <u>(N)</u> 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.)

Ducer out at 9:47 WELL IN @ 11:47

Rinse Blank Sample Collected at 9:57

-DEDICATED TUBING IN STORAGE

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/14

TASK: 532.30

WELL ID: MW-L8

Time <u>13:46</u> Static DTW (ft below reference point) <u>155.29</u>	Casing Volume (CV) (gallons) <u>25.6</u> 3 CV (gallons) <u>76.8</u>	Weather Conditions	Initials: <u>DM/KDF</u>
Casing Total Depth (ft below reference point) <u>194.1</u>	Purging Device <u>Brandts Pump</u> Sampling Device <u>Ded. Tubing</u>	Time <u>13:43</u> Temp. <u>80</u>	Begin Purge <u>17:19</u> End Purge <u>15:46</u>
Water Column (feet) <u>38.81</u>	Pump: Depth (ft brp) <u>192.1</u> Type _____ Voltage _____ HP _____	Skies <u>Clear</u>	Gallons Purged <u>82.6</u> CVs Purged <u>3.23</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.66</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>161.75</u> Time <u>15:52</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS....						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
<u>14:19</u>	<u>155.29</u>	<u>—</u>	<u>—</u>	<u>Pump</u>	<u>On</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>307</u>	<u>Q ≈ 1.5 gpm</u>
<u>14:21</u>	<u>UTM</u>	<u>3</u>	<u>0.12</u>	<u>27.4</u>	<u>7.96</u>	<u>1.11</u>	<u>36.1</u>	<u>4.93</u>	<u>22.7</u>	<u>307</u>	<u>Q ≈ 1.5 gpm</u>
<u>14:33</u>	<u>UTM</u>	<u>21</u>	<u>0.82</u>	<u>23.8</u>	<u>7.04</u>	<u>0.85</u>	<u>26.5</u>	<u>2.39</u>	<u>10.75</u>	<u>307</u>	<u>Q ≈ 1 gpm</u>
<u>14:43</u>	<u>UTM</u>	<u>35^{KF} 31</u>	<u>1.2</u>	<u>24.2</u>	<u>7.12</u>	<u>0.81</u>	<u>18.1</u>	<u>1.82</u>	<u>15.0</u>	<u>307</u>	<u>Q ≈ 1 gpm</u>
<u>14:58</u>	<u>UTM</u>	<u>46</u>	<u>1.8</u>	<u>24.4</u>	<u>7.20</u>	<u>0.95</u>	<u>22.0</u>	<u>2.22</u>	<u>32.7</u>	<u>307</u>	<u>Q ≈ 1 gpm</u>
<u>15:13</u>	<u>UTM</u>	<u>61</u>	<u>2.4</u>	<u>24.8</u>	<u>7.03</u>	<u>1.01</u>	<u>42.8</u>	<u>3.70</u>	<u>30.4</u>	<u>307</u>	<u>Q ≈ 0.8 gpm</u>
<u>15:23</u>	<u>UTM</u>	<u>69</u>	<u>2.7</u>	<u>24.7</u>	<u>7.06</u>	<u>1.03</u>	<u>44.9</u>	<u>3.64</u>	<u>15.7</u>	<u>307</u>	<u>Q ≈ 0.8 gpm</u>
<u>15:33</u>	<u>UTM</u>	<u>77</u>	<u>3</u>	<u>25.0</u>	<u>7.06</u>	<u>1.07</u>	<u>46.5</u>	<u>3.60</u>	<u>10.82</u>	<u>307</u>	<u>Q ≈ 0.8 gpm</u>
<u>15:40</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>Pump</u>	<u>Off</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

SAMPLE COLLECTION SAMPLE TIME <u>15:35</u>		AIR MONITORING PID/FID ppm: VAULT <u>NA</u> BKGD <u>NA</u> BREATHING-ZONE <u>NA</u> DISCHARGE WATER <u>NA</u>	
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)
8260B VOCs	<u>3</u>	40 ml VOA	
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber	
8270 MOD 1,4 dioxane		1 L Amber	
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u>			

GROUNDWATER SAMPLING INFORMATION

DATE: _____

TASK: _____ 532.30

WELL ID: MW-20

Time <u>0945</u> Static DTW (ft below reference point) <u>177.82</u>	Casing Volume (CV) (gallons) <u>10.7</u> 3 CV (gallons) <u>32</u>	Weather Conditions	Initials: <u>EJH/SCS</u>
Casing Total Depth (ft below reference point) <u>194</u>	Purging Device <u>Grindos</u> Sampling Device <u>ded. purging</u>	Time <u>0936</u> Temp. <u>70</u>	Begin Purge <u>0904</u> End Purge <u>1025</u>
Water Column (feet) <u>16.18</u>	Pump: Depth (ft brp) <u>192</u> Type <u>grindos</u> Voltage <u>115</u> HP <u>05</u>	Skies <u>sunny</u>	Gallons Purged <u>35</u> CVs Purged <u>3.3</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.62</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>181.6</u> Time <u>1027</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
0954	18.17	0	0	—	—	—	Pump on	—	—	32.5	
1000	UTM	4.0	0.4	22.7	7.56	1.19	88.0	6.45	42.8	↓	Q=1gpm
1003	UTM	9.0	0.9	23.6	7.50	1.20	78.5	6.51	12.6	↓	
1007	UTM	14.0	2.1	23.6	7.48	1.21	76.1	5.33	41	3	Q=1.25gpm
1011	UTM	19.0	1.7	23.6	7.47	1.21	71.2	5.29	79.3	↓	
1015	UTM	24.0	2.1	23.6	7.46	1.21	67.5	5.30	32.4		Q=1.25gpm
1019	UTM	29.0	2.6	23.6	7.46	1.20	66.4	5.66	23.0	↓	
1022	UTM	32.0	3.0	23.6	7.45	1.17	68.2	5.41	17.2	↓	
1025	UTM	35.0	3.3	—	—	—	Pump off	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1025

ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>3</u>	40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber
8270 MOB 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.)

GROUNDWATER SAMPLING INFORMATION

DATE: 8/18/14

TASK: 532.30

WELL ID: MW-21

Time <u>1354</u> Static DTW (ft below reference point) <u>232</u>	<u>1427</u> Casing Volume (CV) (gallons) <u>609</u> 3 CV (gallons) <u>182.8</u>	Weather Conditions	Initials: <u>ASH/KOP</u>
Casing Total Depth (ft below reference point)	<u>238.8</u> Purging Device <u>ded. pump</u> Sampling Device <u>ded. sample port</u>	Time <u>1400</u> Temp. <u>80</u>	Begin Purge <u>1425</u> End Purge <u>1456</u>
Water Column (feet)	<u>92.3</u> Pump: Depth (ft brp) <u>205</u> Type <u>groutless</u> Voltage <u>240</u> HP	Skies <u>sunny</u>	Gallons Purged <u>734</u> CVs Purged <u>12</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot)	<u>0.66</u> Monitor Well Recharge Rate: Slow Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>148.7</u> Time <u>15:02</u>

[illegible]

SAMPLE COLLECTION		SAMPLE TIME		
ANALYSIS	QUANTITY		TYPE	
8260B VOCs	3	1450	40 ml VOA	
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.)				
TARGET TOT = ~~276822~~ 557967				

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14

TASK: 532.30

WELL ID: MW-26C

Time <u>15:28</u> Static DTW (ft below reference point)	<u>157.49</u>	Casing Volume (CV) (gallons) <u>58.05</u> 3 CV (gallons) <u>174.15</u>	Weather Conditions	Initials: <u>DM/KDF</u>
Casing Total Depth (ft below reference point)	<u>499</u>	Purging Device <u>Deel Pump</u> Sampling Device <u>Pipe Stand</u>	Time <u>15:24</u> Temp. <u>80</u>	Begin Purge <u>15:40</u> End Purge <u>16:59</u>
Water Column (feet)	<u>341.51</u>	Pump: Depth (ft brp) <u>Grindstone</u> Type Voltage <u>240</u> HP	Skies <u>Clear</u>	Gallons Purged <u>180</u> CVs Purged <u>3.1</u>
Casing Capacity (Diameter 2") (gallons per foot)	<u>0.17</u>	Monitor Well Recharge Rate: Slow Fast ☒	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>157.68</u> Time <u>17:12</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	FIELD PARAMETERS....						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
15:40 ^{KF}	157.49	—	—	Pump On						321	
15:41	—	—	—	—	—	—	—	—	—	350	~2.5 gpm
15:44	158.37	11	0.19	23.2	8.78	0.414	-156.6	2.20	3.78	350	
15:54	158.43	32	0.55	22.8	7.95	0.466	-146.8	0.37	3.18	350	
16:04	158.43	76	1.31	22.9	7.57	1.06	-135	0.86	1.20	350	
16:14	158.44	80	1.38	22.9	7.57	1.07	-137	0.93	0.47	350	
16:23	158.43	101	1.74	22.8	7.58	1.07	-137.5	0.95	1.15	350	
16:33	158.43	125	2.15	22.8	7.59	1.07	-137.3	0.97	0.41	350	
16:44	158.44	146	2.52	22.9	7.60	1.07	-138.5	0.99	0.47	350	
16:56	158.44	177	3.05	22.9	7.60	1.07	-137.9	0.99	0.45	350	
16:59	—	—	—	Pump Off						—	

SAMPLE COLLECTION SAMPLE TIME <u>16:57</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? Y ☒	
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.)
<u>Turned down flow rate prior to sampling</u>

GROUNDWATER SAMPLING INFORMATION

DATE: 8/21/14

TASK: 532.30

WELL ID: MW-28

Time 8:00 <u>SCREEN</u>	Static DTW (ft below reference point) 100.90	SCREEN SV Casing Volume (CV) (gallons) 27	SV 3 CV (gallons) 81	Weather Conditions	Initials: ASF/KDF
Casing Total Depth (ft below reference point) 375	Purging Device <u>dec. pump</u>	Sampling Device <u>ND: dec. pipe stand</u>	Time 8:45 Temp. 68°	Begin Purge 8:28 End Purge 8:45	
PUMP TO SCREEN Water Column (feet) 45	Pump: Depth (ft brp) 330	Type <u>Grundfos</u>	Voltage 240 HP	Skies <u>clear</u>	Gallons Purged 102 CVs Purged 3.8
Casing Capacity (Diameter 4" (gallons per foot) 0.0	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 0	From S/A	DTW (ft brp) 102.02 Time 8:45

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C.)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
8:20	100.90	0	0	BEGIN PUMPING						1	
8:29	100.45	8.8	0.33	24.1	7.10	1.10	80.4	7.48	5.49		Q ≈ 7 GPM
8:31	100.71	21.3	0.79	21.7	7.28	0.89	-172	4.27	4.09		Q ≈ 6 GPM
8:33	100.81	34.7	1.29	21.7	7.24	1.11	-172	3.74	28.9		Q ≈ 7 GPM
8:35	100.86	47.0	1.74	21.7	7.26	1.12	-135	4.17	9.38		Q ≈ 6 GPM
8:38	100.90	63.7	2.30	21.8	7.24	1.14	-102	4.51	1.81		Q ≈ 6 GPM
8:41	100.90	81	3.0	21.8	7.20	1.10	-77	4.84	1.11		Q ≈ 6 GPM
8:45	102.02	101.5	3.78	END PUMPING						1	

SAMPLE COLLECTION	SAMPLE TIME	ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA		
8270 SIM 1,4 dioxane	6	1 L Amber		
8270 MOD 1,4 dioxane	6	1 L Amber		
DUPLICATES / SPLITS / BLANKS?	Y			

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.)			
REMOVE DUCER C 7:55 / REPLACE DUCER C 8:55			



GROUNDWATER SAMPLING INFORMATION

DATE: 08/18/14

TASK: 532.30

WELL ID: MW-29

Time <u>11:22</u> Static DTW (ft below reference point) <u>1160.95</u>	Casing Volume (CV) (gallons) <u>47.4</u> 3 CV (gallons) <u>142.3</u>	Weather Conditions		Initials: <u>EOH/KDF</u>
Casing Total Depth (ft below reference point) <u>240</u>	Purging Device <u>dat pump</u> Sampling Device <u>red sample</u>	Time <u>15:36</u> Temp. <u>85</u>	Begin Purge <u>1536</u> End Purge <u>1553</u>	
Water Column (feet) <u>79.05</u>	Pump: Depth (ft brp) <u>112</u> Type <u>_____</u> Voltage <u>_____</u> HP <u>5</u>	Skies <u>Sunny</u>	Gallons Purged <u>_____</u> CVs Purged <u>_____</u>	
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>_____</u> Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>176.72</u> Time <u>1554</u>	

[illegible]

SAMPLE COLLECTION SAMPLE TIME <u>1545</u>			AIR MONITORING PID/FID ppm: VAULT NA <u>C</u> BKGD NA <u> </u> BREATHING ZONE NA <u> </u> DISCHARGE WATER NA <u> </u>			
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
8260B VOCs	<u>9</u>	40 ml VOA				
8270 SIM 1,4 dioxane		1 L Amber				
8270 MOD 1,4 dioxane	<u>3</u>	1 L Amber				
DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms.			<u>Y</u> <u>N</u> <u>dup MW-2900 @ 1600</u> <u>SPT MW-29 @ 161545</u>			

GROUNDWATER SAMPLING INFORMATION

DATE: 8/21/14

TASK: 532.30

WELL ID: MW-30A

Time 9:05 Static DTW (ft below reference point) 151.51	Casing Volume (gallons) 17.0	Weather Conditions	Initials: ASE/ED
Casing Total Depth (ft below reference point) 504	Purging Device Deed. pump	Time 9:20 Temp. 70°F	Begin Purge 9:10 End Purge 9:24
Water Column (feet) 44	Sampling Device 0-10' depl. pipe stand	Skies SUNNY	Gallons Purged 69 CVs Purged 3.92
Casing Capacity (Diameter 3" (gallons per foot) 0.4	Pump: Depth (ft brp) 520 Type Ground f/S Voltage 240 HP	Wind (mph) 0 From N/A	DTW (ft brp) 151.65 Time 9:24
	Monitor Well Recharge Rate: Slow Fast X		

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
9:10	151.51	0	0								
10:10	151.51	0	0								
9:11	153.10	5	0.28	25.0	7.48	0.94	-50	0.51	8.42		Q ≈ 5 GPM
9:13	153.10	17	0.94	21.4	7.55	0.79	-9.9	1.20	25.5		Q ≈ 5 GPM
9:15	153.10	27	1.50	21.3	7.71	0.78	-140	0.29	2.01		Q ≈ 5 GPM
9:17	153.17	38	2.11	21.5	7.55	0.79	-115	0.34	1.55		Q ≈ 5 GPM
9:19	153.18	47	2.61	21.6	7.51	0.80	-97	0.40	1.29		Q ≈ 5 GPM
9:21	153.20	57	3.17	21.6	7.48	0.80	-80	0.49	1.40		Q ≈ 5 GPM
9:24											

SAMPLE COLLECTION SAMPLE TIME 9:22

ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane	0	1 L Amber

DUPLICATES / SPLITS / BLANKS? Y (N)

If yes, complete appropriate forms.

AIR MONITORING PID/EID 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.)

REMOVE TURBO 9:00/9:30

GROUNDWATER SAMPLING INFORMATION

DATE: 8/21/14

TASK: 532.30

WELL ID: MW-30B

Time 9:35 Static DTW (ft below reference point) 147.07	Casing Volume (CV) (gallons) 40	Weather Conditions	Initials: ASE/KDF
Casing Total Depth (ft below reference point) 149	Purging Device Ded. Pump	Time 9:30 Temp. 70°F	Begin Purge 9:55 End Purge 10:30
Water Column (feet) 99	Pump: Depth (ft brp) 520 Type Grundfos Voltage 240 HP	Skies SUNNY	Gallons Purged 144 CVs Purged 360
Casing Capacity (Diameter 3") (gallons per foot) 0.4	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0 From NA	DTW (ft brp) 102.30 Time 10:30

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
9:55	147.07	0	0	BEGIN PUMPING							
9:56	141.45	7	0.18	24.7	7.35	1.27	8.0	5.58	4.01		Q ≈ 5.0 GPM
10:01	104.15	30	0.75	21.3	9.57	1.30	-242	0.35	3.38		Q ≈ 5 GPM
10:00	105.33	49	1.23	21.0	7.24	1.85	-101	3.09	2.21		Q ≈ 5 GPM
10:11	100.20	70.4	1.75	21.7	7.35	1.30	-78	2.93	17.1		Q ≈ 4 GPM
10:17	100.82	90	2.40	21.7	7.33	1.27	-72	2.28	15.9		Q ≈ 4 GPM
10:24	107.05	125	3.13	21.6	7.29	1.28	-58	2.24	9.27		Q ≈ 4 GPM
10:30	102.30	144	3.60	END PUMPING							

SAMPLE COLLECTION	SAMPLE TIME	10:26
ANALYSIS	QUANTITY	TYPE
8260B VOCs	9	40 ml VOA
8270 SIM 1,4 dioxane	3	1 L Amber
8270 MOD 1,4 dioxane	0	1 L Amber

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

Y

N

AIR MONITORING PID/EID 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.)

REMOVE DIVER @ 9:30 / 10:35

GROUNDWATER SAMPLING INFORMATION

DATE: 8/21/14

TASK: 532.30

WELL ID: MW-31

Time 13:20 Static DTW (ft below reference point)	142.47	Casing Volume (CV) (gallons) 81	3 CV (gallons) 243	Weather Conditions	Initials: ASF/KDF
Casing Total Depth (ft below reference point)	994	Purging Device Dead Pump	Sampling Device 7100 dead pipe stand	Time 11:00 Temp. 75°F	Begin Purge 13:24 End Purge 13:52
SCREEN TO PUMP Water Column (feet)	55.54	Pump: Depth (ft brp) 992	Type Grundfos Voltage 240 HP	Skies SUNNY	Gallons Purged 276 CVs Purged 3.41
Casing Capacity (Diameter 4") (gallons per foot)	1.5	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 0	From N/A
				DTW (ft brp) 143.74	Time 13:52

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
13:24	142.47	0	0	BEGIN PUMPING							
13:26	144.69	15	0.19	22.7	7.60	0.95	38.1	4.47	14.20		Q ≈ 10 GPM
13:30	144.75	50	0.70	21.2	NM	2.30	-147	0.15	61.7		Q ≈ 10 GPM
13:35	144.70	109	1.35	21.5	7.83	1.20	-10.1	0.98	74.5		Q ≈ 10 GPM
13:40	144.78	159	1.96	21.0	7.96	0.98	-38	0.91	20.8		Q ≈ 10 GPM
13:45	144.78	206	2.54	21.0	7.69	1.05	-35	1.06	11.2		Q ≈ 10 GPM
13:50	144.80	258	3.19	21.0	7.60	1.03	-26	1.22	10.41		Q ≈ 10 GPM
13:52	143.74	276	3.41	END PUMPING							

SAMPLE COLLECTION SAMPLE TIME 13:51

ANALYSIS	QUANTITY	TYPE
8260B VOCs	83	40 ml VOA
8270 SIM 1,4 dioxane	0	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/EID 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.)

REMOVE DUCER @ 13:15 / REPLACE DUCER @ 13:55

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14

TASK: 532.30

WELL ID: MW-32A

Time 08:42 Static DTW (ft below reference point)	120.65	SCREEN SV Casing Volume (GV) (gallons) 207	SV 3 GV (gallons) 621	Weather Conditions	Initials: EJH/SCS
Casing Total Depth (ft below reference point)	905	Purging Device DED. PUMP	Sampling Device ND. DED. PIPE STAND	Time 08:46 Temp. 72°F	Begin Purge 08:53 End Purge 10:00
Water Column (feet)	345	Pump: Depth (ft brp) 500	Type GRUNDFOSS Voltage 240 HP	Skies PARTLY CLOUDY	Gallons Purged 650.54
Casing Capacity (Diameter 4") (gallons per foot)	0.60	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 0 From -	DTW (ft brp) 120.92 Time 10:00

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
0853	120.65	0	0	—	—	Pump on	—	—	—	—	Q = 9.5 gpm
0903	121.78	103	0.5	21.0	7.41	0.97	-17.5	6.21	NM		
0913	121.84	198	1.0	21.1	7.44	0.97	-84.8	2.14	NM		
0923	121.88	310	1.5	21.2	7.43	0.97	-85.2	2.18	NM		
0935	121.91	418	2.0	21.2	7.43	0.97	-75.7	2.11	NM		
0944	121.92	511	2.5	21.2	7.43	0.97	-71.8	2.09	NM		
0955	121.92	621	3.0	21.2	7.43	0.97	-78.0	2.07	NM		
1000	120.92	650	3.13	—	—	PUMP OFF	—	—	—		

SAMPLE COLLECTION	SAMPLE TIME 0955
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?	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.)			
organic odor			
MS/MSD			

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/2014TASK: 532.30WELL ID: MW-32B

Time <u>1231</u> Static DTW (ft below reference point)	<u>118.91</u>	Screen Casing Volume (CV) (gallons) <u>263.5</u> 3 CV (gallons) <u>790.5</u>	Weather Conditions Time <u>1222</u> Temp. <u>80</u>	Initials: <u>EJA/SCS</u>
Casing Total Depth (ft below reference point)	<u>999</u>	Purging Device <u>ded pump</u> Sampling Device <u>>100 det. pipe</u>	Skies <u>Sunny</u>	Begin Purge <u>1215</u> End Purge <u>1345</u>
Screen Water Column (feet) <u>439</u>	<u>539</u>	Pump: Depth (ft brp) <u>540</u> Type <u>gears</u> Voltage <u>240</u> HP	Wind (mph) <u>0</u> From <u>0</u>	Gallons Purged <u>831</u> CVs Purged <u>3.1</u>
Casing Capacity (Diameter <u>4</u> (inches)) (gallons per foot)	<u>0.60</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>		DTW (ft brp) <u>123.0</u> Time <u>1345</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1215	118.91	0	0			Pump on					Q = 9 gpm
1230	131.00	138	0.50	21.2	7.68	1.10	-252.5	0.29	8.12		
1245	131.30	273	1.00	21.4	7.72	1.12	-220.1	0.16	5.24		
1300	131.55	429	1.50	21.5	7.72	1.13	-207.1	0.12	1.54		
1315	131.65	567	2.00	21.6	7.72	1.11	-159.5	0.86	2.80		
1330	131.70	697	2.60	21.5	7.73	1.11	-159.7	0.11	1.01		
1340	131.72	796	3.00	21.6	7.73	1.10	-158.6	0.09	2.35		✓
1345	123.0					PUMP OFF					

SAMPLE COLLECTION SAMPLE TIME <u>1345 13:45</u>	ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>9</u>	40 ml VOA	
8270 SIM 1,4 dioxane	<u>2</u>	1 L Amber	
8270 MOD 1,4 dioxane	<u>1</u>	1 L Amber	
DUPLICATES/SPLITS/BLANKS? <u>(Y)</u> N If yes, complete appropriate forms.			

AIR MONITORING RID/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-3200B @1400
 SPT: MW-32 @1345

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14TASK: 532.30WELL ID: MW-32C

Time <u>0944</u> Static DTW (ft below reference point)	<u>101.48</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>318</u> <u>SV</u> 3 CV (gallons) <u>954</u>	Weather Conditions	Initials: <u>ESH/SCS</u>
<u>SCREEN</u> Casing Total Depth (ft below reference point)	<u>1090</u>	Purging Device <u>ded pump</u> Sampling Device <u>ND Pipe stand</u>	Time <u>10:05</u> Temp. <u>73°F</u>	Begin Purge <u>1004</u> End Purge <u>1207</u>
Water Column (feet)	<u>530</u>	Pump: Depth (ft brp) <u>530</u> Type <u>gunders</u> Voltage <u>240</u> HP	Skies <u>PARTLY CLOUDY</u>	Gallons Purged <u>1023.5V</u> Ovs Purged <u>3.15</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot)	<u>0.60</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>---</u>	DTW (ft brp) <u>163.75</u> Time <u>1205</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1004	101.48	0	0	Pump on							
1020	146.62	160	0.5	21.1	8.07	0.55	-33.5	8.18	NM		Q = 9.0 gpm
1039	151.07	320	1.0	21.4	8.17	0.55	-279.5	0.57	NM		↓
1043	151.83	356	1.2	21.5	8.20	0.55	-230.2	0.47	NM		PUMP OFF; PUMP ON @ 1048
1103	155.85	480	1.5	21.6	8.18	0.55	-269.1	0.32	NM		Q = 9.5 gpm
1122	160.27	661	2.0	21.8	8.17	0.55	-249.4	1.14	5.05 ~~1.14~~ SCS		
1143	161.95	822	2.5	21.7	8.16	0.55	-255.1	0.19	3.93		Q = 7.6 gpm
1205	163.75	1000	3.15	21.6	8.21	0.55	-249.3	0.44	7.57		Q = 8.1 gpm
1207				PUMP OFF							

SAMPLE COLLECTION SAMPLE TIME <u>1205</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>0</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS?	Y <u>(N)</u>
If yes, complete appropriate forms.	

AIR MONITORING RID/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.)			

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14

TASK: 532.30

WELL ID: MW-33

Time 1440 Static DTW (ft below reference point)	115.42	Casing Volume (CV) (gallons) 290 SV 3 GW (gallons) 873	Weather Conditions	Initials: ESH/SCS
~~SCREEN~~ Casing Total Depth (ft below reference point)	1080	Purging Device DED. PUMP Sampling Device NO DED PIPE STAND	Time 1441 Temp. 79°F	Begin Purge 1447 End Purge 1618
Water Column (feet)	485	Pump: Depth (ft brp) 535 Type GRUNDFOS Voltage 240 HP	Skies PARTLY CLOUDY	Gallons Purged 890 CVs Purged 3.1
Casing Capacity (Diameter 4") (gallons per foot)	0.60	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0 From -	DTW (ft brp) 115.56 Time 1618

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1447	115.42	0	0	—	—	BEGIN	PUMPING	—	—	—	
1449	116.40	23	0.1	19.8	7.68	0.73	-16.3	13.25	0.66		Q ≈ 10 GPM
1505	116.49	176	0.5	20.9	7.74	0.72	-216.6	0.27	1.68		
1520	116.52	324	1.1	21.1	7.74	0.72	-200.4	0.42	1.03		
1535	116.53	455	1.5	21.1	7.73	0.72	-181.3	0.53	0.74		
1550	116.55	618	2.0	21.1	7.73	0.71	-160.5	0.56	1.06		
1605	116.55	760	2.5	21.1	7.71	0.71	-162.3	0.56	0.71		
1617	116.57	876	3.0	21.1	7.72	0.71	-164.3	0.55	0.60		
1618	115.56	890	—	—	—	END	PUMPING	—	—		

SAMPLE COLLECTION SAMPLE TIME 16:20	
ANALYSIS	QUANTITY TYPE
8260B VOCs	3 40 ml VOA
8270 SIM 1,4 dioxane	1 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.)

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14

TASK: 532.30

WELL ID: MW-34A

Time <u>12:22</u> Static DTW (ft below reference point) <u>171.34</u>	Casing Volume <u>SV</u> (gallons) <u>46</u> <u>SV</u> (gallons) <u>138</u>	Weather Conditions	Initials: <u>DM/KNF</u>
Casing Total Depth (ft below reference point) <u>280</u>	Purging Device <u>Del Pump</u> Sampling Device <u>Del Sump Port</u>	Time <u>12:20</u> Temp. <u>85</u>	Begin Purge <u>12:28</u> End Purge <u>12:43</u>
Water Column (feet) <u>108.66</u>	Pump: Depth (ft brp) <u>200</u> Type <u>Grundfos</u> Voltage <u>240</u> HP	Skies <u>Clear</u>	Gallons Purged <u>171</u> CVs Purged <u>3.72</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0-60</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>171.48</u> Time <u>1247</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
12:28	171.34	←	←	Pump	On	←	←	←	←	←	
12:29	173.09	13	0.28	21.6	7.12	1.42	-252.5	0.85	1.52		~13 gpm
12:32	173.13	46	1	21.6	7.29	1.61	-168.3	2.52	48.9		
12:34	173.13	69	1.5	21.6	7.29	1.64	-145.9	2.58	47.9		
12:36	173.14	92	2	21.7	7.29	1.62	-135.2	2.55	25.7		
12:38	173.15	115	2.5	21.7	7.29	1.63	-110.6	2.57	33.7		
12:39	173.15	139	3	21.7	7.29	1.62	-100.9	2.58	20.8		
12:43	←	←	←	Pump	Off	←	←	←	←	←	

SAMPLE COLLECTION SAMPLE TIME <u>12:40</u>			AIR MONITORING-PID/FID ppm: <u>VAULT NA</u> <u>BKGD NA</u> <u>BREATHING ZONE NA</u> <u>DISCHARGE WATER NA</u>		
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)		
8260B VOCs	<u>3</u>	40 ml VOA	<u>Organic odor</u> <u>Reduced flow rate to ~10 gpm prior to sampling</u>		
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber			
8270 MOD 1,4 dioxane	<u>1</u>	1 L Amber			
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u> If yes, complete appropriate forms.					

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14

TASK: 532.30

WELL ID: MW-34B

Time <u>13:57</u> Static DTW (ft below reference point) <u>177.73</u>	<u>Screen</u> ^{SV} Casing Volume (CV) (gallons) <u>46</u> ^{SV} 3 CV (gallons) <u>138</u>	Weather Conditions Time <u>13:55</u> Temp. <u>80</u>	Initials: <u>DM/KDF</u>
Casing Total Depth (ft below reference point) <u>536</u>	Purging Device <u>Deed Pump</u> Sampling Device <u>Deed Sumo</u>	Skies <u>Clear</u>	Begin Purge <u>13:59</u> End Purge <u>14:14</u>
<u>Screen</u> Water Column (feet) <u>358.27</u> <u>215</u>	Pump: Depth (ft brp) <u>410</u> Type <u>Grundfos</u> Voltage <u>240</u> HP	Wind (mph) <u>0</u> From <u>C</u>	Gallons Purged <u>179</u> CVs Purged <u>3.88</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>Fast</u> ☒		DTW (ft brp) <u>177.95</u> Time <u>1420</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	FIELD PARAMETERS....						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
13:59	177.73			Pump On							Q ≈ 13 gpm
14:00	179.45	13	0.28	21.4	7.47	1.11	-44.8	2.41	17.2		
14:01	179.46	36	0.78	21.6	7.22	1.06	-238.4	1.41	16.7		
14:03	179.49	49	1.07	21.9	7.42	1.12	-168.0	3.83	20.7		
14:05	179.53	69	1.5	22.0	7.40	1.11	-155.3	4.03	84.1		
14:07	179.55	92	2	22.0	7.41	1.10	-157.9	4.11	23.2		
14:09	179.66	115	2.5	22.0	7.41	1.10	-150.1	4.19	9.10		
14:11	179.66	138	3	22.0	7.42	1.12	-149.3	4.19	15.4		
14:14				Pump Off							

SAMPLE COLLECTION SAMPLE TIME <u>14:12</u>		
ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>3</u>	40 ml VOA
8270-SIM 1,4 dioxane	<u>1 L Amber</u>	
8270 MOD 1,4 dioxane	<u>1</u>	1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u>		
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.)

Organic odor
Decreased flow to ~10 gpm before sampling

GROUNDWATER SAMPLING INFORMATION

DATE: 8/19/14

TASK: 532.30

WELL ID: MW-34C

Time 11:39 Static DTW (ft below reference point) 176.05	Screen SV Casing Volume (CV) (gallons) 57.7 3 CV (gallons) 173	Weather Conditions	Initials: DM/KDF
Casing Total Depth (ft below reference point) 576	Purging Device Ded. Pump Sampling Device Ded. Samp	Time 11:39 Temp. 80°F	Begin Purge 11:44 End Purge 12:03
Water Column (feet) 399.95	Pump: Depth (ft brp) 480 Type Grundfos Voltage 240 HP	Skies Clear	Gallons Purged 186 CVs Purged 3.22
Casing Capacity (Diameter 4" (gallons per foot) 0.60	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0 From 0	DTW (ft brp) 177.71 Time 12:08

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (mS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
11:44	176.05				Pump	On					~12 gpm
11:45	188.40	12	0.21								96' from screen to pump intake
11:47	190.49	36	0.62	21.7	7.87	0.54	-264.7	0.27	0.75		
11:49	191.78	58	1	22.1	8.06	0.53	-260.1	0.12	0.18		
11:52	192.38	91	1.58	22.1	8.08	0.530	-251.3	0.10	0.48		
11:54	192.58	116	2.01	22.2	8.08	0.529	-242.1	0.09	<5		
11:57	192.81	145	2.51	22.2	8.08	0.527	-239.1	0.08	0.14		
12:00	193.01	174	3.02	22.2	8.07	0.527	-234.5	0.07	0.04		
12:03					Pump	Off					

SAMPLE COLLECTION SAMPLE TIME 12:01	
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 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.)

Slight organic odor

Reduced flow rate to ~11 gpm prior to sampling

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/14

TASK: 532.30

WELL ID: MW-35C

Time 8:39 Static DTW (ft below reference point) 120.20	Casing Volume (CV) (gallons) 348 3 CV (gallons) 1044	Weather Conditions	Initials: ASF/SCS
Casing Total Depth (ft below reference point) 990	Purging Device Dred Pump Sampling Device ND Dred pipestand	Time 8:50 Temp. 72°F	Begin Purge 8:42 End Purge 10:02
Water Column (feet) 580	Pump: Depth (ft brp) 410 Type Grundfos Voltage 240 HP	Skies Mostly cloudy	Gallons Purged 1101 CVs Purged 3.16
Casing Capacity (Diameter 4") (gallons per foot) 0.60	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 8 From N/A	DTW (ft brp) 120.35 Time 10:03

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
8:42	120.20	0	0	BEGIN PUMPING						1	
8:44	122.78	24	0.07	20.2	7.29	1.02	0.9	2.51	2.80		FLOWRATE ≈ 12 GPM
8:59	122.79	227	0.65	20.6	7.30	1.00	60.2	1.96	0.22		Q ≈ 13.5 GPM
9:14	122.79	446	1.28	20.7	7.40	0.80	0.8	3.00	2.63		Q ≈ 14.6 GPM
9:28	122.79	633	1.82	20.6	7.46	0.80	20.8	3.00	3.96		Q ≈ 13.5 GPM
9:43	122.81	830	2.40	20.7	7.48	0.80	22.4	3.05	2.68		Q ≈ 13.5 GPM
9:58	122.81	1044	3.00	20.7	7.48	0.80	-3.2	2.99	0.92		
10:00	NM	1071	3.08	TAKE SAMPLE						1	
10:02	120.35	1101	3.16	END PUMPING						1	

SAMPLE COLLECTION SAMPLE TIME 10:00		
ANALYSIS	QUANTITY	TYPE
8260B VOCs	9	40 ml VOA
8270 SIM 1,4 dioxane	3	1 L Amber
8270 MOD 1,4 dioxane	0	1 L Amber
DUPLICATES / SPLITS / BLANKS?		
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.)

REMOVE TRANSDUCER @ 8:35 / REPLACE DUCER @ 10:10

MS/MSD COLLECTED

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/18TASK: 532.30WELL ID: MW-30

Time <u>12:52</u> Static DTW (ft below reference point) <u>120.31</u>	Casing Volume (CV) (gallons) <u>3204</u> 3 CV (gallons) <u>901</u>	Weather Conditions	Initials: <u>AST/SLC</u>
Casing Total Depth (ft below reference point) <u>994</u> <u>820</u>	Purging Device <u>diel. pump</u> Sampling Device <u>pipestand</u>	Time <u>14:00</u> Temp. <u>82°F</u>	Begin Purge <u>13:53</u> End Purge <u>15:25</u>
Water Column (feet) <u>535</u> <u>308</u>	Pump: Depth (ft brp) <u>400</u> Type <u>Grundfos</u> Voltage <u>240</u> HP	Skies <u>partly cloudy</u>	Gallons Purged <u>997</u> CVs Purged <u>3.17</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot) <u>0.00</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0-5</u> From <u>N</u>	DTW (ft brp) <u>120.83</u> Time <u>15:25</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
13:53	120.31	0	0	BEGIN PUMPING						1	
13:55	122.30	14.7	0.05	20.4	7.52	0.99	4.7	0.20	3.27		Q ≈ 10.5 GPM
14:13	122.57	210	0.60	21.5	7.59	0.87	-103	0.04	0.20		Q ≈ 10.9 GPM
14:30	122.67	380	1.19	21.9	7.71	0.73	-170	0.03	0.10		Q ≈ 10 GPM
14:48	122.60	571	1.70	22.0	7.07	0.88	-157	0.04	0		Q ≈ 10.0 GPM
15:06	122.70	781	2.44	21.9	7.00	0.93	-153	0.04	0.05		Q ≈ 11.0 GPM
15:22	122.68	983	3.0	22.0	7.64	0.95	-152.3	0.04	0.05		Q ≈ 11.4 GPM
15:25	120.83	~~0~~	~~0~~	END PUMPING							
		997	3.17								

SAMPLE COLLECTION SAMPLE TIME 1525

ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>3</u>	40 ml VOA
8270 SIM 1,4 dioxane	<u>0</u>	1 L Amber
8270 MOD 1,4 dioxane	<u>1</u>	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.)

REMOVED DUCER @ 13:50 / REPLACED DUCER @ 15:35

GROUNDWATER SAMPLING INFORMATION

DATE: 8/20/14

TASK: 532.30

WELL ID: MW-39

Time 11:00 Static DTW (ft below reference point)	118.14	Casing Volume (gallons) 271.2	Weather Conditions
Casing Total Depth (ft below reference point)	1080	Purging Device DUMP	Time 12:05 Temp. 77°F
Water Column (feet)	520	Pump: Depth (ft brp) 500 Type Voltage 240 HP	Skies clear/sunny
Casing Capacity (Diameter 4" (gallons per foot))	0.6	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-5 From W

Initials: AS/SCS

Begin Purge 11:01 End Purge 12:02

Gallons Purged 828 CVs Purged 3.06

DTW (ft brp) 119.17 Time 12:03

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
11:01	118.14	0	0	- BEGIN PUMPING -							
11:03	127.17	22	0.08	20.0	8.09	0.442	-235	0.89	7.77		Q ≈ 11 GPM
11:14	127.60	109	0.62	21.8	9.77	0.59	-270	0.08	1.20		Q ≈ 13.4 GPM
11:25	127.77	332	1.23	22.5	9.54	0.489	-232	0.04	0.36		Q ≈ 14.8 GPM
11:36	127.82	470	1.70	22.0	9.07	0.403	-205	0.03	0.09		Q ≈ 13.1 GPM
11:48	127.89	649	2.40	22.0	8.88	0.401	-200	0.02	0.12		Q ≈ 13.3 GPM
12:00	127.90	813	3.00	22.0	8.90	0.400	-201	0.01	0.09		Q ≈ 13.7 GPM
12:00	- SAMPLE COLLECTED -										
12:02		828	3.06	- END PUMPING -							

SAMPLE COLLECTION SAMPLE TIME 12:00

ANALYSIS QUANTITY TYPE

8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane	0	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.)

REMOVE DUCER @ 10:55 / REPLACE DUCER @ 12:10

GROUNDWATER SAMPLING INFORMATION

DATE: _____

TASK: _____ 532.30

WELL ID: MW-40

Time <u>1110</u> Static DTW (ft below reference point)	143.33	Casing Volume (CV) (gallons) <u>75</u> 3 CV (gallons) <u>225</u>	Weather Conditions	Initials: <u>EJH + SCS</u>
Casing Total Depth (ft below reference point)	970	Purging Device <u>ded pump</u> Sampling Device <u>ND Pipe Sand</u>	Time <u>1140</u> Temp. <u>80</u>	Begin Purge <u>1116</u> End Purge <u>1152</u>
Water Column (feet)	50	Pump: Depth (ft brp) <u>970</u> Type <u>gandlos</u> Voltage <u>240</u> HP	Skies <u>sunny</u>	Gallons Purged <u>257</u> CVs Purged <u>3.4</u>
Casing Capacity (Diameter <u>6"</u>) (gallons per foot)	1.5	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>0</u>	DTW (ft brp) <u>143.36</u> Time <u>1155</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (mS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1116	143.33	0	0	—	—	Pump on	—	—	—	—	Q = 7gpm
1121	143.88	39	0.5	21.4	7.70	0.82	-133.9	0.16	1.8	—	↓
1126	143.88	79	1.0	21.9	7.64	0.82	-252.7	0.21	2.7	—	
1132	143.90	115	1.5	21.9	7.63	0.83	-250.6	0.25	2.25	—	
P1137	143.90	157	2.0	21.9	7.56	0.83	-244.3	0.41	2.10 1.63	—	Q = 8gpm Q = 6gpm
1142	143.90	187	2.5	22.0	7.55	0.83	-237.0	0.44	1.44	—	Q = 7gpm
1148	143.92	230	3.0	22.0	7.54	0.83	-241.2	0.43	1.13	—	
1152	—	257	3.4	—	—	Pump off	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1150

ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>3</u>	40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber
8270 MOD 1,4 dioxane	<u>1</u>	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.)

GROUNDWATER SAMPLING INFORMATION

DATE: 9/10/14TASK: 532.30WELL ID: MW-41

Time <u>1340</u> Static DTW (ft below reference point) <u>185.65</u>	Casing Volume (CV) (gallons) <u>39</u> 3 CV (gallons) <u>117</u>	Weather Conditions Time <u>1340</u> Temp. <u>90</u>	Initials: <u>EJH</u>
Casing Total Depth (ft below reference point) <u>425</u>	Purging Device <u>bed pump</u> Sampling Device <u>0-10 pipe to 100 stand</u>	Skies <u>sunny</u>	Begin Purge <u>1350</u> End Purge <u>1418</u>
screen to Pump Water Column (feet) <u>65</u>	Pump: Depth (ft brp) <u>360</u> Type <u>ground</u> voltage <u>240</u> HP	Wind (mph) <u>0</u> From <u>NW</u>	Gallons Purged <u>177</u> CVs Purged <u>45</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow Fast <u>X</u>	DTW (ft brp) <u>186.47</u> Time <u>1420</u>	

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1350	185.65	0	0	Pump ON							
1353	193.30	22	0.56	22.8	7.31	1.84	2.54	62.54	68.7	5.48	Q = 6gpm
1356	193.31	39	1.00	22.8	7.07	2.10	3.22	3.22	78.9	12.7	Q = 5.6gpm
1359	193.42	62	1.58	22.7	7.03	2.10	3.42	3.42	85.6	13.7	Q = 6gpm
1402	193.47	78	2.00	22.7	7.01	2.12	3.45	3.45	87.7	4.04	↓
1405	193.47	94	2.41	22.7	7.01	2.11	3.42	3.42	87.6	1.84	↓
1408	193.49	112	2.90	22.7	7.01	2.13	3.42	3.42	88.9	1.02	Q = 7gpm
1411	193.52	133	3.4	22.7	7.01	2.13	3.42	3.42	90.2	1.18	↓
1414	193.52	153	3.9	22.7	7.02	2.13	3.39	3.39	90.4	1.11	↓
1418	NM	177	4.5				Pump off				

SAMPLE COLLECTION SAMPLE TIME 1415
ANALYSIS QUANTITY TYPE

8260B VOCs 3 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.)

DVP: MW-4100 @ 1430

SPT: MW-41 @ 1415



GROUNDWATER SAMPLING INFORMATION

TASK: 532.30

WELL ID: MW-41

DATE: <u>7/21/14</u>		TIME: <u>11:00</u>		Weather Conditions		Initials: <u>ASFEJH</u>	
Time <u>11:00</u> Static DTW (ft below reference point)	<u>180.05</u>	Casing Volume (CV) (gallons) <u>39</u>	3 CV (gallons) <u>117</u>	Time <u>11:00</u>	Temp. <u>80°F</u>	Begin Purge <u>11:02</u>	End Purge <u>11:24</u>
Casing Total Depth (ft below reference point)	<u>425</u>	Purging Device <u>ded. pump</u>	Sampling Device <u>ded. 0-10 pipe stand</u>	Skies <u>MOSTLY SUNNY</u>		Gallons Purged <u>146</u>	CVs Purged <u>3.9</u>
Water Column (feet)	<u>0.05</u>	Pump: Depth (ft brp) <u>300</u>	Type <u>Grundfos</u>	Voltage <u>240</u>	HP <u></u>	DTW (ft brp) <u>187.46</u>	Time <u>11:24</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot)	<u>0.00</u>	Monitor Well Recharge Rate: Slow	Fast <u>X</u>	Wind (mph) <u>0-5</u>	From <u>W</u>		

[illegible]

SAMPLE COLLECTION		SAMPLE TIME	AIR MONITORING PID/FID ppm: VAULT NA		BREATHING ZONE NA	DISCHARGE WATER NA
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
8260B VOCs	13	40 ml VOA	SPLT = MW-41 @ 11:25 DUP = MW-4100 @ 12:50 TB-09242014A TB-09242014B			
8270 SIM 1,4 dioxane	2	1 L Amber				
8270 MOD 1,4 dioxane	1	1 L Amber				
DUPLICATES / SPLITS / BLANKS? If yes, complete appropriate forms.			Y N			



HARGIS + ASSOCIATES, INC.

