



HARGIS + ASSOCIATES, INC.

HYDROGEOLOGY • ENGINEERING

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January 13, 2017

VIA FEDERAL EXPRESS STANDARD

Mr. Steve Rounds
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, Fourth Quarter 2016, Raytheon Company (Former
Hughes Aircraft Company) Facility, 1901 West Malvern Avenue, Fullerton, California

Dear Mr. Rounds:

This letter has been prepared for the submittal of groundwater monitoring and groundwater treatment pilot testing data collected during the fourth quarter 2016 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 Work Plan 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 fourth quarter 2016 in general accordance with the DTSC-approved Groundwater Extraction and Treatment System (GETS) Pilot Testing, Corrective Measures Study Work Plan Addendum No. 6 (DTSC, 2013; H+A, 2013). The results of the fourth quarter 2016 groundwater monitoring and pilot GETS operation from September through November 2016 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 were taken at all wells and piezometers and groundwater samples were collected from extraction wells and select monitor wells in November 2016 in general accordance with the GMWPSAP and Addendum No.1 (H+A, 2003 and 2011a) (Table 1).

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Mr. Steve Rounds
January 13, 2017
Page 2

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). Quarterly groundwater levels were measured in all wells on November 7, 2016 (Table 2).

Groundwater samples were collected during the period from November 7 through November 9, 2016 (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 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 Eurofins 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).

Additionally, samples also were collected after one screen volume was purged from three of the large-volume monitor wells during this event; these additional samples were collected to compare results between the one-screen-volume purge method to the conventional three-screen-volume purge method which has been used historically at the Site for the large-volume monitor wells. Groundwater samples were collected after both one and three casing volumes had been purged from monitor wells MW-32B, MW-33, and MW-36 (Table 3; Appendix B).

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) samples collected in November 2016 consisted of trip blanks, field duplicates, and laboratory split samples. Trip blanks were provided by ATL. Field duplicate samples were collected for analysis of VOCs and 1,4-dioxane from wells EW-01 and MW-36 in November 2016 (Table 3). Split samples were collected for analysis of VOCs and 1,4-dioxane from wells EW-01 and MW-36 in November 2016 (Table 3). The relative percent difference was calculated between the results of each field duplicate and each laboratory split sample with its corresponding original sample. This data quality assessment indicated that all QA/QC results are within quality control criteria.

As part of the data quality assessment, results are evaluating with respect to the historical trending at each well. The 1,4-dioxane results of wells MW-29 and EW-02 from November 1st have been project-qualified as unusable ("U") based on trend analysis. Based on comparison of results between these two wells, it is possible that sample bottles for 1,4-dioxane analysis may have been improperly handled between sample collection and laboratory analysis during the sampling event on November 1, 2016.

There were no detections of 1,4-dioxane and VOCs in the trip and/or laboratory method blanks analyzed with groundwater samples collected during the November 2016 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.

Mr. Steve Rounds
January 13, 2017
Page 3

GROUNDWATER EXTRACTION AND TREATMENT PILOT STUDY

This section summarizes the pilot GETS operation within the three-month period of monitoring conducted during the Fourth Quarter of 2016. 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. Current extraction rates are nominally 40 gallons per minute (gpm) from extraction well EW-02 and 10 gpm from extraction well MW-29. The treatment system processes extracted groundwater through an advanced oxidation unit that utilizes ultra violet (UV) light and hydrogen peroxide (UV Ox), followed by a granular activated carbon polish prior to disposal to the sanitary sewer.

Initial startup of the pilot GETS took place in July 2008. From July 2008 through November 2009, the pilot GETS was operated with extraction wells EW-01 and MW-21 operating at approximately 10 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 (a relatively high-concentration extraction well) 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 in March 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 Fourth Quarter 2016, the pilot GETS was operational approximately 96 percent of the available runtime and approximately 5.1 million gallons of groundwater were treated and discharged to the sanitary sewer (Table 4). Downtime during the Fourth Quarter of 2016 was associated with well EW-02 maintenance, and alarm testing. The average operational monthly discharge flowrate to the sanitary sewer from September 2016 through November 2016 was approximately 44 gpm. Since startup of the pilot GETS, approximately 132 million gallons of groundwater was treated at an average operational flowrate of 42 gpm through the end of November 2016 (Table 4).

Current monthly, and quarterly pilot GETS monitoring activities include collecting groundwater samples from extraction wells EW-02 and MW-29 in addition to collecting samples at treatment system sampling ports: Influent, Post Particulate Filter, Post UV Ox, Carbon Breakthrough, and Carbon Effluent (Tables 5 and 6; Figures 4 and 5). Samples collected during these activities were sent to ATL for analysis. Analytical results of the extraction wells and treatment system sampling have been summarized (Table 6; Appendix B).

The UV Ox advanced oxidation treatment unit is designed to remove 1,4-dioxane and most VOCs in groundwater. The carbon adsorption units provide a polish following the UV Ox treatment and remove possible low-level VOCs remaining in groundwater post UV Ox (principally low-level ethanes). The UV Ox advanced oxidation and carbon adsorption treatment units effectively removed VOCs and 1,4-dioxane from extracted groundwater in Fourth Quarter 2016. The samples collected from the effluent of the UV Ox treatment unit (Post UV Ox) were analyzed for VOCs and 1,4-dioxane, and resulted in non-detect values with exceptions of low-level (sub-micrograms per liter [ug/l]) detections of the VOC 1,1-dichloroethane (1,1-DCA), and a single event with detection of 1,4-dioxane of 2.7 ug/l in the Carbon Breakthrough, and 2.8 ug/l in the Carbon Effluent sample collected on October 20, 2016 (Table 6).

Mr. Steve Rounds
January 13, 2017
Page 4

Samples collected in November 2016 resulted in non-detect values of 1,4-dioxane in the Post UV Ox, Carbon Breakthrough, and Carbon Effluent samples. Considering the non-detect values of 1,4-dioxane in the Post UV Ox samples in the Fourth Quarter of 2016, and non-detection of 1,4-dioxane in samples collected after the October 20, 2016 sampling, the detection of 1,4-dioxane in the Carbon Breakthrough and Carbon Effluent was likely due to laboratory cross contamination with other samples. A carbon change-out for both carbon adsorbers was completed on May 4, 2016, and 1,4-dioxane had not been detected in the Post UV Ox, Carbon Breakthrough, or Carbon Effluent samples collected after the change out.

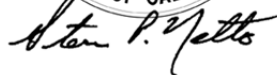
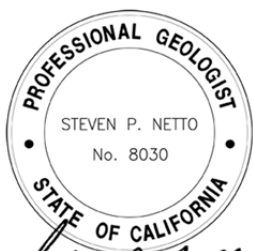
The previous oxidation treatment unit that used an ozone-peroxide technology was shown to create bromate as a treatment byproduct which occasionally exceeded the drinking water maximum contaminant level (MCL) (Figure 6). The levels of bromate previously generated as a treatment byproduct were not an issue while discharging to the sewer, but would preclude injection of treated groundwater back into the aquifer as part of future groundwater corrective measures. The current UV Ox oxidation treatment unit has not generated bromate above the MCL, and bromate was not detected in the Post UV Ox samples collected during the Fourth Quarter 2016.

The pilot GETS continues to remove VOCs and 1,4-dioxane from extracted groundwater. During the Fourth Quarter of 2016, the pilot GETS removed approximately 3.9 pounds of VOCs and 1.1 pounds of 1,4-dioxane from extracted groundwater. Since startup of the pilot GETS in July 2008, approximately 153 pounds of VOCs and 34 pounds of 1,4-dioxane have been removed from groundwater through November 