APPENDIX B

LABORATORY ANALYTICAL REPORTS

GROUNDWATER SAMPLING ANALYTICAL RESULTS



August 26, 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 : 1402397
Client Reference : RAYTHEON, 532.30

Enclosed are the results for sample(s) received on August 18, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-081814A	1402397-01	Lab H2O	8/18/14 14:00	8/18/14 17:06
EW-01	1402397-02	Groundwater	8/18/14 14:44	8/18/14 17:06
MW-21	1402397-03	Groundwater	8/18/14 14:50	8/18/14 17:06
EW-02	1402397-04	Groundwater	8/18/14 15:25	8/18/14 17:06
MW-29	1402397-05	Groundwater	8/18/14 15:45	8/18/14 17:06
MW-2900	1402397-06	Groundwater	8/18/14 16:00	8/18/14 17:06



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID TB-081814A

Lab ID: 1402397-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,1,1-Trichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,1,2-Trichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,1-Dichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,1-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,1-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2,3-Trichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2-Dibromoethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2-Dichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,3-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,3-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
1,4-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
2,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
2-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
4-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
4-Isopropyltoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Benzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Bromobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Bromodichloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Bromoform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Bromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Carbon tetrachloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Chlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Chloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Chloroform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Chloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Dibromochloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID TB-081814A

Lab ID: 1402397-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Dichlorodifluoromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Ethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Hexachlorobutadiene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Isopropylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
m,p-Xylene	ND	1.0	1	B4H0253	08/19/2014	08/19/14 11:53	
Methylene chloride	ND	1.0	1	B4H0253	08/19/2014	08/19/14 11:53	
n-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
n-Propylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Naphthalene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
o-Xylene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
sec-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Styrene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
tert-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Tetrachloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Toluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Trichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Trichlorofluoromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Vinyl chloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 11:53	
Surrogate: 1,2-Dichloroethane-d4	115 %	64 - 146		B4H0253	08/19/2014	08/19/14 11:53	
Surrogate: 4-Bromofluorobenzene	94.4 %	60 - 128		B4H0253	08/19/2014	08/19/14 11:53	
Surrogate: Dibromofluoromethane	113 %	72 - 141		B4H0253	08/19/2014	08/19/14 11:53	
Surrogate: Toluene-d8	107 %	61 - 124		B4H0253	08/19/2014	08/19/14 11:53	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID EW-01

Lab ID: 1402397-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,1,1-Trichloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,1,2,2-Tetrachloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,1,2-Trichloroethane	8.4	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,1-Dichloroethane	14	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,1-Dichloroethene	950	5.0	10	B4H0253	08/19/2014	08/19/14 12:40	
1,1-Dichloropropene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2,3-Trichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2,3-Trichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2,4-Trichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2,4-Trimethylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2-Dibromo-3-chloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2-Dibromoethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2-Dichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2-Dichloroethane	4.0	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,2-Dichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,3,5-Trimethylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,3-Dichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,3-Dichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
1,4-Dichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
2,2-Dichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
2-Chlorotoluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
4-Chlorotoluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
4-Isopropyltoluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Benzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Bromobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Bromodichloromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Bromoform	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Bromomethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Carbon tetrachloride	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Chlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Chloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Chloroform	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Chloromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
cis-1,2-Dichloroethene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
cis-1,3-Dichloropropene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Dibromochloromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID EW-01

Lab ID: 1402397-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Dichlorodifluoromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Ethylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Hexachlorobutadiene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Isopropylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
m,p-Xylene	ND	5.0	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Methylene chloride	ND	5.0	5	B4H0253	08/19/2014	08/19/14 15:27	D6
n-Butylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
n-Propylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Naphthalene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
o-Xylene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
sec-Butylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Styrene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
tert-Butylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Tetrachloroethene	3.8	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Toluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
trans-1,2-Dichloroethene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Trichloroethene	3.1	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Trichlorofluoromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6
Vinyl chloride	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:27	D6

Surrogate: 1,2-Dichloroethane-d4	109 %	64 - 146	B4H0253	08/19/2014	08/19/14 12:40
Surrogate: 1,2-Dichloroethane-d4	105 %	64 - 146	B4H0253	08/19/2014	08/19/14 15:27
Surrogate: 4-Bromofluorobenzene	87.9 %	60 - 128	B4H0253	08/19/2014	08/19/14 12:40
Surrogate: 4-Bromofluorobenzene	83.2 %	60 - 128	B4H0253	08/19/2014	08/19/14 15:27
Surrogate: Dibromofluoromethane	101 %	72 - 141	B4H0253	08/19/2014	08/19/14 15:27
Surrogate: Dibromofluoromethane	102 %	72 - 141	B4H0253	08/19/2014	08/19/14 12:40
Surrogate: Toluene-d8	101 %	61 - 124	B4H0253	08/19/2014	08/19/14 12:40
Surrogate: Toluene-d8	101 %	61 - 124	B4H0253	08/19/2014	08/19/14 15:27



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID EW-01

Lab ID: 1402397-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	970	20	10	B4H0307	08/21/2014	08/22/14 10:29	D6
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>75.8 %</i>	<i>42 - 106</i>		B4H0307	08/21/2014	<i>08/22/14 10:29</i>	D6
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>85.6 %</i>	<i>55 - 117</i>		B4H0307	08/21/2014	<i>08/22/14 10:29</i>	D6
<i>Surrogate: 4-Terphenyl-d14</i>	<i>91.0 %</i>	<i>52 - 142</i>		B4H0307	08/21/2014	<i>08/22/14 10:29</i>	D6
<i>Surrogate: Nitrobenzene-d5</i>	<i>70.1 %</i>	<i>43 - 116</i>		B4H0307	08/21/2014	<i>08/22/14 10:29</i>	D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-21

Lab ID: 1402397-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,1,1-Trichloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,1,2,2-Tetrachloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,1,2-Trichloroethane	7.0	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,1-Dichloroethane	18	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,1-Dichloroethene	1200	10	20	B4H0253	08/19/2014	08/19/14 13:04	
1,1-Dichloropropene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2,3-Trichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2,3-Trichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2,4-Trichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2,4-Trimethylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2-Dibromo-3-chloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2-Dibromoethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2-Dichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2-Dichloroethane	3.4	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,2-Dichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,3,5-Trimethylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,3-Dichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,3-Dichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
1,4-Dichlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
2,2-Dichloropropane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
2-Chlorotoluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
4-Chlorotoluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
4-Isopropyltoluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Benzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Bromobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Bromodichloromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Bromoform	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Bromomethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Carbon tetrachloride	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Chlorobenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Chloroethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Chloroform	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Chloromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
cis-1,2-Dichloroethene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
cis-1,3-Dichloropropene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Dibromochloromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-21

Lab ID: 1402397-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Dichlorodifluoromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Ethylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Hexachlorobutadiene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Isopropylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
m,p-Xylene	ND	5.0	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Methylene chloride	ND	5.0	5	B4H0253	08/19/2014	08/19/14 15:03	D6
n-Butylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
n-Propylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Naphthalene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
o-Xylene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
sec-Butylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Styrene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
tert-Butylbenzene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Tetrachloroethene	3.6	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Toluene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
trans-1,2-Dichloroethene	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Trichloroethene	18	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Trichlorofluoromethane	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6
Vinyl chloride	ND	2.5	5	B4H0253	08/19/2014	08/19/14 15:03	D6

Surrogate: 1,2-Dichloroethane-d4	110 %	64 - 146	B4H0253	08/19/2014	08/19/14 13:04
Surrogate: 1,2-Dichloroethane-d4	110 %	64 - 146	B4H0253	08/19/2014	08/19/14 15:03
Surrogate: 4-Bromofluorobenzene	88.6 %	60 - 128	B4H0253	08/19/2014	08/19/14 13:04
Surrogate: 4-Bromofluorobenzene	86.0 %	60 - 128	B4H0253	08/19/2014	08/19/14 15:03
Surrogate: Dibromofluoromethane	103 %	72 - 141	B4H0253	08/19/2014	08/19/14 15:03
Surrogate: Dibromofluoromethane	105 %	72 - 141	B4H0253	08/19/2014	08/19/14 13:04
Surrogate: Toluene-d8	103 %	61 - 124	B4H0253	08/19/2014	08/19/14 13:04
Surrogate: Toluene-d8	99.6 %	61 - 124	B4H0253	08/19/2014	08/19/14 15:03



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-21

Lab ID: 1402397-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	360	2.0	1	B4H0307	08/21/2014	08/22/14 02:32	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	75.3 %	42 - 106		B4H0307	08/21/2014	08/22/14 02:32	
<i>Surrogate: 2-Fluorobiphenyl</i>	78.4 %	55 - 117		B4H0307	08/21/2014	08/22/14 02:32	
<i>Surrogate: 4-Terphenyl-d14</i>	85.3 %	52 - 142		B4H0307	08/21/2014	08/22/14 02:32	
<i>Surrogate: Nitrobenzene-d5</i>	75.4 %	43 - 116		B4H0307	08/21/2014	08/22/14 02:32	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID EW-02

Lab ID: 1402397-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,1,1-Trichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,1,2-Trichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,1-Dichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,1-Dichloroethene	5.2	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,1-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2,3-Trichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2-Dibromoethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2-Dichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,3-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,3-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
1,4-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
2,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
2-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
4-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
4-Isopropyltoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Benzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Bromobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Bromodichloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Bromoform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Bromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Carbon tetrachloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Chlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Chloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Chloroform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Chloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Dibromochloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID EW-02

Lab ID: 1402397-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Dichlorodifluoromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Ethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Hexachlorobutadiene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Isopropylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
m,p-Xylene	ND	1.0	1	B4H0253	08/19/2014	08/19/14 12:17	
Methylene chloride	ND	1.0	1	B4H0253	08/19/2014	08/19/14 12:17	
n-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
n-Propylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Naphthalene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
o-Xylene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
sec-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Styrene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
tert-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Tetrachloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Toluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Trichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Trichlorofluoromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Vinyl chloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 12:17	
Surrogate: 1,2-Dichloroethane-d4	118 %	64 - 146		B4H0253	08/19/2014	08/19/14 12:17	
Surrogate: 4-Bromofluorobenzene	90.1 %	60 - 128		B4H0253	08/19/2014	08/19/14 12:17	
Surrogate: Dibromofluoromethane	110 %	72 - 141		B4H0253	08/19/2014	08/19/14 12:17	
Surrogate: Toluene-d8	107 %	61 - 124		B4H0253	08/19/2014	08/19/14 12:17	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID EW-02

Lab ID: 1402397-04

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	5.1	2.0	1	B4H0307	08/21/2014	08/22/14 10:03	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.4 %</i>	<i>42 - 106</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 10:03</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>78.0 %</i>	<i>55 - 117</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 10:03</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>84.6 %</i>	<i>52 - 142</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 10:03</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.2 %</i>	<i>43 - 116</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 10:03</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-29

Lab ID: 1402397-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,1,1-Trichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,1,2-Trichloroethane	0.79	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,1-Dichloroethane	1.9	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,1-Dichloroethene	180	5.0	10	B4H0253	08/19/2014	08/19/14 13:52	
1,1-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2,3-Trichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2-Dibromoethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2-Dichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,3-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,3-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
1,4-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
2,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
2-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
4-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
4-Isopropyltoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Benzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Bromobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Bromodichloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Bromoform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Bromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Carbon tetrachloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Chlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Chloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Chloroform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Chloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Dibromochloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-29

Lab ID: 1402397-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Dichlorodifluoromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Ethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Hexachlorobutadiene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Isopropylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
m,p-Xylene	ND	1.0	1	B4H0253	08/19/2014	08/19/14 13:27	
Methylene chloride	ND	1.0	1	B4H0253	08/19/2014	08/19/14 13:27	
n-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
n-Propylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Naphthalene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
o-Xylene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
sec-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Styrene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
tert-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Tetrachloroethene	0.58	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Toluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Trichloroethene	4.4	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Trichlorofluoromethane	1.0	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	
Vinyl chloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 13:27	

Surrogate: 1,2-Dichloroethane-d4	110 %	64 - 146	B4H0253	08/19/2014	08/19/14 13:52
Surrogate: 1,2-Dichloroethane-d4	112 %	64 - 146	B4H0253	08/19/2014	08/19/14 13:27
Surrogate: 4-Bromofluorobenzene	87.2 %	60 - 128	B4H0253	08/19/2014	08/19/14 13:52
Surrogate: 4-Bromofluorobenzene	88.1 %	60 - 128	B4H0253	08/19/2014	08/19/14 13:27
Surrogate: Dibromofluoromethane	105 %	72 - 141	B4H0253	08/19/2014	08/19/14 13:27
Surrogate: Dibromofluoromethane	103 %	72 - 141	B4H0253	08/19/2014	08/19/14 13:52
Surrogate: Toluene-d8	101 %	61 - 124	B4H0253	08/19/2014	08/19/14 13:52
Surrogate: Toluene-d8	103 %	61 - 124	B4H0253	08/19/2014	08/19/14 13:27



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-29

Lab ID: 1402397-05

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	73	2.0	1	B4H0307	08/21/2014	08/22/14 03:25	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.4 %</i>	<i>42 - 106</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:25</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>75.7 %</i>	<i>55 - 117</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:25</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>84.3 %</i>	<i>52 - 142</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:25</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>73.3 %</i>	<i>43 - 116</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:25</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-2900

Lab ID: 1402397-06

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,1,1-Trichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,1,2-Trichloroethane	0.80	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,1-Dichloroethane	2.0	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,1-Dichloroethene	170	5.0	10	B4H0253	08/19/2014	08/19/14 14:39	
1,1-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2,3-Trichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2-Dibromoethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2-Dichloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,3-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,3-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
1,4-Dichlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
2,2-Dichloropropane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
2-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
4-Chlorotoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
4-Isopropyltoluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Benzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Bromobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Bromodichloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Bromoform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Bromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Carbon tetrachloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Chlorobenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Chloroethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Chloroform	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Chloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Dibromochloromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-2900

Lab ID: 1402397-06

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Dichlorodifluoromethane	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Ethylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Hexachlorobutadiene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Isopropylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
m,p-Xylene	ND	1.0	1	B4H0253	08/19/2014	08/19/14 14:16	
Methylene chloride	ND	1.0	1	B4H0253	08/19/2014	08/19/14 14:16	
n-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
n-Propylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Naphthalene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
o-Xylene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
sec-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Styrene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
tert-Butylbenzene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Tetrachloroethene	0.73	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Toluene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Trichloroethene	4.3	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Trichlorofluoromethane	0.99	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	
Vinyl chloride	ND	0.50	1	B4H0253	08/19/2014	08/19/14 14:16	

Surrogate: 1,2-Dichloroethane-d4	118 %	64 - 146	B4H0253	08/19/2014	08/19/14 14:39
Surrogate: 1,2-Dichloroethane-d4	116 %	64 - 146	B4H0253	08/19/2014	08/19/14 14:16
Surrogate: 4-Bromofluorobenzene	89.2 %	60 - 128	B4H0253	08/19/2014	08/19/14 14:39
Surrogate: 4-Bromofluorobenzene	91.4 %	60 - 128	B4H0253	08/19/2014	08/19/14 14:16
Surrogate: Dibromofluoromethane	109 %	72 - 141	B4H0253	08/19/2014	08/19/14 14:16
Surrogate: Dibromofluoromethane	110 %	72 - 141	B4H0253	08/19/2014	08/19/14 14:39
Surrogate: Toluene-d8	107 %	61 - 124	B4H0253	08/19/2014	08/19/14 14:16
Surrogate: Toluene-d8	106 %	61 - 124	B4H0253	08/19/2014	08/19/14 14:39



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Client Sample ID MW-2900

Lab ID: 1402397-06

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	74	2.0	1	B4H0307	08/21/2014	08/22/14 03:52	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.7 %</i>	<i>42 - 106</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:52</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>77.9 %</i>	<i>55 - 117</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:52</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>87.1 %</i>	<i>52 - 142</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:52</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.1 %</i>	<i>43 - 116</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 03:52</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

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 B4H0253 - MSVOAW_LL

Blank (B4H0253-BLK1)

Prepared: 8/19/2014 Analyzed: 8/19/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0253 - MSVOAW_LL (continued)

Blank (B4H0253-BLK1) - Continued

Prepared: 8/19/2014 Analyzed: 8/19/2014

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	30.13		25.0000		121	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.56		25.0000		98.2	60 - 128			
Surrogate: Dibromofluoromethane	27.87		25.0000		111	72 - 141			
Surrogate: Toluene-d8	28.06		25.0000		112	61 - 124			

LCS (B4H0253-BS1)

Prepared: 8/19/2014 Analyzed: 8/19/2014

1,1-Dichloroethene	22.5300		20.0000		113	56 - 131			
Benzene	22.9600		20.0000		115	69 - 139			
Chlorobenzene	21.9600		20.0000		110	73 - 127			
MTBE	19.5800		20.0000		97.9	68 - 133			
Toluene	23.8500		20.0000		119	62 - 133			
Trichloroethene	23.7500		20.0000		119	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	25.29		25.0000		101	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.37		25.0000		89.5	60 - 128			
Surrogate: Dibromofluoromethane	25.50		25.0000		102	72 - 141			
Surrogate: Toluene-d8	26.34		25.0000		105	61 - 124			

LCS Dup (B4H0253-BSD1)

Prepared: 8/19/2014 Analyzed: 8/19/2014

1,1-Dichloroethene	20.8000		20.0000		104	56 - 131	7.99	20	
Benzene	22.1900		20.0000		111	69 - 139	3.41	20	
Chlorobenzene	21.9600		20.0000		110	73 - 127	0.00	20	
MTBE	19.5400		20.0000		97.7	68 - 133	0.204	20	
Toluene	23.5000		20.0000		118	62 - 133	1.48	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

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 B4H0253 - MSVOAW_LL (continued)

LCS Dup (B4H0253-BS01) - Continued

Prepared: 8/19/2014 Analyzed: 8/19/2014

Trichloroethene	22.1600		20.0000		111	72 - 139	6.93	20	
Surrogate: 1,2-Dichloroethane-d4	24.87		25.0000		99.5	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.34		25.0000		89.4	60 - 128			
Surrogate: Dibromofluoromethane	24.96		25.0000		99.8	72 - 141			
Surrogate: Toluene-d8	26.38		25.0000		106	61 - 124			

Matrix Spike (B4H0253-MS1)

Source: 1402397-02

Prepared: 8/19/2014 Analyzed: 8/19/2014

1,1-Dichloroethene	171.010		20.0000	169.250	8.80	56 - 131			M3
Benzene	21.2200		20.0000	ND	106	69 - 139			
Chlorobenzene	21.4300		20.0000	ND	107	73 - 127			
MTBE	16.7700		20.0000	ND	83.8	68 - 133			
Toluene	23.0200		20.0000	ND	115	62 - 133			
Trichloroethene	21.9500		20.0000	0.620000	107	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	25.22		25.0000		101	64 - 146			
Surrogate: 4-Bromofluorobenzene	21.54		25.0000		86.2	60 - 128			
Surrogate: Dibromofluoromethane	23.63		25.0000		94.5	72 - 141			
Surrogate: Toluene-d8	26.39		25.0000		106	61 - 124			

Matrix Spike Dup (B4H0253-MSD1)

Source: 1402397-02

Prepared: 8/19/2014 Analyzed: 8/19/2014

1,1-Dichloroethene	175.770		20.0000	169.250	32.6	56 - 131	2.75	20	M3
Benzene	21.7700		20.0000	ND	109	69 - 139	2.56	20	
Chlorobenzene	21.5800		20.0000	ND	108	73 - 127	0.698	20	
MTBE	16.7600		20.0000	ND	83.8	68 - 133	0.0596	20	
Toluene	22.8700		20.0000	ND	114	62 - 133	0.654	20	
Trichloroethene	22.6900		20.0000	0.620000	110	72 - 139	3.32	20	
Surrogate: 1,2-Dichloroethane-d4	24.76		25.0000		99.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.38		25.0000		89.5	60 - 128			
Surrogate: Dibromofluoromethane	24.38		25.0000		97.5	72 - 141			
Surrogate: Toluene-d8	27.15		25.0000		109	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

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 B4H0307 - MSSEMI

Blank (B4H0307-BLK1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	72.90		100.000		72.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	75.49		100.000		75.5	55 - 117			
Surrogate: 4-Terphenyl-d14	85.41		100.000		85.4	52 - 142			
Surrogate: Nitrobenzene-d5	72.66		100.000		72.7	43 - 116			

LCS (B4H0307-BS1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	109.080	2.0	100.000		109	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	71.10		100.000		71.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.60		100.000		76.6	55 - 117			
Surrogate: 4-Terphenyl-d14	85.88		100.000		85.9	52 - 142			
Surrogate: Nitrobenzene-d5	73.98		100.000		74.0	43 - 116			

Matrix Spike (B4H0307-MS1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1018.06	20	100.000	973.940	44.1	62 - 127			D6, M3
Surrogate: 1,2-Dichlorobenzene-d4	79.50		100.000		79.5	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	89.70		100.000		89.7	55 - 117			D6
Surrogate: 4-Terphenyl-d14	92.80		100.000		92.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	83.50		100.000		83.5	43 - 116			D6

Matrix Spike Dup (B4H0307-MSD1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1042.52	20	100.000	973.940	68.6	62 - 127	2.37	20	D6
Surrogate: 1,2-Dichlorobenzene-d4	78.20		100.000		78.2	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	87.80		100.000		87.8	55 - 117			D6
Surrogate: 4-Terphenyl-d14	91.80		100.000		91.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	79.60		100.000		79.6	43 - 116			D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/26/2014

Notes and Definitions

M3	Matrix spike recovery outside of acceptance limit due to disproportionate concentration of the analyte to spike level. The analytical batch was validated by the laboratory control sample.
D6	Sample required dilution due to high concentration of target analyte.
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.



DATE 8/18/14 PAGE 1 OF 1

PROJECT NAME RAYTHEON						PROJECT No./TASK No. 532.30							SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING	LABORATORY INFORMATION				
PROJECT MANAGER STEVE NETTO								Phone No. 858-455-6500																ATL
QA MANAGER								Fax No. 858-455-6533																Attn: Rachelle Arada
SAMPLER (SIGNATURE) 								SAMPLER (PRINTED) ERIW HUNTER																
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX			PRESERVATION				40 ml VOA	1 L Amber	VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb)				STANDARD TAT	MS	MSD		
		Date	Time	Soil	Ground water	Surface water	Lab H ₂ O	HCl	HNO ₃	NaOH						H ₂ SO ₄	Ice	0-10	10-100					1001-1,000
1402397 -01	TB-DBRMA	8/18/14	1400			X	X				X						X							
-2	EW-01		1444	X			X				X						X				X	X		
-3	MW-21		1450	X			X				X						X				X	X		
-4	EW-02		1525	X			X				X						X				X	X		
-5	MW-29		1545	X			X				X						X				X	X		
-6	MW-2900		1600	X			X				X						X				X	X		
				X																	X			
Total number of Containers per analysis:											24	7											Total No. of Containers:	(31)
Relinquished by: 	Date 8/18/14	Received by: 	Date 8/18/14	INSTRUCTIONS																		Shipment Method: COURIER		
HeA, Inc.	Time 1700	Company ATL	Time 17:06	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.																		Send Results to: Steve Netto		
Relinquished by: 	Date 8/18/14	Received by: FPOIWA fh	Date 8/18/14	Sample Receipt: Temp. @ receipt 5.0 °C																		9171 TOWNE CENTRE DRIVE, SUITE 375 SAN DIEGO, CA 92122 (858) 455-6500		
A TL	Time 1806	Company ATU	Time 1806	☒ No. of containers correct ☒ received good condition/cold ☐ custody seals secure ☒ conforms to COC document																		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		



August 27, 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 : 1402412
Client Reference : RAYTHEON, 532.30

Enclosed are the results for sample(s) received on August 19, 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,

A handwritten signature in black ink, appearing to read 'E Rodriguez', is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-081914A	1402412-01	Lab H2O	8/19/14 8:00	8/19/14 17:05
MW-32A	1402412-02	Groundwater	8/19/14 9:55	8/19/14 17:05
MW-32C	1402412-03	Groundwater	8/19/14 12:05	8/19/14 17:05
MW-32B	1402412-04	Groundwater	8/19/14 13:45	8/19/14 17:05
MW-3200B	1402412-05	Groundwater	8/19/14 14:00	8/19/14 17:05
MW-33	1402412-06	Groundwater	8/19/14 16:20	8/19/14 17:05
MW-34C	1402412-07	Groundwater	8/19/14 12:01	8/19/14 17:05
MW-34A	1402412-08	Groundwater	8/19/14 12:40	8/19/14 17:05
MW-34B	1402412-09	Groundwater	8/19/14 14:12	8/19/14 17:05
MW-26C	1402412-10	Groundwater	8/19/14 16:57	8/19/14 17:05



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID TB-081914A

Lab ID: 1402412-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,1-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID TB-081914A

Lab ID: 1402412-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 10:26	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 10:26	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:26	
Surrogate: 1,2-Dichloroethane-d4	115 %	64 - 146		B4H0268	08/20/2014	08/20/14 10:26	
Surrogate: 4-Bromofluorobenzene	93.6 %	60 - 128		B4H0268	08/20/2014	08/20/14 10:26	
Surrogate: Dibromofluoromethane	108 %	72 - 141		B4H0268	08/20/2014	08/20/14 10:26	
Surrogate: Toluene-d8	110 %	61 - 124		B4H0268	08/20/2014	08/20/14 10:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32A

Lab ID: 1402412-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,1-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32A

Lab ID: 1402412-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 11:13	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 11:13	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 11:13	
Surrogate: 1,2-Dichloroethane-d4	107 %	64 - 146		B4H0268	08/20/2014	08/20/14 11:13	
Surrogate: 4-Bromofluorobenzene	89.0 %	60 - 128		B4H0268	08/20/2014	08/20/14 11:13	
Surrogate: Dibromofluoromethane	99.8 %	72 - 141		B4H0268	08/20/2014	08/20/14 11:13	
Surrogate: Toluene-d8	101 %	61 - 124		B4H0268	08/20/2014	08/20/14 11:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32A

Lab ID: 1402412-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0282	08/20/2014	08/20/14 15:01	
Surrogate: 1,2-Dichlorobenzene-d4	82.8 %	47 - 117		B4H0282	08/20/2014	08/20/14 15:01	
Surrogate: 2-Fluorobiphenyl	78.1 %	48 - 121		B4H0282	08/20/2014	08/20/14 15:01	
Surrogate: 4-Terphenyl-d14	114 %	58 - 142		B4H0282	08/20/2014	08/20/14 15:01	
Surrogate: Nitrobenzene-d5	84.1 %	27 - 151		B4H0282	08/20/2014	08/20/14 15:01	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32C

Lab ID: 1402412-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,1-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32C

Lab ID: 1402412-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 15:40	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 15:40	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:40	
Surrogate: 1,2-Dichloroethane-d4	106 %	64 - 146		B4H0268	08/20/2014	08/20/14 15:40	
Surrogate: 4-Bromofluorobenzene	91.8 %	60 - 128		B4H0268	08/20/2014	08/20/14 15:40	
Surrogate: Dibromofluoromethane	102 %	72 - 141		B4H0268	08/20/2014	08/20/14 15:40	
Surrogate: Toluene-d8	104 %	61 - 124		B4H0268	08/20/2014	08/20/14 15:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32C

Lab ID: 1402412-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0282	08/20/2014	08/20/14 16:15	
Surrogate: 1,2-Dichlorobenzene-d4	87.0 %	47 - 117		B4H0282	08/20/2014	08/20/14 16:15	
Surrogate: 2-Fluorobiphenyl	96.0 %	48 - 121		B4H0282	08/20/2014	08/20/14 16:15	
Surrogate: 4-Terphenyl-d14	121 %	58 - 142		B4H0282	08/20/2014	08/20/14 16:15	
Surrogate: Nitrobenzene-d5	78.6 %	27 - 151		B4H0282	08/20/2014	08/20/14 16:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32B

Lab ID: 1402412-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,1-Dichloroethane	0.88	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,1-Dichloroethene	97	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
cis-1,2-Dichloroethene	4.5	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32B

Lab ID: 1402412-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 17:38	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 17:38	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Trichloroethene	64	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>97.3 %</i>	<i>64 - 146</i>		B4H0268	08/20/2014	<i>08/20/14 17:38</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>84.2 %</i>	<i>60 - 128</i>		B4H0268	08/20/2014	<i>08/20/14 17:38</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>93.9 %</i>	<i>72 - 141</i>		B4H0268	08/20/2014	<i>08/20/14 17:38</i>	
<i>Surrogate: Toluene-d8</i>	<i>91.4 %</i>	<i>61 - 124</i>		B4H0268	08/20/2014	<i>08/20/14 17:38</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-32B

Lab ID: 1402412-04

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.62	0.20	1	B4H0282	08/20/2014	08/21/14 13:02	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>88.3 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/21/14 13:02</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>94.4 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/21/14 13:02</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>119 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/21/14 13:02</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>76.9 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/21/14 13:02</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-3200B

Lab ID: 1402412-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,1-Dichloroethane	0.83	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,1-Dichloroethene	96	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
cis-1,2-Dichloroethene	4.2	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-3200B

Lab ID: 1402412-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 18:26	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 18:26	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Trichloroethene	64	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 18:26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>64 - 146</i>		B4H0268	08/20/2014	<i>08/20/14 18:26</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>89.4 %</i>	<i>60 - 128</i>		B4H0268	08/20/2014	<i>08/20/14 18:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>98.5 %</i>	<i>72 - 141</i>		B4H0268	08/20/2014	<i>08/20/14 18:26</i>	
<i>Surrogate: Toluene-d8</i>	<i>93.6 %</i>	<i>61 - 124</i>		B4H0268	08/20/2014	<i>08/20/14 18:26</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-3200B

Lab ID: 1402412-05

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	6.5	0.20	1	B4H0282	08/20/2014	08/20/14 15:28	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>85.4 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/20/14 15:28</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>85.2 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/20/14 15:28</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>116 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/20/14 15:28</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>88.9 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/20/14 15:28</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-33

Lab ID: 1402412-06

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,1-Dichloroethene	5.4	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-33

Lab ID: 1402412-06

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 16:03	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 16:03	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Trichloroethene	1.1	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:03	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>	<i>64 - 146</i>		B4H0268	08/20/2014	<i>08/20/14 16:03</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>88.4 %</i>	<i>60 - 128</i>		B4H0268	08/20/2014	<i>08/20/14 16:03</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>97.2 %</i>	<i>72 - 141</i>		B4H0268	08/20/2014	<i>08/20/14 16:03</i>	
<i>Surrogate: Toluene-d8</i>	<i>98.6 %</i>	<i>61 - 124</i>		B4H0268	08/20/2014	<i>08/20/14 16:03</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-33

Lab ID: 1402412-06

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0282	08/20/2014	08/20/14 15:56	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>89.7 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/20/14 15:56</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>86.8 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/20/14 15:56</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>122 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/20/14 15:56</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>92.0 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/20/14 15:56</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34C

Lab ID: 1402412-07

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,1-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34C

Lab ID: 1402412-07

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 16:27	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 16:27	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:27	
Surrogate: 1,2-Dichloroethane-d4	104 %	64 - 146		B4H0268	08/20/2014	08/20/14 16:27	
Surrogate: 4-Bromofluorobenzene	90.1 %	60 - 128		B4H0268	08/20/2014	08/20/14 16:27	
Surrogate: Dibromofluoromethane	100 %	72 - 141		B4H0268	08/20/2014	08/20/14 16:27	
Surrogate: Toluene-d8	102 %	61 - 124		B4H0268	08/20/2014	08/20/14 16:27	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34C

Lab ID: 1402412-07

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0282	08/20/2014	08/20/14 16:24	
Surrogate: 1,2-Dichlorobenzene-d4	79.5 %	47 - 117		B4H0282	08/20/2014	08/20/14 16:24	
Surrogate: 2-Fluorobiphenyl	81.9 %	48 - 121		B4H0282	08/20/2014	08/20/14 16:24	
Surrogate: 4-Terphenyl-d14	119 %	58 - 142		B4H0282	08/20/2014	08/20/14 16:24	
Surrogate: Nitrobenzene-d5	87.3 %	27 - 151		B4H0282	08/20/2014	08/20/14 16:24	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34A

Lab ID: 1402412-08

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,1-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34A

Lab ID: 1402412-08

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 16:50	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 16:50	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 16:50	
Surrogate: 1,2-Dichloroethane-d4	102 %	64 - 146		B4H0268	08/20/2014	08/20/14 16:50	
Surrogate: 4-Bromofluorobenzene	87.6 %	60 - 128		B4H0268	08/20/2014	08/20/14 16:50	
Surrogate: Dibromofluoromethane	96.0 %	72 - 141		B4H0268	08/20/2014	08/20/14 16:50	
Surrogate: Toluene-d8	95.4 %	61 - 124		B4H0268	08/20/2014	08/20/14 16:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34A

Lab ID: 1402412-08

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0282	08/20/2014	08/20/14 16:52	
Surrogate: 1,2-Dichlorobenzene-d4	92.3 %	47 - 117		B4H0282	08/20/2014	08/20/14 16:52	
Surrogate: 2-Fluorobiphenyl	95.0 %	48 - 121		B4H0282	08/20/2014	08/20/14 16:52	
Surrogate: 4-Terphenyl-d14	122 %	58 - 142		B4H0282	08/20/2014	08/20/14 16:52	
Surrogate: Nitrobenzene-d5	92.4 %	27 - 151		B4H0282	08/20/2014	08/20/14 16:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34B

Lab ID: 1402412-09

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,1,1-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,1,2-Trichloroethane	1.3	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,1-Dichloroethane	2.4	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,1-Dichloroethene	200	5.0	10	B4H0294	08/21/2014	08/21/14 17:50	
1,1-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2,3-Trichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2-Dibromoethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2-Dichloroethane	0.66	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,3-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,3-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
1,4-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
2,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
2-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
4-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
4-Isopropyltoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Benzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Bromobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Bromodichloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Bromoform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Bromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Carbon tetrachloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Chlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Chloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Chloroform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Chloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Dibromochloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34B

Lab ID: 1402412-09

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Dichlorodifluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Ethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Hexachlorobutadiene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Isopropylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
m,p-Xylene	ND	1.0	1	B4H0294	08/21/2014	08/21/14 17:26	
Methylene chloride	ND	1.0	1	B4H0294	08/21/2014	08/21/14 17:26	
n-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
n-Propylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Naphthalene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
o-Xylene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
sec-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Styrene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
tert-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Tetrachloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Toluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Trichloroethene	0.72	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Trichlorofluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
Vinyl chloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 17:26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>	<i>64 - 146</i>		B4H0294	08/21/2014	<i>08/21/14 17:50</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>91.3 %</i>	<i>64 - 146</i>		B4H0294	08/21/2014	<i>08/21/14 17:26</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.7 %</i>	<i>60 - 128</i>		B4H0294	08/21/2014	<i>08/21/14 17:50</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>89.4 %</i>	<i>60 - 128</i>		B4H0294	08/21/2014	<i>08/21/14 17:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>88.0 %</i>	<i>72 - 141</i>		B4H0294	08/21/2014	<i>08/21/14 17:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>92.7 %</i>	<i>72 - 141</i>		B4H0294	08/21/2014	<i>08/21/14 17:50</i>	
<i>Surrogate: Toluene-d8</i>	<i>97.6 %</i>	<i>61 - 124</i>		B4H0294	08/21/2014	<i>08/21/14 17:50</i>	
<i>Surrogate: Toluene-d8</i>	<i>95.6 %</i>	<i>61 - 124</i>		B4H0294	08/21/2014	<i>08/21/14 17:26</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-34B

Lab ID: 1402412-09

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	99	2.0	1	B4H0307	08/21/2014	08/22/14 04:18	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>77.7 %</i>	<i>42 - 106</i>		B4H0307	08/21/2014	<i>08/22/14 04:18</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80.6 %</i>	<i>55 - 117</i>		B4H0307	08/21/2014	<i>08/22/14 04:18</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>88.2 %</i>	<i>52 - 142</i>		B4H0307	08/21/2014	<i>08/22/14 04:18</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>78.1 %</i>	<i>43 - 116</i>		B4H0307	08/21/2014	<i>08/22/14 04:18</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-26C

Lab ID: 1402412-10

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,1-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-26C

Lab ID: 1402412-10

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 17:15	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 17:15	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 17:15	
Surrogate: 1,2-Dichloroethane-d4	100 %	64 - 146		B4H0268	08/20/2014	08/20/14 17:15	
Surrogate: 4-Bromofluorobenzene	89.7 %	60 - 128		B4H0268	08/20/2014	08/20/14 17:15	
Surrogate: Dibromofluoromethane	96.4 %	72 - 141		B4H0268	08/20/2014	08/20/14 17:15	
Surrogate: Toluene-d8	96.0 %	61 - 124		B4H0268	08/20/2014	08/20/14 17:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Client Sample ID MW-26C

Lab ID: 1402412-10

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0282	08/20/2014	08/20/14 17:20	
Surrogate: 1,2-Dichlorobenzene-d4	90.8 %	47 - 117		B4H0282	08/20/2014	08/20/14 17:20	
Surrogate: 2-Fluorobiphenyl	93.0 %	48 - 121		B4H0282	08/20/2014	08/20/14 17:20	
Surrogate: 4-Terphenyl-d14	120 %	58 - 142		B4H0282	08/20/2014	08/20/14 17:20	
Surrogate: Nitrobenzene-d5	92.8 %	27 - 151		B4H0282	08/20/2014	08/20/14 17:20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0268 - MSVOAW_LL

Blank (B4H0268-BLK1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0268 - MSVOAW_LL (continued)

Blank (B4H0268-BLK1) - Continued

Prepared: 8/20/2014 Analyzed: 8/20/2014

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	27.21		25.0000		109	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.71		25.0000		90.8	60 - 128			
Surrogate: Dibromofluoromethane	26.28		25.0000		105	72 - 141			
Surrogate: Toluene-d8	25.69		25.0000		103	61 - 124			

LCS (B4H0268-BS1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	17.9200		20.0000		89.6	56 - 131			
Benzene	21.2700		20.0000		106	69 - 139			
Chlorobenzene	19.7400		20.0000		98.7	73 - 127			
MTBE	16.2800		20.0000		81.4	68 - 133			
Toluene	21.6900		20.0000		108	62 - 133			
Trichloroethene	21.3500		20.0000		107	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	24.50		25.0000		98.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.02		25.0000		88.1	60 - 128			
Surrogate: Dibromofluoromethane	24.10		25.0000		96.4	72 - 141			
Surrogate: Toluene-d8	26.96		25.0000		108	61 - 124			

LCS Dup (B4H0268-BSD1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	19.5900		20.0000		98.0	56 - 131	8.90	20	
Benzene	22.5800		20.0000		113	69 - 139	5.97	20	
Chlorobenzene	22.2400		20.0000		111	73 - 127	11.9	20	
MTBE	18.4200		20.0000		92.1	68 - 133	12.3	20	
Toluene	24.0800		20.0000		120	62 - 133	10.4	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0268 - MSVOAW_LL (continued)

LCS Dup (B4H0268-BSD1) - Continued

Prepared: 8/20/2014 Analyzed: 8/20/2014

Trichloroethene	23.1300		20.0000		116	72 - 139	8.00	20	
Surrogate: 1,2-Dichloroethane-d4	23.96		25.0000		95.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.42		25.0000		89.7	60 - 128			
Surrogate: Dibromofluoromethane	23.95		25.0000		95.8	72 - 141			
Surrogate: Toluene-d8	27.36		25.0000		109	61 - 124			

Matrix Spike (B4H0268-MS1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	15.6200		20.0000	ND	78.1	56 - 131			
Benzene	18.1500		20.0000	ND	90.8	69 - 139			
Chlorobenzene	17.9600		20.0000	ND	89.8	73 - 127			
MTBE	14.3400		20.0000	ND	71.7	68 - 133			
Toluene	19.1700		20.0000	ND	95.8	62 - 133			
Trichloroethene	19.1300		20.0000	ND	95.6	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	23.91		25.0000		95.6	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.06		25.0000		88.2	60 - 128			
Surrogate: Dibromofluoromethane	23.57		25.0000		94.3	72 - 141			
Surrogate: Toluene-d8	25.56		25.0000		102	61 - 124			

Matrix Spike Dup (B4H0268-MSD1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	16.8100		20.0000	ND	84.0	56 - 131	7.34	20	
Benzene	19.5800		20.0000	ND	97.9	69 - 139	7.58	20	
Chlorobenzene	18.6900		20.0000	ND	93.4	73 - 127	3.98	20	
MTBE	15.4500		20.0000	ND	77.2	68 - 133	7.45	20	
Toluene	20.2600		20.0000	ND	101	62 - 133	5.53	20	
Trichloroethene	19.7900		20.0000	ND	99.0	72 - 139	3.39	20	
Surrogate: 1,2-Dichloroethane-d4	22.99		25.0000		92.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	21.32		25.0000		85.3	60 - 128			
Surrogate: Dibromofluoromethane	22.51		25.0000		90.0	72 - 141			
Surrogate: Toluene-d8	25.57		25.0000		102	61 - 124			

Batch B4H0294 - MSVOAW_LL

Blank (B4H0294-BLK1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

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				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0294 - MSVOAW_LL (continued)

Blank (B4H0294-BLK1) - Continued

Prepared: 8/21/2014 Analyzed: 8/21/2014

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
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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0294 - MSVOAW_LL (continued)

Blank (B4H0294-BLK1) - Continued

Prepared: 8/21/2014 Analyzed: 8/21/2014

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	25.85		25.0000		103	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.93		25.0000		91.7	60 - 128			
Surrogate: Dibromofluoromethane	24.53		25.0000		98.1	72 - 141			
Surrogate: Toluene-d8	26.08		25.0000		104	61 - 124			

LCS (B4H0294-BS1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	17.2500	0.50	20.0000		86.2	56 - 131			
Benzene	18.7200	0.50	20.0000		93.6	69 - 139			
Chlorobenzene	18.4500	0.50	20.0000		92.2	73 - 127			
MTBE	14.7000	0.50	20.0000		73.5	68 - 133			
Toluene	20.6300	0.50	20.0000		103	62 - 133			
Trichloroethene	19.0200	0.50	20.0000		95.1	72 - 139			

Surrogate: 1,2-Dichloroethane-d4	21.98		25.0000		87.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.30		25.0000		89.2	60 - 128			
Surrogate: Dibromofluoromethane	21.80		25.0000		87.2	72 - 141			
Surrogate: Toluene-d8	26.15		25.0000		105	61 - 124			

LCS Dup (B4H0294-BSD1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	20.2600	0.50	20.0000		101	56 - 131	16.0	20	
Benzene	22.6800	0.50	20.0000		113	69 - 139	19.1	20	
Chlorobenzene	22.2400	0.50	20.0000		111	73 - 127	18.6	20	
MTBE	17.6300	0.50	20.0000		88.2	68 - 133	18.1	20	
Toluene	24.3200	0.50	20.0000		122	62 - 133	16.4	20	
Trichloroethene	22.4800	0.50	20.0000		112	72 - 139	16.7	20	

Surrogate: 1,2-Dichloroethane-d4	21.87		25.0000		87.5	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.29		25.0000		89.2	60 - 128			
Surrogate: Dibromofluoromethane	21.07		25.0000		84.3	72 - 141			
Surrogate: Toluene-d8	26.49		25.0000		106	61 - 124			

Matrix Spike (B4H0294-MS1)

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	18.1600	0.50	20.0000	ND	90.8	56 - 131			
Benzene	23.1500	0.50	20.0000	ND	116	69 - 139			
Chlorobenzene	22.6500	0.50	20.0000	ND	113	73 - 127			
MTBE	18.1800	0.50	20.0000	ND	90.9	68 - 133			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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 B4H0294 - MSVOAW_LL (continued)

Matrix Spike (B4H0294-MS1) - Continued

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

Toluene	24.7300	0.50	20.0000	ND	124	62 - 133			
Trichloroethene	23.3900	0.50	20.0000	ND	117	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	22.46		25.0000		89.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.98		25.0000		91.9	60 - 128			
Surrogate: Dibromofluoromethane	21.27		25.0000		85.1	72 - 141			
Surrogate: Toluene-d8	26.31		25.0000		105	61 - 124			

Matrix Spike Dup (B4H0294-MSD1)

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	17.7000	0.50	20.0000	ND	88.5	56 - 131	2.57	20	
Benzene	21.3800	0.50	20.0000	ND	107	69 - 139	7.95	20	
Chlorobenzene	20.9400	0.50	20.0000	ND	105	73 - 127	7.85	20	
MTBE	17.2100	0.50	20.0000	ND	86.0	68 - 133	5.48	20	
Toluene	23.3400	0.50	20.0000	ND	117	62 - 133	5.78	20	
Trichloroethene	21.5600	0.50	20.0000	ND	108	72 - 139	8.14	20	
Surrogate: 1,2-Dichloroethane-d4	21.84		25.0000		87.4	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.53		25.0000		90.1	60 - 128			
Surrogate: Dibromofluoromethane	21.29		25.0000		85.2	72 - 141			
Surrogate: Toluene-d8	25.31		25.0000		101	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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 B4H0307 - MSSEMI

Blank (B4H0307-BLK1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	ND	2.0				NR			
Surrogate: 1,2-Dichlorobenzene-d4	72.90		100.000		72.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	75.49		100.000		75.5	55 - 117			
Surrogate: 4-Terphenyl-d14	85.41		100.000		85.4	52 - 142			
Surrogate: Nitrobenzene-d5	72.66		100.000		72.7	43 - 116			

LCS (B4H0307-BS1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	109.080	2.0	100.000		109	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	71.10		100.000		71.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.60		100.000		76.6	55 - 117			
Surrogate: 4-Terphenyl-d14	85.88		100.000		85.9	52 - 142			
Surrogate: Nitrobenzene-d5	73.98		100.000		74.0	43 - 116			

Matrix Spike (B4H0307-MS1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1018.06	20	100.000	973.940	44.1	62 - 127			D6, M3
Surrogate: 1,2-Dichlorobenzene-d4	79.50		100.000		79.5	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	89.70		100.000		89.7	55 - 117			D6
Surrogate: 4-Terphenyl-d14	92.80		100.000		92.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	83.50		100.000		83.5	43 - 116			D6

Matrix Spike Dup (B4H0307-MSD1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1042.52	20	100.000	973.940	68.6	62 - 127	2.37	20	D6
Surrogate: 1,2-Dichlorobenzene-d4	78.20		100.000		78.2	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	87.80		100.000		87.8	55 - 117			D6
Surrogate: 4-Terphenyl-d14	91.80		100.000		91.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	79.60		100.000		79.6	43 - 116			D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

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 B4H0282 - MSSEMI_ISOTOPEDILN

Blank (B4H0282-BLK1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.8738		1.00000		87.4	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9469		1.00000		94.7	48 - 121			
Surrogate: 4-Terphenyl-d14	1.164		1.00000		116	58 - 142			
Surrogate: Nitrobenzene-d5	0.7734		1.00000		77.3	27 - 151			

LCS (B4H0282-BS1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.44722	0.20	1.00000		145	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8545		1.00000		85.5	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9217		1.00000		92.2	48 - 121			
Surrogate: 4-Terphenyl-d14	1.090		1.00000		109	58 - 142			
Surrogate: Nitrobenzene-d5	0.7444		1.00000		74.4	27 - 151			

Matrix Spike (B4H0282-MS1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.36696	0.20	1.00000	ND	137	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.9273		1.00000		92.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9003		1.00000		90.0	48 - 121			
Surrogate: 4-Terphenyl-d14	1.258		1.00000		126	58 - 142			
Surrogate: Nitrobenzene-d5	0.9780		1.00000		97.8	27 - 151			

Matrix Spike Dup (B4H0282-MSD1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.44546	0.20	1.00000	ND	145	58 - 151	5.58	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.8892		1.00000		88.9	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.8406		1.00000		84.1	48 - 121			
Surrogate: 4-Terphenyl-d14	1.175		1.00000		118	58 - 142			
Surrogate: Nitrobenzene-d5	0.9237		1.00000		92.4	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/27/2014

Notes and Definitions

M3	Matrix spike recovery outside of acceptance limit due to disproportionate concentration of the analyte to spike level. The analytical batch was validated by the laboratory control sample.
D6	Sample required dilution due to high concentration of target analyte.
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.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/19/14 PAGE 1 OF 2

PROJECT NAME		PROJECT No./TASK No.		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION														
RAYTHEON		532.30										ATL														
PROJECT MANAGER STEVE NETTO		Phone No. 858-455-6500										Attn: Rachelle Arada														
QA MANAGER		Fax No. 858-455-6533																								
SAMPLER (SIGNATURE)		SAMPLER (PRINTED)																								
		ERIN HUNTER																								
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX	PRESERVATION						40 ml VOA	1L Amber	VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	0-10	10-100	100-1,000	1,000-10,000	>10,000	STANDARD TAT	MS	MSD	REMARKS		
		Date	Time		Soil	Ground - water	Surface water	Lab H2O	HCl	HNO3															NaOH	H2SO4
	TB-081914A	8/19/14	0800																							
	MW-32A		0955	X			X																			
	↓		↓	X																						
	MW-32C		1205	X			X																			
	↓		↓	X																						
	MW-32B		1345	X			X																			
	↓		↓	X																						
	MW-3200B		1400	X			X																			
	↓		↓	X																						
	MW-33		1620	X			X																			
	↓		↓	X																						
Total number of Containers per analysis:				13				7				Total No. of Containers: 40														

Relinquished by:
Date: 8/19/14
Time: 1705
Company: H+H, Inc.

Relinquished by:
Date: 8-19-14
Time: 1805
Company: ATL

Received by:
Date: 8-19-14
Time: 1705
Company: ATL

Received by:
Date: 8/19/14
Time: 1805
Company: ATL

INSTRUCTIONS

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

Sample Receipt:

☐ No. of containers correct

☐ custody seals secure

Temp. @ receipt 20, 2-7 °C

☒ received good condition/cold

☐ conforms to COC document

Shipment Method: CARRIER

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

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/19/14 PAGE 1 OF 2

PROJECT NAME RAYTHEON		PROJECT No./TASK No. 532.30		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION									
PROJECT MANAGER STEVE NETTO		Phone No. 858-455-6500										ATL Attn: Rachelle Arada									
QA MANAGER ERIN HUNTER		Fax No. 858-455-6533																			
SAMPLER (SIGNATURE) <i>Kevin Fong</i>		SAMPLER (PRINTED) Dan Mora Kevin Fong																			
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX		PRESERVATION		40 ml VOA	1L Amber	VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	0-10	10-100	100-1,000	1,000-10,000	>10,000	STANDARD TAT	MS	MSD	REMARKS
		Date	Time	Soil	Ground water	Surface water	Lab H2O														
		8/19/14																			
	MW-34C		12:01	X			X			X				X				X			
	↓		↓	X					1			X		X				X			
	MW-34A		12:40	X			X			X				X				X			
	↓		↓	X					1			X		X				X			
	MW-34B		14:12	X			X			X					X			X			
	↓		↓	X					1		X							X			
	MW-26C		16:57	X			X			X				X				X			
	↓		↓	X					1			X						X			
Total number of Containers per analysis:								12	4									Total No. of Containers: <u>16</u>			

Relinquished by: <i>[Signature]</i>		Date: <u>8/19/14</u>	Received by: <i>[Signature]</i>		Date: <u>8/19/14</u>	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.	Shipment Method: _____ Send Results to: <u>STEVE NETTO</u> ☒ 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
Company: <u>Hilline</u>		Time: <u>1715</u>	Company: <u>ATL</u>		Time: <u>1715</u>		
Relinquished by: <i>[Signature]</i>		Date: <u>8/19/14</u>	Received by: <i>[Signature]</i>		Date: <u>8/19/14</u>	Sample Receipt: ☐ No. of containers correct ☐ custody seals secure	Temp. @ receipt <u>2.0, 2.4</u> °C ☒ received good condition/cold ☐ conforms to COC document
Company: <u>ATL</u>		Time: <u>1805</u>	Company: <u>ATL</u>		Time: <u>1805</u>		



August 28, 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 : 1402413
Client Reference : RAYTHEON, 532.03

Enclosed are the results for sample(s) received on August 19, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RB-081814	1402413-01	Lab H2O	8/18/14 13:45	8/19/14 17:15
MW-4100-420	1402413-02	Groundwater	8/19/14 8:30	8/19/14 17:15
MW-41-420	1402413-03	Groundwater	8/19/14 10:00	8/19/14 17:15
RB-081814	1402432-01	Lab H2O	8/18/14 13:45	8/20/14 17:05

CASE NARRATIVE

Sample Receiving/General Comments:

Samples MW-35C, MW-39 and MW-36 were collected 8/20/14 as indicated on sample container labels.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID RB-081814

Lab ID: 1402413-01

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.25	1	B4H0282	08/20/2014	08/20/14 15:20	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>53.4 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/20/14 15:20</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>54.5 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/20/14 15:20</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>99.6 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/20/14 15:20</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>47.2 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/20/14 15:20</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-4100-420

Lab ID: 1402413-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,1-Dichloroethene	2.6	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-4100-420

Lab ID: 1402413-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 15:16	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 15:16	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 15:16	
Surrogate: 1,2-Dichloroethane-d4	105 %	64 - 146		B4H0268	08/20/2014	08/20/14 15:16	
Surrogate: 4-Bromofluorobenzene	90.7 %	60 - 128		B4H0268	08/20/2014	08/20/14 15:16	
Surrogate: Dibromofluoromethane	101 %	72 - 141		B4H0268	08/20/2014	08/20/14 15:16	
Surrogate: Toluene-d8	101 %	61 - 124		B4H0268	08/20/2014	08/20/14 15:16	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-4100-420

Lab ID: 1402413-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.51	0.20	1	B4H0282	08/20/2014	08/20/14 15:47	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>85.0 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/20/14 15:47</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>84.6 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/20/14 15:47</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>125 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/20/14 15:47</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>76.1 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/20/14 15:47</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-41-420

Lab ID: 1402413-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,1,1-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,1,2-Trichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,1-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,1-Dichloroethene	2.6	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,1-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2,3-Trichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2-Dibromoethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2-Dichloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,3-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,3-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
1,4-Dichlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
2,2-Dichloropropane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
2-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
4-Chlorotoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
4-Isopropyltoluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Benzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Bromobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Bromodichloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Bromoform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Bromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Carbon tetrachloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Chlorobenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Chloroethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Chloroform	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Chloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Dibromochloromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-41-420

Lab ID: 1402413-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Dichlorodifluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Ethylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Hexachlorobutadiene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Isopropylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
m,p-Xylene	ND	1.0	1	B4H0268	08/20/2014	08/20/14 10:49	
Methylene chloride	ND	1.0	1	B4H0268	08/20/2014	08/20/14 10:49	
n-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
n-Propylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Naphthalene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
o-Xylene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
sec-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Styrene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
tert-Butylbenzene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Tetrachloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Toluene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Trichloroethene	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Trichlorofluoromethane	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Vinyl chloride	ND	0.50	1	B4H0268	08/20/2014	08/20/14 10:49	
Surrogate: 1,2-Dichloroethane-d4	108 %	64 - 146		B4H0268	08/20/2014	08/20/14 10:49	
Surrogate: 4-Bromofluorobenzene	86.8 %	60 - 128		B4H0268	08/20/2014	08/20/14 10:49	
Surrogate: Dibromofluoromethane	102 %	72 - 141		B4H0268	08/20/2014	08/20/14 10:49	
Surrogate: Toluene-d8	98.5 %	61 - 124		B4H0268	08/20/2014	08/20/14 10:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-41-420

Lab ID: 1402413-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.49	0.20	1	B4H0282	08/20/2014	08/20/14 14:26	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>84.5 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/20/14 14:26</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88.3 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/20/14 14:26</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>130 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/20/14 14:26</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.3 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/20/14 14:26</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID RB-081814

Lab ID: 1402432-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,1,1-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,1,2-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,1-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,1-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,1-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2,3-Trichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2-Dibromoethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,3-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,3-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
1,4-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
2,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
2-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
4-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
4-Isopropyltoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Benzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Bromobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Bromodichloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Bromoform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Bromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Carbon tetrachloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Chlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Chloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Chloroform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Chloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Dibromochloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID RB-081814

Lab ID: 1402432-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Dichlorodifluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Ethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Hexachlorobutadiene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Isopropylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
m,p-Xylene	ND	1.0	1	B4H0294	08/21/2014	08/21/14 15:49	
Methylene chloride	ND	1.0	1	B4H0294	08/21/2014	08/21/14 15:49	
n-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
n-Propylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Naphthalene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
o-Xylene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
sec-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Styrene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
tert-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Tetrachloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Toluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Trichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Trichlorofluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Vinyl chloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:49	
Surrogate: 1,2-Dichloroethane-d4	96.0 %	64 - 146		B4H0294	08/21/2014	08/21/14 15:49	
Surrogate: 4-Bromofluorobenzene	90.3 %	60 - 128		B4H0294	08/21/2014	08/21/14 15:49	
Surrogate: Dibromofluoromethane	90.6 %	72 - 141		B4H0294	08/21/2014	08/21/14 15:49	
Surrogate: Toluene-d8	98.4 %	61 - 124		B4H0294	08/21/2014	08/21/14 15:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0268 - MSVOAW_LL

Blank (B4H0268-BLK1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0268 - MSVOAW_LL (continued)

Blank (B4H0268-BLK1) - Continued

Prepared: 8/20/2014 Analyzed: 8/20/2014

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	27.21		25.0000		109	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.71		25.0000		90.8	60 - 128			
Surrogate: Dibromofluoromethane	26.28		25.0000		105	72 - 141			
Surrogate: Toluene-d8	25.69		25.0000		103	61 - 124			

LCS (B4H0268-BS1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	17.9200		20.0000		89.6	56 - 131			
Benzene	21.2700		20.0000		106	69 - 139			
Chlorobenzene	19.7400		20.0000		98.7	73 - 127			
MTBE	16.2800		20.0000		81.4	68 - 133			
Toluene	21.6900		20.0000		108	62 - 133			
Trichloroethene	21.3500		20.0000		107	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	24.50		25.0000		98.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.02		25.0000		88.1	60 - 128			
Surrogate: Dibromofluoromethane	24.10		25.0000		96.4	72 - 141			
Surrogate: Toluene-d8	26.96		25.0000		108	61 - 124			

LCS Dup (B4H0268-BSD1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	19.5900		20.0000		98.0	56 - 131	8.90	20	
Benzene	22.5800		20.0000		113	69 - 139	5.97	20	
Chlorobenzene	22.2400		20.0000		111	73 - 127	11.9	20	
MTBE	18.4200		20.0000		92.1	68 - 133	12.3	20	
Toluene	24.0800		20.0000		120	62 - 133	10.4	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0268 - MSVOAW_LL (continued)

LCS Dup (B4H0268-BS1) - Continued

Prepared: 8/20/2014 Analyzed: 8/20/2014

Trichloroethene	23.1300		20.0000		116	72 - 139	8.00	20	
Surrogate: 1,2-Dichloroethane-d4	23.96		25.0000		95.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.42		25.0000		89.7	60 - 128			
Surrogate: Dibromofluoromethane	23.95		25.0000		95.8	72 - 141			
Surrogate: Toluene-d8	27.36		25.0000		109	61 - 124			

Matrix Spike (B4H0268-MS1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	15.6200		20.0000	ND	78.1	56 - 131			
Benzene	18.1500		20.0000	ND	90.8	69 - 139			
Chlorobenzene	17.9600		20.0000	ND	89.8	73 - 127			
MTBE	14.3400		20.0000	ND	71.7	68 - 133			
Toluene	19.1700		20.0000	ND	95.8	62 - 133			
Trichloroethene	19.1300		20.0000	ND	95.6	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	23.91		25.0000		95.6	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.06		25.0000		88.2	60 - 128			
Surrogate: Dibromofluoromethane	23.57		25.0000		94.3	72 - 141			
Surrogate: Toluene-d8	25.56		25.0000		102	61 - 124			

Matrix Spike Dup (B4H0268-MSD1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,1-Dichloroethene	16.8100		20.0000	ND	84.0	56 - 131	7.34	20	
Benzene	19.5800		20.0000	ND	97.9	69 - 139	7.58	20	
Chlorobenzene	18.6900		20.0000	ND	93.4	73 - 127	3.98	20	
MTBE	15.4500		20.0000	ND	77.2	68 - 133	7.45	20	
Toluene	20.2600		20.0000	ND	101	62 - 133	5.53	20	
Trichloroethene	19.7900		20.0000	ND	99.0	72 - 139	3.39	20	
Surrogate: 1,2-Dichloroethane-d4	22.99		25.0000		92.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	21.32		25.0000		85.3	60 - 128			
Surrogate: Dibromofluoromethane	22.51		25.0000		90.0	72 - 141			
Surrogate: Toluene-d8	25.57		25.0000		102	61 - 124			

Batch B4H0294 - MSVOAW_LL

Blank (B4H0294-BLK1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

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				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0294 - MSVOAW_LL (continued)

Blank (B4H0294-BLK1) - Continued

Prepared: 8/21/2014 Analyzed: 8/21/2014

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
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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0294 - MSVOAW_LL (continued)

Blank (B4H0294-BLK1) - Continued

Prepared: 8/21/2014 Analyzed: 8/21/2014

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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	25.85		25.0000		103	64 - 146			
<i>Surrogate: 4-Bromofluorobenzene</i>	22.93		25.0000		91.7	60 - 128			
<i>Surrogate: Dibromofluoromethane</i>	24.53		25.0000		98.1	72 - 141			
<i>Surrogate: Toluene-d8</i>	26.08		25.0000		104	61 - 124			

LCS (B4H0294-BS1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	17.2500	0.50	20.0000		86.2	56 - 131			
Benzene	18.7200	0.50	20.0000		93.6	69 - 139			
Chlorobenzene	18.4500	0.50	20.0000		92.2	73 - 127			
MTBE	14.7000	0.50	20.0000		73.5	68 - 133			
Toluene	20.6300	0.50	20.0000		103	62 - 133			
Trichloroethene	19.0200	0.50	20.0000		95.1	72 - 139			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	21.98		25.0000		87.9	64 - 146			
<i>Surrogate: 4-Bromofluorobenzene</i>	22.30		25.0000		89.2	60 - 128			
<i>Surrogate: Dibromofluoromethane</i>	21.80		25.0000		87.2	72 - 141			
<i>Surrogate: Toluene-d8</i>	26.15		25.0000		105	61 - 124			

LCS Dup (B4H0294-BSD1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	20.2600	0.50	20.0000		101	56 - 131	16.0	20	
Benzene	22.6800	0.50	20.0000		113	69 - 139	19.1	20	
Chlorobenzene	22.2400	0.50	20.0000		111	73 - 127	18.6	20	
MTBE	17.6300	0.50	20.0000		88.2	68 - 133	18.1	20	
Toluene	24.3200	0.50	20.0000		122	62 - 133	16.4	20	
Trichloroethene	22.4800	0.50	20.0000		112	72 - 139	16.7	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	21.87		25.0000		87.5	64 - 146			
<i>Surrogate: 4-Bromofluorobenzene</i>	22.29		25.0000		89.2	60 - 128			
<i>Surrogate: Dibromofluoromethane</i>	21.07		25.0000		84.3	72 - 141			
<i>Surrogate: Toluene-d8</i>	26.49		25.0000		106	61 - 124			

Matrix Spike (B4H0294-MS1)

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	18.1600	0.50	20.0000	ND	90.8	56 - 131			
Benzene	23.1500	0.50	20.0000	ND	116	69 - 139			
Chlorobenzene	22.6500	0.50	20.0000	ND	113	73 - 127			
MTBE	18.1800	0.50	20.0000	ND	90.9	68 - 133			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0294 - MSVOAW_LL (continued)

Matrix Spike (B4H0294-MS1) - Continued

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

Toluene	24.7300	0.50	20.0000	ND	124	62 - 133			
Trichloroethene	23.3900	0.50	20.0000	ND	117	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	22.46		25.0000		89.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.98		25.0000		91.9	60 - 128			
Surrogate: Dibromofluoromethane	21.27		25.0000		85.1	72 - 141			
Surrogate: Toluene-d8	26.31		25.0000		105	61 - 124			

Matrix Spike Dup (B4H0294-MSD1)

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	17.7000	0.50	20.0000	ND	88.5	56 - 131	2.57	20	
Benzene	21.3800	0.50	20.0000	ND	107	69 - 139	7.95	20	
Chlorobenzene	20.9400	0.50	20.0000	ND	105	73 - 127	7.85	20	
MTBE	17.2100	0.50	20.0000	ND	86.0	68 - 133	5.48	20	
Toluene	23.3400	0.50	20.0000	ND	117	62 - 133	5.78	20	
Trichloroethene	21.5600	0.50	20.0000	ND	108	72 - 139	8.14	20	
Surrogate: 1,2-Dichloroethane-d4	21.84		25.0000		87.4	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.53		25.0000		90.1	60 - 128			
Surrogate: Dibromofluoromethane	21.29		25.0000		85.2	72 - 141			
Surrogate: Toluene-d8	25.31		25.0000		101	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0282 - MSSEMI_ISOTOPEDILN

Blank (B4H0282-BLK1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.8738		1.00000		87.4	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9469		1.00000		94.7	48 - 121			
Surrogate: 4-Terphenyl-d14	1.164		1.00000		116	58 - 142			
Surrogate: Nitrobenzene-d5	0.7734		1.00000		77.3	27 - 151			

LCS (B4H0282-BS1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.44722	0.20	1.00000		145	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8545		1.00000		85.5	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9217		1.00000		92.2	48 - 121			
Surrogate: 4-Terphenyl-d14	1.090		1.00000		109	58 - 142			
Surrogate: Nitrobenzene-d5	0.7444		1.00000		74.4	27 - 151			

Matrix Spike (B4H0282-MS1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.36696	0.20	1.00000	ND	137	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.9273		1.00000		92.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9003		1.00000		90.0	48 - 121			
Surrogate: 4-Terphenyl-d14	1.258		1.00000		126	58 - 142			
Surrogate: Nitrobenzene-d5	0.9780		1.00000		97.8	27 - 151			

Matrix Spike Dup (B4H0282-MSD1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.44546	0.20	1.00000	ND	145	58 - 151	5.58	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.8892		1.00000		88.9	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.8406		1.00000		84.1	48 - 121			
Surrogate: 4-Terphenyl-d14	1.175		1.00000		118	58 - 142			
Surrogate: Nitrobenzene-d5	0.9237		1.00000		92.4	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Notes and Definitions

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.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/19/14 PAGE 1 OF 1

PROJECT NAME RAYTHEON				PROJECT No./TASK No. 532-3803				SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION										
PROJECT MANAGER STEVE NETTO				Phone No. 858-455-6500												ATL Attn: Rachelle Arada										
QA MANAGER PAUL HUNTER				Fax No. 858-455-6533																						
SAMPLER (SIGNATURE) <i>[Signature]</i>				SAMPLER (PRINTED) GREG CRANHAM <i>Kevin Fong</i>																						
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX		PRESERVATION				40 ml VOA	1L Amber	VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S					STANDARD TAT	MS	MSD	24-HR TURNAROUND	REMARKS		
		Date	Time	Soil	Ground water	Surface water	Lab H2O	HCl	HNO3						NaOH	H2SO4	Ice	0-10	10-100						100-1,000	1,000-10,000
	RB-081814	8/18/14	13:45				X	X				X				X				X						
	↓	↓	↓				X	X				X				X			X							
	MW-4100-420	8/19/14	0830		X			X				X				X			X							
	↓	↓	↓		X			X				X				X			X							
	MW-41-420	↓	10:00		X			X				X				X			X							
	↓	↓	↓		X			X				X				X			X							
Total number of Containers per analysis:								9		3														Total No. of Containers: <u>12</u>		
Relinquished by: <i>[Signature]</i> HHA, INC Company		Date <u>8/19/14</u> Time <u>17:15</u>	Received by: <i>[Signature]</i> ATL Company		Date <u>8/19/14</u> Time <u>17:15</u>	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.										Shipment Method: <u>CARRIER</u>										
Relinquished by: <i>[Signature]</i> ATL Company		Date <u>8/19/14</u> Time <u>1805</u>	Received by: <i>[Signature]</i> FPD INC Company		Date <u>8/19/14</u> Time <u>1805</u>											Sample Receipt: ☐ No. of containers correct ☒ received good condition/cold ☐ custody seals secure ☐ conforms to COC document						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				



DATE 8/19/14 PAGE 1 OF 12

[illegible]



August 28, 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 : 1402432
Client Reference : RAYTHEON MAIN, 532.30

Enclosed are the results for sample(s) received on August 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-082014	1402432-02	Lab H2O	8/20/14 7:30	8/20/14 17:05
MW-35C	1402432-03	Groundwater	8/20/14 10:00	8/20/14 17:05
MW-39	1402432-04	Groundwater	8/20/14 12:00	8/20/14 17:05
MW-36	1402432-05	Groundwater	8/20/14 15:25	8/20/14 17:05

CASE NARRATIVE

Sample Receiving/General Comments:

Samples MW-35C, MW-39 and MW-36 were collected 8/20/14 as indicated on sample container labels.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID TB-082014

Lab ID: 1402432-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,1,1-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,1,2-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,1-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,1-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,1-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2,3-Trichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2-Dibromoethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,3-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,3-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
1,4-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
2,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
2-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
4-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
4-Isopropyltoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Benzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Bromobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Bromodichloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Bromoform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Bromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Carbon tetrachloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Chlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Chloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Chloroform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Chloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Dibromochloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID TB-082014

Lab ID: 1402432-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Dichlorodifluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Ethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Hexachlorobutadiene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Isopropylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
m,p-Xylene	ND	1.0	1	B4H0294	08/21/2014	08/21/14 15:25	
Methylene chloride	ND	1.0	1	B4H0294	08/21/2014	08/21/14 15:25	
n-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
n-Propylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Naphthalene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
o-Xylene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
sec-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Styrene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
tert-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Tetrachloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Toluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Trichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Trichlorofluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Vinyl chloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 15:25	
Surrogate: 1,2-Dichloroethane-d4	93.9 %	64 - 146		B4H0294	08/21/2014	08/21/14 15:25	
Surrogate: 4-Bromofluorobenzene	90.6 %	60 - 128		B4H0294	08/21/2014	08/21/14 15:25	
Surrogate: Dibromofluoromethane	88.6 %	72 - 141		B4H0294	08/21/2014	08/21/14 15:25	
Surrogate: Toluene-d8	101 %	61 - 124		B4H0294	08/21/2014	08/21/14 15:25	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-35C

Lab ID: 1402432-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,1,1-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,1,2-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,1-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,1-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,1-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2,3-Trichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2-Dibromoethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,3-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,3-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
1,4-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
2,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
2-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
4-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
4-Isopropyltoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Benzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Bromobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Bromodichloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Bromoform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Bromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Carbon tetrachloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Chlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Chloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Chloroform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Chloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Dibromochloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-35C

Lab ID: 1402432-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Dichlorodifluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Ethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Hexachlorobutadiene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Isopropylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
m,p-Xylene	ND	1.0	1	B4H0294	08/21/2014	08/21/14 11:03	
Methylene chloride	ND	1.0	1	B4H0294	08/21/2014	08/21/14 11:03	
n-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
n-Propylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Naphthalene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
o-Xylene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
sec-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Styrene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
tert-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Tetrachloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Toluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Trichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Trichlorofluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Vinyl chloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 11:03	
Surrogate: 1,2-Dichloroethane-d4	101 %	64 - 146		B4H0294	08/21/2014	08/21/14 11:03	
Surrogate: 4-Bromofluorobenzene	93.4 %	60 - 128		B4H0294	08/21/2014	08/21/14 11:03	
Surrogate: Dibromofluoromethane	97.8 %	72 - 141		B4H0294	08/21/2014	08/21/14 11:03	
Surrogate: Toluene-d8	105 %	61 - 124		B4H0294	08/21/2014	08/21/14 11:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-35C

Lab ID: 1402432-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 11:44	
Surrogate: 1,2-Dichlorobenzene-d4	83.0 %	47 - 117		B4H0381	08/26/2014	08/26/14 11:44	
Surrogate: 2-Fluorobiphenyl	91.5 %	48 - 121		B4H0381	08/26/2014	08/26/14 11:44	
Surrogate: 4-Terphenyl-d14	111 %	58 - 142		B4H0381	08/26/2014	08/26/14 11:44	
Surrogate: Nitrobenzene-d5	68.0 %	27 - 151		B4H0381	08/26/2014	08/26/14 11:44	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-39

Lab ID: 1402432-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,1,1-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,1,2-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,1-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,1-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,1-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2,3-Trichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2-Dibromoethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,3-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,3-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
1,4-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
2,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
2-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
4-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
4-Isopropyltoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Benzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Bromobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Bromodichloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Bromoform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Bromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Carbon tetrachloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Chlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Chloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Chloroform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Chloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Dibromochloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-39

Lab ID: 1402432-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Dichlorodifluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Ethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Hexachlorobutadiene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Isopropylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
m,p-Xylene	ND	1.0	1	B4H0294	08/21/2014	08/21/14 16:14	
Methylene chloride	ND	1.0	1	B4H0294	08/21/2014	08/21/14 16:14	
n-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
n-Propylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Naphthalene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
o-Xylene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
sec-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Styrene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
tert-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Tetrachloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Toluene	0.99	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Trichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Trichlorofluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
Vinyl chloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:14	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>	<i>64 - 146</i>		B4H0294	08/21/2014	<i>08/21/14 16:14</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93.4 %</i>	<i>60 - 128</i>		B4H0294	08/21/2014	<i>08/21/14 16:14</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>95.1 %</i>	<i>72 - 141</i>		B4H0294	08/21/2014	<i>08/21/14 16:14</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 124</i>		B4H0294	08/21/2014	<i>08/21/14 16:14</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-39

Lab ID: 1402432-04

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 12:11	
Surrogate: 1,2-Dichlorobenzene-d4	81.6 %	47 - 117		B4H0381	08/26/2014	08/26/14 12:11	
Surrogate: 2-Fluorobiphenyl	89.6 %	48 - 121		B4H0381	08/26/2014	08/26/14 12:11	
Surrogate: 4-Terphenyl-d14	116 %	58 - 142		B4H0381	08/26/2014	08/26/14 12:11	
Surrogate: Nitrobenzene-d5	67.0 %	27 - 151		B4H0381	08/26/2014	08/26/14 12:11	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-36

Lab ID: 1402432-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,1,1-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,1,2-Trichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,1-Dichloroethane	0.93	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,1-Dichloroethene	86	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,1-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2,3-Trichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2-Dibromoethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2-Dichloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,3-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,3-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
1,4-Dichlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
2,2-Dichloropropane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
2-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
4-Chlorotoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
4-Isopropyltoluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Benzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Bromobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Bromodichloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Bromoform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Bromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Carbon tetrachloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Chlorobenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Chloroethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Chloroform	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Chloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Dibromochloromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-36

Lab ID: 1402432-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Dichlorodifluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Ethylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Hexachlorobutadiene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Isopropylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
m,p-Xylene	ND	1.0	1	B4H0294	08/21/2014	08/21/14 16:38	
Methylene chloride	ND	1.0	1	B4H0294	08/21/2014	08/21/14 16:38	
n-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
n-Propylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Naphthalene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
o-Xylene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
sec-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Styrene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
tert-Butylbenzene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Tetrachloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Toluene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Trichloroethene	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Trichlorofluoromethane	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Vinyl chloride	ND	0.50	1	B4H0294	08/21/2014	08/21/14 16:38	
Surrogate: 1,2-Dichloroethane-d4	93.5 %	64 - 146		B4H0294	08/21/2014	08/21/14 16:38	
Surrogate: 4-Bromofluorobenzene	90.1 %	60 - 128		B4H0294	08/21/2014	08/21/14 16:38	
Surrogate: Dibromofluoromethane	89.1 %	72 - 141		B4H0294	08/21/2014	08/21/14 16:38	
Surrogate: Toluene-d8	98.9 %	61 - 124		B4H0294	08/21/2014	08/21/14 16:38	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Client Sample ID MW-36

Lab ID: 1402432-05

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	9.6	2.0	1	B4H0307	08/21/2014	08/22/14 04:45	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>64.0 %</i>	<i>42 - 106</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 04:45</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>70.8 %</i>	<i>55 - 117</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 04:45</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>85.8 %</i>	<i>52 - 142</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 04:45</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>66.2 %</i>	<i>43 - 116</i>		<i>B4H0307</i>	<i>08/21/2014</i>	<i>08/22/14 04:45</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0294 - MSVOAW_LL

Blank (B4H0294-BLK1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0294 - MSVOAW_LL (continued)

Blank (B4H0294-BLK1) - Continued

Prepared: 8/21/2014 Analyzed: 8/21/2014

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	25.85		25.0000		103	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.93		25.0000		91.7	60 - 128			
Surrogate: Dibromofluoromethane	24.53		25.0000		98.1	72 - 141			
Surrogate: Toluene-d8	26.08		25.0000		104	61 - 124			

LCS (B4H0294-BS1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	17.2500	0.50	20.0000		86.2	56 - 131			
Benzene	18.7200	0.50	20.0000		93.6	69 - 139			
Chlorobenzene	18.4500	0.50	20.0000		92.2	73 - 127			
MTBE	14.7000	0.50	20.0000		73.5	68 - 133			
Toluene	20.6300	0.50	20.0000		103	62 - 133			
Trichloroethene	19.0200	0.50	20.0000		95.1	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	21.98		25.0000		87.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.30		25.0000		89.2	60 - 128			
Surrogate: Dibromofluoromethane	21.80		25.0000		87.2	72 - 141			
Surrogate: Toluene-d8	26.15		25.0000		105	61 - 124			

LCS Dup (B4H0294-BSD1)

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	20.2600	0.50	20.0000		101	56 - 131	16.0	20	
Benzene	22.6800	0.50	20.0000		113	69 - 139	19.1	20	
Chlorobenzene	22.2400	0.50	20.0000		111	73 - 127	18.6	20	
MTBE	17.6300	0.50	20.0000		88.2	68 - 133	18.1	20	
Toluene	24.3200	0.50	20.0000		122	62 - 133	16.4	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0294 - MSVOAW_LL (continued)

LCS Dup (B4H0294-BSD1) - Continued

Prepared: 8/21/2014 Analyzed: 8/21/2014

Trichloroethene	22.4800	0.50	20.0000		112	72 - 139	16.7	20	
Surrogate: 1,2-Dichloroethane-d4	21.87		25.0000		87.5	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.29		25.0000		89.2	60 - 128			
Surrogate: Dibromofluoromethane	21.07		25.0000		84.3	72 - 141			
Surrogate: Toluene-d8	26.49		25.0000		106	61 - 124			

Matrix Spike (B4H0294-MS1)

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	18.1600	0.50	20.0000	ND	90.8	56 - 131			
Benzene	23.1500	0.50	20.0000	ND	116	69 - 139			
Chlorobenzene	22.6500	0.50	20.0000	ND	113	73 - 127			
MTBE	18.1800	0.50	20.0000	ND	90.9	68 - 133			
Toluene	24.7300	0.50	20.0000	ND	124	62 - 133			
Trichloroethene	23.3900	0.50	20.0000	ND	117	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	22.46		25.0000		89.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.98		25.0000		91.9	60 - 128			
Surrogate: Dibromofluoromethane	21.27		25.0000		85.1	72 - 141			
Surrogate: Toluene-d8	26.31		25.0000		105	61 - 124			

Matrix Spike Dup (B4H0294-MSD1)

Source: 1402432-03

Prepared: 8/21/2014 Analyzed: 8/21/2014

1,1-Dichloroethene	17.7000	0.50	20.0000	ND	88.5	56 - 131	2.57	20	
Benzene	21.3800	0.50	20.0000	ND	107	69 - 139	7.95	20	
Chlorobenzene	20.9400	0.50	20.0000	ND	105	73 - 127	7.85	20	
MTBE	17.2100	0.50	20.0000	ND	86.0	68 - 133	5.48	20	
Toluene	23.3400	0.50	20.0000	ND	117	62 - 133	5.78	20	
Trichloroethene	21.5600	0.50	20.0000	ND	108	72 - 139	8.14	20	
Surrogate: 1,2-Dichloroethane-d4	21.84		25.0000		87.4	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.53		25.0000		90.1	60 - 128			
Surrogate: Dibromofluoromethane	21.29		25.0000		85.2	72 - 141			
Surrogate: Toluene-d8	25.31		25.0000		101	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0307 - MSSEMI

Blank (B4H0307-BLK1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	72.90		100.000		72.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	75.49		100.000		75.5	55 - 117			
Surrogate: 4-Terphenyl-d14	85.41		100.000		85.4	52 - 142			
Surrogate: Nitrobenzene-d5	72.66		100.000		72.7	43 - 116			

LCS (B4H0307-BS1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	109.080	2.0	100.000		109	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	71.10		100.000		71.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.60		100.000		76.6	55 - 117			
Surrogate: 4-Terphenyl-d14	85.88		100.000		85.9	52 - 142			
Surrogate: Nitrobenzene-d5	73.98		100.000		74.0	43 - 116			

Matrix Spike (B4H0307-MS1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1018.06	20	100.000	973.940	44.1	62 - 127			D6, M3
Surrogate: 1,2-Dichlorobenzene-d4	79.50		100.000		79.5	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	89.70		100.000		89.7	55 - 117			D6
Surrogate: 4-Terphenyl-d14	92.80		100.000		92.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	83.50		100.000		83.5	43 - 116			D6

Matrix Spike Dup (B4H0307-MSD1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1042.52	20	100.000	973.940	68.6	62 - 127	2.37	20	D6
Surrogate: 1,2-Dichlorobenzene-d4	78.20		100.000		78.2	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	87.80		100.000		87.8	55 - 117			D6
Surrogate: 4-Terphenyl-d14	91.80		100.000		91.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	79.60		100.000		79.6	43 - 116			D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

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 B4H0381 - MSSEMI_ISOTOPEDILN

Blank (B4H0381-BLK1)

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	ND	0.20		NR					
Surrogate: 1,2-Dichlorobenzene-d4	0.8408		1.00000	84.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9450		1.00000	94.5	48 - 121				
Surrogate: 4-Terphenyl-d14	1.202		1.00000	120	58 - 142				
Surrogate: Nitrobenzene-d5	0.7317		1.00000	73.2	27 - 151				

LCS (B4H0381-BS1)

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.46422	0.20	1.00000	146	58 - 151				
Surrogate: 1,2-Dichlorobenzene-d4	0.8382		1.00000	83.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9235		1.00000	92.3	48 - 121				
Surrogate: 4-Terphenyl-d14	1.078		1.00000	108	58 - 142				
Surrogate: Nitrobenzene-d5	0.7127		1.00000	71.3	27 - 151				

Matrix Spike (B4H0381-MS1)

Source: 1402432-03

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.46449	0.20	1.00000	ND	146	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8208		1.00000	82.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9284		1.00000	92.8	48 - 121				
Surrogate: 4-Terphenyl-d14	1.114		1.00000	111	58 - 142				
Surrogate: Nitrobenzene-d5	0.7186		1.00000	71.9	27 - 151				

Matrix Spike Dup (B4H0381-MSD1)

Source: 1402432-03

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.40828	0.20	1.00000	ND	141	58 - 151	3.91	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.7979		1.00000	79.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9071		1.00000	90.7	48 - 121				
Surrogate: 4-Terphenyl-d14	1.055		1.00000	105	58 - 142				
Surrogate: Nitrobenzene-d5	0.6640		1.00000	66.4	27 - 151				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON MAIN, 532.30

Report To : Steve Netto

Reported : 08/28/2014

Notes and Definitions

M3	Matrix spike recovery outside of acceptance limit due to disproportionate concentration of the analyte to spike level. The analytical batch was validated by the laboratory control sample.
D6	Sample required dilution due to high concentration of target analyte.
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.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/20/14 PAGE 12 OF 2

PROJECT NAME RAYTHEON		PROJECT No./TASK No. 532.30		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION									
PROJECT MANAGER STEVE NETTO		Phone No. 858-455-6500										ATL									
QA MANAGER		Fax No. 858-455-6533										Attn: Rachelle Arada									
SAMPLER (SIGNATURE) <i>[Signature]</i>		SAMPLER (PRINTED) STEVE STEWART ARIELLE FERBER																			
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX		PRESERVATION		40 ml VOA	1L Amber	VOCS 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	0-10	10-100	100-1,000	1,000-10,000	>10,000	STANDARD TAT	MS	MSD	REMARKS
		Date	Time	Soil	Ground water	Surface water	Lab H2O														
1402432-02	TB-082014	8/20/14	0730			X	X			X			X					X			
-03	MW-35C		10:00	X		X			X				X					X	X	X	
	↓		↓	X					X			X						X	X	X	
-04	MW-39		12:00	X		X			X				X					X	X	X	
	↓		↓	X		X			X			X						X	X	X	
-05	MW-30		15:25	X		X			X						X			X			
	↓		↓	X					X		X							X			
Total number of Containers per analysis: <u>17</u> <u>5</u>																				Total No. of Containers: <u>22</u> <u>25</u>	
Relinquished by: <i>[Signature]</i>		Date <u>8/20/14</u>	Received by: <i>[Signature]</i>		Date <u>8-20-14</u>	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.										Shipment Method: _____					
H-A Company		Time <u>17:00</u>	ATL Company		Time <u>1705</u>											Send Results to: <u>STEVE NETTO</u>					
Relinquished by: <i>[Signature]</i>		Date <u>8-20-14</u>	Received by: <i>[Signature]</i>		Date <u>8/20/14</u>	Sample Receipt: ☐ No. of containers correct ☐ custody seals secure										Temp. @ receipt <u>7.6</u> °C ☒ received good condition/cold ☐ conforms to COC document					
ATL Company		Time <u>18:00</u>	ATL Company		Time <u>1800</u>											Send invoice to San Diego, CA Attn: Accounts Payable					



August 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 : 1402444
Client Reference : RAYTHEON, 532.30

Enclosed are the results for sample(s) received on August 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-09	1402444-01	Groundwater	8/20/14 12:17	8/21/14 17:05
RB-08202014	1402444-02	Groundwater	8/20/14 9:57	8/21/14 17:05
MW-16	1402444-03	Groundwater	8/20/14 11:30	8/21/14 17:05
MW-18	1402444-04	Groundwater	8/20/14 15:35	8/21/14 17:05
RB-08202014B	1402444-05	Groundwater	8/20/14 16:35	8/21/14 17:05
MW-15	1402444-06	Groundwater	8/21/14 8:05	8/21/14 17:05
MW-08	1402444-07	Groundwater	8/21/14 9:05	8/21/14 17:05
TB-082114A	1402444-08	Lab H2O	8/21/14 7:30	8/21/14 17:05
MW-20	1402444-09	Groundwater	8/21/14 10:25	8/21/14 17:05
MW-40	1402444-10	Groundwater	8/21/14 11:50	8/21/14 17:05
MW-28	1402444-11	Groundwater	8/21/14 8:42	8/21/14 17:05
MW-30A	1402444-12	Groundwater	8/21/14 9:22	8/21/14 17:05
MW-30B	1402444-13	Groundwater	8/21/14 10:26	8/21/14 17:05
MW-3000B	1402444-14	Groundwater	8/21/14 14:30	8/21/14 17:05
MW-31	1402444-15	Groundwater	8/21/14 13:51	8/21/14 17:05



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-09

Lab ID: 1402444-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-09

Lab ID: 1402444-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 14:26	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 14:26	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:26	
Surrogate: 1,2-Dichloroethane-d4	85.0 %	64 - 146		B4H0325	08/22/2014	08/22/14 14:26	
Surrogate: 4-Bromofluorobenzene	96.4 %	60 - 128		B4H0325	08/22/2014	08/22/14 14:26	
Surrogate: Dibromofluoromethane	80.0 %	72 - 141		B4H0325	08/22/2014	08/22/14 14:26	
Surrogate: Toluene-d8	91.1 %	61 - 124		B4H0325	08/22/2014	08/22/14 14:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-09

Lab ID: 1402444-01

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.60	0.20	1	B4H0381	08/26/2014	08/26/14 12:38	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>82.8 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 12:38</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88.4 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 12:38</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>120 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 12:38</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>68.1 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 12:38</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID RB-08202014

Lab ID: 1402444-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID RB-08202014

Lab ID: 1402444-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 13:38	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 13:38	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:38	
Surrogate: 1,2-Dichloroethane-d4	84.1 %	64 - 146		B4H0325	08/22/2014	08/22/14 13:38	
Surrogate: 4-Bromofluorobenzene	98.0 %	60 - 128		B4H0325	08/22/2014	08/22/14 13:38	
Surrogate: Dibromofluoromethane	81.8 %	72 - 141		B4H0325	08/22/2014	08/22/14 13:38	
Surrogate: Toluene-d8	94.9 %	61 - 124		B4H0325	08/22/2014	08/22/14 13:38	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID RB-08202014

Lab ID: 1402444-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 13:05	
Surrogate: 1,2-Dichlorobenzene-d4	78.1 %	47 - 117		B4H0381	08/26/2014	08/26/14 13:05	
Surrogate: 2-Fluorobiphenyl	88.1 %	48 - 121		B4H0381	08/26/2014	08/26/14 13:05	
Surrogate: 4-Terphenyl-d14	106 %	58 - 142		B4H0381	08/26/2014	08/26/14 13:05	
Surrogate: Nitrobenzene-d5	65.3 %	27 - 151		B4H0381	08/26/2014	08/26/14 13:05	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-16

Lab ID: 1402444-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,1,1-Trichloroethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,1,2,2-Tetrachloroethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,1,2-Trichloroethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,1-Dichloroethane	4.0	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,1-Dichloroethene	820	10	20	B4H0325	08/22/2014	08/22/14 18:48	
1,1-Dichloropropene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2,3-Trichloropropane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2,3-Trichlorobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2,4-Trichlorobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2,4-Trimethylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2-Dibromo-3-chloropropane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2-Dibromoethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2-Dichlorobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2-Dichloroethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,2-Dichloropropane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,3,5-Trimethylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,3-Dichlorobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,3-Dichloropropane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
1,4-Dichlorobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
2,2-Dichloropropane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
2-Chlorotoluene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
4-Chlorotoluene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
4-Isopropyltoluene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Benzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Bromobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Bromodichloromethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Bromoform	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Bromomethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Carbon tetrachloride	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Chlorobenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Chloroethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Chloroform	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Chloromethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
cis-1,2-Dichloroethene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
cis-1,3-Dichloropropene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Dibromochloromethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-16

Lab ID: 1402444-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Dichlorodifluoromethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Ethylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Hexachlorobutadiene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Isopropylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
m,p-Xylene	ND	2.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Methylene chloride	ND	2.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
n-Butylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
n-Propylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Naphthalene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
o-Xylene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
sec-Butylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Styrene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
tert-Butylbenzene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Tetrachloroethene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Toluene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
trans-1,2-Dichloroethene	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Trichloroethene	6.4	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Trichlorofluoromethane	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
Vinyl chloride	ND	1.0	2	B4H0325	08/22/2014	08/22/14 18:24	D6
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>89.1 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 18:48</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>84.8 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 18:24</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 18:48</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.8 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 18:24</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>80.2 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 18:24</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>83.6 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 18:48</i>	
<i>Surrogate: Toluene-d8</i>	<i>95.3 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 18:48</i>	
<i>Surrogate: Toluene-d8</i>	<i>91.2 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 18:24</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-16

Lab ID: 1402444-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	38	2.0	1	B4H0411	08/27/2014	08/27/14 14:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>76.0 %</i>	<i>42 - 106</i>		B4H0411	08/27/2014	<i>08/27/14 14:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80.2 %</i>	<i>55 - 117</i>		B4H0411	08/27/2014	<i>08/27/14 14:23</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>86.8 %</i>	<i>52 - 142</i>		B4H0411	08/27/2014	<i>08/27/14 14:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.8 %</i>	<i>43 - 116</i>		B4H0411	08/27/2014	<i>08/27/14 14:23</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-18

Lab ID: 1402444-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-18

Lab ID: 1402444-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 14:50	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 14:50	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Trichlorofluoromethane	1.0	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:50	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>84.8 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 14:50</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.3 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 14:50</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>79.9 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 14:50</i>	
<i>Surrogate: Toluene-d8</i>	<i>94.0 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 14:50</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-18

Lab ID: 1402444-04

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 13:32	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>79.1 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 13:32</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>90.6 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 13:32</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>97.9 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 13:32</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>64.0 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 13:32</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID RB-08202014B

Lab ID: 1402444-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID RB-08202014B

Lab ID: 1402444-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 14:02	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 14:02	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 14:02	
Surrogate: 1,2-Dichloroethane-d4	82.3 %	64 - 146		B4H0325	08/22/2014	08/22/14 14:02	
Surrogate: 4-Bromofluorobenzene	97.4 %	60 - 128		B4H0325	08/22/2014	08/22/14 14:02	
Surrogate: Dibromofluoromethane	80.6 %	72 - 141		B4H0325	08/22/2014	08/22/14 14:02	
Surrogate: Toluene-d8	94.4 %	61 - 124		B4H0325	08/22/2014	08/22/14 14:02	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-15

Lab ID: 1402444-06

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-15

Lab ID: 1402444-06

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 15:13	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 15:13	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Trichloroethene	1.9	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Trichlorofluoromethane	7.0	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:13	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>85.9 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 15:13</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.4 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 15:13</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>82.1 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 15:13</i>	
<i>Surrogate: Toluene-d8</i>	<i>92.8 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 15:13</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-08

Lab ID: 1402444-07

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,1-Dichloroethene	2.7	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
cis-1,2-Dichloroethene	0.62	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-08

Lab ID: 1402444-07

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 15:37	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 15:37	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Trichloroethene	15	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 15:37	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>83.5 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 15:37</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.8 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 15:37</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>80.1 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 15:37</i>	
<i>Surrogate: Toluene-d8</i>	<i>92.8 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 15:37</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-08

Lab ID: 1402444-07

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.31	0.20	1	B4H0381	08/26/2014	08/26/14 14:00	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>82.9 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 14:00</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>90.0 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 14:00</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>107 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 14:00</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>69.9 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 14:00</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID TB-082114A

Lab ID: 1402444-08

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID TB-082114A

Lab ID: 1402444-08

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 13:15	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 13:15	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 13:15	
Surrogate: 1,2-Dichloroethane-d4	85.4 %	64 - 146		B4H0325	08/22/2014	08/22/14 13:15	
Surrogate: 4-Bromofluorobenzene	103 %	60 - 128		B4H0325	08/22/2014	08/22/14 13:15	
Surrogate: Dibromofluoromethane	83.3 %	72 - 141		B4H0325	08/22/2014	08/22/14 13:15	
Surrogate: Toluene-d8	97.4 %	61 - 124		B4H0325	08/22/2014	08/22/14 13:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-20

Lab ID: 1402444-09

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-20

Lab ID: 1402444-09

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 16:01	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 16:01	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:01	
Surrogate: 1,2-Dichloroethane-d4	91.5 %	64 - 146		B4H0325	08/22/2014	08/22/14 16:01	
Surrogate: 4-Bromofluorobenzene	102 %	60 - 128		B4H0325	08/22/2014	08/22/14 16:01	
Surrogate: Dibromofluoromethane	83.7 %	72 - 141		B4H0325	08/22/2014	08/22/14 16:01	
Surrogate: Toluene-d8	98.3 %	61 - 124		B4H0325	08/22/2014	08/22/14 16:01	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-20

Lab ID: 1402444-09

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 14:27	
Surrogate: 1,2-Dichlorobenzene-d4	82.2 %	47 - 117		B4H0381	08/26/2014	08/26/14 14:27	
Surrogate: 2-Fluorobiphenyl	90.6 %	48 - 121		B4H0381	08/26/2014	08/26/14 14:27	
Surrogate: 4-Terphenyl-d14	105 %	58 - 142		B4H0381	08/26/2014	08/26/14 14:27	
Surrogate: Nitrobenzene-d5	68.6 %	27 - 151		B4H0381	08/26/2014	08/26/14 14:27	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-40

Lab ID: 1402444-10

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,1-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-40

Lab ID: 1402444-10

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 16:25	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 16:25	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:25	
Surrogate: 1,2-Dichloroethane-d4	84.2 %	64 - 146		B4H0325	08/22/2014	08/22/14 16:25	
Surrogate: 4-Bromofluorobenzene	96.4 %	60 - 128		B4H0325	08/22/2014	08/22/14 16:25	
Surrogate: Dibromofluoromethane	78.7 %	72 - 141		B4H0325	08/22/2014	08/22/14 16:25	
Surrogate: Toluene-d8	94.2 %	61 - 124		B4H0325	08/22/2014	08/22/14 16:25	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-40

Lab ID: 1402444-10

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 14:55	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>76.5 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 14:55</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>82.4 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 14:55</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>98.6 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 14:55</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>64.8 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 14:55</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-28

Lab ID: 1402444-11

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,1-Dichloroethene	6.0	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-28

Lab ID: 1402444-11

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 16:48	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 16:48	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Trichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 16:48	
Surrogate: 1,2-Dichloroethane-d4	91.2 %	64 - 146		B4H0325	08/22/2014	08/22/14 16:48	
Surrogate: 4-Bromofluorobenzene	102 %	60 - 128		B4H0325	08/22/2014	08/22/14 16:48	
Surrogate: Dibromofluoromethane	86.2 %	72 - 141		B4H0325	08/22/2014	08/22/14 16:48	
Surrogate: Toluene-d8	98.6 %	61 - 124		B4H0325	08/22/2014	08/22/14 16:48	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-28

Lab ID: 1402444-11

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.8	0.20	1	B4H0381	08/26/2014	08/26/14 15:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.9 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 15:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88.7 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 15:23</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>111 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 15:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>69.4 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 15:23</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-30A

Lab ID: 1402444-12

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,1-Dichloroethene	5.1	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-30A

Lab ID: 1402444-12

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 17:11	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 17:11	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Toluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Trichloroethene	1.9	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:11	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>87.4 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 17:11</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>95.4 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 17:11</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>83.9 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 17:11</i>	
<i>Surrogate: Toluene-d8</i>	<i>92.1 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 17:11</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-30A

Lab ID: 1402444-12

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.1	0.20	1	B4H0381	08/26/2014	08/26/14 15:50	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.9 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 15:50</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>89.2 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 15:50</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>107 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 15:50</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>67.4 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 15:50</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-30B

Lab ID: 1402444-13

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,1-Dichloroethene	17	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
cis-1,2-Dichloroethene	4.4	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-30B

Lab ID: 1402444-13

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 17:36	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 17:36	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Toluene	0.84	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Trichloroethene	99	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:36	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>86.8 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 17:36</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.2 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 17:36</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>82.0 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 17:36</i>	
<i>Surrogate: Toluene-d8</i>	<i>88.4 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 17:36</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-30B

Lab ID: 1402444-13

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 16:18	
Surrogate: 1,2-Dichlorobenzene-d4	81.3 %	47 - 117		B4H0381	08/26/2014	08/26/14 16:18	
Surrogate: 2-Fluorobiphenyl	87.9 %	48 - 121		B4H0381	08/26/2014	08/26/14 16:18	
Surrogate: 4-Terphenyl-d14	103 %	58 - 142		B4H0381	08/26/2014	08/26/14 16:18	
Surrogate: Nitrobenzene-d5	66.5 %	27 - 151		B4H0381	08/26/2014	08/26/14 16:18	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-3000B

Lab ID: 1402444-14

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,1,2-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,1-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,1-Dichloroethene	16	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
cis-1,2-Dichloroethene	4.1	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-3000B

Lab ID: 1402444-14

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 17:59	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 17:59	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Tetrachloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Toluene	0.78	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Trichloroethene	100	2.5	5	B4H0352	08/25/2014	08/25/14 14:04	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 17:59	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>88.3 %</i>	<i>64 - 146</i>		B4H0352	08/25/2014	<i>08/25/14 14:04</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>82.6 %</i>	<i>64 - 146</i>		B4H0325	08/22/2014	<i>08/22/14 17:59</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.7 %</i>	<i>60 - 128</i>		B4H0352	08/25/2014	<i>08/25/14 14:04</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96.5 %</i>	<i>60 - 128</i>		B4H0325	08/22/2014	<i>08/22/14 17:59</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>85.7 %</i>	<i>72 - 141</i>		B4H0352	08/25/2014	<i>08/25/14 14:04</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>79.3 %</i>	<i>72 - 141</i>		B4H0325	08/22/2014	<i>08/22/14 17:59</i>	
<i>Surrogate: Toluene-d8</i>	<i>89.9 %</i>	<i>61 - 124</i>		B4H0352	08/25/2014	<i>08/25/14 14:04</i>	
<i>Surrogate: Toluene-d8</i>	<i>88.8 %</i>	<i>61 - 124</i>		B4H0325	08/22/2014	<i>08/22/14 17:59</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-3000B

Lab ID: 1402444-14

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4H0381	08/26/2014	08/26/14 16:45	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>79.7 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 16:45</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>85.4 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 16:45</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>106 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 16:45</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>67.6 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 16:45</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-31

Lab ID: 1402444-15

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,1,1-Trichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,1,2-Trichloroethane	0.75	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,1-Dichloroethane	3.0	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,1-Dichloroethene	350	5.0	10	B4H0325	08/22/2014	08/22/14 19:36	
1,1-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2,3-Trichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2-Dibromoethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2-Dichloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,3-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,3-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
1,4-Dichlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
2,2-Dichloropropane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
2-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
4-Chlorotoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
4-Isopropyltoluene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Benzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Bromobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Bromodichloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Bromoform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Bromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Carbon tetrachloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Chlorobenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Chloroethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Chloroform	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Chloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
cis-1,2-Dichloroethene	0.58	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Dibromochloromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-31

Lab ID: 1402444-15

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Dichlorodifluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Ethylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Hexachlorobutadiene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Isopropylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
m,p-Xylene	ND	1.0	1	B4H0325	08/22/2014	08/22/14 19:12	
Methylene chloride	ND	1.0	1	B4H0325	08/22/2014	08/22/14 19:12	
n-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
n-Propylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Naphthalene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
o-Xylene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
sec-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Styrene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
tert-Butylbenzene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Tetrachloroethene	0.64	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Toluene	0.81	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Trichloroethene	11	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Trichlorofluoromethane	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	
Vinyl chloride	ND	0.50	1	B4H0325	08/22/2014	08/22/14 19:12	

Surrogate: 1,2-Dichloroethane-d4	84.2 %	64 - 146	B4H0325	08/22/2014	08/22/14 19:36
Surrogate: 1,2-Dichloroethane-d4	82.9 %	64 - 146	B4H0325	08/22/2014	08/22/14 19:12
Surrogate: 4-Bromofluorobenzene	96.7 %	60 - 128	B4H0325	08/22/2014	08/22/14 19:36
Surrogate: 4-Bromofluorobenzene	99.0 %	60 - 128	B4H0325	08/22/2014	08/22/14 19:12
Surrogate: Dibromofluoromethane	79.8 %	72 - 141	B4H0325	08/22/2014	08/22/14 19:12
Surrogate: Dibromofluoromethane	82.0 %	72 - 141	B4H0325	08/22/2014	08/22/14 19:36
Surrogate: Toluene-d8	92.0 %	61 - 124	B4H0325	08/22/2014	08/22/14 19:12
Surrogate: Toluene-d8	90.6 %	61 - 124	B4H0325	08/22/2014	08/22/14 19:36



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Client Sample ID MW-31

Lab ID: 1402444-15

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	16	2.0	1	B4H0411	08/27/2014	08/27/14 14:50	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>74.4 %</i>	<i>42 - 106</i>		B4H0411	08/27/2014	<i>08/27/14 14:50</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>79.3 %</i>	<i>55 - 117</i>		B4H0411	08/27/2014	<i>08/27/14 14:50</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>90.6 %</i>	<i>52 - 142</i>		B4H0411	08/27/2014	<i>08/27/14 14:50</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.3 %</i>	<i>43 - 116</i>		B4H0411	08/27/2014	<i>08/27/14 14:50</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0325 - MSVOAW_LL

Blank (B4H0325-BLK1)

Prepared: 8/22/2014 Analyzed: 8/22/2014

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
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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0325 - MSVOAW_LL (continued)

Blank (B4H0325-BLK1) - Continued

Prepared: 8/22/2014 Analyzed: 8/22/2014

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	21.31		25.0000		85.2	64 - 146			
Surrogate: 4-Bromofluorobenzene	25.56		25.0000		102	60 - 128			
Surrogate: Dibromofluoromethane	20.30		25.0000		81.2	72 - 141			
Surrogate: Toluene-d8	25.05		25.0000		100	61 - 124			

LCS (B4H0325-BS1)

Prepared: 8/22/2014 Analyzed: 8/22/2014

1,1-Dichloroethene	19.3900		20.0000		97.0	56 - 131			
Benzene	21.8400		20.0000		109	69 - 139			
Chlorobenzene	20.3400		20.0000		102	73 - 127			
MTBE	18.1600		20.0000		90.8	68 - 133			
Toluene	23.1800		20.0000		116	62 - 133			
Trichloroethene	21.9900		20.0000		110	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	20.00		25.0000		80.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.03		25.0000		96.1	60 - 128			
Surrogate: Dibromofluoromethane	19.39		25.0000		77.6	72 - 141			
Surrogate: Toluene-d8	24.64		25.0000		98.6	61 - 124			

LCS Dup (B4H0325-BSD1)

Prepared: 8/22/2014 Analyzed: 8/22/2014

1,1-Dichloroethene	19.3900		20.0000		97.0	56 - 131	0.00	20	
Benzene	21.9200		20.0000		110	69 - 139	0.366	20	
Chlorobenzene	21.0900		20.0000		105	73 - 127	3.62	20	
MTBE	18.5500		20.0000		92.8	68 - 133	2.12	20	
Toluene	23.6900		20.0000		118	62 - 133	2.18	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0325 - MSVOAW_LL (continued)

LCS Dup (B4H0325-BSD1) - Continued

Prepared: 8/22/2014 Analyzed: 8/22/2014

Trichloroethene	22.6300		20.0000		113	72 - 139	2.87	20	
Surrogate: 1,2-Dichloroethane-d4	18.97		25.0000		75.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.49		25.0000		98.0	60 - 128			
Surrogate: Dibromofluoromethane	19.52		25.0000		78.1	72 - 141			
Surrogate: Toluene-d8	24.84		25.0000		99.4	61 - 124			

Batch B4H0352 - MSVOAW_LL

Blank (B4H0352-BLK1)

Prepared: 8/25/2014 Analyzed: 8/25/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0352 - MSVOAW_LL (continued)

Blank (B4H0352-BLK1) - Continued

Prepared: 8/25/2014 Analyzed: 8/25/2014

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	21.55		25.0000		86.2	64 - 146			
Surrogate: 4-Bromofluorobenzene	25.83		25.0000		103	60 - 128			
Surrogate: Dibromofluoromethane	21.31		25.0000		85.2	72 - 141			
Surrogate: Toluene-d8	23.89		25.0000		95.6	61 - 124			

LCS (B4H0352-BS1)

Prepared: 8/25/2014 Analyzed: 8/25/2014

1,1-Dichloroethene	17.7100		20.0000		88.6	56 - 131			
Benzene	21.7000		20.0000		108	69 - 139			
Chlorobenzene	21.1800		20.0000		106	73 - 127			
MTBE	17.9300		20.0000		89.6	68 - 133			
Toluene	24.2000		20.0000		121	62 - 133			
Trichloroethene	22.1900		20.0000		111	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	18.83		25.0000		75.3	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.67		25.0000		94.7	60 - 128			
Surrogate: Dibromofluoromethane	18.42		25.0000		73.7	72 - 141			
Surrogate: Toluene-d8	23.44		25.0000		93.8	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0352 - MSVOAW_LL (continued)

LCS Dup (B4H0352-BSD1)

Prepared: 8/25/2014 Analyzed: 8/25/2014

1,1-Dichloroethene	19.4800		20.0000		97.4	56 - 131	9.52	20	
Benzene	22.7700		20.0000		114	69 - 139	4.81	20	
Chlorobenzene	22.0300		20.0000		110	73 - 127	3.93	20	
MTBE	17.3500		20.0000		86.8	68 - 133	3.29	20	
Toluene	24.6300		20.0000		123	62 - 133	1.76	20	
Trichloroethene	22.9700		20.0000		115	72 - 139	3.45	20	

Surrogate: 1,2-Dichloroethane-d4	18.01		25.0000		72.0	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.91		25.0000		95.6	60 - 128			
Surrogate: Dibromofluoromethane	18.09		25.0000		72.4	72 - 141			
Surrogate: Toluene-d8	24.02		25.0000		96.1	61 - 124			

Duplicate (B4H0352-DUP1)

Source: 1402467-01

Prepared: 8/25/2014 Analyzed: 8/25/2014

1,1-Dichloroethene	ND	0.50		ND	NR			20	
Benzene	ND	0.50		ND	NR			20	
Chlorobenzene	ND	0.50		ND	NR			20	
MTBE	ND	0.50		ND	NR			20	
Toluene	ND	0.50		ND	NR			20	
Trichloroethene	ND	0.50		ND	NR			20	

Surrogate: 1,2-Dichloroethane-d4	22.95		25.0000		91.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	25.55		25.0000		102	60 - 128			
Surrogate: Dibromofluoromethane	22.01		25.0000		88.0	72 - 141			
Surrogate: Toluene-d8	23.72		25.0000		94.9	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

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 B4H0411 - MSSEMI

Blank (B4H0411-BLK1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	75.67		100.000		75.7	42 - 106			
Surrogate: 2-Fluorobiphenyl	82.55		100.000		82.6	55 - 117			
Surrogate: 4-Terphenyl-d14	88.52		100.000		88.5	52 - 142			
Surrogate: Nitrobenzene-d5	76.04		100.000		76.0	43 - 116			

LCS (B4H0411-BS1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

1,4-Dioxane	105.190	2.0	100.000		105	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	70.78		100.000		70.8	42 - 106			
Surrogate: 2-Fluorobiphenyl	75.88		100.000		75.9	55 - 117			
Surrogate: 4-Terphenyl-d14	82.68		100.000		82.7	52 - 142			
Surrogate: Nitrobenzene-d5	69.87		100.000		69.9	43 - 116			

LCS Dup (B4H0411-BS1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

1,4-Dioxane	106.210	2.0	100.000		106	62 - 127	0.965	20	
Surrogate: 1,2-Dichlorobenzene-d4	72.47		100.000		72.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.21		100.000		78.2	55 - 117			
Surrogate: 4-Terphenyl-d14	87.95		100.000		88.0	52 - 142			
Surrogate: Nitrobenzene-d5	74.00		100.000		74.0	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

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 B4H0381 - MSSEMI_ISOTOPEDILN

Blank (B4H0381-BLK1)

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.8408		1.00000		84.1	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9450		1.00000		94.5	48 - 121			
Surrogate: 4-Terphenyl-d14	1.202		1.00000		120	58 - 142			
Surrogate: Nitrobenzene-d5	0.7317		1.00000		73.2	27 - 151			

LCS (B4H0381-BS1)

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.46422	0.20	1.00000		146	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8382		1.00000		83.8	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9235		1.00000		92.3	48 - 121			
Surrogate: 4-Terphenyl-d14	1.078		1.00000		108	58 - 142			
Surrogate: Nitrobenzene-d5	0.7127		1.00000		71.3	27 - 151			

Matrix Spike (B4H0381-MS1)

Source: 1402432-03

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.46449	0.20	1.00000	ND	146	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8208		1.00000		82.1	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9284		1.00000		92.8	48 - 121			
Surrogate: 4-Terphenyl-d14	1.114		1.00000		111	58 - 142			
Surrogate: Nitrobenzene-d5	0.7186		1.00000		71.9	27 - 151			

Matrix Spike Dup (B4H0381-MSD1)

Source: 1402432-03

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.40828	0.20	1.00000	ND	141	58 - 151	3.91	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.7979		1.00000		79.8	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9071		1.00000		90.7	48 - 121			
Surrogate: 4-Terphenyl-d14	1.055		1.00000		105	58 - 142			
Surrogate: Nitrobenzene-d5	0.6640		1.00000		66.4	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 08/29/2014

Notes and Definitions

D6	Sample required dilution due to high concentration of target analyte.
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.

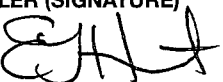
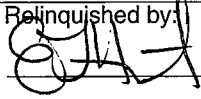
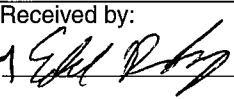
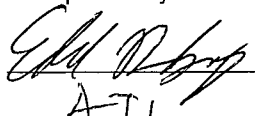
CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/20/14 PAGE 1 OF 3

PROJECT NAME		PROJECT No./TASK No.		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION									
RAYTHEON		532.30										ATL									
PROJECT MANAGER STEVE NETTO		Phone No. 858-455-6500										Attn: Rachelle Arada									
QA MANAGER		Fax No. 858-455-6533																			
SAMPLER (SIGNATURE)		SAMPLER (PRINTED)																			
		Kevin Fong																			
		Edwin Haster																			
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX		PRESERVATION		40 ml VOA	1L Amber	VOCs 8260B	1,4-Dioxane 8270 MD	1,4-Dioxane 8270 SIM	0-10	10-100	100-1,000	1,000-10,000	>10,000	STANDARD TAT	MS	MSD	REMARKS
		Date	Time	Soil	Ground - water	Surface water	Lab H2O														
	MW-09	8/20/14	12:17	X																	
	↓			X																	
	RB-08202014		9:57	X																	
	↓			X																	
	MW-16		11:30	X																	
	↓			X																	
	MW-18		15:35	X																	
	↓			X																	
	RB-08202014 B		16:35	X																	
	MW-15	8/21/14	0805	X																	
	MW-08		0905	X																	
	↓			X																	
Total number of Containers per analysis:								2	5	Total No. of Containers: <u>(20)</u>											
Relinquished by:		Date	Received by:		Date	INSTRUCTIONS															
		8/21/14			8-21-14	1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.															
HFA, INC		Time 1705	ATL		Time 1705	2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.															
Company			Company			3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.															
Relinquished by:		Date	Received by:		Date	4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.															
		8-21-14			8/21/14	5. Consult project QA documents for specific instructions.															
ATL		Time 18:00	ATL		Time 1800	Sample Receipt:															
Company			Company			☐ No. of containers correct ☐ custody seals secure ☒ received good condition/cold ☐ conforms to COC document															
Temp. @ receipt 42.3 °C																					
Shipment Method: <u>curier</u>																					
Send Results to: <u>STEVE NETTO</u>																					
☒ 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																					

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/21/14 PAGE 2 OF 3

PROJECT NAME RAYTHEON				PROJECT No./TASK No. 532.30				SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION											
PROJECT MANAGER STEVE NETTO				Phone No. 858-455-6500												ATL Attn: Rachelle Arada											
QA MANAGER				Fax No. 858-455-6533																							
SAMPLER (SIGNATURE) 				SAMPLER (PRINTED) ERIN HARKER																							
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX			PRESERVATION					40 ml VOA	1L Amber	VOCs 8260B	1,4-Dioxane 8270 MOD	1,4-Dioxane 8270 SIM	ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S					STANDARD TAT	MS	MSD	REMARKS		
		Date	Time	Soil	Ground-water	Surface water	Lab H2O	HCl	HNO3	NaOH	H2SO4						Ice	0-10	10-100	100-1,000	1,000-10,000					>10,000	
	TB-082114A	8/21/14	0730				X	X			X	2		X				X	X	X	X	X	X				
	MW-20		1025		X			X			X	3		X				X	X	X	X	X	X				
	↓		↓		X						X	1			X				X	X	X	X	X				
	MW-40		1150		X			X			X	3		X				X	X	X	X	X	X				
	↓		↓		X						X	1			X				X	X	X	X	X				
Total number of Containers per analysis:																8		2		Total No. of Containers:		10					
Relinquished by:  H+H, Inc Company		Date 8/21/14	Received by:  ATL Company	Date 8-21-14	INSTRUCTIONS												Shipment Method: <u>carrier</u>										
		Time 1705		Time 1705	- Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness. - Complete in ballpoint pen. Draw one line through errors, initial and date correction. - Indicate number of sample containers in analysis request space; indicate choice with ✓ or x. - Note applicable preservatives, special instructions, and deviations from typical environmental samples. - Consult project QA documents for specific instructions.												☒ 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										
Relinquished by:  ATL Company		Date 8-21-14	Received by: FPO:UA ATL Company	Date 8/21/14	Sample Receipt:												Temp. @ receipt _____ °C										
		Time 1806		Time 1820	☐ No. of containers correct ☐ custody seals secure												☐ received good condition/cold ☐ conforms to COC document										
																Send invoice to San Diego, CA Attn: Accounts Payable											

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/21/14 PAGE 3 OF 3

PROJECT NAME <u>Raytheon Main</u>		PROJECT No./TASK No. <u>532.30</u>		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOAs		SPECIAL HANDLING		LABORATORY INFORMATION	
PROJECT MANAGER <u>Erin Hunter</u>		Phone No. <u>858.455.6500</u>		40 mL VOA 1 L Amber		VOCs by EPA 8260B 1,4-Dioxane by EPA 8270 MOD 1,4-Dioxane by EPA 8270 SM		0-10 10-100 100-1000 1000-10000 710000 Standard TAT				ATL Attn: Rachelle Aracela	
QA MANAGER		Fax No. <u>858.455.6533</u>											
SAMPLER (SIGNATURE) <u>[Signature]</u>		SAMPLER (PRINTED) <u>ARIELLE PERBER</u>											
LAB ID	SAMPLE ID	Date	Time	Soil	Ground - water	Surface water	HCl	HNO3	NaOH	H2SO4	Ice	REMARKS	
		8/21/14											
	MW-28		8:42	X			X				X		
	↓		↓	X			X				X		
	MW-30A		9:22	X			X				X		
	↓		↓	X			X				X		
	MW-30B		10:26	X			X				X		
	↓		↓	X			X				X		
	MW-300B		14:30	X			X				X		
	↓		↓	X			X				X		
	MW-31		12:51	X			X				X		
	↓		↓	X			X				X		
Total number of Containers per analysis:				15				Total No. of Containers: <u>(20)</u>					
Relinquished by: <u>[Signature]</u> HAI, Inc. Company		Date <u>8/21/14</u> Time <u>1705</u>	Received by: <u>[Signature]</u> ATL Company		Date <u>8-21-14</u> Time <u>1705</u>		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.				Shipment Method: <u>Courier</u> Send Results to: <u>Steve Netto</u> ☒ 9171 TOWNE CENTRE DRIVE, SUITE 375 SAN DIEGO, CA 92122 (858) 455-6500 ☐ 1640 SOUTH STAPLEY DRIVE, SUITE 124 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		
Relinquished by: <u>[Signature]</u> ATL Company		Date <u>8-21-14</u> Time <u>1800</u>	Received by: <u>[Signature]</u> ATL Company		Date <u>8/21/14</u> Time <u>1800</u>		Sample Receipt: ☐ No. of containers correct ☐ received good condition/cold ☐ custody seals secure ☐ conforms to COC document						



September 17, 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 : 1402647
Client Reference : RAYTHEON, 532.30

Enclosed are the results for sample(s) received on September 10, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-091014A	1402647-01	Lab H2O	9/10/14 8:00	9/10/14 15:00
MW-41	1402647-02	Groundwater	9/10/14 14:15	9/10/14 15:00
MW-4100	1402647-03	Groundwater	9/10/14 14:30	9/10/14 15:00



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID TB-091014A

Lab ID: 1402647-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,1,1-Trichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,1,2-Trichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,1-Dichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,1-Dichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,1-Dichloropropene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2,3-Trichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2,3-Trichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2,4-Trichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2,4-Trimethylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2-Dibromoethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2-Dichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2-Dichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,2-Dichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,3,5-Trimethylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,3-Dichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,3-Dichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
1,4-Dichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
2,2-Dichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
2-Chlorotoluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
4-Chlorotoluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
4-Isopropyltoluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Benzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Bromobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Bromodichloromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Bromoform	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Bromomethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Carbon tetrachloride	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Chlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Chloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Chloroform	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Chloromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
cis-1,2-Dichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
cis-1,3-Dichloropropene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Dibromochloromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID TB-091014A

Lab ID: 1402647-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Dichlorodifluoromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Ethylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Hexachlorobutadiene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Isopropylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
m,p-Xylene	ND	1.0	1	B4I0235	09/12/2014	09/12/14 15:40	
Methylene chloride	ND	1.0	1	B4I0235	09/12/2014	09/12/14 15:40	
n-Butylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
n-Propylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Naphthalene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
o-Xylene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
sec-Butylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Styrene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
tert-Butylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Tetrachloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Toluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
trans-1,2-Dichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Trichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Trichlorofluoromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Vinyl chloride	ND	0.50	1	B4I0235	09/12/2014	09/12/14 15:40	
Surrogate: 1,2-Dichloroethane-d4	93.2 %	64 - 146		B4I0235	09/12/2014	09/12/14 15:40	
Surrogate: 4-Bromofluorobenzene	101 %	60 - 128		B4I0235	09/12/2014	09/12/14 15:40	
Surrogate: Dibromofluoromethane	83.7 %	72 - 141		B4I0235	09/12/2014	09/12/14 15:40	
Surrogate: Toluene-d8	101 %	61 - 124		B4I0235	09/12/2014	09/12/14 15:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID MW-41

Lab ID: 1402647-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,1,1-Trichloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,1,2-Trichloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,1-Dichloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,1-Dichloroethene	2.4	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,1-Dichloropropene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2,3-Trichloropropane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2-Dibromoethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2-Dichlorobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2-Dichloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,2-Dichloropropane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,3-Dichlorobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,3-Dichloropropane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
1,4-Dichlorobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
2,2-Dichloropropane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
2-Chlorotoluene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
4-Chlorotoluene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
4-Isopropyltoluene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Benzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Bromobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Bromodichloromethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Bromoform	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Bromomethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Carbon tetrachloride	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Chlorobenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Chloroethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Chloroform	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Chloromethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
cis-1,2-Dichloroethene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
cis-1,3-Dichloropropene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Dibromochloromethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID MW-41

Lab ID: 1402647-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Dichlorodifluoromethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Ethylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Hexachlorobutadiene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Isopropylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
m,p-Xylene	ND	1.0	1	B4I0195	09/11/2014	09/11/14 11:26	
Methylene chloride	ND	1.0	1	B4I0195	09/11/2014	09/11/14 11:26	
n-Butylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
n-Propylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Naphthalene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
o-Xylene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
sec-Butylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Styrene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
tert-Butylbenzene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Tetrachloroethene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Toluene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
trans-1,2-Dichloroethene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Trichloroethene	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Trichlorofluoromethane	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Vinyl chloride	ND	0.50	1	B4I0195	09/11/2014	09/11/14 11:26	
Surrogate: 1,2-Dichloroethane-d4	98.8 %	64 - 146		B4I0195	09/11/2014	09/11/14 11:26	
Surrogate: 4-Bromofluorobenzene	100 %	60 - 128		B4I0195	09/11/2014	09/11/14 11:26	
Surrogate: Dibromofluoromethane	89.0 %	72 - 141		B4I0195	09/11/2014	09/11/14 11:26	
Surrogate: Toluene-d8	113 %	61 - 124		B4I0195	09/11/2014	09/11/14 11:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID MW-41

Lab ID: 1402647-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.38	0.20	1	B4I0222	09/11/2014	09/11/14 19:24	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.8 %</i>	<i>47 - 117</i>		B4I0222	09/11/2014	<i>09/11/14 19:24</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>92.5 %</i>	<i>48 - 121</i>		B4I0222	09/11/2014	<i>09/11/14 19:24</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>89.9 %</i>	<i>58 - 142</i>		B4I0222	09/11/2014	<i>09/11/14 19:24</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.6 %</i>	<i>27 - 151</i>		B4I0222	09/11/2014	<i>09/11/14 19:24</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID MW-4100

Lab ID: 1402647-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,1,1-Trichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,1,2-Trichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,1-Dichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,1-Dichloroethene	2.1	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,1-Dichloropropene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2,3-Trichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2,3-Trichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2,4-Trichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2,4-Trimethylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2-Dibromoethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2-Dichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2-Dichloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,2-Dichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,3,5-Trimethylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,3-Dichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,3-Dichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
1,4-Dichlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
2,2-Dichloropropane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
2-Chlorotoluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
4-Chlorotoluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
4-Isopropyltoluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Benzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Bromobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Bromodichloromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Bromoform	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Bromomethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Carbon tetrachloride	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Chlorobenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Chloroethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Chloroform	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Chloromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
cis-1,2-Dichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
cis-1,3-Dichloropropene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Dibromochloromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID MW-4100

Lab ID: 1402647-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Dichlorodifluoromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Ethylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Hexachlorobutadiene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Isopropylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
m,p-Xylene	ND	1.0	1	B4I0235	09/12/2014	09/12/14 16:04	
Methylene chloride	ND	1.0	1	B4I0235	09/12/2014	09/12/14 16:04	
n-Butylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
n-Propylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Naphthalene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
o-Xylene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
sec-Butylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Styrene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
tert-Butylbenzene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Tetrachloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Toluene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
trans-1,2-Dichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Trichloroethene	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Trichlorofluoromethane	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Vinyl chloride	ND	0.50	1	B4I0235	09/12/2014	09/12/14 16:04	
Surrogate: 1,2-Dichloroethane-d4	90.4 %	64 - 146		B4I0235	09/12/2014	09/12/14 16:04	
Surrogate: 4-Bromofluorobenzene	105 %	60 - 128		B4I0235	09/12/2014	09/12/14 16:04	
Surrogate: Dibromofluoromethane	83.1 %	72 - 141		B4I0235	09/12/2014	09/12/14 16:04	
Surrogate: Toluene-d8	102 %	61 - 124		B4I0235	09/12/2014	09/12/14 16:04	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Client Sample ID MW-4100

Lab ID: 1402647-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.42	0.20	1	B4I0222	09/11/2014	09/11/14 19:52	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>82.3 %</i>	<i>47 - 117</i>		B4I0222	09/11/2014	<i>09/11/14 19:52</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>92.0 %</i>	<i>48 - 121</i>		B4I0222	09/11/2014	<i>09/11/14 19:52</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>92.7 %</i>	<i>58 - 142</i>		B4I0222	09/11/2014	<i>09/11/14 19:52</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>73.9 %</i>	<i>27 - 151</i>		B4I0222	09/11/2014	<i>09/11/14 19:52</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4I0195 - MSVOAW_LL

Blank (B4I0195-BLK1)

Prepared: 9/11/2014 Analyzed: 9/11/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0195 - MSVOAW_LL (continued)

Blank (B4I0195-BLK1) - Continued

Prepared: 9/11/2014 Analyzed: 9/11/2014

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	24.28		25.0000		97.1	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.87		25.0000		99.5	60 - 128			
Surrogate: Dibromofluoromethane	22.24		25.0000		89.0	72 - 141			
Surrogate: Toluene-d8	28.62		25.0000		114	61 - 124			

LCS (B4I0195-BS1)

Prepared: 9/11/2014 Analyzed: 9/11/2014

1,1-Dichloroethene	19.1400		20.0000		95.7	56 - 131			
Benzene	42.7400		40.0000		107	69 - 139			
Chlorobenzene	21.1000		20.0000		106	73 - 127			
MTBE	19.3400		20.0000		96.7	68 - 133			
Toluene	49.4400		40.0000		124	62 - 133			
Trichloroethene	22.0000		20.0000		110	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	22.73		25.0000		90.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.35		25.0000		93.4	60 - 128			
Surrogate: Dibromofluoromethane	21.40		25.0000		85.6	72 - 141			
Surrogate: Toluene-d8	27.79		25.0000		111	61 - 124			

LCS Dup (B4I0195-BSD1)

Prepared: 9/11/2014 Analyzed: 9/11/2014

1,1-Dichloroethene	19.0300		20.0000		95.2	56 - 131	0.576	20	
Benzene	42.4700		40.0000		106	69 - 139	0.634	20	
Chlorobenzene	20.7100		20.0000		104	73 - 127	1.87	20	
MTBE	19.1300		20.0000		95.6	68 - 133	1.09	20	
Toluene	48.6800		40.0000		122	62 - 133	1.55	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0195 - MSVOAW_LL (continued)

LCS Dup (B4I0195-BSD1) - Continued

Prepared: 9/11/2014 Analyzed: 9/11/2014

Trichloroethene	21.3900		20.0000		107	72 - 139	2.81	20	
Surrogate: 1,2-Dichloroethane-d4	22.68		25.0000		90.7	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.49		25.0000		94.0	60 - 128			
Surrogate: Dibromofluoromethane	20.92		25.0000		83.7	72 - 141			
Surrogate: Toluene-d8	27.71		25.0000		111	61 - 124			

Batch B4I0235 - MSVOAW_LL

Blank (B4I0235-BLK1)

Prepared: 9/12/2014 Analyzed: 9/12/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0235 - MSVOAW_LL (continued)

Blank (B4I0235-BLK1) - Continued

Prepared: 9/12/2014 Analyzed: 9/12/2014

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	25.80		25.0000		103	64 - 146			
Surrogate: 4-Bromofluorobenzene	27.50		25.0000		110	60 - 128			
Surrogate: Dibromofluoromethane	23.27		25.0000		93.1	72 - 141			
Surrogate: Toluene-d8	28.88		25.0000		116	61 - 124			

LCS (B4I0235-BS1)

Prepared: 9/12/2014 Analyzed: 9/12/2014

1,1-Dichloroethene	16.0500		20.0000		80.2	56 - 131			
Benzene	37.5000		40.0000		93.8	69 - 139			
Chlorobenzene	18.5000		20.0000		92.5	73 - 127			
MTBE	16.6600		20.0000		83.3	68 - 133			
Toluene	42.9000		40.0000		107	62 - 133			
Trichloroethene	19.0200		20.0000		95.1	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	22.56		25.0000		90.2	64 - 146			
Surrogate: 4-Bromofluorobenzene	25.01		25.0000		100	60 - 128			
Surrogate: Dibromofluoromethane	20.56		25.0000		82.2	72 - 141			
Surrogate: Toluene-d8	27.42		25.0000		110	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

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 B4I0235 - MSVOAW_LL (continued)

LCS Dup (B4I0235-BSD1)

Prepared: 9/12/2014 Analyzed: 9/12/2014

1,1-Dichloroethene	17.1800		20.0000		85.9	56 - 131	6.80	20	
Benzene	38.6300		40.0000		96.6	69 - 139	2.97	20	
Chlorobenzene	19.1500		20.0000		95.8	73 - 127	3.45	20	
MTBE	18.3200		20.0000		91.6	68 - 133	9.49	20	
Toluene	44.5200		40.0000		111	62 - 133	3.71	20	
Trichloroethene	19.5700		20.0000		97.8	72 - 139	2.85	20	
Surrogate: 1,2-Dichloroethane-d4	22.48		25.0000		89.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.03		25.0000		96.1	60 - 128			
Surrogate: Dibromofluoromethane	20.07		25.0000		80.3	72 - 141			
Surrogate: Toluene-d8	25.94		25.0000		104	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

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	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0222 - MSSEMI_ISOTOPEDILN

Blank (B4I0222-BLK1)

Prepared: 9/11/2014 Analyzed: 9/11/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.8137		1.00000		81.4	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9247		1.00000		92.5	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9744		1.00000		97.4	58 - 142			
Surrogate: Nitrobenzene-d5	0.7484		1.00000		74.8	27 - 151			

LCS (B4I0222-BS1)

Prepared: 9/11/2014 Analyzed: 9/11/2014

1,4-Dioxane	1.50501	0.20	1.00000		151	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.6504		1.00000		65.0	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7633		1.00000		76.3	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9262		1.00000		92.6	58 - 142			
Surrogate: Nitrobenzene-d5	0.6395		1.00000		63.9	27 - 151			

LCS Dup (B4I0222-BSD1)

Prepared: 9/11/2014 Analyzed: 9/11/2014

1,4-Dioxane	1.45019	0.20	1.00000		145	58 - 151	3.71	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6663		1.00000		66.6	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7654		1.00000		76.5	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9154		1.00000		91.5	58 - 142			
Surrogate: Nitrobenzene-d5	0.6425		1.00000		64.3	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : RAYTHEON, 532.30

Report To : Steve Netto

Reported : 09/17/2014

Notes and Definitions

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.



DATE 9/10/14 PAGE 1 OF 1

[illegible]



October 01, 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 : 1402817
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on September 24, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-09242014A	1402817-01	Lab H2O	9/24/14 10:30	9/24/14 14:00
MW-41	1402817-02	Groundwater	9/24/14 11:25	9/24/14 14:00
MW-4100	1402817-03	Groundwater	9/24/14 12:00	9/24/14 14:00



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID TB-09242014A

Lab ID: 1402817-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,1,1-Trichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,1,2-Trichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,1-Dichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,1-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,1-Dichloropropene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2,3-Trichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2,3-Trichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2,4-Trichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2,4-Trimethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2-Dibromoethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2-Dichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,2-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,3,5-Trimethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,3-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,3-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
1,4-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
2,2-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
2-Chlorotoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
4-Chlorotoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
4-Isopropyltoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Benzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Bromobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Bromodichloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Bromoform	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Bromomethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Carbon tetrachloride	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Chlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Chloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Chloroform	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Chloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
cis-1,2-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
cis-1,3-Dichloropropene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Dibromochloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID TB-09242014A

Lab ID: 1402817-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Dichlorodifluoromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Ethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Hexachlorobutadiene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Isopropylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
m,p-Xylene	ND	1.0	1	B4I0450	09/25/2014	09/25/14 14:09	
Methylene chloride	ND	1.0	1	B4I0450	09/25/2014	09/25/14 14:09	
n-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
n-Propylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Naphthalene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
o-Xylene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
sec-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Styrene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
tert-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Tetrachloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Toluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
trans-1,2-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Trichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Trichlorofluoromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Vinyl chloride	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:09	
Surrogate: 1,2-Dichloroethane-d4	115 %	64 - 146		B4I0450	09/25/2014	09/25/14 14:09	
Surrogate: 4-Bromofluorobenzene	97.4 %	60 - 128		B4I0450	09/25/2014	09/25/14 14:09	
Surrogate: Dibromofluoromethane	112 %	72 - 141		B4I0450	09/25/2014	09/25/14 14:09	
Surrogate: Toluene-d8	97.2 %	61 - 124		B4I0450	09/25/2014	09/25/14 14:09	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID MW-41

Lab ID: 1402817-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,1,1-Trichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,1,2-Trichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,1-Dichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,1-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,1-Dichloropropene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2,3-Trichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2-Dibromoethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2-Dichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,2-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,3-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,3-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
1,4-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
2,2-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
2-Chlorotoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
4-Chlorotoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
4-Isopropyltoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Benzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Bromobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Bromodichloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Bromoform	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Bromomethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Carbon tetrachloride	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Chlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Chloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Chloroform	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Chloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
cis-1,2-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
cis-1,3-Dichloropropene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Dibromochloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID MW-41

Lab ID: 1402817-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Dichlorodifluoromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Ethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Hexachlorobutadiene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Isopropylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
m,p-Xylene	ND	1.0	1	B4I0450	09/25/2014	09/25/14 14:32	
Methylene chloride	ND	1.0	1	B4I0450	09/25/2014	09/25/14 14:32	
n-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
n-Propylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Naphthalene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
o-Xylene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
sec-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Styrene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
tert-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Tetrachloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Toluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
trans-1,2-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Trichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Trichlorofluoromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Vinyl chloride	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:32	
Surrogate: 1,2-Dichloroethane-d4	108 %	64 - 146		B4I0450	09/25/2014	09/25/14 14:32	
Surrogate: 4-Bromofluorobenzene	89.9 %	60 - 128		B4I0450	09/25/2014	09/25/14 14:32	
Surrogate: Dibromofluoromethane	107 %	72 - 141		B4I0450	09/25/2014	09/25/14 14:32	
Surrogate: Toluene-d8	90.8 %	61 - 124		B4I0450	09/25/2014	09/25/14 14:32	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID MW-41

Lab ID: 1402817-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4I0595	09/30/2014	09/30/14 17:40	
Surrogate: 1,2-Dichlorobenzene-d4	67.9 %	47 - 117		B4I0595	09/30/2014	09/30/14 17:40	
Surrogate: 2-Fluorobiphenyl	78.5 %	48 - 121		B4I0595	09/30/2014	09/30/14 17:40	
Surrogate: 4-Terphenyl-d14	95.3 %	58 - 142		B4I0595	09/30/2014	09/30/14 17:40	
Surrogate: Nitrobenzene-d5	81.9 %	27 - 151		B4I0595	09/30/2014	09/30/14 17:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID MW-4100

Lab ID: 1402817-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,1,1-Trichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,1,2-Trichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,1-Dichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,1-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,1-Dichloropropene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2,3-Trichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2,3-Trichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2,4-Trichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2,4-Trimethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2-Dibromoethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2-Dichloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,2-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,3,5-Trimethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,3-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,3-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
1,4-Dichlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
2,2-Dichloropropane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
2-Chlorotoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
4-Chlorotoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
4-Isopropyltoluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Benzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Bromobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Bromodichloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Bromoform	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Bromomethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Carbon tetrachloride	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Chlorobenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Chloroethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Chloroform	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Chloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
cis-1,2-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
cis-1,3-Dichloropropene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Dibromochloromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID MW-4100

Lab ID: 1402817-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Dichlorodifluoromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Ethylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Hexachlorobutadiene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Isopropylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
m,p-Xylene	ND	1.0	1	B4I0450	09/25/2014	09/25/14 14:55	
Methylene chloride	ND	1.0	1	B4I0450	09/25/2014	09/25/14 14:55	
n-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
n-Propylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Naphthalene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
o-Xylene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
sec-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Styrene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
tert-Butylbenzene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Tetrachloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Toluene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
trans-1,2-Dichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Trichloroethene	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Trichlorofluoromethane	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Vinyl chloride	ND	0.50	1	B4I0450	09/25/2014	09/25/14 14:55	
Surrogate: 1,2-Dichloroethane-d4	111 %	64 - 146		B4I0450	09/25/2014	09/25/14 14:55	
Surrogate: 4-Bromofluorobenzene	90.3 %	60 - 128		B4I0450	09/25/2014	09/25/14 14:55	
Surrogate: Dibromofluoromethane	108 %	72 - 141		B4I0450	09/25/2014	09/25/14 14:55	
Surrogate: Toluene-d8	92.8 %	61 - 124		B4I0450	09/25/2014	09/25/14 14:55	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Client Sample ID MW-4100

Lab ID: 1402817-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B4I0595	09/30/2014	09/30/14 18:08	
Surrogate: 1,2-Dichlorobenzene-d4	66.1 %	47 - 117		B4I0595	09/30/2014	09/30/14 18:08	
Surrogate: 2-Fluorobiphenyl	76.1 %	48 - 121		B4I0595	09/30/2014	09/30/14 18:08	
Surrogate: 4-Terphenyl-d14	93.1 %	58 - 142		B4I0595	09/30/2014	09/30/14 18:08	
Surrogate: Nitrobenzene-d5	78.2 %	27 - 151		B4I0595	09/30/2014	09/30/14 18:08	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4I0450 - MSVOAW_LL

Blank (B4I0450-BLK1)

Prepared: 9/25/2014 Analyzed: 9/25/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0450 - MSVOAW_LL (continued)

Blank (B4I0450-BLK1) - Continued

Prepared: 9/25/2014 Analyzed: 9/25/2014

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	27.62		25.0000		110	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.84		25.0000		95.4	60 - 128			
Surrogate: Dibromofluoromethane	28.02		25.0000		112	72 - 141			
Surrogate: Toluene-d8	24.11		25.0000		96.4	61 - 124			

LCS (B4I0450-BS1)

Prepared: 9/25/2014 Analyzed: 9/25/2014

1,1-Dichloroethene	23.9400		20.0000		120	56 - 131			
Benzene	46.4300		40.0000		116	69 - 139			
Chlorobenzene	23.8800		20.0000		119	73 - 127			
MTBE	22.6300		20.0000		113	68 - 133			
Toluene	50.2100		40.0000		126	62 - 133			
Trichloroethene	22.7300		20.0000		114	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	26.74		25.0000		107	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.07		25.0000		92.3	60 - 128			
Surrogate: Dibromofluoromethane	27.11		25.0000		108	72 - 141			
Surrogate: Toluene-d8	25.17		25.0000		101	61 - 124			

LCS Dup (B4I0450-BSD1)

Prepared: 9/25/2014 Analyzed: 9/25/2014

1,1-Dichloroethene	21.5700		20.0000		108	56 - 131	10.4	20	
Benzene	44.6100		40.0000		112	69 - 139	4.00	20	
Chlorobenzene	22.5500		20.0000		113	73 - 127	5.73	20	
MTBE	20.6100		20.0000		103	68 - 133	9.34	20	
Toluene	47.9400		40.0000		120	62 - 133	4.63	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

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 B4I0450 - MSVOAW_LL (continued)

LCS Dup (B4I0450-BSD1) - Continued

Prepared: 9/25/2014 Analyzed: 9/25/2014

Trichloroethene	21.9900		20.0000		110	72 - 139	3.31	20	
Surrogate: 1,2-Dichloroethane-d4	23.56		25.0000		94.2	64 - 146			
Surrogate: 4-Bromofluorobenzene	22.42		25.0000		89.7	60 - 128			
Surrogate: Dibromofluoromethane	24.49		25.0000		98.0	72 - 141			
Surrogate: Toluene-d8	24.48		25.0000		97.9	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

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 B4I0595 - MSSEMI_ISOTOPEDILN

Blank (B4I0595-BLK1)

Prepared: 9/30/2014 Analyzed: 9/30/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.6644		1.00000		66.4	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7758		1.00000		77.6	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9510		1.00000		95.1	58 - 142			
Surrogate: Nitrobenzene-d5	0.8066		1.00000		80.7	27 - 151			

LCS (B4I0595-BS1)

Prepared: 9/30/2014 Analyzed: 9/30/2014

1,4-Dioxane	0.976770	0.20	1.00000		97.7	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.6768		1.00000		67.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7592		1.00000		75.9	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8913		1.00000		89.1	58 - 142			
Surrogate: Nitrobenzene-d5	0.8694		1.00000		86.9	27 - 151			

LCS Dup (B4I0595-BSD1)

Prepared: 9/30/2014 Analyzed: 9/30/2014

1,4-Dioxane	0.929830	0.20	1.00000		93.0	58 - 151	4.92	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6900		1.00000		69.0	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7910		1.00000		79.1	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9344		1.00000		93.4	58 - 142			
Surrogate: Nitrobenzene-d5	0.8298		1.00000		83.0	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 10/01/2014

Notes and Definitions

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.



Supplemental Report 1

The original report has been
revised/corrected.

**WORK ORDER NUMBER: 14-08-1423**

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

A handwritten signature in black ink, likely belonging to Virendra Patel.

Approved for release on 09/09/2014 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Raytheon Main / 532.30
 Work Order Number: 14-08-1423

1	Work Order Narrative.	3
2	Sample Summary.	4
3	Detections Summary.	5
4	Client Sample Data.	6
	4.1 1,4-Dioxane by EPA 8270C (M) Isotope Dilution (Aqueous).	6
	4.2 EPA 8260B Volatile Organics (Aqueous).	7
5	Quality Control Sample Data.	15
	5.1 MS/MSD.	15
	5.2 LCS/LCSD.	17
6	Sample Analysis Summary.	19
7	Glossary of Terms and Qualifiers.	20
8	Chain-of-Custody/Sample Receipt Form.	21

Work Order Narrative

Work Order: 14-08-1423Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/19/14. They were assigned to Work Order 14-08-1423.

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.

Sample Summary

Client: Hargis + Associates, Inc.	Work Order: 14-08-1423
9171 Towne Centre Drive, Suite 375	Project Name: Raytheon Main / 532.30
San Diego, CA 92122-6215	PO Number:
	Date/Time Received: 08/19/14 18:26
	Number of Containers: 10

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-081814B	14-08-1423-1	08/18/14 14:00	2	Aqueous
MW-29	14-08-1423-2	08/18/14 15:45	4	Aqueous
MW-32B	14-08-1423-3	08/19/14 13:45	4	Aqueous

Detections Summary

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

Work Order: 14-08-1423
 Project Name: Raytheon Main / 532.30
 Received: 08/19/14

Attn: Steve Netto

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
MW-29 (14-08-1423-2)						
1,1-Dichloroethane	2.0		1.0	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	160		1.0	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	4.1		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	69	ET	1.0	ug/L	EPA 8270C (M) Isotope Dilution	EPA 3510C
MW-32B (14-08-1423-3)						
1,1-Dichloroethene	86		1.0	ug/L	EPA 8260B	EPA 5030C
c-1,2-Dichloroethene	4.3		1.0	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	61		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	3.7	ET	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

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-29	14-08-1423-2-D	08/18/14 15:45	Aqueous	GC/MS DDD	09/05/14	09/06/14 03:43	140905L17

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	69	1.0	1.00	ET

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	95	56-123	
1,4-Dioxane-d8(IDS-IS)	54	30-120	

MW-32B	14-08-1423-3-D	08/19/14 13:45	Aqueous	GC/MS DDD	09/05/14	09/06/14 03:59	140905L17

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	3.7	1.0	1.00	ET

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	105	56-123	
1,4-Dioxane-d8(IDS-IS)	69	30-120	

Method Blank	099-16-216-236	N/A	Aqueous	GC/MS DDD	09/05/14	09/06/14 02:25	140905L17

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	105	56-123	
1,4-Dioxane-d8(IDS-IS)	52	30-120	

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

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-081814B	14-08-1423-1-A	08/18/14 14:00	Aqueous	GC/MS QQ	08/20/14	08/20/14 14:44	140820L007

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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.

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 2 of 8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	100	78-126	
1,2-Dichloroethane-d4	101	75-135	
Toluene-d8	100	80-120	

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

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-29	14-08-1423-2-A	08/18/14 15:45	Aqueous	GC/MS QQ	08/20/14	08/20/14 17:35	140820L007

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	2.0	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
1,1-Dichloroethene	160	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.

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 4 of 8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	4.1	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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	94	80-120	
Dibromofluoromethane	99	78-126	
1,2-Dichloroethane-d4	104	75-135	
Toluene-d8	98	80-120	

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

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 5 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-32B	14-08-1423-3-A	08/19/14 13:45	Aqueous	GC/MS QQ	08/20/14	08/20/14 12:56	140820L007

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	86	1.0	1.00	
c-1,2-Dichloroethene	4.3	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.

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 6 of 8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	61	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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	101	78-126	
1,2-Dichloroethane-d4	107	75-135	
Toluene-d8	98	80-120	

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

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-14963	N/A	Aqueous	GC/MS QQ	08/20/14	08/20/14 12:02	140820L007

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.

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 8 of 8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	97	80-120	
Dibromofluoromethane	95	78-126	
1,2-Dichloroethane-d4	104	75-135	
Toluene-d8	99	80-120	

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 08/19/14
Work Order: 14-08-1423
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon Main / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-09-0296-4	Sample	Aqueous	GC/MS DDD	09/05/14	09/06/14 05:35	140905S17
14-09-0296-4	Matrix Spike	Aqueous	GC/MS DDD	09/05/14	09/08/14 11:58	140905S17
14-09-0296-4	Matrix Spike Duplicate	Aqueous	GC/MS DDD	09/05/14	09/08/14 12:14	140905S17

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	20.63	103	20.12	101	50-130	3	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 08/19/14
Work Order: 14-08-1423
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 2 of 2

Quality Control Sample ID	Type		Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number		
MW-32B	Sample		Aqueous		GC/MS QQ	08/20/14	08/20/14 12:56	140820S015		
MW-32B	Matrix Spike		Aqueous		GC/MS QQ	08/20/14	08/20/14 13:23	140820S015		
MW-32B	Matrix Spike Duplicate		Aqueous		GC/MS QQ	08/20/14	08/20/14 13:50	140820S015		
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	51.56	103	49.35	99	74-122	4	0-21	
Carbon Tetrachloride	ND	50.00	67.60	135	63.37	127	60-144	6	0-21	
Chlorobenzene	ND	50.00	55.03	110	53.71	107	73-120	2	0-22	
1,2-Dibromoethane	ND	50.00	55.27	111	52.93	106	80-122	4	0-20	
1,2-Dichlorobenzene	ND	50.00	52.49	105	49.78	100	70-120	5	0-26	
1,2-Dichloroethane	ND	50.00	55.53	111	51.95	104	64-142	7	0-20	
1,1-Dichloroethene	86.33	50.00	151.2	130	135.8	99	52-136	11	0-21	
Ethylbenzene	ND	50.00	56.01	112	54.03	108	77-125	4	0-24	
Toluene	ND	50.00	52.59	105	49.86	100	72-126	5	0-23	
Trichloroethene	61.21	50.00	115.2	108	104.9	87	74-128	9	0-22	
Vinyl Chloride	ND	50.00	46.58	93	44.70	89	67-133	4	0-20	
p/m-Xylene	ND	100.0	116.4	116	112.5	113	63-129	3	0-25	
o-Xylene	ND	50.00	59.96	120	58.03	116	62-128	3	0-24	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	51.52	103	47.75	96	68-134	8	0-21	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon Main / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-236	LCS	Aqueous	GC/MS DDD	09/05/14	09/06/14 02:40	140905L17

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
1,4-Dioxane	20.00	20.07	100	50-130	

Quality Control - LCS

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

Date Received: 08/19/14
 Work Order: 14-08-1423
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-14963	LCS	Aqueous	GC/MS QQ	08/20/14	08/20/14 10:56	140820L007
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	49.44	99	80-120	73-127	
Carbon Tetrachloride	50.00	63.70	127	67-139	55-151	
Chlorobenzene	50.00	53.10	106	78-120	71-127	
1,2-Dibromoethane	50.00	54.31	109	80-120	73-127	
1,2-Dichlorobenzene	50.00	50.27	101	63-129	52-140	
1,2-Dichloroethane	50.00	52.54	105	70-130	60-140	
1,1-Dichloroethene	50.00	52.44	105	66-126	56-136	
Ethylbenzene	50.00	54.01	108	80-123	73-130	
Toluene	50.00	49.78	100	80-120	73-127	
Trichloroethene	50.00	51.95	104	80-122	73-129	
Vinyl Chloride	50.00	45.80	92	70-130	60-140	
p/m-Xylene	100.0	111.9	112	75-123	67-131	
o-Xylene	50.00	57.63	115	74-122	66-130	
Methyl-t-Butyl Ether (MTBE)	50.00	48.63	97	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

Return to Contents

Sample Analysis Summary Report

Work Order: 14-08-1423

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8260B	EPA 5030C	486	GC/MS QQ	2
EPA 8270C (M) Isotope Dilution	EPA 3510C	907	GC/MS DDD	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 14-08-1423

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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/PDS 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.

Erick Ovalle

From: Virendra Patel
Sent: Monday, September 08, 2014 4:23 PM
To: Erin Hunter
Cc: Erick Ovalle
Subject: RE: 1,4-Dioxane re - extraction and re-analysis

You're welcome. We will send the updated report/EDD files tomorrow.

Best Regards,

Virendra Patel
Project Manager

Eurofins Calscience, Inc.
Phone: +1 714 895 5494

Email: VirendraPatel@eurofinsUS.com

-----Original Message-----

From: Erin Hunter [<mailto:EHunter@HARGIS.COM>]
Sent: Monday, September 08, 2014 4:14 PM
To: Virendra Patel
Cc: Erick Ovalle
Subject: RE: 1,4-Dioxane re - extraction and re-analysis

Great, thanks a lot!

Erin

-----Original Message-----

From: Virendra Patel [<mailto:VirendraPatel@eurofinsUS.com>]
Sent: Monday, September 08, 2014 4:13 PM
To: Erin Hunter
Cc: Erick Ovalle
Subject: RE: 1,4-Dioxane re - extraction and re-analysis

Erin,

14-08-1638 -- No change.

14-08-1423 -- We can report the 1,4-Dioxane results with the re-analyses data for samples -2 and -3.

Best Regards,

Virendra Patel
Project Manager

Eurofins Calscience, Inc.
Phone: +1 714 895 5494

Email: VirendraPatel@eurofinsUS.com

-----Original Message-----

From: Erin Hunter [<mailto:EHunter@HARGIS.COM>]
Sent: Monday, September 08, 2014 4:00 PM
To: Virendra Patel
Cc: Erick Ovalle
Subject: RE: 1,4-Dioxane re - extraction and re-analysis

Virendra -

You can keep the 14-08-1638 Report as is.

As for the 14-08-1423 report can you throw out the original 1,4-Dioxane results and add the second 1,4-Dioxane results to the report? If you cannot do that then can you tell me what my options are?

Thanks!
Erin

-----Original Message-----

From: Virendra Patel [<mailto:VirendraPatel@eurofinsUS.com>]
Sent: Monday, September 08, 2014 3:09 PM
To: Erin Hunter
Cc: Erick Ovalle
Subject: RE: 1,4-Dioxane re - extraction and re-analysis

Erin,

Hi. So here are the preliminary results original compared to the re-extracted/re-analyzed.

14-08-1423-2 1st run	6.8 ug/L	2nd run	69 ug/L
14-08-1423-3 1st run	75 ug/L	2nd run	3.7 ug/L
14-08-1638-2 1st run	2.1 ug/L	2nd run	ND

For 14-08-1423 - the data suggests that the sample extract may have been switched for the initial screening.

For 14-08-1638 - the original result was just above the RL, so, hard to determine why the second run is ND. Could be because we are now outside hold time or original run may have had carry over from the lab/other samples?

Please advise on how you would like us to proceed, if necessary, we can issue a report with all data initial and re-analyses in one report package for both SDGs.

Best Regards,

Virendra Patel
Project Manager

Eurofins Calscience, Inc.
Phone: +1 714 895 5494

Email: VirendraPatel@eurofinsUS.com

-----Original Message-----

From: Erin Hunter [<mailto:EHunter@HARGIS.COM>]

Sent: Friday, September 05, 2014 3:58 PM

To: Virendra Patel

Cc: Erick Ovalle

Subject: 1,4-Dioxane re - extraction and re-analysis

Virendra-

Can you please re-extract and re-analyze the following samples for 1,4-Dioxane by EPA 8270B MOD?

14-08-1423<calendar:T2:14-08-1423>

- 14-08-123-2-D

- 14-08-123-3-D

14-08-1638<calendar:T2:14-08-1638>

- 14-08-1638-2-D

Please let me know if you have any questions.

Thanks,
Erin Hunter

Sent via the Samsung GALAXY S®4, an AT&T 4G LTE smartphone



DATE 8/18/14 PAGE 1 OF 1

[illegible]

Calscience

WORK ORDER #: 14-08-1423

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Hargis + Assoc.

DATE: 08/19/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 4.6 °C - 0.3 °C (CF) = 4.3 °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: 657

CUSTODY SEALS INTACT:

☐ Cooler ☐ _____ ☐ No (Not Intact) ☒ Not Present ☐ N/A

Checked by: 657

☐ Sample ☐ _____ ☐ No (Not Intact) ☒ Not Present

Checked by: 802

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 ☒ VOA⁽³⁾ ☐ VOAna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 1AGB ☐ 1AGBna₂ ☐ 1AGBs

☐ 500AGB ☐ 500AGJ ☐ 500AGJs ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 1PB ☐ 1PBna ☐ 500PB

☐ 250PB ☐ 250PBn ☐ 125PB ☐ 125PBznna ☐ 100PJ ☐ 100PJna₂ ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar® ☐ Canister Other: ☐ _____ Trip Blank Lot#: N/A Labeled/Checked by: 802

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 657

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure znna: ZnAc₂+NaOH f: Filtered Scanned by: 657



Calscience

WORK ORDER #: 14-08-1423

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ Sample(s) NOT RECEIVED but listed on COC
☐ Sample(s) received but NOT LISTED on COC
☐ Holding time expired – list sample ID(s) and test
☐ Insufficient quantities for analysis – list test
☐ Improper container(s) used – list test
☐ Improper preservative used – list test
☐ No preservative noted on COC or label – list test & notify lab
☐ Sample labels illegible – note test/container type
☒ Sample label(s) do not match COC – Note in comments
- ☐ Sample ID
☒ Date and/or Time Collected
☐ Project Information
☐ # of Container(s)
☐ Analysis
- ☐ Sample container(s) compromised – Note in comments
- ☐ Water present in sample container
☐ Broken
- ☐ Sample container(s) not labeled
☐ Air sample container(s) compromised – Note in comments
- ☐ Flat
☐ Very low in volume
☐ Leaking (Not transferred - duplicate bag submitted)
☐ Leaking (transferred into Calscience Tedlar® Bag*)
☐ Leaking (transferred into Client's Tedlar® Bag*)
- ☐ Other: _____

(-3) collection time
per label is 13:45.

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: 86208119/14



WORK ORDER NUMBER: 14-08-1425

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Hargis + Associates, Inc.

Client Project Name: Raytheon / 532.03

Attention: Steve Netto

9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a simple oval border.

Approved for release on 08/21/2014 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Raytheon / 532.03
 Work Order Number: 14-08-1425

1	Work Order Narrative.	3
2	Sample Summary.	4
3	Detections Summary.	5
4	Client Sample Data.	6
	4.1 1,4-Dioxane by EPA 8270C (M) Isotope Dilution (Aqueous).	6
5	Quality Control Sample Data.	7
	5.1 MS/MSD.	7
	5.2 LCS/LCSD.	8
6	Sample Analysis Summary.	9
7	Glossary of Terms and Qualifiers.	10
8	Chain-of-Custody/Sample Receipt Form.	11

Work Order: 14-08-1425

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/19/14. They were assigned to Work Order 14-08-1425.

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.

Sample Summary

Client:	Hargis + Associates, Inc.	Work Order:	14-08-1425
	9171 Towne Centre Drive, Suite 375	Project Name:	Raytheon / 532.03
	San Diego, CA 92122-6215	PO Number:	
		Date/Time Received:	08/19/14 18:41
		Number of Containers:	1

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
MW-41-420	14-08-1425-1	08/19/14 10:00	1	Aqueous

Detections Summary

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

Work Order: 14-08-1425
Project Name: Raytheon / 532.03
Received: 08/19/14

Attn: Steve Netto

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
MW-41-420 (14-08-1425-1) 1,4-Dioxane	1.3		1.0	ug/L	EPA 8270C (M) Isotope Dilution	EPA 3510C

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

Analytical Report

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

Date Received: 08/19/14
 Work Order: 14-08-1425
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution
 Units: ug/L

Project: Raytheon / 532.03

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-41-420	14-08-1425-1-A	08/19/14 10:00	Aqueous	GC/MS DDD	08/20/14	08/20/14 19:16	140820L05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	1.3	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	96	56-123	
1,4-Dioxane-d8(IDS-IS)	42	30-120	

Method Blank	099-16-216-224	N/A	Aqueous	GC/MS DDD	08/20/14	08/20/14 17:40	140820L05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	93	56-123	
1,4-Dioxane-d8(IDS-IS)	39	30-120	

Return to Contents

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 08/19/14
Work Order: 14-08-1425
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon / 532.03

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-08-1421-7	Sample	Aqueous	GC/MS DDD	08/20/14	08/20/14 18:28	140820S05
14-08-1421-7	Matrix Spike	Aqueous	GC/MS DDD	08/20/14	08/20/14 18:44	140820S05
14-08-1421-7	Matrix Spike Duplicate	Aqueous	GC/MS DDD	08/20/14	08/20/14 19:00	140820S05

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	19.27	96	19.74	99	50-130	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 08/19/14
 Work Order: 14-08-1425
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon / 532.03

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-224	LCS	Aqueous	GC/MS DDD	08/20/14	08/20/14 17:56	140820L05
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
1,4-Dioxane		20.00	17.52	88	50-130	

Sample Analysis Summary Report

Work Order: 14-08-1425

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8270C (M) Isotope Dilution	EPA 3510C	907	GC/MS DDD	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 14-08-1425

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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.

PROJECT NAME		RAYTHEON		PROJECT No./TASK No.		532-302 03		LABORATORY INFORMATION	
PROJECT MANAGER		BTEVE NETTO		Phone No.		858-455-6500		SPECIAL HANDLING	
QA MANAGER		ERIN HUNTER		Fax No.		858-455-6533		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S	
SAMPLER (SIGNATURE)		Gael Chanlam		SAMPLER (PRINTED)		Kevin Fong		ANALYSIS REQUESTED	
LAB ID		SAMPLE ID		SAMPLE COLLECTION		MATRIX		PRESERVATION	
Date		Time		Date		Time		Ice	
Ground water		Surface water		Lab H2O		HCl		HNO3	
Soil		Ground water		Surface water		H2SO4		NaOH	
1	MD-41-4208/19/14	1000	↓	↓	↓	↓	↓	↓	↓
Total number of Containers per analysis:									
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 °C									
No. of containers correct									
custody seals secure									
No. of containers correct									
custody seals secure									
Total No. of Containers:									
Shipments Method: DEEP-OFF									
Send Results to: STEVE NETTO									
9171 TOWNE CENTRE DRIVE, SUITE 375									
SAN DIEGO, CA 92122 (658) 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									

Calscience

WORK ORDER #: 14-08-1425

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Hargis + Assoc.

DATE: 08/19/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Temperature 4.6 °C - 0.3°C (CF) = 4.3 °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: 659

CUSTODY SEALS INTACT:

☐ Cooler ☐ _____ ☐ No (Not Intact) ☒ Not Present ☐ N/A

Checked by: 659

☐ Sample ☐ _____ ☐ No (Not Intact) ☒ Not Present

Checked by: 802

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 ☐ VOA_h ☐ VOA_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☒ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s
☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s ☐ 250AGB ☐ 250CGB ☐ 250CGB_s ☐ 1PB ☐ 1PB_{na} ☐ 500PB

☐ 250PB ☐ 250PB_n ☐ 125PB ☐ 125PB_{znna} ☐ 100PJ ☐ 100PJ_{na2} ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar® ☐ Canister Other: ☐ _____ Trip Blank Lot#: _____ Labeled/Checked by: 802

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 659

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure znna: ZnAc₂+NaOH f: Filtered Scanned by: 659



WORK ORDER NUMBER: 14-08-1545

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Hargis + Associates, Inc.

Client Project Name: Raytheon / 532.30

Attention: Steve Netto

9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed within a hand-drawn oval.

Approved for release on 08/29/2014 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Raytheon / 532.30
 Work Order Number: 14-08-1545

1	Work Order Narrative.	3
2	Sample Summary.	4
3	Detections Summary.	5
4	Client Sample Data.	6
	4.1 EPA 8260B Volatile Organics (Aqueous).	6
5	Quality Control Sample Data.	10
	5.1 MS/MSD.	10
	5.2 LCS/LCSD.	11
6	Sample Analysis Summary.	12
7	Glossary of Terms and Qualifiers.	13
8	Chain-of-Custody/Sample Receipt Form.	14

Work Order Narrative

Work Order: 14-08-1545Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/20/14. They were assigned to Work Order 14-08-1545.

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.

Sample Summary

Client: Hargis + Associates, Inc.	Work Order: 14-08-1545
9171 Towne Centre Drive, Suite 375	Project Name: Raytheon / 532.30
San Diego, CA 92122-6215	PO Number:
	Date/Time Received: 08/20/14 18:05
	Number of Containers: 3

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
MW-41-420	14-08-1545-1	08/19/14 10:00	3	Aqueous

Detections Summary

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

Work Order: 14-08-1545
Project Name: Raytheon / 532.30
Received: 08/20/14

Attn: Steve Netto

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
MW-41-420 (14-08-1545-1) 1,1-Dichloroethene	2.0		1.0	ug/L	EPA 8260B	EPA 5030C

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

Analytical Report

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

Date Received: 08/20/14
 Work Order: 14-08-1545
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 1 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-41-420	14-08-1545-1-A	08/19/14 10:00	Aqueous	GC/MS T	08/21/14	08/21/14 16:44	140821L017

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	2.0	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.

Analytical Report

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

Date Received: 08/20/14
 Work Order: 14-08-1545
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 2 of 4

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	91	80-120	
Dibromofluoromethane	97	78-126	
1,2-Dichloroethane-d4	105	75-135	
Toluene-d8	102	80-120	

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

Analytical Report

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

Date Received: 08/20/14
 Work Order: 14-08-1545
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 3 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-14973	N/A	Aqueous	GC/MS T	08/21/14	08/21/14 16:07	140821L017

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.

Analytical Report

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

Date Received: 08/20/14
 Work Order: 14-08-1545
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 4 of 4

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	93	80-120	
Dibromofluoromethane	101	78-126	
1,2-Dichloroethane-d4	104	75-135	
Toluene-d8	100	80-120	

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 08/20/14
Work Order: 14-08-1545
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon / 532.30

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-41-420	Sample	Aqueous	GC/MS T	08/21/14	08/21/14 16:44	140821S018
MW-41-420	Matrix Spike	Aqueous	GC/MS T	08/21/14	08/21/14 17:12	140821S018
MW-41-420	Matrix Spike Duplicate	Aqueous	GC/MS T	08/21/14	08/21/14 17:39	140821S018

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	ND	50.00	54.11	108	50.00	100	74-122	8	0-21	
Carbon Tetrachloride	ND	50.00	49.39	99	50.00	100	60-144	1	0-21	
Chlorobenzene	ND	50.00	55.31	111	54.14	108	73-120	2	0-22	
1,2-Dibromoethane	ND	50.00	51.98	104	51.44	103	80-122	1	0-20	
1,2-Dichlorobenzene	ND	50.00	52.97	106	52.54	105	70-120	1	0-26	
1,2-Dichloroethane	ND	50.00	53.05	106	48.73	97	64-142	9	0-20	
1,1-Dichloroethene	2.037	50.00	52.04	100	52.44	101	52-136	1	0-21	
Ethylbenzene	ND	50.00	56.70	113	55.15	110	77-125	3	0-24	
Toluene	ND	50.00	56.14	112	52.36	105	72-126	7	0-23	
Trichloroethene	ND	50.00	53.57	107	49.76	100	74-128	7	0-22	
Vinyl Chloride	ND	50.00	48.54	97	49.46	99	67-133	2	0-20	
p/m-Xylene	ND	100.0	120.2	120	116.4	116	63-129	3	0-25	
o-Xylene	ND	50.00	62.01	124	59.91	120	62-128	3	0-24	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	47.73	95	48.27	97	68-134	1	0-21	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 08/20/14
Work Order: 14-08-1545
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon / 532.30

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-14973	LCS	Aqueous	GC/MS T	08/21/14	08/21/14 15:04	140821L017
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	52.91	106	80-120	73-127	
Carbon Tetrachloride	50.00	54.43	109	67-139	55-151	
Chlorobenzene	50.00	55.07	110	78-120	71-127	
1,2-Dibromoethane	50.00	53.97	108	80-120	73-127	
1,2-Dichlorobenzene	50.00	53.39	107	63-129	52-140	
1,2-Dichloroethane	50.00	51.63	103	70-130	60-140	
1,1-Dichloroethene	50.00	53.01	106	66-126	56-136	
Ethylbenzene	50.00	56.21	112	80-123	73-130	
Toluene	50.00	55.29	111	80-120	73-127	
Trichloroethene	50.00	53.04	106	80-122	73-129	
Vinyl Chloride	50.00	50.27	101	70-130	60-140	
p/m-Xylene	100.0	120.5	120	75-123	67-131	
o-Xylene	50.00	61.86	124	74-122	66-130	ME
Methyl-t-Butyl Ether (MTBE)	50.00	52.05	104	69-129	59-139	

Total number of LCS compounds: 14

Total number of ME compounds: 1

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass


 Return to Contents

Sample Analysis Summary Report

Work Order: 14-08-1545

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8260B	EPA 5030C	849	GC/MS T	2


Return to Contents

Glossary of Terms and Qualifiers

Work Order: 14-08-1545

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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.

[illegible]

Calscience

WORK ORDER #: 14-08-1545

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: H & A, Inc.

DATE: 08/20/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 3.5 °C - 0.3 °C (CF) = 3.2 °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: 836

CUSTODY SEALS INTACT:

☐ Cooler ☐ ☐ No (Not Intact) ☒ Not Present ☐ N/A Checked by: 836

☐ Sample ☐ ☐ No (Not Intact) ☒ Not Present Checked by: 687

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 ☒ VOA³h ☐ VOAna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 1AGB ☐ 1AGBna₂ ☐ 1AGBs

☐ 500AGB ☐ 500AGJ ☐ 500AGJs ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 1PB ☐ 1PBna ☐ 500PB

☐ 250PB ☐ 250PBn ☐ 125PB ☐ 125PBz₂na ☐ 100PJ ☐ 100PJna₂ ☐ ☐ ☐

Air: ☐ Tedlar® ☐ Canister Other: ☐ Trip Blank Lot#: Labeled/Checked by: 687

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 862

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure z₂na: ZnAc₂+NaOH f: Filtered Scanned by: 862

**WORK ORDER NUMBER: 14-08-1638***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 Netto9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a hand-drawn oval.

Approved for release on 09/02/2014 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Raytheon Main / 532.30
 Work Order Number: 14-08-1638

1	Work Order Narrative.	3
2	Sample Summary.	4
3	Detections Summary.	5
4	Client Sample Data.	6
	4.1 1,4-Dioxane by EPA 8270C (M) Isotope Dilution (Aqueous).	6
	4.2 EPA 8260B Volatile Organics (Aqueous).	7
5	Quality Control Sample Data.	13
	5.1 MS/MSD.	13
	5.2 LCS/LCSD.	15
6	Sample Analysis Summary.	17
7	Glossary of Terms and Qualifiers.	18
8	Chain-of-Custody/Sample Receipt Form.	19

Work Order Narrative

Work Order: 14-08-1638Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/21/14. They were assigned to Work Order 14-08-1638.

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.

Sample Summary

Client: Hargis + Associates, Inc.	Work Order: 14-08-1638
9171 Towne Centre Drive, Suite 375	Project Name: Raytheon Main / 532.30
San Diego, CA 92122-6215	PO Number:
	Date/Time Received: 08/21/14 18:00
	Number of Containers: 6

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-082114B	14-08-1638-1	08/21/14 07:30	2	Aqueous
MW-30B	14-08-1638-2	08/21/14 10:26	4	Aqueous

Detections Summary

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

Work Order: 14-08-1638
Project Name: Raytheon Main / 532.30
Received: 08/21/14

Attn: Steve Netto

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
MW-30B (14-08-1638-2)						
1,1-Dichloroethene	15		1.0	ug/L	EPA 8260B	EPA 5030C
c-1,2-Dichloroethene	4.7		1.0	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	94		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	2.1		1.0	ug/L	EPA 8270C (M) Isotope Dilution	EPA 3510C

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

* MDL is shown

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-30B	14-08-1638-2-D	08/21/14 10:26	Aqueous	GC/MS DDD	08/22/14	08/22/14 21:21	140822L09

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	2.1	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	90	56-123	
1,4-Dioxane-d8(IDS-IS)	34	30-120	

Method Blank	099-16-216-228	N/A	Aqueous	GC/MS DDD	01/01/95	08/22/14 17:20	140822L09

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	97	56-123	
1,4-Dioxane-d8(IDS-IS)	38	30-120	

Return to Contents

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

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-082114B	14-08-1638-1-A	08/21/14 07:30	Aqueous	GC/MS QQ	08/22/14	08/22/14 13:13	140822L012

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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.

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 2 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	98	80-120	
Dibromofluoromethane	101	78-126	
1,2-Dichloroethane-d4	105	75-135	
Toluene-d8	98	80-120	

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

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-30B	14-08-1638-2-A	08/21/14 10:26	Aqueous	GC/MS QQ	08/22/14	08/22/14 13:40	140822L012

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	15	1.0	1.00	
c-1,2-Dichloroethene	4.7	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.

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 4 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	94	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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	96	80-120	
Dibromofluoromethane	97	78-126	
1,2-Dichloroethane-d4	103	75-135	
Toluene-d8	98	80-120	

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

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-14981	N/A	Aqueous	GC/MS QQ	08/22/14	08/22/14 12:46	140822L012

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.

Analytical Report

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 6 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	98	80-120	
Dibromofluoromethane	97	78-126	
1,2-Dichloroethane-d4	102	75-135	
Toluene-d8	97	80-120	

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 08/21/14
Work Order: 14-08-1638
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon Main / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
14-08-1645-3	Sample	Aqueous	GC/MS DDD	08/22/14	08/22/14 17:52	140822S09				
14-08-1645-3	Matrix Spike	Aqueous	GC/MS DDD	08/22/14	08/21/14 14:36	140822S09				
14-08-1645-3	Matrix Spike Duplicate	Aqueous	GC/MS DDD	08/22/14	08/25/14 11:37	140822S09				
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	18.97	95	N/A	N/A	50-130	N/A	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 08/21/14
Work Order: 14-08-1638
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
MW-30B	Sample	Aqueous	GC/MS QQ	08/22/14	08/22/14 13:40	140822S023				
MW-30B	Matrix Spike	Aqueous	GC/MS QQ	08/22/14	08/22/14 14:07	140822S023				
MW-30B	Matrix Spike Duplicate	Aqueous	GC/MS QQ	08/22/14	08/22/14 15:30	140822S023				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	50.74	101	50.28	101	74-122	1	0-21	
Carbon Tetrachloride	ND	50.00	65.58	131	65.60	131	60-144	0	0-21	
Chlorobenzene	ND	50.00	54.66	109	54.86	110	73-120	0	0-22	
1,2-Dibromoethane	ND	50.00	55.01	110	57.43	115	80-122	4	0-20	
1,2-Dichlorobenzene	ND	50.00	52.62	105	53.27	107	70-120	1	0-26	
1,2-Dichloroethane	ND	50.00	53.71	107	53.75	108	64-142	0	0-20	
1,1-Dichloroethene	14.56	50.00	69.30	109	64.23	99	52-136	8	0-21	
Ethylbenzene	ND	50.00	55.33	111	55.94	112	77-125	1	0-24	
Toluene	ND	50.00	52.94	106	51.76	104	72-126	2	0-23	
Trichloroethene	93.59	50.00	134.5	82	123.0	59	74-128	9	0-22	3
Vinyl Chloride	ND	50.00	43.24	86	46.03	92	67-133	6	0-20	
p/m-Xylene	ND	100.0	114.4	114	116.6	117	63-129	2	0-25	
o-Xylene	ND	50.00	58.97	118	58.95	118	62-128	0	0-24	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	50.08	100	51.00	102	68-134	2	0-21	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon Main / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-228	LCS	Aqueous	GC/MS DDD	01/01/95	08/22/14 17:37	140822L09
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
1,4-Dioxane		20.00	19.90	99	50-130	

Quality Control - LCS

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

Date Received: 08/21/14
 Work Order: 14-08-1638
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-14981	LCS	Aqueous	GC/MS QQ	08/22/14	08/22/14 11:45	140822L012
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	53.06	106	80-120	73-127	
Carbon Tetrachloride	50.00	67.97	136	67-139	55-151	
Chlorobenzene	50.00	56.52	113	78-120	71-127	
1,2-Dibromoethane	50.00	59.72	119	80-120	73-127	
1,2-Dichlorobenzene	50.00	56.82	114	63-129	52-140	
1,2-Dichloroethane	50.00	54.59	109	70-130	60-140	
1,1-Dichloroethene	50.00	55.79	112	66-126	56-136	
Ethylbenzene	50.00	59.05	118	80-123	73-130	
Toluene	50.00	54.21	108	80-120	73-127	
Trichloroethene	50.00	54.63	109	80-122	73-129	
Vinyl Chloride	50.00	46.15	92	70-130	60-140	
p/m-Xylene	100.0	120.3	120	75-123	67-131	
o-Xylene	50.00	62.16	124	74-122	66-130	ME
Methyl-t-Butyl Ether (MTBE)	50.00	53.61	107	69-129	59-139	

Total number of LCS compounds: 14

Total number of ME compounds: 1

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass



 Return to Contents

Sample Analysis Summary Report

Work Order: 14-08-1638

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8260B	EPA 5030C	486	GC/MS QQ	2
EPA 8270C (M) Isotope Dilution	EPA 3510C	907	GC/MS DDD	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 14-08-1638

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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.



DATE 8/21/14 PAGE 1 OF 1

[illegible]

Calscience

WORK ORDER #: 14-08-1638

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: MARGIS + ASSOCIATES INC.

DATE: 08/21/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.3 °C - 0.3 °C (CF) = 2.0 °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: 676

CUSTODY SEALS INTACT:

☐ Cooler ☐ _____

☐ No (Not Intact)

☒ Not Present

☐ N/A

Checked by: 676

☐ Sample ☐ _____

☐ No (Not Intact)

☒ Not Present

Checked by: 939

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 ☐ VOAna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 1AGB ☐ 1AGBna₂ ☐ 1AGBs

☐ 500AGB ☐ 500AGJ ☐ 500AGJs ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 1PB ☐ 1PBna ☐ 500PB

☐ 250PB ☐ 250PBn ☐ 125PB ☐ 125PBz₂na ☐ 100PJ ☐ 100PJna₂ ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar® ☐ Canister Other: ☐ _____ Trip Blank Lot#: N/A Labeled/Checked by: 939

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 774

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure z₂na: ZnAc₂+NaOH f: Filtered Scanned by: 774



WORK ORDER NUMBER: 14-09-0747

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Hargis + Associates, Inc.

Client Project Name: Raytheon / 532.30

Attention: Steve Netto

9171 Towne Centre Drive, Suite 375
San Diego, CA 92122-6215

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a simple oval border.

Approved for release on 09/16/2014 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Raytheon / 532.30
 Work Order Number: 14-09-0747

1	Work Order Narrative.	3
2	Sample Summary.	4
3	Detections Summary.	5
4	Client Sample Data.	6
	4.1 1,4-Dioxane by EPA 8270C (M) Isotope Dilution (Aqueous).	6
	4.2 EPA 8260B Volatile Organics (Aqueous).	7
5	Quality Control Sample Data.	13
	5.1 MS/MSD.	13
	5.2 LCS/LCSD.	15
6	Sample Analysis Summary.	17
7	Glossary of Terms and Qualifiers.	18
8	Chain-of-Custody/Sample Receipt Form.	19

Work Order: 14-09-0747

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 09/10/14. They were assigned to Work Order 14-09-0747.

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.

Sample Summary

Client: Hargis + Associates, Inc.	Work Order: 14-09-0747
9171 Towne Centre Drive, Suite 375	Project Name: Raytheon / 532.30
San Diego, CA 92122-6215	PO Number:
	Date/Time Received: 09/10/14 16:45
	Number of Containers: 6

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-091014B	14-09-0747-1	09/10/14 08:00	2	Aqueous
MW-41	14-09-0747-2	09/10/14 14:15	4	Aqueous

Detections Summary

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

Work Order: 14-09-0747
Project Name: Raytheon / 532.30
Received: 09/10/14

Attn: Steve Netto

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
MW-41 (14-09-0747-2)						
1,1-Dichloroethene	1.8		1.0	ug/L	EPA 8260B	EPA 5030C

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

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution
 Units: ug/L

Project: Raytheon / 532.30

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-41	14-09-0747-2-D	09/10/14 14:15	Aqueous	GC/MS DDD	09/12/14	09/12/14 20:34	140912L02

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	97	56-123	
1,4-Dioxane-d8(IDS-IS)	45	30-120	

Method Blank	099-16-216-241	N/A	Aqueous	GC/MS DDD	09/12/14	09/12/14 13:48	140912L02

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	104	56-123	
1,4-Dioxane-d8(IDS-IS)	48	30-120	

Return to Contents

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

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-091014B	14-09-0747-1-A	09/10/14 08:00	Aqueous	GC/MS JJ	09/12/14	09/12/14 18:50	140912L027

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.

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 2 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	93	80-120	
Dibromofluoromethane	95	78-126	
1,2-Dichloroethane-d4	96	75-135	
Toluene-d8	99	80-120	

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

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-41	14-09-0747-2-A	09/10/14 14:15	Aqueous	GC/MS JJ	09/12/14	09/12/14 21:16	140912L027

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	1.8	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.

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 4 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	93	80-120	
Dibromofluoromethane	95	78-126	
1,2-Dichloroethane-d4	103	75-135	
Toluene-d8	100	80-120	

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

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-15127	N/A	Aqueous	GC/MS JJ	09/12/14	09/12/14 14:28	140912L027

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.

Analytical Report

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon / 532.30

Page 6 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	93	80-120	
Dibromofluoromethane	96	78-126	
1,2-Dichloroethane-d4	93	75-135	
Toluene-d8	99	80-120	

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/10/14
Work Order: 14-09-0747
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-09-0916-1	Sample	Aqueous	GC/MS DDD	09/12/14	09/12/14 17:40	140912S02
14-09-0916-1	Matrix Spike	Aqueous	GC/MS DDD	09/12/14	09/12/14 17:56	140912S02
14-09-0916-1	Matrix Spike Duplicate	Aqueous	GC/MS DDD	09/12/14	09/12/14 18:11	140912S02

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,4-Dioxane	1.268	20.00	22.34	105	20.41	96	50-130	9	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/10/14
Work Order: 14-09-0747
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon / 532.30

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-09-0762-1	Sample	Aqueous	GC/MS JJ	09/12/14	09/12/14 19:19	140912S021
14-09-0762-1	Matrix Spike	Aqueous	GC/MS JJ	09/12/14	09/12/14 17:23	140912S021
14-09-0762-1	Matrix Spike Duplicate	Aqueous	GC/MS JJ	09/12/14	09/12/14 17:52	140912S021

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	48.66	97	48.69	97	74-122	0	0-21	
Carbon Tetrachloride	ND	50.00	43.40	87	41.34	83	60-144	5	0-21	
Chlorobenzene	ND	50.00	51.56	103	50.84	102	73-120	1	0-22	
1,2-Dibromoethane	ND	50.00	49.46	99	49.40	99	80-122	0	0-20	
1,2-Dichlorobenzene	ND	50.00	51.89	104	52.32	105	70-120	1	0-26	
1,2-Dichloroethane	ND	50.00	45.47	91	45.19	90	64-142	1	0-20	
1,1-Dichloroethene	ND	50.00	42.14	84	40.42	81	52-136	4	0-21	
Ethylbenzene	ND	50.00	48.41	97	48.75	98	77-125	1	0-24	
Toluene	ND	50.00	48.35	97	48.39	97	72-126	0	0-23	
Trichloroethene	ND	50.00	49.41	99	48.42	97	74-128	2	0-22	
Vinyl Chloride	ND	50.00	44.21	88	43.51	87	67-133	2	0-20	
p/m-Xylene	ND	100.0	87.60	88	88.85	89	63-129	1	0-25	
o-Xylene	ND	50.00	46.79	94	47.50	95	62-128	2	0-24	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	45.62	91	45.84	92	68-134	0	0-21	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 09/10/14
Work Order: 14-09-0747
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-241	LCS	Aqueous	GC/MS DDD	09/12/14	09/12/14 14:04	140912L02
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
1,4-Dioxane		20.00	20.69	103	50-130	

Quality Control - LCS

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

Date Received: 09/10/14
 Work Order: 14-09-0747
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon / 532.30

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-14-001-15127	LCS	Aqueous	GC/MS JJ	09/12/14	09/12/14 12:31	140912L027	
Parameter		Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene		50.00	47.36	95	80-120	73-127	
Carbon Tetrachloride		50.00	43.40	87	67-139	55-151	
Chlorobenzene		50.00	49.90	100	78-120	71-127	
1,2-Dibromoethane		50.00	47.75	96	80-120	73-127	
1,2-Dichlorobenzene		50.00	51.55	103	63-129	52-140	
1,2-Dichloroethane		50.00	43.67	87	70-130	60-140	
1,1-Dichloroethene		50.00	43.22	86	66-126	56-136	
Ethylbenzene		50.00	50.37	101	80-123	73-130	
Toluene		50.00	48.74	97	80-120	73-127	
Trichloroethene		50.00	47.36	95	80-122	73-129	
Vinyl Chloride		50.00	43.72	87	70-130	60-140	
p/m-Xylene		100.0	107.4	107	75-123	67-131	
o-Xylene		50.00	53.51	107	74-122	66-130	
Methyl-t-Butyl Ether (MTBE)		50.00	43.51	87	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

Return to Contents

Sample Analysis Summary Report

Work Order: 14-09-0747

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8260B	EPA 5030C	799	GC/MS JJ	2
EPA 8270C (M) Isotope Dilution	EPA 3510C	907	GC/MS DDD	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 14-09-0747

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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/PDS 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.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 9/6/14 PAGE 1 OF 1

[illegible]

Calscience

WORK ORDER #: 14-09-0747

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: HAGIS + Associates

DATE: 09/10/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.9 °C - 0.3 °C (CF) = 2.6 °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: 802

CUSTODY SEALS INTACT:

☐ Cooler ☐ _____ ☐ No (Not Intact) ☒ Not Present ☐ N/A

Checked by: 802

☐ Sample ☐ _____ ☐ No (Not Intact) ☒ Not Present

Checked by: 802

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 ☐ VOAna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 1AGB ☐ 1AGBna₂ ☐ 1AGBs

☐ 500AGB ☐ 500AGJ ☐ 500AGJs ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 1PB ☐ 1PBna ☐ 500PB

☐ 250PB ☐ 250PBn ☐ 125PB ☐ 125PBznn ☐ 100PJ ☐ 100PJna₂ ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar® ☐ Canister Other: ☐ _____ Trip Blank Lot#: N/A Labeled/Checked by: 802

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 802

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure znn: ZnAc₂+NaOH f: Filtered Scanned by: 802



WORK ORDER NUMBER: 14-09-1917

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

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a simple oval.

Approved for release on 10/01/2014 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Raytheon Main / 532.30
 Work Order Number: 14-09-1917

1	Work Order Narrative.	3
2	Sample Summary.	4
3	Client Sample Data.	5
	3.1 1,4-Dioxane by EPA 8270C (M) Isotope Dilution (Aqueous).	5
	3.2 EPA 8260B Volatile Organics (Aqueous).	6
4	Quality Control Sample Data.	12
	4.1 MS/MSD.	12
	4.2 LCS/LCSD.	15
5	Sample Analysis Summary.	17
6	Glossary of Terms and Qualifiers.	18
7	Chain-of-Custody/Sample Receipt Form.	19

Work Order Narrative

Work Order: 14-09-1917Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 09/24/14. They were assigned to Work Order 14-09-1917.

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.

Sample Summary

Client: Hargis + Associates, Inc.	Work Order: 14-09-1917
9171 Towne Centre Drive, Suite 375	Project Name: Raytheon Main / 532.30
San Diego, CA 92122-6215	PO Number:
	Date/Time Received: 09/24/14 14:30
	Number of Containers: 6

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-09242014B	14-09-1917-1	09/24/14 10:30	2	Aqueous
MW-41	14-09-1917-2	09/24/14 11:25	4	Aqueous



Calscience

Analytical Report

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

Date Received: 09/24/14
Work Order: 14-09-1917
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution
Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-41	14-09-1917-2-D	09/24/14 11:25	Aqueous	GC/MS DDD	09/25/14	09/25/14 17:18	140925L10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	112	56-123	
1,4-Dioxane-d8(IDS-IS)	44	30-120	

Method Blank	099-16-216-250	N/A	Aqueous	GC/MS DDD	09/25/14	09/25/14 16:47	140925L10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	118	56-123	
1,4-Dioxane-d8(IDS-IS)	51	30-120	

Return to Contents

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

Analytical Report

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-09242014B	14-09-1917-1-A	09/24/14 10:30	Aqueous	GC/MS OO	09/25/14	09/25/14 20:23	140925L052

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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.

Analytical Report

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 2 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	97	80-120	
Dibromofluoromethane	101	78-126	
1,2-Dichloroethane-d4	108	75-135	
Toluene-d8	100	80-120	

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

Analytical Report

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-41	14-09-1917-2-A	09/24/14 11:25	Aqueous	GC/MS OO	09/25/14	09/25/14 21:45	140925L052

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.

Analytical Report

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 4 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	97	80-120	
Dibromofluoromethane	102	78-126	
1,2-Dichloroethane-d4	110	75-135	
Toluene-d8	101	80-120	

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

Analytical Report

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-15235	N/A	Aqueous	GC/MS OO	09/25/14	09/25/14 15:38	140925L052

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.

Analytical Report

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 6 of 6

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
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	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	100	78-126	
1,2-Dichloroethane-d4	101	75-135	
Toluene-d8	101	80-120	

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/24/14
Work Order: 14-09-1917
Preparation: EPA 3510C
Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon Main / 532.30

Page 1 of 3

Quality Control Sample ID	Type		Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number			
MW-41	Sample		Aqueous	GC/MS DDD	09/25/14	09/25/14 17:18	140925S10			
MW-41	Matrix Spike		Aqueous	GC/MS DDD	09/25/14	09/25/14 17:34	140925S10			
MW-41	Matrix Spike Duplicate		Aqueous	GC/MS DDD	09/25/14	09/25/14 17:50	140925S10			
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	20.00	19.20	96	18.38	92	50-130	4	0-20	

[Return to Contents](#)

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/24/14
Work Order: 14-09-1917
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-09-1401-1	Sample	Aqueous	GC/MS OO	09/25/14	09/25/14 16:17	140925S007
14-09-1401-1	Matrix Spike	Aqueous	GC/MS OO	09/25/14	09/25/14 16:44	140925S007
14-09-1401-1	Matrix Spike Duplicate	Aqueous	GC/MS OO	09/25/14	09/25/14 17:12	140925S007

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	57.51	115	55.81	112	40-140	3	0-20	
Benzene	ND	50.00	53.03	106	53.33	107	80-120	1	0-20	
Bromobenzene	ND	50.00	49.08	98	50.82	102	75-125	3	0-20	
Bromochloromethane	ND	50.00	54.23	108	54.08	108	65-135	0	0-20	
Bromodichloromethane	ND	50.00	55.19	110	55.57	111	75-120	1	0-20	
Bromoform	ND	50.00	50.63	101	50.92	102	70-130	1	0-20	
Bromomethane	ND	50.00	50.82	102	48.46	97	30-145	5	0-20	
2-Butanone	ND	50.00	53.92	108	56.95	114	30-150	5	0-20	
n-Butylbenzene	ND	50.00	53.69	107	54.34	109	70-135	1	0-20	
sec-Butylbenzene	ND	50.00	54.75	110	55.49	111	70-125	1	0-20	
tert-Butylbenzene	ND	50.00	54.55	109	56.32	113	70-130	3	0-20	
Carbon Disulfide	ND	50.00	47.91	96	49.11	98	35-160	2	0-20	
Carbon Tetrachloride	ND	50.00	54.24	108	53.78	108	65-140	1	0-20	
Chlorobenzene	ND	50.00	52.74	105	53.24	106	80-120	1	0-20	
Chloroethane	ND	50.00	57.01	114	55.62	111	60-135	2	0-20	
Chloroform	ND	50.00	53.36	107	53.82	108	65-135	1	0-20	
Chloromethane	ND	50.00	55.64	111	56.81	114	40-125	2	0-20	
2-Chlorotoluene	ND	50.00	53.79	108	56.05	112	75-125	4	0-20	
4-Chlorotoluene	ND	50.00	52.90	106	53.61	107	75-130	1	0-20	
Dibromochloromethane	ND	50.00	53.24	106	54.18	108	60-135	2	0-20	
1,2-Dibromo-3-Chloropropane	ND	50.00	51.59	103	53.39	107	50-130	3	0-20	
1,2-Dibromoethane	ND	50.00	53.41	107	55.29	111	80-120	3	0-20	
Dibromomethane	ND	50.00	53.39	107	54.99	110	75-125	3	0-20	
1,2-Dichlorobenzene	ND	50.00	52.74	105	53.02	106	70-120	1	0-20	
1,3-Dichlorobenzene	ND	50.00	52.53	105	53.17	106	75-125	1	0-20	
1,4-Dichlorobenzene	ND	50.00	49.76	100	49.80	100	75-125	0	0-20	
Dichlorodifluoromethane	ND	50.00	54.15	108	54.11	108	30-155	0	0-20	
1,1-Dichloroethane	ND	50.00	51.47	103	52.50	105	70-135	2	0-20	
1,2-Dichloroethane	ND	50.00	55.12	110	56.14	112	70-130	2	0-20	
1,1-Dichloroethene	ND	50.00	56.51	113	57.47	115	70-130	2	0-20	
c-1,2-Dichloroethene	ND	50.00	54.59	109	55.98	112	70-125	3	0-20	
t-1,2-Dichloroethene	ND	50.00	55.64	111	55.69	111	60-140	0	0-20	
1,2-Dichloropropane	ND	50.00	53.38	107	54.41	109	75-125	2	0-20	
1,3-Dichloropropane	ND	50.00	49.44	99	51.96	104	75-125	5	0-20	
2,2-Dichloropropane	ND	50.00	54.79	110	54.50	109	70-135	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 09/24/14
Work Order: 14-09-1917
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 3 of 3

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,1-Dichloropropene	ND	50.00	56.33	113	55.23	110	75-130	2	0-20	
c-1,3-Dichloropropene	ND	50.00	58.87	118	59.68	119	70-130	1	0-20	
t-1,3-Dichloropropene	ND	50.00	56.26	113	56.44	113	55-140	0	0-20	
Ethylbenzene	ND	50.00	53.16	106	53.70	107	75-125	1	0-20	
2-Hexanone	ND	50.00	52.88	106	54.38	109	55-130	3	0-20	
Isopropylbenzene	ND	50.00	53.43	107	55.94	112	75-125	5	0-20	
p-Isopropyltoluene	ND	50.00	49.33	99	50.42	101	75-130	2	0-20	
Methylene Chloride	ND	50.00	53.02	106	53.94	108	55-140	2	0-20	
4-Methyl-2-Pentanone	ND	50.00	57.16	114	57.17	114	60-135	0	0-20	
Naphthalene	ND	50.00	49.62	99	51.54	103	55-140	4	0-20	
n-Propylbenzene	ND	50.00	52.68	105	55.88	112	70-130	6	0-20	
Styrene	ND	50.00	50.19	100	51.97	104	65-135	3	0-20	
1,1,1,2-Tetrachloroethane	ND	50.00	51.50	103	51.35	103	80-130	0	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	52.81	106	57.44	115	65-130	8	0-20	
Tetrachloroethene	ND	50.00	45.83	92	46.42	93	45-150	1	0-20	
Toluene	ND	50.00	51.95	104	52.41	105	75-120	1	0-20	
1,2,3-Trichlorobenzene	ND	50.00	49.15	98	49.60	99	55-140	1	0-20	
1,2,4-Trichlorobenzene	ND	50.00	50.79	102	50.97	102	65-135	0	0-20	
1,1,1-Trichloroethane	ND	50.00	53.53	107	54.14	108	65-130	1	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50.00	52.48	105	53.38	107	80-130	2	0-20	
1,1,2-Trichloroethane	ND	50.00	51.25	102	51.61	103	75-125	1	0-20	
Trichloroethene	ND	50.00	47.01	94	47.68	95	70-125	1	0-20	
Trichlorofluoromethane	ND	50.00	56.69	113	54.87	110	60-145	3	0-20	
1,2,3-Trichloropropane	ND	50.00	49.37	99	51.54	103	75-125	4	0-20	
1,2,4-Trimethylbenzene	ND	50.00	52.59	105	53.41	107	75-130	2	0-20	
1,3,5-Trimethylbenzene	ND	50.00	53.07	106	54.75	109	75-130	3	0-20	
Vinyl Acetate	ND	50.00	62.31	125	65.23	130	80-120	5	0-20	3
Vinyl Chloride	ND	50.00	57.50	115	54.36	109	50-145	6	0-20	
p/m-Xylene	ND	100.0	109.2	109	110.6	111	75-130	1	0-20	
o-Xylene	ND	50.00	53.17	106	55.23	110	80-120	4	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	51.28	103	53.10	106	65-125	3	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 3510C
 Method: EPA 8270C (M) Isotope Dilution

Project: Raytheon Main / 532.30

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-250	LCS	Aqueous	GC/MS DDD	09/25/14	09/25/14 17:03	140925L10
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
1,4-Dioxane		20.00	18.39	92	50-130	

Quality Control - LCS

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

Date Received: 09/24/14
 Work Order: 14-09-1917
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-15235	LCS	Aqueous	GC/MS OO	09/25/14	09/25/14 14:38	140925L052
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	52.87	106	80-120	73-127	
Carbon Tetrachloride	50.00	56.86	114	67-139	55-151	
Chlorobenzene	50.00	53.90	108	78-120	71-127	
1,2-Dibromoethane	50.00	52.22	104	80-120	73-127	
1,2-Dichlorobenzene	50.00	52.67	105	63-129	52-140	
1,2-Dichloroethane	50.00	54.55	109	70-130	60-140	
1,1-Dichloroethene	50.00	57.02	114	66-126	56-136	
Ethylbenzene	50.00	55.05	110	80-123	73-130	
Toluene	50.00	53.04	106	80-120	73-127	
Trichloroethene	50.00	47.40	95	80-122	73-129	
Vinyl Chloride	50.00	51.87	104	70-130	60-140	
p/m-Xylene	100.0	115.7	116	75-123	67-131	
o-Xylene	50.00	56.80	114	74-122	66-130	
Methyl-t-Butyl Ether (MTBE)	50.00	50.79	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

Return to Contents

Sample Analysis Summary Report

Work Order: 14-09-1917

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8260B	EPA 5030C	849	GC/MS OO	2
EPA 8270C (M) Isotope Dilution	EPA 3510C	907	GC/MS DDD	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 14-09-1917

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	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/PDS 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.



DATE 9/24/14 PAGE 1 OF 1

[illegible]

Calscience

WORK ORDER #: 14-09-1917

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Hargis + Assoc.

DATE: 09/24/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 5.0 °C - 0.3 °C (CF) = 4.7 °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: 300

CUSTODY SEALS INTACT:

☐ Cooler ☐ _____ ☐ No (Not Intact) ☒ Not Present ☐ N/A Checked by: 300

☐ Sample ☐ _____ ☐ No (Not Intact) ☒ Not Present Checked by: 8m

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 ☐ VOAna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 1AGB ☐ 1AGBna₂ ☐ 1AGBs

☐ 500AGB ☐ 500AGJ ☐ 500AGJs ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 1PB ☐ 1PBna ☐ 500PB

☐ 250PB ☐ 250PBn ☐ 125PB ☐ 125PBz₂na ☐ 100PJ ☐ 100PJna₂ ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar® ☐ Canister Other: ☐ _____ Trip Blank Lot#: N/A Labeled/Checked by: 8m

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 778

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure z₂na: ZnAc₂+NaOH f: Filtered Scanned by: 778

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANALYTICAL RESULTS



August 22, 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 : 1402240
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 01, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08012014	1402240-01	Lab H2O	8/01/14 8:00	8/01/14 11:35
INF	1402240-02	Groundwater	8/01/14 9:48	8/01/14 11:35
POX	1402240-03	Groundwater	8/01/14 10:02	8/01/14 11:35
CEFF	1402240-04	Groundwater	8/01/14 10:18	8/01/14 11:35
CBT	1402240-05	Groundwater	8/01/14 10:12	8/01/14 11:35
PF	1402240-06	Groundwater	8/01/14 9:59	8/01/14 11:35

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID TB-08012014

Lab ID: 1402240-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,1,1-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,1,2-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,1-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,1-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,1-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2,3-Trichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2-Dibromoethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,3-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,3-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
1,4-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
2,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
2-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
4-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
4-Isopropyltoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Benzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Bromobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Bromodichloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Bromoform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Bromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Carbon tetrachloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Chlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Chloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Chloroform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Chloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Dibromochloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID TB-08012014

Lab ID: 1402240-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Dichlorodifluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Ethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Hexachlorobutadiene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Isopropylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
m,p-Xylene	ND	1.0	1	B4H0014	08/04/2014	08/04/14 09:56	
Methylene chloride	ND	1.0	1	B4H0014	08/04/2014	08/04/14 09:56	
MTBE	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
n-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
n-Propylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Naphthalene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
o-Xylene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
sec-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Styrene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
tert-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Tetrachloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Toluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Trichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Trichlorofluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Vinyl chloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 09:56	
Surrogate: 1,2-Dichloroethane-d4	118 %	64 - 146		B4H0014	08/04/2014	08/04/14 09:56	
Surrogate: 4-Bromofluorobenzene	107 %	60 - 128		B4H0014	08/04/2014	08/04/14 09:56	
Surrogate: Dibromofluoromethane	110 %	72 - 141		B4H0014	08/04/2014	08/04/14 09:56	
Surrogate: Toluene-d8	89.3 %	61 - 124		B4H0014	08/04/2014	08/04/14 09:56	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402240-02

Anions Scan by Ion Chromatography EPA 300.0

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	ND	0.05	1	B4H0026	08/01/2014	08/01/14 15:26	
Chloride	120	10	20	B4H0026	08/01/2014	08/01/14 16:12	
Nitrate, as N	5.4	0.10	1	B4H0026	08/01/2014	08/01/14 15:26	
Nitrite, as N	ND	0.10	1	B4H0026	08/01/2014	08/01/14 15:26	
ortho-Phosphate, as P	ND	0.05	1	B4H0026	08/01/2014	08/01/14 15:26	
Sulfate	150	20	20	B4H0026	08/01/2014	08/01/14 16:12	

Alkalinity, Total by SM 2320B

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Total (as CaCO ₃)	240	5.0	1	B4H0045	08/05/2014	08/05/14 10:15	

Total Organic Carbon by SM 5310B

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B4H0058	08/05/2014	08/05/14 12:37	

Chemical Oxygen Demand by EPA 410.4

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B4H0019	08/04/2014	08/05/14 13:42	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	110	0.50	1	B4H0024	08/04/2014	08/05/14 12:35	
Iron	ND	0.50	1	B4H0024	08/04/2014	08/05/14 12:35	
Magnesium	32	0.10	1	B4H0024	08/04/2014	08/05/14 12:35	
Manganese	ND	0.50	1	B4H0024	08/04/2014	08/05/14 12:35	
Sodium	83	1.0	1	B4H0024	08/04/2014	08/05/14 12:35	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402240-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0015	08/04/2014	08/04/14 10:19	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,1,1-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,1,2-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,1-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,1-Dichloroethene	21	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,1-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2,3-Trichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2-Dibromoethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,3-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,3-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
1,4-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
2,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
2-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
4-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
4-Isopropyltoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Benzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Bromobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Bromodichloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Bromoform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Bromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Carbon tetrachloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Chlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402240-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Chloroform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Chloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Dibromochloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Dibromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Dichlorodifluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Ethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Hexachlorobutadiene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Isopropylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
m,p-Xylene	ND	1.0	1	B4H0014	08/04/2014	08/04/14 11:26	
Methylene chloride	ND	1.0	1	B4H0014	08/04/2014	08/04/14 11:26	
MTBE	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
n-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
n-Propylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Naphthalene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
o-Xylene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
sec-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Styrene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
tert-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Tetrachloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Toluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Trichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Trichlorofluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Vinyl chloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:26	
Surrogate: 1,2-Dichloroethane-d4	111 %	64 - 146		B4H0014	08/04/2014	08/04/14 11:26	
Surrogate: 4-Bromofluorobenzene	100 %	60 - 128		B4H0014	08/04/2014	08/04/14 11:26	
Surrogate: Dibromofluoromethane	104 %	72 - 141		B4H0014	08/04/2014	08/04/14 11:26	
Surrogate: Toluene-d8	83.5 %	61 - 124		B4H0014	08/04/2014	08/04/14 11:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402240-02

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	9.7	2.0	1	B4H0091	08/07/2014	08/13/14 15:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>45.6 %</i>	<i>42 - 106</i>		<i>B4H0091</i>	<i>08/07/2014</i>	<i>08/13/14 15:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>51.7 %</i>	<i>55 - 117</i>		<i>B4H0091</i>	<i>08/07/2014</i>	<i>08/13/14 15:23</i>	S2
<i>Surrogate: 4-Terphenyl-d14</i>	<i>66.5 %</i>	<i>52 - 142</i>		<i>B4H0091</i>	<i>08/07/2014</i>	<i>08/13/14 15:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>46.3 %</i>	<i>43 - 116</i>		<i>B4H0091</i>	<i>08/07/2014</i>	<i>08/13/14 15:23</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402240-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0015	08/04/2014	08/04/14 10:33	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,1,1-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,1,2-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,1-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,1-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,1-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2,3-Trichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2-Dibromoethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,3-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,3-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
1,4-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
2,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
2-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
4-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
4-Isopropyltoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Benzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Bromobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Bromodichloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Bromoform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Bromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Carbon tetrachloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Chlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402240-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Chloroform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Chloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Dibromochloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Dibromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Dichlorodifluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Ethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Hexachlorobutadiene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Isopropylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
m,p-Xylene	ND	1.0	1	B4H0014	08/04/2014	08/04/14 11:03	
Methylene chloride	ND	1.0	1	B4H0014	08/04/2014	08/04/14 11:03	
MTBE	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
n-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
n-Propylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Naphthalene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
o-Xylene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
sec-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Styrene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
tert-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Tetrachloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Toluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Trichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Trichlorofluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Vinyl chloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 11:03	
Surrogate: 1,2-Dichloroethane-d4	132 %	64 - 146		B4H0014	08/04/2014	08/04/14 11:03	
Surrogate: 4-Bromofluorobenzene	121 %	60 - 128		B4H0014	08/04/2014	08/04/14 11:03	
Surrogate: Dibromofluoromethane	125 %	72 - 141		B4H0014	08/04/2014	08/04/14 11:03	
Surrogate: Toluene-d8	100 %	61 - 124		B4H0014	08/04/2014	08/04/14 11:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402240-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	1.0	0.20	1	B4H0090	08/07/2014	08/13/14 12:35	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>63.6 %</i>	<i>47 - 117</i>		B4H0090	08/07/2014	<i>08/13/14 12:35</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>77.5 %</i>	<i>48 - 121</i>		B4H0090	08/07/2014	<i>08/13/14 12:35</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>88.0 %</i>	<i>58 - 142</i>		B4H0090	08/07/2014	<i>08/13/14 12:35</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>72.3 %</i>	<i>27 - 151</i>		B4H0090	08/07/2014	<i>08/13/14 12:35</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CEFF

Lab ID: 1402240-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0015	08/04/2014	08/04/14 10:48	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,1,1-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,1,2-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,1-Dichloroethane	0.62	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,1-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,1-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2,3-Trichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2-Dibromoethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,3-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,3-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
1,4-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
2,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
2-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
4-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
4-Isopropyltoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Benzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Bromobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Bromodichloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Bromoform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Bromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Carbon tetrachloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Chlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CEFF

Lab ID: 1402240-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Chloroform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Chloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Dibromochloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Dibromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Dichlorodifluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Ethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Hexachlorobutadiene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Isopropylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
m,p-Xylene	ND	1.0	1	B4H0014	08/04/2014	08/04/14 10:41	
Methylene chloride	ND	1.0	1	B4H0014	08/04/2014	08/04/14 10:41	
MTBE	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
n-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
n-Propylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Naphthalene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
o-Xylene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
sec-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Styrene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
tert-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Tetrachloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Toluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Trichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Trichlorofluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Vinyl chloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:41	
Surrogate: 1,2-Dichloroethane-d4	119 %	64 - 146		B4H0014	08/04/2014	08/04/14 10:41	
Surrogate: 4-Bromofluorobenzene	108 %	60 - 128		B4H0014	08/04/2014	08/04/14 10:41	
Surrogate: Dibromofluoromethane	112 %	72 - 141		B4H0014	08/04/2014	08/04/14 10:41	
Surrogate: Toluene-d8	90.7 %	61 - 124		B4H0014	08/04/2014	08/04/14 10:41	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CBT

Lab ID: 1402240-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0015	08/04/2014	08/04/14 11:03	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,1,1-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,1,2-Trichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,1-Dichloroethane	0.51	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,1-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,1-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2,3-Trichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2-Dibromoethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2-Dichloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,3-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,3-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
1,4-Dichlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
2,2-Dichloropropane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
2-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
4-Chlorotoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
4-Isopropyltoluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Benzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Bromobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Bromodichloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Bromoform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Bromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Carbon tetrachloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Chlorobenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CBT

Lab ID: 1402240-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Chloroform	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Chloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Dibromochloromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Dibromomethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Dichlorodifluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Ethylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Hexachlorobutadiene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Isopropylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
m,p-Xylene	ND	1.0	1	B4H0014	08/04/2014	08/04/14 10:19	
Methylene chloride	ND	1.0	1	B4H0014	08/04/2014	08/04/14 10:19	
MTBE	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
n-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
n-Propylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Naphthalene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
o-Xylene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
sec-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Styrene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
tert-Butylbenzene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Tetrachloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Toluene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Trichloroethene	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Trichlorofluoromethane	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
Vinyl chloride	ND	0.50	1	B4H0014	08/04/2014	08/04/14 10:19	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>	<i>64 - 146</i>		B4H0014	08/04/2014	<i>08/04/14 10:19</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>	<i>60 - 128</i>		B4H0014	08/04/2014	<i>08/04/14 10:19</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>110 %</i>	<i>72 - 141</i>		B4H0014	08/04/2014	<i>08/04/14 10:19</i>	
<i>Surrogate: Toluene-d8</i>	<i>89.5 %</i>	<i>61 - 124</i>		B4H0014	08/04/2014	<i>08/04/14 10:19</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID PF

Lab ID: 1402240-06

UV Absorption by EPA 415.3

Analyst: PT

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	0.01	0.01	1	B4H0016	08/01/2014	08/01/14 14:30	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

QUALITY CONTROL SECTION

Anions Scan by Ion Chromatography EPA 300.0 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0026 - No_Prep_IC_1

Blank (B4H0026-BLK1)

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	ND	0.05			NR				
Chloride	ND	0.50			NR				
Nitrate, as N	ND	0.10			NR				
Nitrite, as N	ND	0.10			NR				
ortho-Phosphate, as P	ND	0.05			NR				
Sulfate	ND	1.0			NR				

LCS (B4H0026-BS1)

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	0.938800	0.05	1.00000		93.9	90 - 110			
Chloride	0.964500	0.50	1.00000		96.4	90 - 110			
Nitrate, as N	0.952200	0.10	1.00000		95.2	90 - 110			
Nitrite, as N	0.953300	0.10	1.00000		95.3	90 - 110			
ortho-Phosphate, as P	0.953700	0.05	1.00000		95.4	90 - 110			
Sulfate	1.92930	1.0	2.00000		96.5	90 - 110			

Duplicate (B4H0026-DUP1)

Source: 1402240-02

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	ND	0.05		ND	NR			20	
Chloride	156.029	0.50		155.957	NR		0.0466	20	E
Nitrate, as N	6.31340	0.10		5.39000	NR		15.8	20	
Nitrite, as N	ND	0.10		ND	NR			20	
ortho-Phosphate, as P	ND	0.05		ND	NR			20	
Sulfate	185.626	1.0		184.463	NR		0.629	20	E

Duplicate (B4H0026-DUP2)

Source: 1402240-02RE1

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	ND	1.0		ND	NR			20	
Chloride	117.540	10		115.714	NR		1.57	20	
Nitrate, as N	5.76400	2.0		5.95600	NR		3.28	20	
Nitrite, as N	ND	2.0		ND	NR			20	
ortho-Phosphate, as P	ND	1.0		ND	NR			20	
Sulfate	150.034	20		148.794	NR		0.830	20	

Matrix Spike (B4H0026-MS1)

Source: 1402240-02

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	5.43910	0.05	2.50000	ND	218	80 - 120			M1
Chloride	155.461	0.50	2.50000	155.957	-19.8	80 - 120			M1, E
Nitrate, as N	8.45880	0.10	2.50000	5.39000	123	80 - 120			M1
Nitrite, as N	4.99000	0.10	2.50000	ND	200	80 - 120			M1
ortho-Phosphate, as P	0.465100	0.05	2.50000	ND	18.6	80 - 120			M1
Sulfate	193.736	1.0	5.00000	184.463	185	80 - 120			M1, E

Matrix Spike (B4H0026-MS2)

Source: 1402240-02RE1

Prepared: 8/1/2014 Analyzed: 8/1/2014



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Anions Scan by Ion Chromatography EPA 300.0 - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0026 - No_Prep_IC_1 (continued)

Matrix Spike (B4H0026-MS2) - Continued

Source: 1402240-02RE1

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	2.97800	1.0	2.50000	ND	119	80 - 120			
Chloride	115.948	10	2.50000	115.714	9.36	80 - 120			M1
Nitrate, as N	8.20600	2.0	2.50000	5.95600	90.0	80 - 120			
Nitrite, as N	3.99400	2.0	2.50000	ND	160	80 - 120			M1
ortho-Phosphate, as P	2.59400	1.0	2.50000	ND	104	80 - 120			
Sulfate	154.264	20	5.00000	148.794	109	80 - 120			

Matrix Spike Dup (B4H0026-MSD1)

Source: 1402240-02

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	4.83010	0.05	2.50000	ND	193	80 - 120	11.9	20	M1
Chloride	154.503	0.50	2.50000	155.957	-58.1	80 - 120	0.618	20	M1, E
Nitrate, as N	7.86460	0.10	2.50000	5.39000	99.0	80 - 120	7.28	20	
Nitrite, as N	4.33960	0.10	2.50000	ND	174	80 - 120	13.9	20	M1
ortho-Phosphate, as P	0.455800	0.05	2.50000	ND	18.2	80 - 120	2.02	20	M1
Sulfate	192.288	1.0	5.00000	184.463	157	80 - 120	0.750	20	M1, E

Matrix Spike Dup (B4H0026-MSD2)

Source: 1402240-02RE1

Prepared: 8/1/2014 Analyzed: 8/1/2014

Bromide	2.55200	1.0	2.50000	ND	102	80 - 120	15.4	20	
Chloride	115.780	10	2.50000	115.714	2.64	80 - 120	0.145	20	M1
Nitrate, as N	7.98400	2.0	2.50000	5.95600	81.1	80 - 120	2.74	20	
Nitrite, as N	4.15400	2.0	2.50000	ND	166	80 - 120	3.93	20	M1
ortho-Phosphate, as P	2.66800	1.0	2.50000	ND	107	80 - 120	2.81	20	
Sulfate	151.908	20	5.00000	148.794	62.3	80 - 120	1.54	20	M1



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

UV Absorption by EPA 415.3 - Quality Control

Analyte	Result (1/cm)	PQL (1/cm)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0016 - No_Prep_II_W

Blank (B4H0016-BLK1)

Prepared: 8/1/2014 Analyzed: 8/1/2014

UV Absorption

ND

0.01

NR

Duplicate (B4H0016-DUP1)

Source: 1402240-06

Prepared: 8/1/2014 Analyzed: 8/1/2014

UV Absorption

0.0107

0.01

0.0103

NR

3.81

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Alkalinity, Total by SM 2320B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0045 - No_Prep_WC_1

Blank (B4H0045-BLK1)

Prepared: 8/5/2014 Analyzed: 8/5/2014

Alkalinity, Total (as CaCO3)

ND

5.0

NR

LCS (B4H0045-BS1)

Prepared: 8/5/2014 Analyzed: 8/5/2014

Alkalinity, Total (as CaCO3)

100.790

5.0

99.9580

101

80 - 120

Duplicate (B4H0045-DUP1)

Source: 1402240-02

Prepared: 8/5/2014 Analyzed: 8/5/2014

Alkalinity, Total (as CaCO3)

234.190

5.0

99.9580

235.180

NR

80 - 120

0.422

20

Matrix Spike (B4H0045-MS1)

Source: 1402240-02

Prepared: 8/5/2014 Analyzed: 8/5/2014

Alkalinity, Total (as CaCO3)

339.920

5.0

99.9580

235.180

105

80 - 120

Matrix Spike Dup (B4H0045-MSD1)

Source: 1402240-02

Prepared: 8/5/2014 Analyzed: 8/5/2014

Alkalinity, Total (as CaCO3)

340.910

5.0

99.9580

235.180

106

80 - 120

0.291

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Total Organic Carbon by SM 5310B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0058 - No_Prep_II_W

Blank (B4H0058-BLK1)

Prepared: 8/5/2014 Analyzed: 8/5/2014

Organic Carbon, Total

ND

3.0

NR

LCS (B4H0058-BS1)

Prepared: 8/5/2014 Analyzed: 8/5/2014

Organic Carbon, Total

22.3500

3.0

20.0000

112

80 - 120

LCS Dup (B4H0058-BSD1)

Prepared: 8/5/2014 Analyzed: 8/5/2014

Organic Carbon, Total

21.9500

3.0

20.0000

110

80 - 120

1.81

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Chemical Oxygen Demand by EPA 410.4 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0019 - Prep_WC_1_W

Blank (B4H0019-BLK1)

Prepared: 8/4/2014 Analyzed: 8/5/2014

Chemical Oxygen Demand

ND

5.0

NR

LCS (B4H0019-BS1)

Prepared: 8/4/2014 Analyzed: 8/5/2014

Chemical Oxygen Demand

495.351

5.0

501.500

98.8

80 - 120

Matrix Spike (B4H0019-MS1)

Source: 1402224-01

Prepared: 8/4/2014 Analyzed: 8/5/2014

Chemical Oxygen Demand

548.351

5.0

501.500

98.0220

89.8

80 - 120

Matrix Spike Dup (B4H0019-MSD1)

Source: 1402224-01

Prepared: 8/4/2014 Analyzed: 8/5/2014

Chemical Oxygen Demand

529.674

5.0

501.500

98.0220

86.1

80 - 120

3.47

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Dissolved Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0024 - EPA 3010A

Blank (B4H0024-BLK1)

Prepared: 8/4/2014 Analyzed: 8/5/2014

Calcium	ND	0.50			NR				
Iron	ND	0.50			NR				
Magnesium	ND	0.10			NR				
Manganese	ND	0.50			NR				
Sodium	ND	1.0			NR				

LCS (B4H0024-BS1)

Prepared: 8/4/2014 Analyzed: 8/5/2014

Calcium	19.4457	0.50	20.0000		97.2	80 - 120			
Iron	19.8005	0.50	20.0000		99.0	80 - 120			
Magnesium	20.0902	0.10	20.0000		100	80 - 120			
Manganese	9.79757	0.50	10.0000		98.0	80 - 120			
Sodium	20.1200	1.0	20.0000		101	80 - 120			

Matrix Spike (B4H0024-MS1)

Source: 1402240-02

Prepared: 8/4/2014 Analyzed: 8/5/2014

Calcium	122.100	0.50	20.0000	105.745	81.8	31 - 175			
Iron	18.6529	0.50	20.0000	0.108417	92.7	69 - 135			
Magnesium	49.2760	0.10	20.0000	31.6916	87.9	58 - 148			
Manganese	9.03515	0.50	10.0000	0.025259	90.1	77 - 120			
Sodium	100.722	1.0	20.0000	83.3889	86.7	25 - 192			

Matrix Spike Dup (B4H0024-MSD1)

Source: 1402240-02

Prepared: 8/4/2014 Analyzed: 8/5/2014

Calcium	119.892	0.50	20.0000	105.745	70.7	31 - 175	1.83	20	
Iron	19.0660	0.50	20.0000	0.108417	94.8	69 - 135	2.19	20	
Magnesium	48.8554	0.10	20.0000	31.6916	85.8	58 - 148	0.857	20	
Manganese	9.22716	0.50	10.0000	0.025259	92.0	77 - 120	2.10	20	
Sodium	99.4116	1.0	20.0000	83.3889	80.1	25 - 192	1.31	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0015 - GCSEMI_ALCOHOLS

Blank (B4H0015-BLK1)

Prepared: 8/4/2014 Analyzed: 8/4/2014

Isopropyl Alcohol

ND

1.0

NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Alcohols by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0015 - GCSEMI_ALCOHOLS (continued)

LCS (B4H0015-BS1)

Prepared: 8/4/2014 Analyzed: 8/4/2014

Isopropyl Alcohol	407.786	1.0	500.000	81.6	70 - 130



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Alcohols by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0015 - GCSEMI_ALCOHOLS (continued)

Matrix Spike (B4H0015-MS1)

Source: 1402240-03

Prepared: 8/4/2014 Analyzed: 8/4/2014

Isopropyl Alcohol	189.179	1.0	200.000	ND	94.6	70 - 130



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Alcohols by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0015 - GCSEMI_ALCOHOLS (continued)

Matrix Spike Dup (B4H0015-MSD1)

Source: 1402240-03

Prepared: 8/4/2014 Analyzed: 8/4/2014

Isopropyl Alcohol	175.072	1.0	200.000	ND	87.5	70 - 130	7.75	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0014 - MSVOAW_LL

Blank (B4H0014-BLK1)

Prepared: 8/4/2014 Analyzed: 8/4/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0014 - MSVOAW_LL (continued)

Blank (B4H0014-BLK1) - Continued

Prepared: 8/4/2014 Analyzed: 8/4/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	57.71		50.0000		115	64 - 146			
Surrogate: 4-Bromofluorobenzene	52.67		50.0000		105	60 - 128			
Surrogate: Dibromofluoromethane	53.69		50.0000		107	72 - 141			
Surrogate: Toluene-d8	44.00		50.0000		88.0	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0014 - MSVOAW_LL (continued)

LCS (B4H0014-BS1)

Prepared: 8/4/2014 Analyzed: 8/4/2014

1,1-Dichloroethene	7.54000		10.0000		75.4	56 - 131
Benzene	8.96000		10.0000		89.6	69 - 139
Chlorobenzene	8.92000		10.0000		89.2	73 - 127
MTBE	9.59000		10.0000		95.9	68 - 133
Toluene	7.81000		10.0000		78.1	62 - 133
Trichloroethene	7.74000		10.0000		77.4	72 - 139

Surrogate: 1,2-Dichloroethane-d4	57.89		50.0000		116	64 - 146
Surrogate: 4-Bromofluorobenzene	53.69		50.0000		107	60 - 128
Surrogate: Dibromofluoromethane	53.91		50.0000		108	72 - 141
Surrogate: Toluene-d8	45.47		50.0000		90.9	61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0014 - MSVOAW_LL (continued)

LCS Dup (B4H0014-BSD1)

Prepared: 8/4/2014 Analyzed: 8/4/2014

1,1-Dichloroethene	8.17000		10.0000		81.7	56 - 131	8.02	20	
Benzene	9.00000		10.0000		90.0	69 - 139	0.445	20	
Chlorobenzene	8.82000		10.0000		88.2	73 - 127	1.13	20	
MTBE	9.17000		10.0000		91.7	68 - 133	4.48	20	
Toluene	7.83000		10.0000		78.3	62 - 133	0.256	20	
Trichloroethene	7.90000		10.0000		79.0	72 - 139	2.05	20	

Surrogate: 1,2-Dichloroethane-d4 58.92 50.0000 118 64 - 146

Surrogate: 4-Bromofluorobenzene 53.84 50.0000 108 60 - 128

Surrogate: Dibromofluoromethane 54.23 50.0000 108 72 - 141

Surrogate: Toluene-d8 45.71 50.0000 91.4 61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0091 - MSSEMI_ISOTOPEDILN

Blank (B4H0091-BLK2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	2.0		NR					
Surrogate: 1,2-Dichlorobenzene-d4	66.91		100.000	66.9		42 - 106			
Surrogate: 2-Fluorobiphenyl	77.18		100.000	77.2		55 - 117			
Surrogate: 4-Terphenyl-d14	91.21		100.000	91.2		52 - 142			
Surrogate: Nitrobenzene-d5	67.78		100.000	67.8		43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

1,4-Dioxane by EPA 8270: Isotope Dilution Technique - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0091 - MSSEMI_ISOTOPEDILN (continued)

LCS (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	102.160	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	69.50		100.000		69.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.99		100.000		79.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.79		100.000		89.8	52 - 142			
Surrogate: Nitrobenzene-d5	80.29		100.000		80.3	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

1,4-Dioxane by EPA 8270: Isotope Dilution Technique - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0091 - MSSEMI_ISOTOPEDILN (continued)

LCS Dup (B4H0091-BSD2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	106.320	2.0	100.000		106	62 - 127	3.99	20	
Surrogate: 1,2-Dichlorobenzene-d4	64.88		100.000		64.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.96		100.000		77.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.50		100.000		89.5	52 - 142			
Surrogate: Nitrobenzene-d5	73.54		100.000		73.5	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0090 - MSSEMI_ISOTOPEDILN

Blank (B4H0090-BLK1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	0.20		NR					
Surrogate: 1,2-Dichlorobenzene-d4	0.6800		1.00000	68.0		47 - 117			
Surrogate: 2-Fluorobiphenyl	0.8005		1.00000	80.0		48 - 121			
Surrogate: 4-Terphenyl-d14	0.8760		1.00000	87.6		58 - 142			
Surrogate: Nitrobenzene-d5	0.7511		1.00000	75.1		27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0090 - MSSEMI_ISOTOPEDILN (continued)

LCS (B4H0090-BS1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	0.960240	0.20	1.00000		96.0	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.6680		1.00000		66.8	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7726		1.00000		77.3	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8886		1.00000		88.9	58 - 142			
Surrogate: Nitrobenzene-d5	0.8064		1.00000		80.6	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

1,4-Dioxane by EPA 8270/SIM: Isotope Dilution Technique - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0090 - MSSEMI_ISOTOPEDILN (continued)

LCS Dup (B4H0090-BSD1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	1.03604	0.20	1.00000		104	58 - 151	7.59	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6512		1.00000		65.1	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7760		1.00000		77.6	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8800		1.00000		88.0	58 - 142			
Surrogate: Nitrobenzene-d5	0.7045		1.00000		70.4	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysis confirms low recovery caused by matrix effects.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
E	Result value above quantitation range.
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.

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402240-03 / POX	1.1

Method Blank	ND

Detection Limit	0.3

Date Analyzed:	08-19-14

Quality Control Summary

Sample ID:	ATL Lab#: 1402240-03 / POX

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402240

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arada (Rachelle@atiglobal.com)

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC08730- STANDARD TAT *RA*

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402240-03 / POX 317.0 SUB [Bromate] 1-Poly Unpres - 125mL	08/15/14 17:00	Groundwater 08/02/14 10:02	08/01/14 10:02	

Released By	ASMER MANUPATAS	Date	8/4/14	Received By	<i>Ehl Rattig</i>	Date	8-4-14	9:30
Released By	<i>Ehl Rattig</i>	Date	8-4-14	Received By	<i>A-H</i>	Date	08-04-14	P1:09



DATE 8/1/14 PAGE 1 OF 2

[illegible]



DATE 8/1/14 PAGE 2 OF 2

PROJECT NAME		PROJECT No./TASK No.		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION	
Raytheon Main		532.20										Advanced Technology Laboratories	
PROJECT MANAGER Steve Netto		Phone No. (858) 455-6500										3275 Walnut Ave	
QA MANAGER Marcos Rodriguez		Fax No. (858) 455-6533										Signal Hill, Ca 90755	
SAMPLER (SIGNATURE)		SAMPLER (PRINTED)										Attn: Rachelle Arada	
LAB ID		SAMPLE ID		SAMPLE COLLECTION		MATRIX		PRESERVATION				REMARKS	
				Date Time		Soil Ground-water Surface water Lab H2O HCl HNO3 NaOH H2SO4 Ice		250 mL Glass 500 mL HDPE 125 mL HDPE		EPA 300 Anions EPA 300 Bromide EPA 415.3 UV Absorption		Lab Filtered	
	INF	8/1/14	9:48	X									Please include
	PF			X									mrodriguez@hargis.com
	PF		9:59	X									on lab report
													distribution list.
													Anions include:
													[Chloride, Sulfate,
													Nitrate, Nitrite,
													and Phosphate]
													by EPA 300
Total number of Containers per analysis:										Total No. of Containers: 25			
Relinquished by: Kevin Fong		Date: 8/1/14		Received by: [Signature]		Date: 8-1-14		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.					
Company: H&A		Time: 11:35		Company: ATL		Time: 11:35							
Relinquished by: [Signature]		Date: 8-1-14		Received by: [Signature]		Date: 8/1/14		Sample Receipt: ☐ No. of containers correct ☐ custody seals secure					
Company: ATL		Time: 12:45		Company: [Signature]		Time: 12:45							
Temp. @ receipt _____ °C ☐ received good condition/cold ☐ conforms to COC document								Shipment Method: <u>Courier</u> Send Results to: <u>Steve Netto</u> ☒ 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					

Carmen Aguila

From: Kevin Fong [KFONG@HARGIS.COM]
Sent: Friday, August 01, 2014 2:18 PM
To: Carmen Aguila
Subject: RE: Raytheon Main, 532.20
Attachments: image001.jpg

Yes it's ok

Kevin

Sent on the new Sprint Network from my Samsung Galaxy S®4.

----- Original message -----

From: Carmen Aguila
Date: 08/01/2014 2:06 PM (GMT-08:00)
To: Kevin Fong
Cc: Marcos Rodriguez , Rachelle Arada
Subject: Raytheon Main, 532.20

Hi Kevin,

As discussed, it's okay not to include/report IPA for TB-08012014 since we only received 1 vial for this sample.

Please reply to acknowledge.

Thank you,

Carmen Aguila

Sample Control

[cid:image001.jpg@01CFAD90.91533900]Advanced Technology Laboratories

www.atlglobal.com<<http://www.atlglobal.com>>

Tel: (562) 989-4045 ext. 245

Fax: (562) 989-4040

Advanced Technology Laboratories is a full-service environmental lab providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. ATL is accredited by the State of California, NELAP and State of Oregon (Air) and holds various SBE, DBE and MBE certificates and a USDA soil permit. ATL takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates. Advanced Technology Labs - Your Partner for Quality Environmental Testing This message is intended for the use of the individual or entity to which it is addressed. This may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and delete the original message. Thank you.

August 22, 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 : 1402253
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 04, 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

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08042014	1402253-01	Lab H2O	8/04/14 8:00	8/04/14 11:55
INF	1402253-02	Groundwater	8/04/14 8:33	8/04/14 11:55
POX	1402253-03	Groundwater	8/04/14 8:43	8/04/14 11:55
CBT	1402253-04	Groundwater	8/04/14 9:00	8/04/14 11:55
CEFF	1402253-05	Groundwater	8/04/14 9:08	8/04/14 11:55

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID TB-08042014

Lab ID: 1402253-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,1,1-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,1,2-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,1-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,1-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,1-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2,3-Trichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2-Dibromoethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,3-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,3-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
1,4-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
2,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
2-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
4-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
4-Isopropyltoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Benzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Bromobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Bromodichloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Bromoform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Bromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Carbon tetrachloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Chlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Chloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Chloroform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Chloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Dibromochloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID TB-08042014

Lab ID: 1402253-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Dichlorodifluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Ethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Hexachlorobutadiene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Isopropylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
m,p-Xylene	ND	1.0	1	B4H0057	08/06/2014	08/06/14 12:49	
Methylene chloride	ND	1.0	1	B4H0057	08/06/2014	08/06/14 12:49	
MTBE	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
n-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
n-Propylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Naphthalene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
o-Xylene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
sec-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Styrene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
tert-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Tetrachloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Toluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Trichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Trichlorofluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Vinyl chloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 12:49	
Surrogate: 1,2-Dichloroethane-d4	124 %	64 - 146		B4H0057	08/06/2014	08/06/14 12:49	
Surrogate: 4-Bromofluorobenzene	109 %	60 - 128		B4H0057	08/06/2014	08/06/14 12:49	
Surrogate: Dibromofluoromethane	113 %	72 - 141		B4H0057	08/06/2014	08/06/14 12:49	
Surrogate: Toluene-d8	90.9 %	61 - 124		B4H0057	08/06/2014	08/06/14 12:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402253-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 12:35	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,1,1-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,1,2-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,1-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,1-Dichloroethene	30	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,1-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2,3-Trichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2-Dibromoethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,3-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,3-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
1,4-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
2,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
2-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
4-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
4-Isopropyltoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Benzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Bromobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Bromodichloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Bromoform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Bromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Carbon tetrachloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Chlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402253-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Chloroform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Chloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Dibromochloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Dibromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Dichlorodifluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Ethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Hexachlorobutadiene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Isopropylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
m,p-Xylene	ND	1.0	1	B4H0057	08/06/2014	08/06/14 14:41	
Methylene chloride	ND	1.0	1	B4H0057	08/06/2014	08/06/14 14:41	
MTBE	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
n-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
n-Propylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Naphthalene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
o-Xylene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
sec-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Styrene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
tert-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Tetrachloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Toluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Trichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Trichlorofluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Vinyl chloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:41	
Surrogate: 1,2-Dichloroethane-d4	108 %	64 - 146		B4H0057	08/06/2014	08/06/14 14:41	
Surrogate: 4-Bromofluorobenzene	98.5 %	60 - 128		B4H0057	08/06/2014	08/06/14 14:41	
Surrogate: Dibromofluoromethane	100 %	72 - 141		B4H0057	08/06/2014	08/06/14 14:41	
Surrogate: Toluene-d8	80.0 %	61 - 124		B4H0057	08/06/2014	08/06/14 14:41	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402253-02

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	12	2.0	1	B4H0091	08/07/2014	08/13/14 15:51	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>44.2 %</i>	<i>42 - 106</i>		B4H0091	08/07/2014	<i>08/13/14 15:51</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>48.7 %</i>	<i>55 - 117</i>		B4H0091	08/07/2014	<i>08/13/14 15:51</i>	S2
<i>Surrogate: 4-Terphenyl-d14</i>	<i>79.9 %</i>	<i>52 - 142</i>		B4H0091	08/07/2014	<i>08/13/14 15:51</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>48.1 %</i>	<i>43 - 116</i>		B4H0091	08/07/2014	<i>08/13/14 15:51</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402253-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 12:49	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,1,1-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,1,2-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,1-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,1-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,1-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2,3-Trichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2-Dibromoethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,3-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,3-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
1,4-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
2,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
2-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
4-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
4-Isopropyltoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Benzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Bromobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Bromodichloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Bromoform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Bromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Carbon tetrachloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Chlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402253-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Chloroform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Chloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Dibromochloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Dibromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Dichlorodifluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Ethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Hexachlorobutadiene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Isopropylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
m,p-Xylene	ND	1.0	1	B4H0057	08/06/2014	08/06/14 14:18	
Methylene chloride	ND	1.0	1	B4H0057	08/06/2014	08/06/14 14:18	
MTBE	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
n-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
n-Propylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Naphthalene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
o-Xylene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
sec-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Styrene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
tert-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Tetrachloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Toluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Trichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Trichlorofluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Vinyl chloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 14:18	
Surrogate: 1,2-Dichloroethane-d4	121 %	64 - 146		B4H0057	08/06/2014	08/06/14 14:18	
Surrogate: 4-Bromofluorobenzene	108 %	60 - 128		B4H0057	08/06/2014	08/06/14 14:18	
Surrogate: Dibromofluoromethane	110 %	72 - 141		B4H0057	08/06/2014	08/06/14 14:18	
Surrogate: Toluene-d8	87.3 %	61 - 124		B4H0057	08/06/2014	08/06/14 14:18	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402253-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.2	0.20	1	B4H0090	08/07/2014	08/13/14 13:02	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>65.1 %</i>	<i>47 - 117</i>		B4H0090	08/07/2014	<i>08/13/14 13:02</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>86.3 %</i>	<i>48 - 121</i>		B4H0090	08/07/2014	<i>08/13/14 13:02</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>89.9 %</i>	<i>58 - 142</i>		B4H0090	08/07/2014	<i>08/13/14 13:02</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>71.3 %</i>	<i>27 - 151</i>		B4H0090	08/07/2014	<i>08/13/14 13:02</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CBT

Lab ID: 1402253-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 13:04	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,1,1-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,1,2-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,1-Dichloroethane	0.59	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,1-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,1-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2,3-Trichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2-Dibromoethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,3-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,3-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
1,4-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
2,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
2-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
4-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
4-Isopropyltoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Benzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Bromobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Bromodichloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Bromoform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Bromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Carbon tetrachloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Chlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CBT

Lab ID: 1402253-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Chloroform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Chloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Dibromochloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Dibromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Dichlorodifluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Ethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Hexachlorobutadiene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Isopropylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
m,p-Xylene	ND	1.0	1	B4H0057	08/06/2014	08/06/14 13:56	
Methylene chloride	ND	1.0	1	B4H0057	08/06/2014	08/06/14 13:56	
MTBE	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
n-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
n-Propylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Naphthalene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
o-Xylene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
sec-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Styrene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
tert-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Tetrachloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Toluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Trichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Trichlorofluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Vinyl chloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:56	
Surrogate: 1,2-Dichloroethane-d4	121 %	64 - 146		B4H0057	08/06/2014	08/06/14 13:56	
Surrogate: 4-Bromofluorobenzene	108 %	60 - 128		B4H0057	08/06/2014	08/06/14 13:56	
Surrogate: Dibromofluoromethane	112 %	72 - 141		B4H0057	08/06/2014	08/06/14 13:56	
Surrogate: Toluene-d8	87.7 %	61 - 124		B4H0057	08/06/2014	08/06/14 13:56	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CEFF

Lab ID: 1402253-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 13:18	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,1,1-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,1,2-Trichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,1-Dichloroethane	0.70	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,1-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,1-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2,3-Trichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2-Dibromoethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2-Dichloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,3-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,3-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
1,4-Dichlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
2,2-Dichloropropane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
2-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
4-Chlorotoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
4-Isopropyltoluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Benzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Bromobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Bromodichloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Bromoform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Bromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Carbon tetrachloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Chlorobenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CEFF

Lab ID: 1402253-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Chloroform	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Chloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Dibromochloromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Dibromomethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Dichlorodifluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Ethylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Hexachlorobutadiene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Isopropylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
m,p-Xylene	ND	1.0	1	B4H0057	08/06/2014	08/06/14 13:11	
Methylene chloride	ND	1.0	1	B4H0057	08/06/2014	08/06/14 13:11	
MTBE	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
n-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
n-Propylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Naphthalene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
o-Xylene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
sec-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Styrene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
tert-Butylbenzene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Tetrachloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Toluene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Trichloroethene	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Trichlorofluoromethane	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Vinyl chloride	ND	0.50	1	B4H0057	08/06/2014	08/06/14 13:11	
Surrogate: 1,2-Dichloroethane-d4	131 %	64 - 146		B4H0057	08/06/2014	08/06/14 13:11	
Surrogate: 4-Bromofluorobenzene	117 %	60 - 128		B4H0057	08/06/2014	08/06/14 13:11	
Surrogate: Dibromofluoromethane	119 %	72 - 141		B4H0057	08/06/2014	08/06/14 13:11	
Surrogate: Toluene-d8	94.2 %	61 - 124		B4H0057	08/06/2014	08/06/14 13:11	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0113 - GCSEMI_ALCOHOLS

Blank (B4H0113-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0113-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

478.020

1.0

500.000

95.6

70 - 130

Matrix Spike (B4H0113-MS1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

244.166

1.0

200.000

ND

122

70 - 130

Matrix Spike Dup (B4H0113-MSD1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

253.410

1.0

200.000

ND

127

70 - 130

3.72

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0057 - MSVOAW_LL

Blank (B4H0057-BLK1)

Prepared: 8/6/2014 Analyzed: 8/6/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0057 - MSVOAW_LL (continued)

Blank (B4H0057-BLK1) - Continued

Prepared: 8/6/2014 Analyzed: 8/6/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	66.08		50.0000		132	64 - 146			
Surrogate: 4-Bromofluorobenzene	60.51		50.0000		121	60 - 128			
Surrogate: Dibromofluoromethane	61.68		50.0000		123	72 - 141			
Surrogate: Toluene-d8	50.19		50.0000		100	61 - 124			

LCS (B4H0057-BS1)

Prepared: 8/6/2014 Analyzed: 8/6/2014

1,1-Dichloroethene	8.15000		10.0000		81.5	56 - 131			
Benzene	9.41000		10.0000		94.1	69 - 139			
Chlorobenzene	9.05000		10.0000		90.5	73 - 127			
MTBE	9.60000		10.0000		96.0	68 - 133			
Toluene	7.72000		10.0000		77.2	62 - 133			
Trichloroethene	8.04000		10.0000		80.4	72 - 139			

Surrogate: 1,2-Dichloroethane-d4	61.41		50.0000		123	64 - 146			
Surrogate: 4-Bromofluorobenzene	54.94		50.0000		110	60 - 128			
Surrogate: Dibromofluoromethane	57.63		50.0000		115	72 - 141			
Surrogate: Toluene-d8	46.23		50.0000		92.5	61 - 124			

LCS Dup (B4H0057-BSD1)

Prepared: 8/6/2014 Analyzed: 8/6/2014

1,1-Dichloroethene	9.04000		10.0000		90.4	56 - 131	10.4	20	
Benzene	10.0500		10.0000		100	69 - 139	6.58	20	
Chlorobenzene	9.65000		10.0000		96.5	73 - 127	6.42	20	
MTBE	10.3600		10.0000		104	68 - 133	7.62	20	
Toluene	8.36000		10.0000		83.6	62 - 133	7.96	20	
Trichloroethene	8.80000		10.0000		88.0	72 - 139	9.03	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0057 - MSVOAW_LL (continued)

LCS Dup (B4H0057-BSD1) - Continued

Prepared: 8/6/2014 Analyzed: 8/6/2014

Surrogate: 1,2-Dichloroethane-d4	63.27		50.0000		127	64 - 146			
Surrogate: 4-Bromofluorobenzene	56.13		50.0000		112	60 - 128			
Surrogate: Dibromofluoromethane	57.84		50.0000		116	72 - 141			
Surrogate: Toluene-d8	47.30		50.0000		94.6	61 - 124			

Duplicate (B4H0057-DUP1)

Source: 1402253-05

Prepared: 8/6/2014 Analyzed: 8/6/2014

1,1-Dichloroethene	ND	0.50		ND	NR			20	
Benzene	ND	0.50		ND	NR			20	
Chlorobenzene	ND	0.50		ND	NR			20	
MTBE	ND	0.50		ND	NR			20	
Toluene	ND	0.50		ND	NR			20	
Trichloroethene	ND	0.50		ND	NR			20	

Surrogate: 1,2-Dichloroethane-d4	59.75		50.0000		120	64 - 146			
Surrogate: 4-Bromofluorobenzene	54.27		50.0000		109	60 - 128			
Surrogate: Dibromofluoromethane	55.20		50.0000		110	72 - 141			
Surrogate: Toluene-d8	44.48		50.0000		89.0	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0091 - MSSEMI_ISOTOPEDILN

Blank (B4H0091-BLK2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	66.91		100.000		66.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	77.18		100.000		77.2	55 - 117			
Surrogate: 4-Terphenyl-d14	91.21		100.000		91.2	52 - 142			
Surrogate: Nitrobenzene-d5	67.78		100.000		67.8	43 - 116			

LCS (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	102.160	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	69.50		100.000		69.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.99		100.000		79.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.79		100.000		89.8	52 - 142			
Surrogate: Nitrobenzene-d5	80.29		100.000		80.3	43 - 116			

LCS Dup (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	106.320	2.0	100.000		106	62 - 127	3.99	20	
Surrogate: 1,2-Dichlorobenzene-d4	64.88		100.000		64.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.96		100.000		77.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.50		100.000		89.5	52 - 142			
Surrogate: Nitrobenzene-d5	73.54		100.000		73.5	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0090 - MSSEMI_ISOTOPEDILN

Blank (B4H0090-BLK1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	0.20		NR					
Surrogate: 1,2-Dichlorobenzene-d4	0.6800		1.00000	68.0	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.8005		1.00000	80.0	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8760		1.00000	87.6	58 - 142				
Surrogate: Nitrobenzene-d5	0.7511		1.00000	75.1	27 - 151				

LCS (B4H0090-BS1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	0.960240	0.20	1.00000	96.0	58 - 151				
Surrogate: 1,2-Dichlorobenzene-d4	0.6680		1.00000	66.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.7726		1.00000	77.3	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8886		1.00000	88.9	58 - 142				
Surrogate: Nitrobenzene-d5	0.8064		1.00000	80.6	27 - 151				

LCS Dup (B4H0090-BSD1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	1.03604	0.20	1.00000	104	58 - 151	7.59	20		
Surrogate: 1,2-Dichlorobenzene-d4	0.6512		1.00000	65.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.7760		1.00000	77.6	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8800		1.00000	88.0	58 - 142				
Surrogate: Nitrobenzene-d5	0.7045		1.00000	70.4	27 - 151				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysis confirms 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.

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402253-03 / POX	1.0

Method Blank	ND

Detection Limit	0.3

Date Analyzed:	08-19-14

Quality Control Summary

Sample ID:	Batch QC

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402253

SENDING LABORATORY:

Advanced Technology Laboratories
 3275 Walnut Avenue
 Signal Hill, CA 90755
 Phone: 562.989.4045
 Fax: 562.989.6348
 Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.
 9240 Santa Fe Springs Road
 Santa Fe Springs, CA 90670
 Phone : (562) 948-2225
 Fax: (562) 948-5850
 PO#: SC08732- STANDARD TAT

(RA)

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402253-03 / POX 317.0 SUB [Bromate] 1-Poly Unpres - 125mL	08/18/14 17:00	Groundwater 08/05/14 08:43	08/04/14 08:43	

Released By <u>Edna M. Mancabans</u>	Date <u>8/5/14</u>	Received By <u>Edna M. Mancabans</u>	Date <u>8-5-14</u>	<u>9:28</u>
Released By <u>[Signature]</u>	Date <u>8-5-14</u>	Received By <u>[Signature]</u>	Date <u>08-05-14</u>	<u>2:28 pm</u>

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/4/14 PAGE 1 OF 1

PROJECT NAME Raytheon Main		PROJECT No./TASK No. 532.20		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION				
PROJECT MANAGER Steve Netto		Phone No. (858) 455-6500		40 mL VOA 1 L Amber 125 mL HDPE EPA 8260B VOCs EPA 8270C (MS) 1,4-Dioxane EPA 8270C (SIM) 1,4-Dioxane EPA 317 Bromate		0-10 10-100 100-1,000 1,000-10,000 >10,000 Lab Filtered		0-10 10-100 100-1,000 1,000-10,000 >10,000 Lab Filtered		Advanced Technology Laboratories 3275 Walnut Ave Signal Hill, CA 90755 Attn: Rachelle Arada						
QA MANAGER Marcos Rodriguez		Fax No. (858) 455-6533														
SAMPLER (SIGNATURE) <i>Kevin Fong</i>		SAMPLER (PRINTED) Kevin Fong														
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX		PRESERVATION										
		Date	Time	Soil	Ground water	Surface water	Lab H2O	HCl	HNO3	NaOH	H2SO4	Ice				
1402253 - 1	TB-08042014	8/4/14	8:00				X	X				X				
- 2	INF		8:23	X			X	X				X				
- 3	POX		8:43	X			X	X				X				
- 4	CBT		9:00	X			X	X				X				
- 5	CEFF		9:08	X			X	X				X				
Total number of Containers per analysis:												13	2	1	Total No. of Containers: 16	
Relinquished by: <i>Kevin Fong</i> H + A Company		Date 8/4/14 Time 11:55	Received by: <i>J. Joe Arada</i> ATL Company		Date 8/4/14 Time 11:55	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.						Shipment Method: _____ Send Results to: <u>Steve Netto</u> ☒ 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				
Relinquished by: <i>J. Joe Arada</i> ATL Company		Date 8/4/14 Time 12:30	Received by: <i>J. Joe Arada</i> ATL Company		Date 8/4/14 Time 12:30							Sample Receipt: ☒ No. of containers correct ☐ custody seals secure Temp. @ receipt <u>1.2</u> °C ☒ received good condition/cold ☒ conforms to COC document				Send invoice to San Diego, CA Attn: Accounts Payable



August 22, 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 : 1402266
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 05, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08052014	1402266-01	Lab H2O	8/05/14 8:00	8/05/14 11:55
INF	1402266-02	Groundwater	8/05/14 8:15	8/05/14 11:55
POX	1402266-03	Groundwater	8/05/14 8:25	8/05/14 11:55
CBT	1402266-04	Groundwater	8/05/14 8:42	8/05/14 11:55
CEFF	1402266-05	Groundwater	8/05/14 8:50	8/05/14 11:55

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID TB-08052014

Lab ID: 1402266-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,1-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID TB-08052014

Lab ID: 1402266-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 10:10	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 10:10	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 10:10	
Surrogate: 1,2-Dichloroethane-d4	124 %	64 - 146		B4H0088	08/07/2014	08/07/14 10:10	
Surrogate: 4-Bromofluorobenzene	112 %	60 - 128		B4H0088	08/07/2014	08/07/14 10:10	
Surrogate: Dibromofluoromethane	115 %	72 - 141		B4H0088	08/07/2014	08/07/14 10:10	
Surrogate: Toluene-d8	92.6 %	61 - 124		B4H0088	08/07/2014	08/07/14 10:10	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402266-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 13:33	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,1-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,1-Dichloroethene	28	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402266-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 12:42	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 12:42	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:42	
Surrogate: 1,2-Dichloroethane-d4	141 %	64 - 146		B4H0088	08/07/2014	08/07/14 12:42	
Surrogate: 4-Bromofluorobenzene	123 %	60 - 128		B4H0088	08/07/2014	08/07/14 12:42	
Surrogate: Dibromofluoromethane	121 %	72 - 141		B4H0088	08/07/2014	08/07/14 12:42	
Surrogate: Toluene-d8	99.1 %	61 - 124		B4H0088	08/07/2014	08/07/14 12:42	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID INF

Lab ID: 1402266-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	11	2.0	1	B4H0091	08/07/2014	08/14/14 10:58	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>61.0 %</i>	<i>42 - 106</i>		B4H0091	08/07/2014	<i>08/14/14 10:58</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>65.9 %</i>	<i>55 - 117</i>		B4H0091	08/07/2014	<i>08/14/14 10:58</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>90.2 %</i>	<i>52 - 142</i>		B4H0091	08/07/2014	<i>08/14/14 10:58</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>59.3 %</i>	<i>43 - 116</i>		B4H0091	08/07/2014	<i>08/14/14 10:58</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402266-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 13:48	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,1-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402266-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 12:20	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 12:20	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 12:20	
Surrogate: 1,2-Dichloroethane-d4	131 %	64 - 146		B4H0088	08/07/2014	08/07/14 12:20	
Surrogate: 4-Bromofluorobenzene	120 %	60 - 128		B4H0088	08/07/2014	08/07/14 12:20	
Surrogate: Dibromofluoromethane	114 %	72 - 141		B4H0088	08/07/2014	08/07/14 12:20	
Surrogate: Toluene-d8	95.5 %	61 - 124		B4H0088	08/07/2014	08/07/14 12:20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID POX

Lab ID: 1402266-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.80	0.20	1	B4H0090	08/07/2014	08/13/14 13:29	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>62.4 %</i>	<i>47 - 117</i>		B4H0090	08/07/2014	<i>08/13/14 13:29</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>77.1 %</i>	<i>48 - 121</i>		B4H0090	08/07/2014	<i>08/13/14 13:29</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>85.9 %</i>	<i>58 - 142</i>		B4H0090	08/07/2014	<i>08/13/14 13:29</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>69.6 %</i>	<i>27 - 151</i>		B4H0090	08/07/2014	<i>08/13/14 13:29</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CBT

Lab ID: 1402266-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 14:03	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,1-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CBT

Lab ID: 1402266-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 11:57	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 11:57	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:57	
Surrogate: 1,2-Dichloroethane-d4	122 %	64 - 146		B4H0088	08/07/2014	08/07/14 11:57	
Surrogate: 4-Bromofluorobenzene	109 %	60 - 128		B4H0088	08/07/2014	08/07/14 11:57	
Surrogate: Dibromofluoromethane	103 %	72 - 141		B4H0088	08/07/2014	08/07/14 11:57	
Surrogate: Toluene-d8	87.7 %	61 - 124		B4H0088	08/07/2014	08/07/14 11:57	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CEFF

Lab ID: 1402266-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 14:18	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,1-Dichloroethane	0.70	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Client Sample ID CEFF

Lab ID: 1402266-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 11:34	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 11:34	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 11:34	
Surrogate: 1,2-Dichloroethane-d4	138 %	64 - 146		B4H0088	08/07/2014	08/07/14 11:34	
Surrogate: 4-Bromofluorobenzene	122 %	60 - 128		B4H0088	08/07/2014	08/07/14 11:34	
Surrogate: Dibromofluoromethane	117 %	72 - 141		B4H0088	08/07/2014	08/07/14 11:34	
Surrogate: Toluene-d8	97.9 %	61 - 124		B4H0088	08/07/2014	08/07/14 11:34	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0113 - GCSEMI_ALCOHOLS

Blank (B4H0113-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0113-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

478.020

1.0

500.000

95.6

70 - 130

Matrix Spike (B4H0113-MS1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

244.166

1.0

200.000

ND

122

70 - 130

Matrix Spike Dup (B4H0113-MSD1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

253.410

1.0

200.000

ND

127

70 - 130

3.72

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0088 - MSVOAW_LL

Blank (B4H0088-BLK1)

Prepared: 8/7/2014 Analyzed: 8/7/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0088 - MSVOAW_LL (continued)

Blank (B4H0088-BLK1) - Continued

Prepared: 8/7/2014 Analyzed: 8/7/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	54.21		50.0000		108	64 - 146			
Surrogate: 4-Bromofluorobenzene	49.11		50.0000		98.2	60 - 128			
Surrogate: Dibromofluoromethane	50.06		50.0000		100	72 - 141			
Surrogate: Toluene-d8	40.94		50.0000		81.9	61 - 124			

LCS (B4H0088-BS1)

Prepared: 8/7/2014 Analyzed: 8/7/2014

1,1-Dichloroethene	9.16000		10.0000		91.6	56 - 131			
Benzene	10.4400		10.0000		104	69 - 139			
Chlorobenzene	10.2900		10.0000		103	73 - 127			
MTBE	11.0100		10.0000		110	68 - 133			
Toluene	8.59000		10.0000		85.9	62 - 133			
Trichloroethene	9.15000		10.0000		91.5	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	68.88		50.0000		138	64 - 146			
Surrogate: 4-Bromofluorobenzene	61.21		50.0000		122	60 - 128			
Surrogate: Dibromofluoromethane	62.98		50.0000		126	72 - 141			
Surrogate: Toluene-d8	50.37		50.0000		101	61 - 124			

LCS Dup (B4H0088-BSD1)

Prepared: 8/7/2014 Analyzed: 8/7/2014

1,1-Dichloroethene	8.41000		10.0000		84.1	56 - 131	8.54	20	
Benzene	9.45000		10.0000		94.5	69 - 139	9.95	20	
Chlorobenzene	9.18000		10.0000		91.8	73 - 127	11.4	20	
MTBE	9.57000		10.0000		95.7	68 - 133	14.0	20	
Toluene	7.89000		10.0000		78.9	62 - 133	8.50	20	
Trichloroethene	8.43000		10.0000		84.3	72 - 139	8.19	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0088 - MSVOAW_LL (continued)

LCS Dup (B4H0088-BSD1) - Continued

Prepared: 8/7/2014 Analyzed: 8/7/2014

Surrogate: 1,2-Dichloroethane-d4	59.61	50.0000	119	64 - 146
Surrogate: 4-Bromofluorobenzene	53.56	50.0000	107	60 - 128
Surrogate: Dibromofluoromethane	54.25	50.0000	108	72 - 141
Surrogate: Toluene-d8	44.53	50.0000	89.1	61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0091 - MSSEMI_ISOTOPEDILN

Blank (B4H0091-BLK2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	66.91		100.000		66.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	77.18		100.000		77.2	55 - 117			
Surrogate: 4-Terphenyl-d14	91.21		100.000		91.2	52 - 142			
Surrogate: Nitrobenzene-d5	67.78		100.000		67.8	43 - 116			

LCS (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	102.160	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	69.50		100.000		69.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.99		100.000		79.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.79		100.000		89.8	52 - 142			
Surrogate: Nitrobenzene-d5	80.29		100.000		80.3	43 - 116			

LCS Dup (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	106.320	2.0	100.000		106	62 - 127	3.99	20	
Surrogate: 1,2-Dichlorobenzene-d4	64.88		100.000		64.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.96		100.000		77.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.50		100.000		89.5	52 - 142			
Surrogate: Nitrobenzene-d5	73.54		100.000		73.5	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

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 B4H0090 - MSSEMI_ISOTOPEDILN

Blank (B4H0090-BLK1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.6800		1.00000		68.0	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.8005		1.00000		80.0	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8760		1.00000		87.6	58 - 142			
Surrogate: Nitrobenzene-d5	0.7511		1.00000		75.1	27 - 151			

LCS (B4H0090-BS1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	0.960240	0.20	1.00000		96.0	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.6680		1.00000		66.8	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7726		1.00000		77.3	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8886		1.00000		88.9	58 - 142			
Surrogate: Nitrobenzene-d5	0.8064		1.00000		80.6	27 - 151			

LCS Dup (B4H0090-BSD1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	1.03604	0.20	1.00000		104	58 - 151	7.59	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6512		1.00000		65.1	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7760		1.00000		77.6	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8800		1.00000		88.0	58 - 142			
Surrogate: Nitrobenzene-d5	0.7045		1.00000		70.4	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/22/2014

Notes and Definitions

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.

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402266-03 / POX	0.3

Method Blank	ND

Detection Limit	0.3

Date Analyzed:	08-19-14

Quality Control Summary

Sample ID:	Batch QC

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402266

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC08736- STANDARD TAT

(RA)

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402266-03 / POX 317.0 SUB [Bromate] 1-Poly Unpres - 125mL	08/19/14 17:00	Groundwater 08/06/14 08:25	08/05/14 08:25	

Released By	ARON MANHATTAS	Date	8/6/14	Received By	Edi R. Long	Date	8-6-14	9:25
Released By	Edi R. Long	Date	8-6-14 10:27	Received By	ATC	Date	08-06-14	10:27am



DATE 8/5/14 PAGE 1 OF 1

[illegible]



August 25, 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 : 1402281
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 06, 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,

A handwritten signature in black ink, appearing to read 'E Rodriguez', is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08062014	1402281-01	Lab H2O	8/06/14 8:00	8/06/14 10:53
INF	1402281-02	Groundwater	8/06/14 8:50	8/06/14 10:53
POX	1402281-03	Groundwater	8/06/14 9:02	8/06/14 10:53
CBT	1402281-04	Groundwater	8/06/14 9:12	8/06/14 10:53
CEFF	1402281-05	Groundwater	8/06/14 9:20	8/06/14 10:53

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08062014

Lab ID: 1402281-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,1,1-Trichloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,1,2-Trichloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,1-Dichloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,1-Dichloroethene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,1-Dichloropropene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2,3-Trichloropropane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2-Dibromoethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2-Dichlorobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2-Dichloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,2-Dichloropropane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,3-Dichlorobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,3-Dichloropropane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
1,4-Dichlorobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
2,2-Dichloropropane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
2-Chlorotoluene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
4-Chlorotoluene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
4-Isopropyltoluene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Benzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Bromobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Bromodichloromethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Bromoform	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Bromomethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Carbon tetrachloride	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Chlorobenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Chloroethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Chloroform	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Chloromethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Dibromochloromethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08062014

Lab ID: 1402281-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Dichlorodifluoromethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Ethylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Hexachlorobutadiene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Isopropylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
m,p-Xylene	ND	1.0	1	B4H0109	08/08/2014	08/08/14 11:07	
Methylene chloride	ND	1.0	1	B4H0109	08/08/2014	08/08/14 11:07	
MTBE	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
n-Butylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
n-Propylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Naphthalene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
o-Xylene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
sec-Butylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Styrene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
tert-Butylbenzene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Tetrachloroethene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Toluene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Trichloroethene	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Trichlorofluoromethane	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Vinyl chloride	ND	0.50	1	B4H0109	08/08/2014	08/08/14 11:07	
Surrogate: 1,2-Dichloroethane-d4	87.3 %	64 - 146		B4H0109	08/08/2014	08/08/14 11:07	
Surrogate: 4-Bromofluorobenzene	74.1 %	60 - 128		B4H0109	08/08/2014	08/08/14 11:07	
Surrogate: Dibromofluoromethane	74.2 %	72 - 141		B4H0109	08/08/2014	08/08/14 11:07	
Surrogate: Toluene-d8	61.4 %	61 - 124		B4H0109	08/08/2014	08/08/14 11:07	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402281-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 14:33	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,1-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,1-Dichloroethene	28	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402281-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 18:24	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 18:24	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:24	
Surrogate: 1,2-Dichloroethane-d4	115 %	64 - 146		B4H0088	08/07/2014	08/07/14 18:24	
Surrogate: 4-Bromofluorobenzene	104 %	60 - 128		B4H0088	08/07/2014	08/07/14 18:24	
Surrogate: Dibromofluoromethane	101 %	72 - 141		B4H0088	08/07/2014	08/07/14 18:24	
Surrogate: Toluene-d8	83.2 %	61 - 124		B4H0088	08/07/2014	08/07/14 18:24	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402281-02

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	11	2.0	1	B4H0091	08/07/2014	08/13/14 16:46	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	58.8 %	42 - 106		B4H0091	08/07/2014	08/13/14 16:46	
<i>Surrogate: 2-Fluorobiphenyl</i>	68.6 %	55 - 117		B4H0091	08/07/2014	08/13/14 16:46	
<i>Surrogate: 4-Terphenyl-d14</i>	86.0 %	52 - 142		B4H0091	08/07/2014	08/13/14 16:46	
<i>Surrogate: Nitrobenzene-d5</i>	64.4 %	43 - 116		B4H0091	08/07/2014	08/13/14 16:46	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402281-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 14:47	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,1-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402281-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 18:02	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 18:02	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 18:02	
Surrogate: 1,2-Dichloroethane-d4	120 %	64 - 146		B4H0088	08/07/2014	08/07/14 18:02	
Surrogate: 4-Bromofluorobenzene	106 %	60 - 128		B4H0088	08/07/2014	08/07/14 18:02	
Surrogate: Dibromofluoromethane	105 %	72 - 141		B4H0088	08/07/2014	08/07/14 18:02	
Surrogate: Toluene-d8	85.6 %	61 - 124		B4H0088	08/07/2014	08/07/14 18:02	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402281-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.1	0.20	1	B4H0090	08/07/2014	08/13/14 13:56	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>71.9 %</i>	<i>47 - 117</i>		B4H0090	08/07/2014	<i>08/13/14 13:56</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>87.0 %</i>	<i>48 - 121</i>		B4H0090	08/07/2014	<i>08/13/14 13:56</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>97.7 %</i>	<i>58 - 142</i>		B4H0090	08/07/2014	<i>08/13/14 13:56</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.2 %</i>	<i>27 - 151</i>		B4H0090	08/07/2014	<i>08/13/14 13:56</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402281-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 15:02	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,1-Dichloroethane	0.59	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402281-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 17:39	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 17:39	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:39	
Surrogate: 1,2-Dichloroethane-d4	135 %	64 - 146		B4H0088	08/07/2014	08/07/14 17:39	
Surrogate: 4-Bromofluorobenzene	123 %	60 - 128		B4H0088	08/07/2014	08/07/14 17:39	
Surrogate: Dibromofluoromethane	120 %	72 - 141		B4H0088	08/07/2014	08/07/14 17:39	
Surrogate: Toluene-d8	98.6 %	61 - 124		B4H0088	08/07/2014	08/07/14 17:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402281-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 15:17	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,1,1-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,1,2-Trichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,1-Dichloroethane	0.68	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,1-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,1-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2,3-Trichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2-Dibromoethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2-Dichloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,3-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,3-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
1,4-Dichlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
2,2-Dichloropropane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
2-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
4-Chlorotoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
4-Isopropyltoluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Benzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Bromobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Bromodichloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Bromoform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Bromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Carbon tetrachloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Chlorobenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402281-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Chloroform	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Chloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Dibromochloromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Dibromomethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Dichlorodifluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Ethylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Hexachlorobutadiene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Isopropylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
m,p-Xylene	ND	1.0	1	B4H0088	08/07/2014	08/07/14 17:13	
Methylene chloride	ND	1.0	1	B4H0088	08/07/2014	08/07/14 17:13	
MTBE	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
n-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
n-Propylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Naphthalene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
o-Xylene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
sec-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Styrene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
tert-Butylbenzene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Tetrachloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Toluene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Trichloroethene	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Trichlorofluoromethane	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Vinyl chloride	ND	0.50	1	B4H0088	08/07/2014	08/07/14 17:13	
Surrogate: 1,2-Dichloroethane-d4	134 %	64 - 146		B4H0088	08/07/2014	08/07/14 17:13	
Surrogate: 4-Bromofluorobenzene	123 %	60 - 128		B4H0088	08/07/2014	08/07/14 17:13	
Surrogate: Dibromofluoromethane	119 %	72 - 141		B4H0088	08/07/2014	08/07/14 17:13	
Surrogate: Toluene-d8	98.0 %	61 - 124		B4H0088	08/07/2014	08/07/14 17:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0113 - GCSEMI_ALCOHOLS

Blank (B4H0113-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0113-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

478.020

1.0

500.000

95.6

70 - 130

Matrix Spike (B4H0113-MS1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

244.166

1.0

200.000

ND

122

70 - 130

Matrix Spike Dup (B4H0113-MSD1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

253.410

1.0

200.000

ND

127

70 - 130

3.72

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0088 - MSVOAW_LL

Blank (B4H0088-BLK1)

Prepared: 8/7/2014 Analyzed: 8/7/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0088 - MSVOAW_LL (continued)

Blank (B4H0088-BLK1) - Continued

Prepared: 8/7/2014 Analyzed: 8/7/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	54.21		50.0000		108	64 - 146			
Surrogate: 4-Bromofluorobenzene	49.11		50.0000		98.2	60 - 128			
Surrogate: Dibromofluoromethane	50.06		50.0000		100	72 - 141			
Surrogate: Toluene-d8	40.94		50.0000		81.9	61 - 124			

LCS (B4H0088-BS1)

Prepared: 8/7/2014 Analyzed: 8/7/2014

1,1-Dichloroethene	9.16000		10.0000		91.6	56 - 131			
Benzene	10.4400		10.0000		104	69 - 139			
Chlorobenzene	10.2900		10.0000		103	73 - 127			
MTBE	11.0100		10.0000		110	68 - 133			
Toluene	8.59000		10.0000		85.9	62 - 133			
Trichloroethene	9.15000		10.0000		91.5	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	68.88		50.0000		138	64 - 146			
Surrogate: 4-Bromofluorobenzene	61.21		50.0000		122	60 - 128			
Surrogate: Dibromofluoromethane	62.98		50.0000		126	72 - 141			
Surrogate: Toluene-d8	50.37		50.0000		101	61 - 124			

LCS Dup (B4H0088-BSD1)

Prepared: 8/7/2014 Analyzed: 8/7/2014

1,1-Dichloroethene	8.41000		10.0000		84.1	56 - 131	8.54	20	
Benzene	9.45000		10.0000		94.5	69 - 139	9.95	20	
Chlorobenzene	9.18000		10.0000		91.8	73 - 127	11.4	20	
MTBE	9.57000		10.0000		95.7	68 - 133	14.0	20	
Toluene	7.89000		10.0000		78.9	62 - 133	8.50	20	
Trichloroethene	8.43000		10.0000		84.3	72 - 139	8.19	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0088 - MSVOAW_LL (continued)

LCS Dup (B4H0088-BSD1) - Continued

Prepared: 8/7/2014 Analyzed: 8/7/2014

Surrogate: 1,2-Dichloroethane-d4	59.61		50.0000		119	64 - 146			
Surrogate: 4-Bromofluorobenzene	53.56		50.0000		107	60 - 128			
Surrogate: Dibromofluoromethane	54.25		50.0000		108	72 - 141			
Surrogate: Toluene-d8	44.53		50.0000		89.1	61 - 124			

Batch B4H0109 - MSVOAW_LL

Blank (B4H0109-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

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				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0109 - MSVOAW_LL (continued)

Blank (B4H0109-BLK1) - Continued

Prepared: 8/8/2014 Analyzed: 8/8/2014

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				
MTBE	ND	0.50			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	60.03		50.0000		120	64 - 146			
Surrogate: 4-Bromofluorobenzene	55.02		50.0000		110	60 - 128			
Surrogate: Dibromofluoromethane	51.90		50.0000		104	72 - 141			
Surrogate: Toluene-d8	45.31		50.0000		90.6	61 - 124			

LCS (B4H0109-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

1,1-Dichloroethene	6.82000		10.0000		68.2	56 - 131			
Benzene	8.93000		10.0000		89.3	69 - 139			
Chlorobenzene	8.96000		10.0000		89.6	73 - 127			
MTBE	9.62000		10.0000		96.2	68 - 133			
Toluene	7.35000		10.0000		73.5	62 - 133			
Trichloroethene	7.44000		10.0000		74.4	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	61.44		50.0000		123	64 - 146			
Surrogate: 4-Bromofluorobenzene	54.92		50.0000		110	60 - 128			
Surrogate: Dibromofluoromethane	53.29		50.0000		107	72 - 141			
Surrogate: Toluene-d8	45.81		50.0000		91.6	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0109 - MSVOAW_LL (continued)

LCS Dup (B4H0109-BSD1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

1,1-Dichloroethene	7.55000		10.0000		75.5	56 - 131	10.2	20	
Benzene	8.58000		10.0000		85.8	69 - 139	4.00	20	
Chlorobenzene	8.29000		10.0000		82.9	73 - 127	7.77	20	
MTBE	8.83000		10.0000		88.3	68 - 133	8.56	20	
Toluene	7.14000		10.0000		71.4	62 - 133	2.90	20	
Trichloroethene	7.46000		10.0000		74.6	72 - 139	0.268	20	
Surrogate: 1,2-Dichloroethane-d4	61.32		50.0000		123	64 - 146			
Surrogate: 4-Bromofluorobenzene	54.36		50.0000		109	60 - 128			
Surrogate: Dibromofluoromethane	55.29		50.0000		111	72 - 141			
Surrogate: Toluene-d8	46.88		50.0000		93.8	61 - 124			

Duplicate (B4H0109-DUP1)

Source: 1402259-01RE1

Prepared: 8/8/2014 Analyzed: 8/8/2014

1,1-Dichloroethene	ND	0.50		ND	NR			20	
Benzene	ND	0.50		ND	NR			20	
Chlorobenzene	ND	0.50		ND	NR			20	
MTBE	ND	0.50		ND	NR			20	
Toluene	ND	0.50		ND	NR			20	
Trichloroethene	ND	0.50		ND	NR			20	
Surrogate: 1,2-Dichloroethane-d4	59.44		50.0000		119	64 - 146			
Surrogate: 4-Bromofluorobenzene	53.85		50.0000		108	60 - 128			
Surrogate: Dibromofluoromethane	51.76		50.0000		104	72 - 141			
Surrogate: Toluene-d8	44.03		50.0000		88.1	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0091 - MSSEMI_ISOTOPEDILN

Blank (B4H0091-BLK2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	66.91		100.000		66.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	77.18		100.000		77.2	55 - 117			
Surrogate: 4-Terphenyl-d14	91.21		100.000		91.2	52 - 142			
Surrogate: Nitrobenzene-d5	67.78		100.000		67.8	43 - 116			

LCS (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	102.160	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	69.50		100.000		69.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.99		100.000		79.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.79		100.000		89.8	52 - 142			
Surrogate: Nitrobenzene-d5	80.29		100.000		80.3	43 - 116			

LCS Dup (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	106.320	2.0	100.000		106	62 - 127	3.99	20	
Surrogate: 1,2-Dichlorobenzene-d4	64.88		100.000		64.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.96		100.000		77.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.50		100.000		89.5	52 - 142			
Surrogate: Nitrobenzene-d5	73.54		100.000		73.5	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0090 - MSSEMI_ISOTOPEDILN

Blank (B4H0090-BLK1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	0.20		NR					
Surrogate: 1,2-Dichlorobenzene-d4	0.6800		1.00000	68.0	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.8005		1.00000	80.0	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8760		1.00000	87.6	58 - 142				
Surrogate: Nitrobenzene-d5	0.7511		1.00000	75.1	27 - 151				

LCS (B4H0090-BS1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	0.960240	0.20	1.00000	96.0	58 - 151				
Surrogate: 1,2-Dichlorobenzene-d4	0.6680		1.00000	66.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.7726		1.00000	77.3	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8886		1.00000	88.9	58 - 142				
Surrogate: Nitrobenzene-d5	0.8064		1.00000	80.6	27 - 151				

LCS Dup (B4H0090-BSD1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	1.03604	0.20	1.00000	104	58 - 151	7.59	20		
Surrogate: 1,2-Dichlorobenzene-d4	0.6512		1.00000	65.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.7760		1.00000	77.6	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8800		1.00000	88.0	58 - 142				
Surrogate: Nitrobenzene-d5	0.7045		1.00000	70.4	27 - 151				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Notes and Definitions

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.

Testing, calibrating, advising

Certificate of Analysis

August 22, 2014

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Attn: Rachelle Arada

Exova Job No: 159422
Purchase Order: CREDIT CARD
Project Name: 1402281 / Groundwater
Samples Received: One (1) Sample(s)
Date Received: 08/08/2014

JWL

Analysis

Page

Bromate by EPA 317.0

2



Michael Shelton
Technical Director



Patricia Metzger
Senior Chemist

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402281-03 / POX	1.0
Method Blank	ND
Detection Limit	0.3
Date Analyzed:	08-19-14

Quality Control Summary

Sample ID:	Batch QC						
<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402281

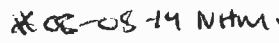
SENDING LABORATORY:

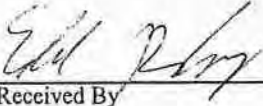
Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC08742- STANDARD TAT 

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402281-03  / POX		Groundwater	08/06/14 09:02	
317.0 SUB	08/20/14 17:00	08/07/14 09:02		
[Bromate]				
1-Poly Unpres - 125mL	 08-08-14 NHM: Also labeled w/ 14 H			

Released By 	Date 8/8/14	Received By 	Date 8-8-14	Time 8:55
Released By 	Date 8-8-14	Received By 	Date 08-08-14	Time 9:22am



DATE 8/6/14 PAGE 1 OF 1

PROJECT NAME		PROJECT No./TASK No.						SAMPLE CONTAINERS			ANALYSIS REQUESTED			ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION		
Raytheon Main PROJECT MANAGER Steve Netto QA MANAGER Marcos Rodriguez SAMPLER (SIGNATURE) Kevin Fy SAMPLER (PRINTED) Kevin Fong																		Advanced Technology Laboratories 3275 Walnut Ave Signal Hill, CA 90755 Attn: Rachelle Arada		
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX			PRESERVATION					40 mL VOA 1 L Amber 125 mL HDPE	EPA 8260B VOCs EPA 8270C (MOM) 1,4-Dioxane EPA 8270C (SIM) 1,4-Dioxane EPA 317 Bromate							
		Date	Time	Soil	Ground-water	Surface water	Lab H ₂ O	HCl	HNO ₃	NaOH	H ₂ SO ₄								Ice	
1402281 -1	TB-CR062014	8/6/14	8:00				X	X				X								
-2	INF		8:50	X				X				X								
-3	POX		9:02	X				X				X								
-4	CBT		9:12	X				X				X								
-5	CEFF		9:20	X				X				X								
Total number of Containers per analysis:													13	2	1	Total No. of Containers: 16				
Relinquished by: Kevin Fy HTA Company		Date 8/6/14 Time 10:53	Received by: Ed Rhy ATL Company		Date 8-6-14 Time 10:53	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.										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				
Relinquished by: Ed Rhy ATL Company		Date 8-6-14 Time 13:33	Received by: ATL Company		Date 8/6/14 Time 13:33	Sample Receipt: ☐ No. of containers correct ☐ custody seals secure Temp. @ receipt 0.8 °C ☒ received good condition/cold ☐ conforms to COC document										Send invoice to San Diego, CA Attn: Accounts Payable				



August 25, 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 : 1402298
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 07, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08072014	1402298-01	Lab H2O	8/07/14 11:00	8/07/14 13:50
INF	1402298-02	Groundwater	8/07/14 12:00	8/07/14 13:50
POX	1402298-03	Groundwater	8/07/14 12:15	8/07/14 13:50
CBT	1402298-04	Groundwater	8/07/14 12:30	8/07/14 13:50
CEFF	1402298-05	Groundwater	8/07/14 12:40	8/07/14 13:50

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08072014

Lab ID: 1402298-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,1,1-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,1,2-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,1-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,1-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,1-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2,3-Trichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2-Dibromoethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,3-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,3-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
1,4-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
2,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
2-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
4-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
4-Isopropyltoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Benzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Bromobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Bromodichloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Bromoform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Bromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Carbon tetrachloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Chlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Chloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Chloroform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Chloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Dibromochloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08072014

Lab ID: 1402298-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Dichlorodifluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Ethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Hexachlorobutadiene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Isopropylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
m,p-Xylene	ND	1.0	1	B4H0122	08/08/2014	08/08/14 15:15	
Methylene chloride	ND	1.0	1	B4H0122	08/08/2014	08/08/14 15:15	
MTBE	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
n-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
n-Propylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Naphthalene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
o-Xylene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
sec-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Styrene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
tert-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Tetrachloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Toluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Trichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Trichlorofluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Vinyl chloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 15:15	
Surrogate: 1,2-Dichloroethane-d4	80.8 %	64 - 146		B4H0122	08/08/2014	08/08/14 15:15	
Surrogate: 4-Bromofluorobenzene	104 %	60 - 128		B4H0122	08/08/2014	08/08/14 15:15	
Surrogate: Dibromofluoromethane	85.0 %	72 - 141		B4H0122	08/08/2014	08/08/14 15:15	
Surrogate: Toluene-d8	86.8 %	61 - 124		B4H0122	08/08/2014	08/08/14 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402298-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 15:32	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,1,1-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,1,2-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,1-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,1-Dichloroethene	30	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,1-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2,3-Trichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2-Dibromoethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,3-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,3-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
1,4-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
2,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
2-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
4-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
4-Isopropyltoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Benzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Bromobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Bromodichloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Bromoform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Bromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Carbon tetrachloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Chlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402298-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Chloroform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Chloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Dibromochloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Dibromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Dichlorodifluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Ethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Hexachlorobutadiene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Isopropylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
m,p-Xylene	ND	1.0	1	B4H0122	08/08/2014	08/08/14 17:59	
Methylene chloride	ND	1.0	1	B4H0122	08/08/2014	08/08/14 17:59	
MTBE	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
n-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
n-Propylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Naphthalene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
o-Xylene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
sec-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Styrene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
tert-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Tetrachloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Toluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Trichloroethene	0.60	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Trichlorofluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
Vinyl chloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:59	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>83.1 %</i>	<i>64 - 146</i>		B4H0122	08/08/2014	<i>08/08/14 17:59</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>	<i>60 - 128</i>		B4H0122	08/08/2014	<i>08/08/14 17:59</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>84.2 %</i>	<i>72 - 141</i>		B4H0122	08/08/2014	<i>08/08/14 17:59</i>	
<i>Surrogate: Toluene-d8</i>	<i>85.9 %</i>	<i>61 - 124</i>		B4H0122	08/08/2014	<i>08/08/14 17:59</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402298-02

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	11	2.0	1	B4H0091	08/07/2014	08/13/14 17:13	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	77.0 %	42 - 106		B4H0091	08/07/2014	08/13/14 17:13	
<i>Surrogate: 2-Fluorobiphenyl</i>	83.4 %	55 - 117		B4H0091	08/07/2014	08/13/14 17:13	
<i>Surrogate: 4-Terphenyl-d14</i>	87.9 %	52 - 142		B4H0091	08/07/2014	08/13/14 17:13	
<i>Surrogate: Nitrobenzene-d5</i>	81.9 %	43 - 116		B4H0091	08/07/2014	08/13/14 17:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402298-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 15:47	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,1,1-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,1,2-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,1-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,1-Dichloroethene	0.54	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,1-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2,3-Trichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2-Dibromoethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,3-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,3-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
1,4-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
2,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
2-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
4-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
4-Isopropyltoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Benzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Bromobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Bromodichloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Bromoform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Bromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Carbon tetrachloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Chlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402298-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Chloroform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Chloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Dibromochloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Dibromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Dichlorodifluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Ethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Hexachlorobutadiene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Isopropylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
m,p-Xylene	ND	1.0	1	B4H0122	08/08/2014	08/08/14 17:36	
Methylene chloride	ND	1.0	1	B4H0122	08/08/2014	08/08/14 17:36	
MTBE	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
n-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
n-Propylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Naphthalene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
o-Xylene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
sec-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Styrene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
tert-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Tetrachloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Toluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Trichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Trichlorofluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Vinyl chloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:36	
Surrogate: 1,2-Dichloroethane-d4	80.8 %	64 - 146		B4H0122	08/08/2014	08/08/14 17:36	
Surrogate: 4-Bromofluorobenzene	101 %	60 - 128		B4H0122	08/08/2014	08/08/14 17:36	
Surrogate: Dibromofluoromethane	80.5 %	72 - 141		B4H0122	08/08/2014	08/08/14 17:36	
Surrogate: Toluene-d8	86.6 %	61 - 124		B4H0122	08/08/2014	08/08/14 17:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402298-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	1.8	0.20	1	B4H0090	08/07/2014	08/13/14 14:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>69.2 %</i>	<i>47 - 117</i>		B4H0090	08/07/2014	<i>08/13/14 14:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>83.0 %</i>	<i>48 - 121</i>		B4H0090	08/07/2014	<i>08/13/14 14:23</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>94.6 %</i>	<i>58 - 142</i>		B4H0090	08/07/2014	<i>08/13/14 14:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.7 %</i>	<i>27 - 151</i>		B4H0090	08/07/2014	<i>08/13/14 14:23</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402298-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 16:02	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,1,1-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,1,2-Trichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,1-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,1-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,1-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2,3-Trichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2-Dibromoethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2-Dichloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,3-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,3-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
1,4-Dichlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
2,2-Dichloropropane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
2-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
4-Chlorotoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
4-Isopropyltoluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Benzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Bromobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Bromodichloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Bromoform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Bromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Carbon tetrachloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Chlorobenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402298-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Chloroform	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Chloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Dibromochloromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Dibromomethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Dichlorodifluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Ethylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Hexachlorobutadiene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Isopropylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
m,p-Xylene	ND	1.0	1	B4H0122	08/08/2014	08/08/14 17:12	
Methylene chloride	ND	1.0	1	B4H0122	08/08/2014	08/08/14 17:12	
MTBE	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
n-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
n-Propylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Naphthalene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
o-Xylene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
sec-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Styrene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
tert-Butylbenzene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Tetrachloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Toluene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Trichloroethene	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Trichlorofluoromethane	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Vinyl chloride	ND	0.50	1	B4H0122	08/08/2014	08/08/14 17:12	
Surrogate: 1,2-Dichloroethane-d4	80.9 %	64 - 146		B4H0122	08/08/2014	08/08/14 17:12	
Surrogate: 4-Bromofluorobenzene	104 %	60 - 128		B4H0122	08/08/2014	08/08/14 17:12	
Surrogate: Dibromofluoromethane	83.4 %	72 - 141		B4H0122	08/08/2014	08/08/14 17:12	
Surrogate: Toluene-d8	86.7 %	61 - 124		B4H0122	08/08/2014	08/08/14 17:12	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402298-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 16:17	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,1,1-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,1,2-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,1-Dichloroethane	0.51	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,1-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,1-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2,3-Trichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2-Dibromoethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,3-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,3-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
1,4-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
2,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
2-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
4-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
4-Isopropyltoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Benzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Bromobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Bromodichloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Bromoform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Bromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Carbon tetrachloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Chlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402298-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Chloroform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Chloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Dibromochloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Dibromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Dichlorodifluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Ethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Hexachlorobutadiene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Isopropylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
m,p-Xylene	ND	1.0	1	B4H0140	08/11/2014	08/11/14 12:58	
Methylene chloride	ND	1.0	1	B4H0140	08/11/2014	08/11/14 12:58	
MTBE	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
n-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
n-Propylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Naphthalene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
o-Xylene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
sec-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Styrene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
tert-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Tetrachloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Toluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Trichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Trichlorofluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Vinyl chloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:58	
Surrogate: 1,2-Dichloroethane-d4	123 %	64 - 146		B4H0140	08/11/2014	08/11/14 12:58	
Surrogate: 4-Bromofluorobenzene	113 %	60 - 128		B4H0140	08/11/2014	08/11/14 12:58	
Surrogate: Dibromofluoromethane	109 %	72 - 141		B4H0140	08/11/2014	08/11/14 12:58	
Surrogate: Toluene-d8	93.2 %	61 - 124		B4H0140	08/11/2014	08/11/14 12:58	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0113 - GCSEMI_ALCOHOLS

Blank (B4H0113-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0113-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

478.020

1.0

500.000

95.6

70 - 130

Matrix Spike (B4H0113-MS1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

244.166

1.0

200.000

ND

122

70 - 130

Matrix Spike Dup (B4H0113-MSD1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

253.410

1.0

200.000

ND

127

70 - 130

3.72

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0122 - MSVOAW_LL

Blank (B4H0122-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0122 - MSVOAW_LL (continued)

Blank (B4H0122-BLK1) - Continued

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	20.98		25.0000		83.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	26.45		25.0000		106	60 - 128			
Surrogate: Dibromofluoromethane	20.84		25.0000		83.4	72 - 141			
Surrogate: Toluene-d8	22.43		25.0000		89.7	61 - 124			

LCS (B4H0122-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

1,1-Dichloroethene	16.7500		20.0000		83.8	56 - 131			
Benzene	20.9500		20.0000		105	69 - 139			
Chlorobenzene	20.6200		20.0000		103	73 - 127			
MTBE	20.8700		20.0000		104	68 - 133			
Toluene	21.4400		20.0000		107	62 - 133			
Trichloroethene	20.9300		20.0000		105	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	18.05		25.0000		72.2	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.94		25.0000		99.8	60 - 128			
Surrogate: Dibromofluoromethane	18.70		25.0000		74.8	72 - 141			
Surrogate: Toluene-d8	22.69		25.0000		90.8	61 - 124			

LCS Dup (B4H0122-BSD1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

1,1-Dichloroethene	14.8300		20.0000		74.2	56 - 131	12.2	20	
Benzene	20.4100		20.0000		102	69 - 139	2.61	20	
Chlorobenzene	20.1800		20.0000		101	73 - 127	2.16	20	
MTBE	20.6600		20.0000		103	68 - 133	1.01	20	
Toluene	21.0800		20.0000		105	62 - 133	1.69	20	
Trichloroethene	19.4300		20.0000		97.2	72 - 139	7.43	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0122 - MSVOAW_LL (continued)

LCS Dup (B4H0122-BSD1) - Continued

Prepared: 8/8/2014 Analyzed: 8/8/2014

Surrogate: 1,2-Dichloroethane-d4	17.45	25.0000	69.8	64 - 146
Surrogate: 4-Bromofluorobenzene	23.87	25.0000	95.5	60 - 128
Surrogate: Dibromofluoromethane	18.10	25.0000	72.4	72 - 141
Surrogate: Toluene-d8	22.15	25.0000	88.6	61 - 124

Batch B4H0140 - MSVOAW_LL

Blank (B4H0140-BLK1)

Prepared: 8/11/2014 Analyzed: 8/11/2014

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0140 - MSVOAW_LL (continued)

Blank (B4H0140-BLK1) - Continued

Prepared: 8/11/2014 Analyzed: 8/11/2014

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				
MTBE	ND	0.50			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	63.46		50.0000		127	64 - 146			
Surrogate: 4-Bromofluorobenzene	55.23		50.0000		110	60 - 128			
Surrogate: Dibromofluoromethane	53.62		50.0000		107	72 - 141			
Surrogate: Toluene-d8	47.67		50.0000		95.3	61 - 124			

LCS (B4H0140-BS1)

Prepared: 8/11/2014 Analyzed: 8/11/2014

1,1-Dichloroethene	19.2200		20.0000		96.1	56 - 131			
Benzene	21.4900		20.0000		107	69 - 139			
Chlorobenzene	21.0500		20.0000		105	73 - 127			
MTBE	23.9400		20.0000		120	68 - 133			
Toluene	18.8500		20.0000		94.2	62 - 133			
Trichloroethene	19.0800		20.0000		95.4	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	69.57		50.0000		139	64 - 146			
Surrogate: 4-Bromofluorobenzene	59.71		50.0000		119	60 - 128			
Surrogate: Dibromofluoromethane	57.17		50.0000		114	72 - 141			
Surrogate: Toluene-d8	52.08		50.0000		104	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0140 - MSVOAW_LL (continued)

LCS Dup (B4H0140-BSD1)

Prepared: 8/11/2014 Analyzed: 8/11/2014

1,1-Dichloroethene	17.5100		20.0000		87.6	56 - 131	9.31	20	
Benzene	19.5500		20.0000		97.8	69 - 139	9.45	20	
Chlorobenzene	18.9200		20.0000		94.6	73 - 127	10.7	20	
MTBE	19.9600		20.0000		99.8	68 - 133	18.1	20	
Toluene	16.9100		20.0000		84.6	62 - 133	10.9	20	
Trichloroethene	17.2200		20.0000		86.1	72 - 139	10.2	20	

Surrogate: 1,2-Dichloroethane-d4	61.79		50.0000		124	64 - 146			
Surrogate: 4-Bromofluorobenzene	54.74		50.0000		109	60 - 128			
Surrogate: Dibromofluoromethane	52.75		50.0000		106	72 - 141			
Surrogate: Toluene-d8	47.22		50.0000		94.4	61 - 124			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0091 - MSSEMI_ISOTOPEDILN

Blank (B4H0091-BLK2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	66.91		100.000		66.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	77.18		100.000		77.2	55 - 117			
Surrogate: 4-Terphenyl-d14	91.21		100.000		91.2	52 - 142			
Surrogate: Nitrobenzene-d5	67.78		100.000		67.8	43 - 116			

LCS (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	102.160	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	69.50		100.000		69.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.99		100.000		79.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.79		100.000		89.8	52 - 142			
Surrogate: Nitrobenzene-d5	80.29		100.000		80.3	43 - 116			

LCS Dup (B4H0091-BS2)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	106.320	2.0	100.000		106	62 - 127	3.99	20	
Surrogate: 1,2-Dichlorobenzene-d4	64.88		100.000		64.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.96		100.000		77.0	55 - 117			
Surrogate: 4-Terphenyl-d14	89.50		100.000		89.5	52 - 142			
Surrogate: Nitrobenzene-d5	73.54		100.000		73.5	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0090 - MSSEMI_ISOTOPEDILN

Blank (B4H0090-BLK1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	0.20		NR					
Surrogate: 1,2-Dichlorobenzene-d4	0.6800		1.00000	68.0	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.8005		1.00000	80.0	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8760		1.00000	87.6	58 - 142				
Surrogate: Nitrobenzene-d5	0.7511		1.00000	75.1	27 - 151				

LCS (B4H0090-BS1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	0.960240	0.20	1.00000	96.0	58 - 151				
Surrogate: 1,2-Dichlorobenzene-d4	0.6680		1.00000	66.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.7726		1.00000	77.3	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8886		1.00000	88.9	58 - 142				
Surrogate: Nitrobenzene-d5	0.8064		1.00000	80.6	27 - 151				

LCS Dup (B4H0090-BSD1)

Prepared: 8/7/2014 Analyzed: 8/13/2014

1,4-Dioxane	1.03604	0.20	1.00000	104	58 - 151	7.59	20		
Surrogate: 1,2-Dichlorobenzene-d4	0.6512		1.00000	65.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.7760		1.00000	77.6	48 - 121				
Surrogate: 4-Terphenyl-d14	0.8800		1.00000	88.0	58 - 142				
Surrogate: Nitrobenzene-d5	0.7045		1.00000	70.4	27 - 151				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Notes and Definitions

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.

Testing, calibrating, advising

Certificate of Analysis

August 22, 2014

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Attn: Rachelle Arada

Exova Job No: 159423
Purchase Order: CREDIT CARD
Project Name: 1402298 / Groundwater
Samples Received: One (1) Sample(s)
Date Received: 08/08/2014

JWL

Analysis	Page
Bromate by EPA 317.0	2



Michael Shelton
Technical Director



Patricia Metzger
Senior Chemist

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402298-03 / POX	0.3
Method Blank	ND
Detection Limit	0.3
Date Analyzed:	08-20-14

Quality Control Summary

Sample ID:	Batch QC						
<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

 ADVANCED TECHNOLOGY
 LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402298

SENDING LABORATORY:

Advanced Technology Laboratories

3275 Walnut Avenue

Signal Hill, CA 90755

Phone: 562.989.4045

Fax: 562.989.6348

Project Manager: Rachelle Arada (Rachelle@atglobal.com)

RECEIVING LABORATORY:

Exova Inc.

9240 Santa Fe Springs Road

Santa Fe Springs, CA 90670

Phone : (562) 948-2225

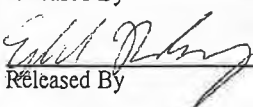
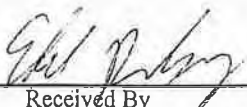
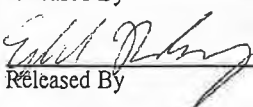
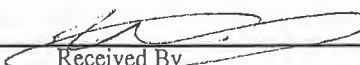
Fax: (562) 948-5850

PO#: SC08743- STANDARD TAT (RA)

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402298-03✓ / POX 317.0 SUB [Bromate] 1-Poly Unpres - 125mL	08/21/14 17:00	Groundwater 08/08/14 12:15	08/07/14 12:15	

*08-08-14 NTHM: Also labeled w/ : * 08-08-14
E

Released By 	Date 8-8-14	Received By 	Date 8-8-14	Time 8:55
Released By 	Date 8-8-14	Received By 	Date 08-08-14	Time 9:22am

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE _____ PAGE 1 OF 1

PROJECT NAME						PROJECT No./TASK No.							SAMPLE CONTAINERS			ANALYSIS REQUESTED				ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S				SPECIAL HANDLING			LABORATORY INFORMATION	
Raytheon Main						532.20																						
PROJECT MANAGER Steve Netto QA MANAGER Marcos Rodriguez SAMPLER (SIGNATURE) <i>[Signature]</i>						Phone No. (858) 455-6500 Fax No. (858) 455-6533 SAMPLER (PRINTED) MARCOS RODRIGUEZ																					Advanced Technology Laboratories 3275 Walnut Ave Signal Hill, CA 90755 Attn: Rachelle Arada	
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX			PRESERVATION					40 mL VOA	1 L Amber	125 mL HDPE	EPA 8260B VOCs	EPA 8270C (NDB) 1,4-Dioxane	EPA 8270C (SIM) 1,4-Dioxane	EPA 317 Bromate	0-10	10-100	100-1,000	1,000-10,000	>10,000	Lab Filtered			REMARKS	
		Date	Time	Soil	Ground-water	Surface water	Lab H ₂ O	HCl	HNO ₃	NaOH	H ₂ SO ₄																	Ice
1402298 - 1	TB-08072014	B/7/14	11:00		X	X					X				X												Please include mrodriguez@chargis.com on lab report distribution list.	
- 2	INF	↓	12:00	X				X			X				X											Add MTBE and IPA to VOC list by EPA 8260B except for TB		
- 3	PDX	↓	12:15	X				X			X				X		X											
- 4	CBT	↓	12:30	X				X			X				X													
- 5	CEFF	↓	12:40	X				X			X				X													
Total number of Containers per analysis:												13	2	1	Total No. of Containers: 16													
Relinquished by: <i>[Signature]</i> H + A		Date 8/7/14	Received by: <i>[Signature]</i> KTL		Date 8/7/14	INSTRUCTIONS																				Shipment Method: DELIVER		
Company		Time 13:50	Company		Time 13:50	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.																				Send Results to: Steve Netto		
Relinquished by:		Date	Received by:		Date	Sample Receipt: _____ Temp. @ receipt ____ °C																				☒ 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		
Company		Time	Company		Time	☐ No. of containers correct ☒ received good condition/cold ☐ custody seals secure ☐ conforms to COC document																				Send invoice to San Diego, CA Attn: Accounts Payable		

August 25, 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 : 1402307
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 08, 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

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08082014	1402307-01	Lab H2O	8/08/14 8:00	8/08/14 10:24
INF	1402307-02	Groundwater	8/08/14 8:40	8/08/14 10:24
POX	1402307-03	Groundwater	8/08/14 8:55	8/08/14 10:24
CBT	1402307-04	Groundwater	8/08/14 9:03	8/08/14 10:24
CEFF	1402307-05	Groundwater	8/08/14 9:10	8/08/14 10:24

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08082014

Lab ID: 1402307-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,1,1-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,1,2-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,1-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,1-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,1-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2,3-Trichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2-Dibromoethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,3-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,3-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
1,4-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
2,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
2-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
4-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
4-Isopropyltoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Benzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Bromobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Bromodichloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Bromoform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Bromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Carbon tetrachloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Chlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Chloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Chloroform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Chloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Dibromochloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08082014

Lab ID: 1402307-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Dichlorodifluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Ethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Hexachlorobutadiene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Isopropylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
m,p-Xylene	ND	1.0	1	B4H0140	08/11/2014	08/11/14 12:36	
Methylene chloride	ND	1.0	1	B4H0140	08/11/2014	08/11/14 12:36	
MTBE	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
n-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
n-Propylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Naphthalene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
o-Xylene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
sec-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Styrene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
tert-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Tetrachloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Toluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Trichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Trichlorofluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Vinyl chloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 12:36	
Surrogate: 1,2-Dichloroethane-d4	126 %	64 - 146		B4H0140	08/11/2014	08/11/14 12:36	
Surrogate: 4-Bromofluorobenzene	116 %	60 - 128		B4H0140	08/11/2014	08/11/14 12:36	
Surrogate: Dibromofluoromethane	109 %	72 - 141		B4H0140	08/11/2014	08/11/14 12:36	
Surrogate: Toluene-d8	94.8 %	61 - 124		B4H0140	08/11/2014	08/11/14 12:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402307-02

Bromide by Ion Chromatography EPA 300

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.41	0.05	1	B4H0163	08/12/2014	08/12/14 10:27	

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 16:32	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,1,1-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,1,2-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,1-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,1-Dichloroethene	23	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,1-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2,3-Trichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2-Dibromoethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,3-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,3-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
1,4-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
2,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
2-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
4-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
4-Isopropyltoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Benzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402307-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Bromodichloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Bromoform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Bromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Carbon tetrachloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Chlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Chloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Chloroform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Chloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Dibromochloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Dibromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Dichlorodifluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Ethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Hexachlorobutadiene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Isopropylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
m,p-Xylene	ND	1.0	1	B4H0140	08/11/2014	08/11/14 14:28	
Methylene chloride	ND	1.0	1	B4H0140	08/11/2014	08/11/14 14:28	
MTBE	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
n-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
n-Propylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Naphthalene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
o-Xylene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
sec-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Styrene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
tert-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Tetrachloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Toluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Trichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Trichlorofluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Vinyl chloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:28	
Surrogate: 1,2-Dichloroethane-d4	119 %	64 - 146		B4H0140	08/11/2014	08/11/14 14:28	
Surrogate: 4-Bromofluorobenzene	110 %	60 - 128		B4H0140	08/11/2014	08/11/14 14:28	
Surrogate: Dibromofluoromethane	105 %	72 - 141		B4H0140	08/11/2014	08/11/14 14:28	
Surrogate: Toluene-d8	88.0 %	61 - 124		B4H0140	08/11/2014	08/11/14 14:28	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402307-02

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	8.8	2.0	1	B4H0134	08/08/2014	08/13/14 23:13	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>77.2 %</i>	<i>42 - 106</i>		B4H0134	08/08/2014	<i>08/13/14 23:13</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80.9 %</i>	<i>55 - 117</i>		B4H0134	08/08/2014	<i>08/13/14 23:13</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>97.0 %</i>	<i>52 - 142</i>		B4H0134	08/08/2014	<i>08/13/14 23:13</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.6 %</i>	<i>43 - 116</i>		B4H0134	08/08/2014	<i>08/13/14 23:13</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402307-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 16:46	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,1,1-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,1,2-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,1-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,1-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,1-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2,3-Trichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2-Dibromoethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,3-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,3-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
1,4-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
2,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
2-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
4-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
4-Isopropyltoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Benzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Bromobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Bromodichloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Bromoform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Bromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Carbon tetrachloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Chlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402307-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Chloroform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Chloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Dibromochloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Dibromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Dichlorodifluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Ethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Hexachlorobutadiene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Isopropylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
m,p-Xylene	ND	1.0	1	B4H0140	08/11/2014	08/11/14 14:06	
Methylene chloride	ND	1.0	1	B4H0140	08/11/2014	08/11/14 14:06	
MTBE	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
n-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
n-Propylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Naphthalene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
o-Xylene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
sec-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Styrene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
tert-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Tetrachloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Toluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Trichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Trichlorofluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
Vinyl chloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 14:06	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115 %</i>	<i>64 - 146</i>		B4H0140	08/11/2014	<i>08/11/14 14:06</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>	<i>60 - 128</i>		B4H0140	08/11/2014	<i>08/11/14 14:06</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>	<i>72 - 141</i>		B4H0140	08/11/2014	<i>08/11/14 14:06</i>	
<i>Surrogate: Toluene-d8</i>	<i>86.0 %</i>	<i>61 - 124</i>		B4H0140	08/11/2014	<i>08/11/14 14:06</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402307-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.0	0.20	1	B4H0195	08/14/2014	08/14/14 11:33	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>63.4 %</i>	<i>47 - 117</i>		B4H0195	08/14/2014	<i>08/14/14 11:33</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>81.1 %</i>	<i>48 - 121</i>		B4H0195	08/14/2014	<i>08/14/14 11:33</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>96.4 %</i>	<i>58 - 142</i>		B4H0195	08/14/2014	<i>08/14/14 11:33</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>69.7 %</i>	<i>27 - 151</i>		B4H0195	08/14/2014	<i>08/14/14 11:33</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402307-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 17:37	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,1,1-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,1,2-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,1-Dichloroethane	0.52	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,1-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,1-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2,3-Trichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2-Dibromoethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,3-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,3-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
1,4-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
2,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
2-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
4-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
4-Isopropyltoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Benzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Bromobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Bromodichloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Bromoform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Bromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Carbon tetrachloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Chlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402307-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Chloroform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Chloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Dibromochloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Dibromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Dichlorodifluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Ethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Hexachlorobutadiene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Isopropylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
m,p-Xylene	ND	1.0	1	B4H0140	08/11/2014	08/11/14 13:43	
Methylene chloride	ND	1.0	1	B4H0140	08/11/2014	08/11/14 13:43	
MTBE	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
n-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
n-Propylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Naphthalene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
o-Xylene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
sec-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Styrene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
tert-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Tetrachloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Toluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Trichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Trichlorofluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Vinyl chloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:43	
Surrogate: 1,2-Dichloroethane-d4	119 %	64 - 146		B4H0140	08/11/2014	08/11/14 13:43	
Surrogate: 4-Bromofluorobenzene	109 %	60 - 128		B4H0140	08/11/2014	08/11/14 13:43	
Surrogate: Dibromofluoromethane	104 %	72 - 141		B4H0140	08/11/2014	08/11/14 13:43	
Surrogate: Toluene-d8	88.3 %	61 - 124		B4H0140	08/11/2014	08/11/14 13:43	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402307-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0113	08/08/2014	08/08/14 17:51	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,1,1-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,1,2-Trichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,1-Dichloroethane	0.62	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,1-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,1-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2,3-Trichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2-Dibromoethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2-Dichloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,3-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,3-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
1,4-Dichlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
2,2-Dichloropropane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
2-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
4-Chlorotoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
4-Isopropyltoluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Benzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Bromobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Bromodichloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Bromoform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Bromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Carbon tetrachloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Chlorobenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402307-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Chloroform	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Chloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Dibromochloromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Dibromomethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Dichlorodifluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Ethylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Hexachlorobutadiene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Isopropylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
m,p-Xylene	ND	1.0	1	B4H0140	08/11/2014	08/11/14 13:21	
Methylene chloride	ND	1.0	1	B4H0140	08/11/2014	08/11/14 13:21	
MTBE	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
n-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
n-Propylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Naphthalene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
o-Xylene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
sec-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Styrene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
tert-Butylbenzene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Tetrachloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Toluene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Trichloroethene	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Trichlorofluoromethane	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Vinyl chloride	ND	0.50	1	B4H0140	08/11/2014	08/11/14 13:21	
Surrogate: 1,2-Dichloroethane-d4	109 %	64 - 146		B4H0140	08/11/2014	08/11/14 13:21	
Surrogate: 4-Bromofluorobenzene	99.8 %	60 - 128		B4H0140	08/11/2014	08/11/14 13:21	
Surrogate: Dibromofluoromethane	96.7 %	72 - 141		B4H0140	08/11/2014	08/11/14 13:21	
Surrogate: Toluene-d8	81.2 %	61 - 124		B4H0140	08/11/2014	08/11/14 13:21	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

QUALITY CONTROL SECTION

Bromide by Ion Chromatography EPA 300 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4H0163 - No_Prep_IC_1									
Blank (B4H0163-BLK1)				Prepared: 8/12/2014 Analyzed: 8/12/2014					
Bromide	ND	0.05			NR				
LCS (B4H0163-BS1)				Prepared: 8/12/2014 Analyzed: 8/12/2014					
Bromide	0.924000	0.05	1.00000		92.4	90 - 110			
Duplicate (B4H0163-DUP1)				Source: 1402282-02 Prepared: 8/12/2014 Analyzed: 8/12/2014					
Bromide	0.152000	0.05		0.169800	NR		11.1	20	
Matrix Spike (B4H0163-MS1)				Source: 1402282-02 Prepared: 8/12/2014 Analyzed: 8/12/2014					
Bromide	3.72900	0.05	2.50000	0.169800	142	80 - 120			M1
Matrix Spike Dup (B4H0163-MSD1)				Source: 1402282-02 Prepared: 8/12/2014 Analyzed: 8/12/2014					
Bromide	3.77300	0.05	2.50000	0.169800	144	80 - 120	1.17	20	M1



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0113 - GCSEMI_ALCOHOLS

Blank (B4H0113-BLK1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0113-BS1)

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

478.020

1.0

500.000

95.6

70 - 130

Matrix Spike (B4H0113-MS1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

244.166

1.0

200.000

ND

122

70 - 130

Matrix Spike Dup (B4H0113-MSD1)

Source: 1402253-02

Prepared: 8/8/2014 Analyzed: 8/8/2014

Isopropyl Alcohol

253.410

1.0

200.000

ND

127

70 - 130

3.72

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0140 - MSVOAW_LL

Blank (B4H0140-BLK1)

Prepared: 8/11/2014 Analyzed: 8/11/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0140 - MSVOAW_LL (continued)

Blank (B4H0140-BLK1) - Continued

Prepared: 8/11/2014 Analyzed: 8/11/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	63.46		50.0000		127	64 - 146			
Surrogate: 4-Bromofluorobenzene	55.23		50.0000		110	60 - 128			
Surrogate: Dibromofluoromethane	53.62		50.0000		107	72 - 141			
Surrogate: Toluene-d8	47.67		50.0000		95.3	61 - 124			

LCS (B4H0140-BS1)

Prepared: 8/11/2014 Analyzed: 8/11/2014

1,1-Dichloroethene	19.2200		20.0000		96.1	56 - 131			
Benzene	21.4900		20.0000		107	69 - 139			
Chlorobenzene	21.0500		20.0000		105	73 - 127			
MTBE	23.9400		20.0000		120	68 - 133			
Toluene	18.8500		20.0000		94.2	62 - 133			
Trichloroethene	19.0800		20.0000		95.4	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	69.57		50.0000		139	64 - 146			
Surrogate: 4-Bromofluorobenzene	59.71		50.0000		119	60 - 128			
Surrogate: Dibromofluoromethane	57.17		50.0000		114	72 - 141			
Surrogate: Toluene-d8	52.08		50.0000		104	61 - 124			

LCS Dup (B4H0140-BSD1)

Prepared: 8/11/2014 Analyzed: 8/11/2014

1,1-Dichloroethene	17.5100		20.0000		87.6	56 - 131	9.31	20	
Benzene	19.5500		20.0000		97.8	69 - 139	9.45	20	
Chlorobenzene	18.9200		20.0000		94.6	73 - 127	10.7	20	
MTBE	19.9600		20.0000		99.8	68 - 133	18.1	20	
Toluene	16.9100		20.0000		84.6	62 - 133	10.9	20	
Trichloroethene	17.2200		20.0000		86.1	72 - 139	10.2	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0140 - MSVOAW_LL (continued)

LCS Dup (B4H0140-BSD1) - Continued

Prepared: 8/11/2014 Analyzed: 8/11/2014

Surrogate: 1,2-Dichloroethane-d4	61.79	50.0000	124	64 - 146
Surrogate: 4-Bromofluorobenzene	54.74	50.0000	109	60 - 128
Surrogate: Dibromofluoromethane	52.75	50.0000	106	72 - 141
Surrogate: Toluene-d8	47.22	50.0000	94.4	61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0134 - MSSEMI_ISOTOPEDILN

Blank (B4H0134-BLK2)

Prepared: 8/8/2014 Analyzed: 8/13/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	81.59		100.000		81.6	42 - 106			
Surrogate: 2-Fluorobiphenyl	85.14		100.000		85.1	55 - 117			
Surrogate: 4-Terphenyl-d14	100.8		100.000		101	52 - 142			
Surrogate: Nitrobenzene-d5	77.41		100.000		77.4	43 - 116			

LCS (B4H0134-BS2)

Prepared: 8/8/2014 Analyzed: 8/13/2014

1,4-Dioxane	97.2100	2.0	100.000		97.2	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	74.09		100.000		74.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	79.78		100.000		79.8	55 - 117			
Surrogate: 4-Terphenyl-d14	92.89		100.000		92.9	52 - 142			
Surrogate: Nitrobenzene-d5	82.04		100.000		82.0	43 - 116			

LCS Dup (B4H0134-BSD2)

Prepared: 8/8/2014 Analyzed: 8/13/2014

1,4-Dioxane	100.480	2.0	100.000		100	62 - 127	3.31	20	
Surrogate: 1,2-Dichlorobenzene-d4	77.48		100.000		77.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	85.34		100.000		85.3	55 - 117			
Surrogate: 4-Terphenyl-d14	97.82		100.000		97.8	52 - 142			
Surrogate: Nitrobenzene-d5	85.71		100.000		85.7	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0195 - MSSEMI_ISOTOPEDILN

Blank (B4H0195-BLK1)

Prepared: 8/14/2014 Analyzed: 8/14/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.6690		1.00000		66.9	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.8069		1.00000		80.7	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9456		1.00000		94.6	58 - 142			
Surrogate: Nitrobenzene-d5	0.7432		1.00000		74.3	27 - 151			

LCS (B4H0195-BS1)

Prepared: 8/14/2014 Analyzed: 8/14/2014

1,4-Dioxane	0.976970	0.20	1.00000		97.7	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.6401		1.00000		64.0	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7591		1.00000		75.9	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8758		1.00000		87.6	58 - 142			
Surrogate: Nitrobenzene-d5	0.7330		1.00000		73.3	27 - 151			

LCS Dup (B4H0195-BSD1)

Prepared: 8/14/2014 Analyzed: 8/14/2014

1,4-Dioxane	1.11678	0.20	1.00000		112	58 - 151	13.4	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6430		1.00000		64.3	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7729		1.00000		77.3	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8937		1.00000		89.4	58 - 142			
Surrogate: Nitrobenzene-d5	0.7267		1.00000		72.7	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Notes and Definitions

M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
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.

Testing, calibrating, advising

Certificate of Analysis

August 22, 2014

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Exova Job No: 159459
Purchase Order: CREDIT CARD
Project Name: 1402307 / Groundwater
Samples Received: One (1) Sample(s)
Date Received: 08/11/2014

JWL

Attn: Rachelle Arada

Analysis

Page

Bromate by EPA 317.0

2



Michael Shelton
Technical Director



Patricia Metzger
Senior Chemist

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402307-03 / POX	0.4
Method Blank	ND
Detection Limit	0.3
Date Analyzed:	08-20-14

Quality Control Summary

Sample ID:	Batch QC						
<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES
SUBCONTRACT ORDER

Work Order: 1402307

Page 25 of 26

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC08745- STANDARD TAT

RP

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402307-03 / POX 317.0 SUB [Bromate] 1-Poly Unpres - 125mL	08/22/14 17:00	Groundwater 08/09/14 08:55	08/08/14 08:55	

*08-11-14 NHM: Also labeled w/ f

Released By	8/11/14 0914	Received By	8-11-14	9:14
Released By	8-11-14	Received By	08-11-14	11:45am

159459

Page 1 of 1



DATE 8/8/14 PAGE 1 OF 1

[illegible]



August 25, 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 : 1402381
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 15, 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,

A handwritten signature in black ink, appearing to read "E Rodriguez", is placed over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08152014	1402381-01	Lab H2O	8/15/14 9:30	8/15/14 12:23
INF	1402381-02	Groundwater	8/15/14 10:15	8/15/14 12:23
POX	1402381-03	Groundwater	8/15/14 10:30	8/15/14 12:23
CBT	1402381-04	Groundwater	8/15/14 10:40	8/15/14 12:23
CEFF	1402381-05	Groundwater	8/15/14 10:50	8/15/14 12:23

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08152014

Lab ID: 1402381-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,1,1-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,1,2-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,1-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,1-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,1-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2,3-Trichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2-Dibromoethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,3-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,3-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
1,4-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
2,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
2-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
4-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
4-Isopropyltoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Benzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Bromobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Bromodichloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Bromoform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Bromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Carbon tetrachloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Chlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Chloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Chloroform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Chloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Dibromochloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID TB-08152014

Lab ID: 1402381-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Dichlorodifluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Ethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Hexachlorobutadiene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Isopropylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
m,p-Xylene	ND	1.0	1	B4H0200	08/18/2014	08/18/14 12:05	
Methylene chloride	ND	1.0	1	B4H0200	08/18/2014	08/18/14 12:05	
MTBE	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
n-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
n-Propylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Naphthalene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
o-Xylene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
sec-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Styrene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
tert-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Tetrachloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Toluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Trichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Trichlorofluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Vinyl chloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:05	
Surrogate: 1,2-Dichloroethane-d4	90.2 %	64 - 146		B4H0200	08/18/2014	08/18/14 12:05	
Surrogate: 4-Bromofluorobenzene	105 %	60 - 128		B4H0200	08/18/2014	08/18/14 12:05	
Surrogate: Dibromofluoromethane	92.9 %	72 - 141		B4H0200	08/18/2014	08/18/14 12:05	
Surrogate: Toluene-d8	92.8 %	61 - 124		B4H0200	08/18/2014	08/18/14 12:05	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402381-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0272	08/20/2014	08/20/14 10:35	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,1,1-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,1,2-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,1-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,1-Dichloroethene	36	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,1-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2,3-Trichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2-Dibromoethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,3-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,3-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
1,4-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
2,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
2-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
4-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
4-Isopropyltoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Benzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Bromobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Bromodichloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Bromoform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Bromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Carbon tetrachloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Chlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402381-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Chloroform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Chloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Dibromochloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Dibromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Dichlorodifluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Ethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Hexachlorobutadiene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Isopropylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
m,p-Xylene	ND	1.0	1	B4H0200	08/18/2014	08/18/14 14:03	
Methylene chloride	ND	1.0	1	B4H0200	08/18/2014	08/18/14 14:03	
MTBE	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
n-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
n-Propylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Naphthalene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
o-Xylene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
sec-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Styrene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
tert-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Tetrachloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Toluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Trichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Trichlorofluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Vinyl chloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 14:03	
Surrogate: 1,2-Dichloroethane-d4	98.3 %	64 - 146		B4H0200	08/18/2014	08/18/14 14:03	
Surrogate: 4-Bromofluorobenzene	102 %	60 - 128		B4H0200	08/18/2014	08/18/14 14:03	
Surrogate: Dibromofluoromethane	96.6 %	72 - 141		B4H0200	08/18/2014	08/18/14 14:03	
Surrogate: Toluene-d8	93.7 %	61 - 124		B4H0200	08/18/2014	08/18/14 14:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID INF

Lab ID: 1402381-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	13	2.0	1	B4H0307	08/21/2014	08/22/14 05:11	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>64.8 %</i>	<i>42 - 106</i>		B4H0307	08/21/2014	<i>08/22/14 05:11</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>71.8 %</i>	<i>55 - 117</i>		B4H0307	08/21/2014	<i>08/22/14 05:11</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>82.7 %</i>	<i>52 - 142</i>		B4H0307	08/21/2014	<i>08/22/14 05:11</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>65.7 %</i>	<i>43 - 116</i>		B4H0307	08/21/2014	<i>08/22/14 05:11</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402381-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0272	08/20/2014	08/20/14 10:50	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,1,1-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,1,2-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,1-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,1-Dichloroethene	2.2	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,1-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2,3-Trichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2-Dibromoethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,3-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,3-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
1,4-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
2,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
2-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
4-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
4-Isopropyltoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Benzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Bromobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Bromodichloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Bromoform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Bromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Carbon tetrachloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Chlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402381-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Chloroform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Chloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Dibromochloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Dibromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Dichlorodifluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Ethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Hexachlorobutadiene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Isopropylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
m,p-Xylene	ND	1.0	1	B4H0200	08/18/2014	08/18/14 13:39	
Methylene chloride	ND	1.0	1	B4H0200	08/18/2014	08/18/14 13:39	
MTBE	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
n-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
n-Propylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Naphthalene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
o-Xylene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
sec-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Styrene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
tert-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Tetrachloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Toluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Trichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Trichlorofluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Vinyl chloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:39	
Surrogate: 1,2-Dichloroethane-d4	98.9 %	64 - 146		B4H0200	08/18/2014	08/18/14 13:39	
Surrogate: 4-Bromofluorobenzene	99.9 %	60 - 128		B4H0200	08/18/2014	08/18/14 13:39	
Surrogate: Dibromofluoromethane	94.3 %	72 - 141		B4H0200	08/18/2014	08/18/14 13:39	
Surrogate: Toluene-d8	94.7 %	61 - 124		B4H0200	08/18/2014	08/18/14 13:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID POX

Lab ID: 1402381-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	9.8	0.20	1	B4H0282	08/20/2014	08/20/14 14:53	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>87.3 %</i>	<i>47 - 117</i>		B4H0282	08/20/2014	<i>08/20/14 14:53</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>92.4 %</i>	<i>48 - 121</i>		B4H0282	08/20/2014	<i>08/20/14 14:53</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>114 %</i>	<i>58 - 142</i>		B4H0282	08/20/2014	<i>08/20/14 14:53</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>78.3 %</i>	<i>27 - 151</i>		B4H0282	08/20/2014	<i>08/20/14 14:53</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402381-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0272	08/20/2014	08/20/14 11:04	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,1,1-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,1,2-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,1-Dichloroethane	0.57	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,1-Dichloroethene	0.57	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,1-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2,3-Trichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2-Dibromoethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,3-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,3-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
1,4-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
2,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
2-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
4-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
4-Isopropyltoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Benzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Bromobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Bromodichloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Bromoform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Bromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Carbon tetrachloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Chlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CBT

Lab ID: 1402381-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Chloroform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Chloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Dibromochloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Dibromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Dichlorodifluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Ethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Hexachlorobutadiene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Isopropylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
m,p-Xylene	ND	1.0	1	B4H0200	08/18/2014	08/18/14 13:16	
Methylene chloride	ND	1.0	1	B4H0200	08/18/2014	08/18/14 13:16	
MTBE	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
n-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
n-Propylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Naphthalene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
o-Xylene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
sec-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Styrene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
tert-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Tetrachloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Toluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Trichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Trichlorofluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Vinyl chloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 13:16	
Surrogate: 1,2-Dichloroethane-d4	94.7 %	64 - 146		B4H0200	08/18/2014	08/18/14 13:16	
Surrogate: 4-Bromofluorobenzene	102 %	60 - 128		B4H0200	08/18/2014	08/18/14 13:16	
Surrogate: Dibromofluoromethane	93.6 %	72 - 141		B4H0200	08/18/2014	08/18/14 13:16	
Surrogate: Toluene-d8	90.6 %	61 - 124		B4H0200	08/18/2014	08/18/14 13:16	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402381-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0272	08/20/2014	08/20/14 11:19	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,1,1-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,1,2-Trichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,1-Dichloroethane	0.63	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,1-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,1-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2,3-Trichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2-Dibromoethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2-Dichloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,3-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,3-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
1,4-Dichlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
2,2-Dichloropropane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
2-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
4-Chlorotoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
4-Isopropyltoluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Benzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Bromobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Bromodichloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Bromoform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Bromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Carbon tetrachloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Chlorobenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Client Sample ID CEFF

Lab ID: 1402381-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Chloroform	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Chloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Dibromochloromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Dibromomethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Dichlorodifluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Ethylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Hexachlorobutadiene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Isopropylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
m,p-Xylene	ND	1.0	1	B4H0200	08/18/2014	08/18/14 12:52	
Methylene chloride	ND	1.0	1	B4H0200	08/18/2014	08/18/14 12:52	
MTBE	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
n-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
n-Propylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Naphthalene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
o-Xylene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
sec-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Styrene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
tert-Butylbenzene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Tetrachloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Toluene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Trichloroethene	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Trichlorofluoromethane	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Vinyl chloride	ND	0.50	1	B4H0200	08/18/2014	08/18/14 12:52	
Surrogate: 1,2-Dichloroethane-d4	94.3 %	64 - 146		B4H0200	08/18/2014	08/18/14 12:52	
Surrogate: 4-Bromofluorobenzene	102 %	60 - 128		B4H0200	08/18/2014	08/18/14 12:52	
Surrogate: Dibromofluoromethane	94.7 %	72 - 141		B4H0200	08/18/2014	08/18/14 12:52	
Surrogate: Toluene-d8	91.0 %	61 - 124		B4H0200	08/18/2014	08/18/14 12:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0272 - GCSEMI_ALCOHOLS

Blank (B4H0272-BLK1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0272-BS1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

Isopropyl Alcohol

470.122

1.0

500.000

94.0

70 - 130

Matrix Spike (B4H0272-MS1)

Source: 1402381-03

Prepared: 8/20/2014 Analyzed: 8/20/2014

Isopropyl Alcohol

211.005

1.0

200.000

ND

106

70 - 130

Matrix Spike Dup (B4H0272-MSD1)

Source: 1402381-03

Prepared: 8/20/2014 Analyzed: 8/20/2014

Isopropyl Alcohol

240.851

1.0

200.000

ND

120

70 - 130

13.2

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0200 - MSVOAW_LL

Blank (B4H0200-BLK1)

Prepared: 8/18/2014 Analyzed: 8/18/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0200 - MSVOAW_LL (continued)

Blank (B4H0200-BLK1) - Continued

Prepared: 8/18/2014 Analyzed: 8/18/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	22.23		25.0000		88.9	64 - 146			
Surrogate: 4-Bromofluorobenzene	27.34		25.0000		109	60 - 128			
Surrogate: Dibromofluoromethane	21.61		25.0000		86.4	72 - 141			
Surrogate: Toluene-d8	22.47		25.0000		89.9	61 - 124			

LCS (B4H0200-BS1)

Prepared: 8/18/2014 Analyzed: 8/18/2014

1,1-Dichloroethene	18.9100		20.0000		94.6	56 - 131			
Benzene	21.9200		20.0000		110	69 - 139			
Chlorobenzene	21.7500		20.0000		109	73 - 127			
MTBE	18.9900		20.0000		95.0	68 - 133			
Toluene	23.0000		20.0000		115	62 - 133			
Trichloroethene	22.1700		20.0000		111	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	17.19		25.0000		68.8	64 - 146			
Surrogate: 4-Bromofluorobenzene	26.20		25.0000		105	60 - 128			
Surrogate: Dibromofluoromethane	18.63		25.0000		74.5	72 - 141			
Surrogate: Toluene-d8	22.29		25.0000		89.2	61 - 124			

LCS Dup (B4H0200-BSD1)

Prepared: 8/18/2014 Analyzed: 8/18/2014

1,1-Dichloroethene	21.1800		20.0000		106	56 - 131	11.3	20	
Benzene	21.5500		20.0000		108	69 - 139	1.70	20	
Chlorobenzene	21.4200		20.0000		107	73 - 127	1.53	20	
MTBE	19.2700		20.0000		96.4	68 - 133	1.46	20	
Toluene	22.6800		20.0000		113	62 - 133	1.40	20	
Trichloroethene	21.8100		20.0000		109	72 - 139	1.64	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0200 - MSVOAW_LL (continued)

LCS Dup (B4H0200-BSD1) - Continued

Prepared: 8/18/2014 Analyzed: 8/18/2014

Surrogate: 1,2-Dichloroethane-d4	17.33	25.0000	69.3	64 - 146
Surrogate: 4-Bromofluorobenzene	25.71	25.0000	103	60 - 128
Surrogate: Dibromofluoromethane	18.62	25.0000	74.5	72 - 141
Surrogate: Toluene-d8	21.57	25.0000	86.3	61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0307 - MSSEMI

Blank (B4H0307-BLK1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	72.90		100.000		72.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	75.49		100.000		75.5	55 - 117			
Surrogate: 4-Terphenyl-d14	85.41		100.000		85.4	52 - 142			
Surrogate: Nitrobenzene-d5	72.66		100.000		72.7	43 - 116			

LCS (B4H0307-BS1)

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	109.080	2.0	100.000		109	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	71.10		100.000		71.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.60		100.000		76.6	55 - 117			
Surrogate: 4-Terphenyl-d14	85.88		100.000		85.9	52 - 142			
Surrogate: Nitrobenzene-d5	73.98		100.000		74.0	43 - 116			

Matrix Spike (B4H0307-MS1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1018.06	20	100.000	973.940	44.1	62 - 127			D6, M3
Surrogate: 1,2-Dichlorobenzene-d4	79.50		100.000		79.5	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	89.70		100.000		89.7	55 - 117			D6
Surrogate: 4-Terphenyl-d14	92.80		100.000		92.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	83.50		100.000		83.5	43 - 116			D6

Matrix Spike Dup (B4H0307-MSD1)

Source: 1402397-02

Prepared: 8/21/2014 Analyzed: 8/22/2014

1,4-Dioxane	1042.52	20	100.000	973.940	68.6	62 - 127	2.37	20	D6
Surrogate: 1,2-Dichlorobenzene-d4	78.20		100.000		78.2	42 - 106			D6
Surrogate: 2-Fluorobiphenyl	87.80		100.000		87.8	55 - 117			D6
Surrogate: 4-Terphenyl-d14	91.80		100.000		91.8	52 - 142			D6
Surrogate: Nitrobenzene-d5	79.60		100.000		79.6	43 - 116			D6



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

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 B4H0282 - MSSEMI_ISOTOPEDILN

Blank (B4H0282-BLK1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.8738		1.00000		87.4	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9469		1.00000		94.7	48 - 121			
Surrogate: 4-Terphenyl-d14	1.164		1.00000		116	58 - 142			
Surrogate: Nitrobenzene-d5	0.7734		1.00000		77.3	27 - 151			

LCS (B4H0282-BS1)

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.44722	0.20	1.00000		145	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8545		1.00000		85.5	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9217		1.00000		92.2	48 - 121			
Surrogate: 4-Terphenyl-d14	1.090		1.00000		109	58 - 142			
Surrogate: Nitrobenzene-d5	0.7444		1.00000		74.4	27 - 151			

Matrix Spike (B4H0282-MS1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.36696	0.20	1.00000	ND	137	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.9273		1.00000		92.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.9003		1.00000		90.0	48 - 121			
Surrogate: 4-Terphenyl-d14	1.258		1.00000		126	58 - 142			
Surrogate: Nitrobenzene-d5	0.9780		1.00000		97.8	27 - 151			

Matrix Spike Dup (B4H0282-MSD1)

Source: 1402412-02

Prepared: 8/20/2014 Analyzed: 8/20/2014

1,4-Dioxane	1.44546	0.20	1.00000	ND	145	58 - 151	5.58	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.8892		1.00000		88.9	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.8406		1.00000		84.1	48 - 121			
Surrogate: 4-Terphenyl-d14	1.175		1.00000		118	58 - 142			
Surrogate: Nitrobenzene-d5	0.9237		1.00000		92.4	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 08/25/2014

Notes and Definitions

M3	Matrix spike recovery outside of acceptance limit due to disproportionate concentration of the analyte to spike level. The analytical batch was validated by the laboratory control sample.
D6	Sample required dilution due to high concentration of target analyte.
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.

Testing, calibrating, advising

Certificate of Analysis

August 22, 2014

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Exova Job No: 159631
Purchase Order: CREDIT CARD
Project Name: 1402381 / Groundwater
Samples Received: One (1) Sample(s)
Date Received: 08/18/2014

JWL

Attn: Rachelle Arada

Analysis

Page

Bromate by EPA 317.0

2



Michael Shelton
Technical Director



Patricia Metzger
Senior Chemist

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402381-03 / POX	2.0
Method Blank	ND
Detection Limit	0.3
Date Analyzed:	08-20-14

Quality Control Summary

Sample ID:	Batch QC						
<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	1.1	20.0	18.2	86	18.3	86	1
QC Guidelines				75-125		75-125	NMT 10

Sample ID:	ATL Lab#: 1402381-03 / POX			
<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>
Bromate	2.0	20.0	22.0	100
QC Guidelines				75-125

ADVANCED TECHNOLOGY
 LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402381

Page 24 of 25

SENDING LABORATORY:

Advanced Technology Laboratories
 3275 Walnut Avenue
 Signal Hill, CA 90755
 Phone: 562.989.4045
 Fax: 562.989.6348
 Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.
 9240 Santa Fe Springs Road
 Santa Fe Springs, CA 90670
 Phone : (562) 948-2225
 Fax: (562) 948-5850
 PO#: SC08753- STANDARD TAT (RA)

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402381-03 ~* / POX 317.0 SUB [Bromate] 1-Poly Unpres - 125mL	08/29/14 17:00	08/16/14 10:30	08/15/14 10:30	

*08-18-14 HCP: also labeled w/ E

Released By <i>ARSEN M. M. M. M. M.</i> <i>[Signature]</i>	Date 8/18/14	Received By <i>[Signature]</i> <i>[Signature]</i>	Date 8-18-14	9:30
Released By <i>[Signature]</i>	Date 8-18-14	Received By <i>[Signature]</i>	Date 08/18/14	10:17

159631

8/15/14

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 8/15/14 PAGE 1 OF 1

PROJECT NAME		PROJECT No./TASK No.		SAMPLE CONTAINERS		ANALYSIS REQUESTED		ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S		SPECIAL HANDLING		LABORATORY INFORMATION													
Raytheon Main		532.20										Advanced Technology Laboratories													
PROJECT MANAGER		Phone No.										3275 Walnut Ave													
Steve Netto		(858) 455-6500										Signal Hill, CA 90755													
QA MANAGER		Fax No.										Attn: Rachelle Arada													
Marcos Rodriguez		(858) 455-6533																							
SAMPLER (SIGNATURE)		SAMPLER (PRINTED)																							
		MARCO RODRIGUEZ																							
LAB ID	SAMPLE ID	SAMPLE COLLECTION		MATRIX		PRESERVATION		40 ml VOA	125 ml HDPE	1 L Amber	EPA 8260B VOCs	EPA 8270C (MDD) 1,4-Dioxane	EPA 317 Bromate	EPA 300 Bromide	EPA 8270C (SIM) 1,4-Dioxane	Lab-Filtered 0-10	10-100	100-1,000	1,000-10,000	>10,000	Lab Filtered				
		Date	Time	Soil	Ground water	Surface water	Lab H2O																		HCl
1402381	-1 TB-DB/1524	8/15/14	09:30			X	X					X					X								Please include
	-2 INF		10:15	X		X					X	X					X								on lab report
	-3 POX		10:30	X		X					X		X		X		X								distribution list.
	-4 CBT		10:40	X		X					X						X								
	-5 CEFF		10:50	X		X					X						X								
																									Add MTBE and IPA
																									to VOC list by
																									EPA 8260B
																									except for
																									TB



September 09, 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 : 1402457
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 22, 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,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", with a small "ER" monogram to the left.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08222014	1402457-01	Lab H2O	8/22/14 10:00	8/22/14 12:23
INF	1402457-02	Groundwater	8/22/14 10:40	8/22/14 12:23
POX	1402457-03	Groundwater	8/22/14 10:55	8/22/14 12:23
CBT	1402457-04	Groundwater	8/22/14 11:10	8/22/14 12:23
CEFF	1402457-05	Groundwater	8/22/14 11:20	8/22/14 12:23

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID TB-08222014

Lab ID: 1402457-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,1,1-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,1,2-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,1-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,1-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,1-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2,3-Trichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2-Dibromoethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,3-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,3-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
1,4-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
2,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
2-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
4-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
4-Isopropyltoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Benzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Bromobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Bromodichloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Bromoform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Bromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Carbon tetrachloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Chlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Chloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Chloroform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Chloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Dibromochloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID TB-08222014

Lab ID: 1402457-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Dichlorodifluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Ethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Hexachlorobutadiene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Isopropylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
m,p-Xylene	ND	1.0	1	B4H0352	08/25/2014	08/25/14 15:39	
Methylene chloride	ND	1.0	1	B4H0352	08/25/2014	08/25/14 15:39	
MTBE	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
n-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
n-Propylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Naphthalene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
o-Xylene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
sec-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Styrene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
tert-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Tetrachloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Toluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Trichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Trichlorofluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Vinyl chloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:39	
Surrogate: 1,2-Dichloroethane-d4	87.9 %	64 - 146		B4H0352	08/25/2014	08/25/14 15:39	
Surrogate: 4-Bromofluorobenzene	97.2 %	60 - 128		B4H0352	08/25/2014	08/25/14 15:39	
Surrogate: Dibromofluoromethane	84.8 %	72 - 141		B4H0352	08/25/2014	08/25/14 15:39	
Surrogate: Toluene-d8	90.7 %	61 - 124		B4H0352	08/25/2014	08/25/14 15:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID INF

Lab ID: 1402457-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0399	08/27/2014	08/27/14 09:52	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,1,1-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,1,2-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,1-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,1-Dichloroethene	23	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,1-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2,3-Trichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2-Dibromoethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,3-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,3-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
1,4-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
2,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
2-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
4-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
4-Isopropyltoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Benzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Bromobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Bromodichloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Bromoform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Bromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Carbon tetrachloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Chlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID INF

Lab ID: 1402457-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Chloroform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Chloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Dibromochloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Dibromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Dichlorodifluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Ethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Hexachlorobutadiene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Isopropylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
m,p-Xylene	ND	1.0	1	B4H0352	08/25/2014	08/25/14 16:27	
Methylene chloride	ND	1.0	1	B4H0352	08/25/2014	08/25/14 16:27	
MTBE	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
n-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
n-Propylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Naphthalene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
o-Xylene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
sec-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Styrene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
tert-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Tetrachloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Toluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Trichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Trichlorofluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Vinyl chloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:27	
Surrogate: 1,2-Dichloroethane-d4	87.8 %	64 - 146		B4H0352	08/25/2014	08/25/14 16:27	
Surrogate: 4-Bromofluorobenzene	96.8 %	60 - 128		B4H0352	08/25/2014	08/25/14 16:27	
Surrogate: Dibromofluoromethane	85.8 %	72 - 141		B4H0352	08/25/2014	08/25/14 16:27	
Surrogate: Toluene-d8	87.2 %	61 - 124		B4H0352	08/25/2014	08/25/14 16:27	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID INF

Lab ID: 1402457-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	8.5	2.0	1	B4H0411	08/27/2014	08/27/14 15:18	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.0 %</i>	<i>42 - 106</i>		<i>B4H0411</i>	<i>08/27/2014</i>	<i>08/27/14 15:18</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>74.1 %</i>	<i>55 - 117</i>		<i>B4H0411</i>	<i>08/27/2014</i>	<i>08/27/14 15:18</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>87.0 %</i>	<i>52 - 142</i>		<i>B4H0411</i>	<i>08/27/2014</i>	<i>08/27/14 15:18</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>68.1 %</i>	<i>43 - 116</i>		<i>B4H0411</i>	<i>08/27/2014</i>	<i>08/27/14 15:18</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID POX

Lab ID: 1402457-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0399	08/27/2014	08/27/14 10:06	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,1,1-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,1,2-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,1-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,1-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,1-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2,3-Trichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2-Dibromoethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,3-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,3-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
1,4-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
2,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
2-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
4-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
4-Isopropyltoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Benzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Bromobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Bromodichloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Bromoform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Bromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Carbon tetrachloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Chlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID POX

Lab ID: 1402457-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Chloroform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Chloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Dibromochloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Dibromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Dichlorodifluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Ethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Hexachlorobutadiene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Isopropylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
m,p-Xylene	ND	1.0	1	B4H0352	08/25/2014	08/25/14 16:03	
Methylene chloride	ND	1.0	1	B4H0352	08/25/2014	08/25/14 16:03	
MTBE	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
n-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
n-Propylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Naphthalene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
o-Xylene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
sec-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Styrene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
tert-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Tetrachloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Toluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Trichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Trichlorofluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Vinyl chloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 16:03	
Surrogate: 1,2-Dichloroethane-d4	89.5 %	64 - 146		B4H0352	08/25/2014	08/25/14 16:03	
Surrogate: 4-Bromofluorobenzene	95.6 %	60 - 128		B4H0352	08/25/2014	08/25/14 16:03	
Surrogate: Dibromofluoromethane	86.2 %	72 - 141		B4H0352	08/25/2014	08/25/14 16:03	
Surrogate: Toluene-d8	92.6 %	61 - 124		B4H0352	08/25/2014	08/25/14 16:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID POX

Lab ID: 1402457-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	1.2	0.20	1	B4H0381	08/26/2014	08/26/14 17:13	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>75.4 %</i>	<i>47 - 117</i>		B4H0381	08/26/2014	<i>08/26/14 17:13</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>83.5 %</i>	<i>48 - 121</i>		B4H0381	08/26/2014	<i>08/26/14 17:13</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>101 %</i>	<i>58 - 142</i>		B4H0381	08/26/2014	<i>08/26/14 17:13</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>62.1 %</i>	<i>27 - 151</i>		B4H0381	08/26/2014	<i>08/26/14 17:13</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID CBT

Lab ID: 1402457-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0399	08/27/2014	08/27/14 10:21	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,1,1-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,1,2-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,1-Dichloroethane	0.68	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,1-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,1-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2,3-Trichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2-Dibromoethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,3-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,3-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
1,4-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
2,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
2-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
4-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
4-Isopropyltoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Benzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Bromobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Bromodichloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Bromoform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Bromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Carbon tetrachloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Chlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID CBT

Lab ID: 1402457-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Chloroform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Chloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Dibromochloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Dibromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Dichlorodifluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Ethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Hexachlorobutadiene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Isopropylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
m,p-Xylene	ND	1.0	1	B4H0352	08/25/2014	08/25/14 15:15	
Methylene chloride	ND	1.0	1	B4H0352	08/25/2014	08/25/14 15:15	
MTBE	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
n-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
n-Propylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Naphthalene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
o-Xylene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
sec-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Styrene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
tert-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Tetrachloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Toluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Trichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Trichlorofluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Vinyl chloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 15:15	
Surrogate: 1,2-Dichloroethane-d4	88.5 %	64 - 146		B4H0352	08/25/2014	08/25/14 15:15	
Surrogate: 4-Bromofluorobenzene	96.2 %	60 - 128		B4H0352	08/25/2014	08/25/14 15:15	
Surrogate: Dibromofluoromethane	84.6 %	72 - 141		B4H0352	08/25/2014	08/25/14 15:15	
Surrogate: Toluene-d8	91.3 %	61 - 124		B4H0352	08/25/2014	08/25/14 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID CEFF

Lab ID: 1402457-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4H0399	08/27/2014	08/27/14 10:35	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,1,1-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,1,2-Trichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,1-Dichloroethane	0.71	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,1-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,1-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2,3-Trichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2-Dibromoethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2-Dichloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,3-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,3-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
1,4-Dichlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
2,2-Dichloropropane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
2-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
4-Chlorotoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
4-Isopropyltoluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Benzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Bromobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Bromodichloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Bromoform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Bromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Carbon tetrachloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Chlorobenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Client Sample ID CEFF

Lab ID: 1402457-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Chloroform	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Chloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Dibromochloromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Dibromomethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Dichlorodifluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Ethylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Hexachlorobutadiene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Isopropylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
m,p-Xylene	ND	1.0	1	B4H0352	08/25/2014	08/25/14 14:51	
Methylene chloride	ND	1.0	1	B4H0352	08/25/2014	08/25/14 14:51	
MTBE	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
n-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
n-Propylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Naphthalene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
o-Xylene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
sec-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Styrene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
tert-Butylbenzene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Tetrachloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Toluene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Trichloroethene	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Trichlorofluoromethane	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
Vinyl chloride	ND	0.50	1	B4H0352	08/25/2014	08/25/14 14:51	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>90.8 %</i>	<i>64 - 146</i>		B4H0352	08/25/2014	<i>08/25/14 14:51</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>95.8 %</i>	<i>60 - 128</i>		B4H0352	08/25/2014	<i>08/25/14 14:51</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>84.8 %</i>	<i>72 - 141</i>		B4H0352	08/25/2014	<i>08/25/14 14:51</i>	
<i>Surrogate: Toluene-d8</i>	<i>89.6 %</i>	<i>61 - 124</i>		B4H0352	08/25/2014	<i>08/25/14 14:51</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0399 - GCSEMI_ALCOHOLS

Blank (B4H0399-BLK1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4H0399-BS1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

Isopropyl Alcohol

466.467

1.0

500.000

93.3

70 - 130

Matrix Spike (B4H0399-MS1)

Source: 1402457-03

Prepared: 8/27/2014 Analyzed: 8/27/2014

Isopropyl Alcohol

233.780

1.0

200.000

ND

117

70 - 130

Matrix Spike Dup (B4H0399-MSD1)

Source: 1402457-03

Prepared: 8/27/2014 Analyzed: 8/27/2014

Isopropyl Alcohol

199.607

1.0

200.000

ND

99.8

70 - 130

15.8

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0352 - MSVOAW_LL

Blank (B4H0352-BLK1)

Prepared: 8/25/2014 Analyzed: 8/25/2014

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
Ethylbenzene	ND	0.50			NR
Hexachlorobutadiene	ND	0.50			NR



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0352 - MSVOAW_LL (continued)

Blank (B4H0352-BLK1) - Continued

Prepared: 8/25/2014 Analyzed: 8/25/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	21.55		25.0000		86.2	64 - 146			
Surrogate: 4-Bromofluorobenzene	25.83		25.0000		103	60 - 128			
Surrogate: Dibromofluoromethane	21.31		25.0000		85.2	72 - 141			
Surrogate: Toluene-d8	23.89		25.0000		95.6	61 - 124			

LCS (B4H0352-BS1)

Prepared: 8/25/2014 Analyzed: 8/25/2014

1,1-Dichloroethene	17.7100		20.0000		88.6	56 - 131			
Benzene	21.7000		20.0000		108	69 - 139			
Chlorobenzene	21.1800		20.0000		106	73 - 127			
MTBE	17.9300		20.0000		89.6	68 - 133			
Toluene	24.2000		20.0000		121	62 - 133			
Trichloroethene	22.1900		20.0000		111	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	18.83		25.0000		75.3	64 - 146			
Surrogate: 4-Bromofluorobenzene	23.67		25.0000		94.7	60 - 128			
Surrogate: Dibromofluoromethane	18.42		25.0000		73.7	72 - 141			
Surrogate: Toluene-d8	23.44		25.0000		93.8	61 - 124			

LCS Dup (B4H0352-BSD1)

Prepared: 8/25/2014 Analyzed: 8/25/2014

1,1-Dichloroethene	19.4800		20.0000		97.4	56 - 131	9.52	20	
Benzene	22.7700		20.0000		114	69 - 139	4.81	20	
Chlorobenzene	22.0300		20.0000		110	73 - 127	3.93	20	
MTBE	17.3500		20.0000		86.8	68 - 133	3.29	20	
Toluene	24.6300		20.0000		123	62 - 133	1.76	20	
Trichloroethene	22.9700		20.0000		115	72 - 139	3.45	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0352 - MSVOAW_LL (continued)

LCS Dup (B4H0352-BSD1) - Continued

Prepared: 8/25/2014 Analyzed: 8/25/2014

Surrogate: 1,2-Dichloroethane-d4	18.01		25.0000		72.0	64 - 146
Surrogate: 4-Bromofluorobenzene	23.91		25.0000		95.6	60 - 128
Surrogate: Dibromofluoromethane	18.09		25.0000		72.4	72 - 141
Surrogate: Toluene-d8	24.02		25.0000		96.1	61 - 124

Duplicate (B4H0352-DUP1)

Source: 1402467-01

Prepared: 8/25/2014 Analyzed: 8/25/2014

1,1-Dichloroethene	ND	0.50		ND	NR	20
Benzene	ND	0.50		ND	NR	20
Chlorobenzene	ND	0.50		ND	NR	20
MTBE	ND	0.50		ND	NR	20
Toluene	ND	0.50		ND	NR	20
Trichloroethene	ND	0.50		ND	NR	20

Surrogate: 1,2-Dichloroethane-d4	22.95		25.0000		91.8	64 - 146
Surrogate: 4-Bromofluorobenzene	25.55		25.0000		102	60 - 128
Surrogate: Dibromofluoromethane	22.01		25.0000		88.0	72 - 141
Surrogate: Toluene-d8	23.72		25.0000		94.9	61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

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 B4H0411 - MSSEMI

Blank (B4H0411-BLK1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	75.67		100.000		75.7	42 - 106			
Surrogate: 2-Fluorobiphenyl	82.55		100.000		82.6	55 - 117			
Surrogate: 4-Terphenyl-d14	88.52		100.000		88.5	52 - 142			
Surrogate: Nitrobenzene-d5	76.04		100.000		76.0	43 - 116			

LCS (B4H0411-BS1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

1,4-Dioxane	105.190	2.0	100.000		105	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	70.78		100.000		70.8	42 - 106			
Surrogate: 2-Fluorobiphenyl	75.88		100.000		75.9	55 - 117			
Surrogate: 4-Terphenyl-d14	82.68		100.000		82.7	52 - 142			
Surrogate: Nitrobenzene-d5	69.87		100.000		69.9	43 - 116			

LCS Dup (B4H0411-BS1)

Prepared: 8/27/2014 Analyzed: 8/27/2014

1,4-Dioxane	106.210	2.0	100.000		106	62 - 127	0.965	20	
Surrogate: 1,2-Dichlorobenzene-d4	72.47		100.000		72.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.21		100.000		78.2	55 - 117			
Surrogate: 4-Terphenyl-d14	87.95		100.000		88.0	52 - 142			
Surrogate: Nitrobenzene-d5	74.00		100.000		74.0	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

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 B4H0381 - MSSEMI_ISOTOPEDILN

Blank (B4H0381-BLK1)

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	ND	0.20		NR					
Surrogate: 1,2-Dichlorobenzene-d4	0.8408		1.00000	84.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9450		1.00000	94.5	48 - 121				
Surrogate: 4-Terphenyl-d14	1.202		1.00000	120	58 - 142				
Surrogate: Nitrobenzene-d5	0.7317		1.00000	73.2	27 - 151				

LCS (B4H0381-BS1)

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.46422	0.20	1.00000	146	58 - 151				
Surrogate: 1,2-Dichlorobenzene-d4	0.8382		1.00000	83.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9235		1.00000	92.3	48 - 121				
Surrogate: 4-Terphenyl-d14	1.078		1.00000	108	58 - 142				
Surrogate: Nitrobenzene-d5	0.7127		1.00000	71.3	27 - 151				

Matrix Spike (B4H0381-MS1)

Source: 1402432-03

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.46449	0.20	1.00000	ND	146	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.8208		1.00000	82.1	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9284		1.00000	92.8	48 - 121				
Surrogate: 4-Terphenyl-d14	1.114		1.00000	111	58 - 142				
Surrogate: Nitrobenzene-d5	0.7186		1.00000	71.9	27 - 151				

Matrix Spike Dup (B4H0381-MSD1)

Source: 1402432-03

Prepared: 8/26/2014 Analyzed: 8/26/2014

1,4-Dioxane	1.40828	0.20	1.00000	ND	141	58 - 151	3.91	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.7979		1.00000	79.8	47 - 117				
Surrogate: 2-Fluorobiphenyl	0.9071		1.00000	90.7	48 - 121				
Surrogate: 4-Terphenyl-d14	1.055		1.00000	105	58 - 142				
Surrogate: Nitrobenzene-d5	0.6640		1.00000	66.4	27 - 151				



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/09/2014

Notes and Definitions

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.

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402457-03 / POX	0.6

Method Blank	ND

Detection Limit	0.3

Date Analyzed:	09-05-14

Quality Control Summary

Sample ID:	Batch QC

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	0.6	20.0	19.3	94	19.1	93	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402457

SENDING LABORATORY:

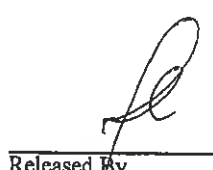
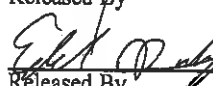
Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC08760- STANDARD TAT 

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402457-03 / POX 317 0 SUB [Bromate] 1-Poly Unpres - 125mL	09/08/14 17:00	Groundwater 08/23/14 10:55	08/22/14 10:55	

 Released By  Released By	8/25/14 0928 Date 8-25-14 10:39 Date	 Received By  Received By	8-25-14 9:28 Date 8-25-14 10:39 am Date



DATE 8/22/14 PAGE 1 OF 1

[illegible]



September 12, 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 : 1402524
Client Reference : Raytheon Main, 532.20

Enclosed are the results for sample(s) received on August 29, 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,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", with a small "ER" monogram to the left.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-08292014	1402524-01	Lab H2O	8/29/14 7:30	8/29/14 12:53
INF	1402524-02	Groundwater	8/29/14 8:10	8/29/14 12:53
POX	1402524-03	Groundwater	8/29/14 8:25	8/29/14 12:53
CBT	1402524-04	Groundwater	8/29/14 8:35	8/29/14 12:53
CEFF	1402524-05	Groundwater	8/29/14 8:50	8/29/14 12:53

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID TB-08292014

Lab ID: 1402524-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,1,1-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,1,2-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,1-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,1-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,1-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2,3-Trichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2-Dibromoethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,3-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,3-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
1,4-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
2,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
2-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
4-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
4-Isopropyltoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Benzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Bromobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Bromodichloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Bromoform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Bromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Carbon tetrachloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Chlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Chloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Chloroform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Chloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Dibromochloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID TB-08292014

Lab ID: 1402524-01

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Dichlorodifluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Ethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Hexachlorobutadiene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Isopropylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
m,p-Xylene	ND	1.0	1	B4H0460	08/29/2014	08/29/14 15:15	
Methylene chloride	ND	1.0	1	B4H0460	08/29/2014	08/29/14 15:15	
MTBE	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
n-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
n-Propylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Naphthalene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
o-Xylene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
sec-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Styrene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
tert-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Tetrachloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Toluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Trichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Trichlorofluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Vinyl chloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 15:15	
Surrogate: 1,2-Dichloroethane-d4	133 %	64 - 146		B4H0460	08/29/2014	08/29/14 15:15	
Surrogate: 4-Bromofluorobenzene	94.6 %	60 - 128		B4H0460	08/29/2014	08/29/14 15:15	
Surrogate: Dibromofluoromethane	120 %	72 - 141		B4H0460	08/29/2014	08/29/14 15:15	
Surrogate: Toluene-d8	111 %	61 - 124		B4H0460	08/29/2014	08/29/14 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID INF

Lab ID: 1402524-02

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4I0048	09/03/2014	09/03/14 16:11	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,1,1-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,1,2-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,1-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,1-Dichloroethene	34	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,1-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2,3-Trichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2-Dibromoethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,3-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,3-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
1,4-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
2,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
2-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
4-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
4-Isopropyltoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Benzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Bromobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Bromodichloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Bromoform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Bromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Carbon tetrachloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Chlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID INF

Lab ID: 1402524-02

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Chloroform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Chloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Dibromochloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Dibromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Dichlorodifluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Ethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Hexachlorobutadiene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Isopropylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
m,p-Xylene	ND	1.0	1	B4H0460	08/29/2014	08/29/14 18:02	
Methylene chloride	ND	1.0	1	B4H0460	08/29/2014	08/29/14 18:02	
MTBE	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
n-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
n-Propylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Naphthalene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
o-Xylene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
sec-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Styrene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
tert-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Tetrachloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Toluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Trichloroethene	0.65	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Trichlorofluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
Vinyl chloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 18:02	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115 %</i>	<i>64 - 146</i>		B4H0460	08/29/2014	08/29/14 18:02	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>89.6 %</i>	<i>60 - 128</i>		B4H0460	08/29/2014	08/29/14 18:02	
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>	<i>72 - 141</i>		B4H0460	08/29/2014	08/29/14 18:02	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>61 - 124</i>		B4H0460	08/29/2014	08/29/14 18:02	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID INF

Lab ID: 1402524-02

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	15	2.0	1	B4I0087	09/05/2014	09/05/14 12:55	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>45.0 %</i>	<i>42 - 106</i>		<i>B4I0087</i>	<i>09/05/2014</i>	<i>09/05/14 12:55</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>54.5 %</i>	<i>55 - 117</i>		<i>B4I0087</i>	<i>09/05/2014</i>	<i>09/05/14 12:55</i>	<i>S2</i>
<i>Surrogate: 4-Terphenyl-d14</i>	<i>81.1 %</i>	<i>52 - 142</i>		<i>B4I0087</i>	<i>09/05/2014</i>	<i>09/05/14 12:55</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>46.9 %</i>	<i>43 - 116</i>		<i>B4I0087</i>	<i>09/05/2014</i>	<i>09/05/14 12:55</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID POX

Lab ID: 1402524-03

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4I0048	09/03/2014	09/03/14 16:26	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,1,1-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,1,2-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,1-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,1-Dichloroethene	2.8	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,1-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2,3-Trichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2-Dibromoethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,3-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,3-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
1,4-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
2,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
2-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
4-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
4-Isopropyltoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Benzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Bromobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Bromodichloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Bromoform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Bromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Carbon tetrachloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Chlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID POX

Lab ID: 1402524-03

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Chloroform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Chloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Dibromochloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Dibromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Dichlorodifluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Ethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Hexachlorobutadiene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Isopropylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
m,p-Xylene	ND	1.0	1	B4H0460	08/29/2014	08/29/14 17:39	
Methylene chloride	ND	1.0	1	B4H0460	08/29/2014	08/29/14 17:39	
MTBE	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
n-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
n-Propylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Naphthalene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
o-Xylene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
sec-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Styrene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
tert-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Tetrachloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Toluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Trichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Trichlorofluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Vinyl chloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:39	
Surrogate: 1,2-Dichloroethane-d4	127 %	64 - 146		B4H0460	08/29/2014	08/29/14 17:39	
Surrogate: 4-Bromofluorobenzene	93.8 %	60 - 128		B4H0460	08/29/2014	08/29/14 17:39	
Surrogate: Dibromofluoromethane	117 %	72 - 141		B4H0460	08/29/2014	08/29/14 17:39	
Surrogate: Toluene-d8	108 %	61 - 124		B4H0460	08/29/2014	08/29/14 17:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID POX

Lab ID: 1402524-03

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

Analyst: BD

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	11	1.0	5	B4I0088	09/05/2014	09/05/14 12:40	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>79.3 %</i>	<i>47 - 117</i>		B4I0088	09/05/2014	<i>09/05/14 12:40</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>78.9 %</i>	<i>48 - 121</i>		B4I0088	09/05/2014	<i>09/05/14 12:40</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>87.1 %</i>	<i>58 - 142</i>		B4I0088	09/05/2014	<i>09/05/14 12:40</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>103 %</i>	<i>27 - 151</i>		B4I0088	09/05/2014	<i>09/05/14 12:40</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID CBT

Lab ID: 1402524-04

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4I0048	09/03/2014	09/03/14 16:41	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,1,1-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,1,2-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,1-Dichloroethane	0.68	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,1-Dichloroethene	0.61	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,1-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2,3-Trichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2-Dibromoethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,3-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,3-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
1,4-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
2,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
2-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
4-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
4-Isopropyltoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Benzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Bromobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Bromodichloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Bromoform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Bromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Carbon tetrachloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Chlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID CBT

Lab ID: 1402524-04

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Chloroform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Chloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Dibromochloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Dibromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Dichlorodifluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Ethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Hexachlorobutadiene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Isopropylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
m,p-Xylene	ND	1.0	1	B4H0460	08/29/2014	08/29/14 17:14	
Methylene chloride	ND	1.0	1	B4H0460	08/29/2014	08/29/14 17:14	
MTBE	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
n-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
n-Propylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Naphthalene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
o-Xylene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
sec-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Styrene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
tert-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Tetrachloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Toluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Trichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Trichlorofluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Vinyl chloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 17:14	
Surrogate: 1,2-Dichloroethane-d4	118 %	64 - 146		B4H0460	08/29/2014	08/29/14 17:14	
Surrogate: 4-Bromofluorobenzene	88.4 %	60 - 128		B4H0460	08/29/2014	08/29/14 17:14	
Surrogate: Dibromofluoromethane	108 %	72 - 141		B4H0460	08/29/2014	08/29/14 17:14	
Surrogate: Toluene-d8	104 %	61 - 124		B4H0460	08/29/2014	08/29/14 17:14	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID CEFF

Lab ID: 1402524-05

Alcohols by EPA 8015B

Analyst: CR

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Isopropyl Alcohol	ND	1.0	1	B4I0048	09/03/2014	09/03/14 16:56	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,1,1-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,1,2-Trichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,1-Dichloroethane	0.82	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,1-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,1-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2,3-Trichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2,3-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2,4-Trichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2,4-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2-Dibromoethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2-Dichloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,3,5-Trimethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,3-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,3-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
1,4-Dichlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
2,2-Dichloropropane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
2-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
4-Chlorotoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
4-Isopropyltoluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Benzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Bromobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Bromodichloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Bromoform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Bromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Carbon tetrachloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Chlorobenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Client Sample ID CEFF

Lab ID: 1402524-05

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Chloroform	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Chloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
cis-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
cis-1,3-Dichloropropene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Dibromochloromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Dibromomethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Dichlorodifluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Ethylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Hexachlorobutadiene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Isopropylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
m,p-Xylene	ND	1.0	1	B4H0460	08/29/2014	08/29/14 16:50	
Methylene chloride	ND	1.0	1	B4H0460	08/29/2014	08/29/14 16:50	
MTBE	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
n-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
n-Propylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Naphthalene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
o-Xylene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
sec-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Styrene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
tert-Butylbenzene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Tetrachloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Toluene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
trans-1,2-Dichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Trichloroethene	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Trichlorofluoromethane	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Vinyl chloride	ND	0.50	1	B4H0460	08/29/2014	08/29/14 16:50	
Surrogate: 1,2-Dichloroethane-d4	118 %	64 - 146		B4H0460	08/29/2014	08/29/14 16:50	
Surrogate: 4-Bromofluorobenzene	89.4 %	60 - 128		B4H0460	08/29/2014	08/29/14 16:50	
Surrogate: Dibromofluoromethane	110 %	72 - 141		B4H0460	08/29/2014	08/29/14 16:50	
Surrogate: Toluene-d8	105 %	61 - 124		B4H0460	08/29/2014	08/29/14 16:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

QUALITY CONTROL SECTION

Alcohols by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0048 - GCSEMI_ALCOHOLS

Blank (B4I0048-BLK1)

Prepared: 9/3/2014 Analyzed: 9/3/2014

Isopropyl Alcohol

ND

1.0

NR

LCS (B4I0048-BS1)

Prepared: 9/3/2014 Analyzed: 9/3/2014

Isopropyl Alcohol

492.286

1.0

500.000

98.5

70 - 130

Matrix Spike (B4I0048-MS1)

Source: 1402524-03

Prepared: 9/3/2014 Analyzed: 9/3/2014

Isopropyl Alcohol

251.583

1.0

200.000

ND

126

70 - 130

Matrix Spike Dup (B4I0048-MSD1)

Source: 1402524-03

Prepared: 9/3/2014 Analyzed: 9/3/2014

Isopropyl Alcohol

225.610

1.0

200.000

ND

113

70 - 130

10.9

20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4H0460 - MSVOAW_LL

Blank (B4H0460-BLK1)

Prepared: 8/29/2014 Analyzed: 8/29/2014

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
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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4H0460 - MSVOAW_LL (continued)

Blank (B4H0460-BLK1) - Continued

Prepared: 8/29/2014 Analyzed: 8/29/2014

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			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	29.94		25.0000		120	64 - 146			
Surrogate: 4-Bromofluorobenzene	24.02		25.0000		96.1	60 - 128			
Surrogate: Dibromofluoromethane	28.01		25.0000		112	72 - 141			
Surrogate: Toluene-d8	27.02		25.0000		108	61 - 124			

LCS (B4H0460-BS1)

Prepared: 8/29/2014 Analyzed: 8/29/2014

1,1-Dichloroethene	22.5300		20.0000		113	56 - 131			
Benzene	24.8100		20.0000		124	69 - 139			
Chlorobenzene	23.2600		20.0000		116	73 - 127			
MTBE	20.5000		20.0000		102	68 - 133			
Toluene	25.7200		20.0000		129	62 - 133			
Trichloroethene	25.7800		20.0000		129	72 - 139			
Surrogate: 1,2-Dichloroethane-d4	26.12		25.0000		104	64 - 146			
Surrogate: 4-Bromofluorobenzene	25.20		25.0000		101	60 - 128			
Surrogate: Dibromofluoromethane	25.11		25.0000		100	72 - 141			
Surrogate: Toluene-d8	27.28		25.0000		109	61 - 124			

LCS Dup (B4H0460-BSD1)

Prepared: 8/29/2014 Analyzed: 8/29/2014

1,1-Dichloroethene	22.5900		20.0000		113	56 - 131	0.266	20	
Benzene	22.9900		20.0000		115	69 - 139	7.62	20	
Chlorobenzene	22.0300		20.0000		110	73 - 127	5.43	20	
MTBE	21.5400		20.0000		108	68 - 133	4.95	20	
Toluene	24.1100		20.0000		121	62 - 133	6.46	20	
Trichloroethene	22.8700		20.0000		114	72 - 139	12.0	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

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 B4H0460 - MSVOAW_LL (continued)

LCS Dup (B4H0460-BSD1) - Continued

Prepared: 8/29/2014 Analyzed: 8/29/2014

Surrogate: 1,2-Dichloroethane-d4	26.87	25.0000	107	64 - 146
Surrogate: 4-Bromofluorobenzene	24.53	25.0000	98.1	60 - 128
Surrogate: Dibromofluoromethane	26.01	25.0000	104	72 - 141
Surrogate: Toluene-d8	27.41	25.0000	110	61 - 124



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B4I0087 - MSSEMI

Blank (B4I0087-BLK1)

Prepared: 9/5/2014 Analyzed: 9/5/2014

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	49.43		100.000		49.4	42 - 106			
Surrogate: 2-Fluorobiphenyl	56.75		100.000		56.8	55 - 117			
Surrogate: 4-Terphenyl-d14	76.62		100.000		76.6	52 - 142			
Surrogate: Nitrobenzene-d5	48.75		100.000		48.8	43 - 116			

LCS (B4I0087-BS1)

Prepared: 9/5/2014 Analyzed: 9/5/2014

1,4-Dioxane	103.930	2.0	100.000		104	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	34.32		100.000		34.3	42 - 106			S2
Surrogate: 2-Fluorobiphenyl	59.28		100.000		59.3	55 - 117			
Surrogate: 4-Terphenyl-d14	76.08		100.000		76.1	52 - 142			
Surrogate: Nitrobenzene-d5	41.41		100.000		41.4	43 - 116			S2

LCS Dup (B4I0087-BSD1)

Prepared: 9/5/2014 Analyzed: 9/5/2014

1,4-Dioxane	104.070	2.0	100.000		104	62 - 127	0.135	20	
Surrogate: 1,2-Dichlorobenzene-d4	36.32		100.000		36.3	42 - 106			S2
Surrogate: 2-Fluorobiphenyl	56.60		100.000		56.6	55 - 117			
Surrogate: 4-Terphenyl-d14	79.04		100.000		79.0	52 - 142			
Surrogate: Nitrobenzene-d5	41.45		100.000		41.4	43 - 116			S2



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

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	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B4I0088 - MSSEMI_ISOTOPEDILN

Blank (B4I0088-BLK1)

Prepared: 9/5/2014 Analyzed: 9/5/2014

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.7773		1.00000		77.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7350		1.00000		73.5	48 - 121			
Surrogate: 4-Terphenyl-d14	0.8735		1.00000		87.4	58 - 142			
Surrogate: Nitrobenzene-d5	0.9254		1.00000		92.5	27 - 151			

LCS (B4I0088-BS1)

Prepared: 9/5/2014 Analyzed: 9/5/2014

1,4-Dioxane	1.40788	0.20	1.00000		141	58 - 151			
Surrogate: 1,2-Dichlorobenzene-d4	0.6973		1.00000		69.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.6677		1.00000		66.8	48 - 121			
Surrogate: 4-Terphenyl-d14	0.7398		1.00000		74.0	58 - 142			
Surrogate: Nitrobenzene-d5	0.9481		1.00000		94.8	27 - 151			

LCS Dup (B4I0088-BSD1)

Prepared: 9/5/2014 Analyzed: 9/5/2014

1,4-Dioxane	1.33992	0.20	1.00000		134	58 - 151	4.95	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.7069		1.00000		70.7	47 - 117			
Surrogate: 2-Fluorobiphenyl	0.7253		1.00000		72.5	48 - 121			
Surrogate: 4-Terphenyl-d14	0.9115		1.00000		91.2	58 - 142			
Surrogate: Nitrobenzene-d5	0.9482		1.00000		94.8	27 - 151			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.20

Report To : Steve Netto

Reported : 09/12/2014

Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysis confirms 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.

Bromate by EPA 317.0
Ion Chromatography/Post Column Reaction-Visible Absorption Spectroscopy

Column: Dionex AS9-HC 4 mm x 250 mm, AG9-HC Guard 4 mm x 50 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Visible, 450 nm

Sample preparation: The undiluted sample was treated with a 2.5 mL Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1402524-03 / POX	0.6

Method Blank	ND

Detection Limit	0.3

Date Analyzed:	09-05-14

Quality Control Summary

Sample ID:	ATL Lab#: 1402524-03 / POX

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>RPD</u>
Bromate	0.6	20.0	19.3	94	19.1	93	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1402524

SENDING LABORATORY:

Advanced Technology Laboratories

3275 Walnut Avenue

Signal Hill, CA 90755

Phone: 562.989.4045

Fax: 562.989.6348

Project Manager: Rachelle Arada (Rachelle@atlglobal.com)

RECEIVING LABORATORY:

Exova Inc.

9240 Santa Fe Springs Road

Santa Fe Springs, CA 90670

Phone: (562) 948-2225

Fax: (562) 948-5850

PO#: SC08767- STANDARD TAT

(RA)

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1402524-03 / POX 3170_SUB [Bromate] 1-Poly Unpres - 125mL	09/15/14 17:00	Groundwater 08/30/14 08:25	08/29/14 08:25	

Released By	ASPRON MHW 6/11/14	Date	9/2/14	Received By	Exova	Date	9-2-14	9:30
Released By	Exova	Date	9-2-14	Received By	Exova	Date	09-02-14	11:07

PROJECT NAME						PROJECT NO./TASK No.						SAMPLE CONTAINERS			ANALYSIS REQUESTED			ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S			SPECIAL HANDLING			LABORATORY INFORMATION					
Raytheon Main						532.20																		Advanced Technology Laboratories 3275 Walnut Ave Signal Hill, CA 90755 Attn: Rachelle Arada					
PROJECT MANAGER Steve Netto						Phone No. (850) 455-6500																							
QA MANAGER Marcos Rodriguez						Fax No. (858) 455-6533																							
SAMPLER (SIGNATURE)						SAMPLER (PRINTED)																							
LAB ID		SAMPLE ID		SAMPLE COLLECTION		MATRIX			PRESERVATION																				
				Date	Time	Soil	Ground water	Surface water	Lab H ₂ O	HCl	HNO ₃	NaOH	H ₂ SO ₄	Ice	40 ml VOA	125 ml HHPE	1 L Amber	EPA 8260B VOCs	EPA 8270C (MCD) 1,4-Dioxane	EPA 8270C (SIM) 1,4-Dioxane	EPA 317 Bromide	EPA 300 Bromide	6-10	10-100	100-1000	1000-10000	>10000		
1402524 -1		TB-08/25/14		8/25/14	07:30			X	X					X	1			X					X						
-2		INF			08:10	X			X					X	3	1		X	X				X						
-3		POX			08:15	X			X					X	3	1		X		X			X						
-4		CBT			08:35	X			X					X	3			X					X						
-5		CEFF			08:50	X			X					X	3			X					X						
Total number of Containers per analysis:												13			1			2									Total No. of Containers: 16		
Relinquished by:		Date		Received by:		Date		INSTRUCTIONS										Shipment Method: DENVER											
H+A		8/24/14		TPDIAW		8/19/14		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.										Send Results to: Steve Netto											
Company		Time		Company		Time												☒ 9171 TOWNE CENTRE DRIVE, SUITE 375 SAN DIEGO, CA 92122 (858) 455-6500											
		12:53		AR		12:53												☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209 MESA, AZ 85204 (480) 345-0888											
Relinquished by:		Date		Received by:		Date												☐ 1820 EAST RIVER ROAD, SUITE 220 TUCSON, AZ 85718 (520) 881-7300											
Company		Time		Company		Time		Sample Receipt: Temp. @ receipt 0.2 °C										Send invoice to San Diego, CA Attn: Accounts Payable											
								☐ No. of containers correct ☒ received good condition/cold																					
								☐ custody seals secure ☐ conforms to COC document																					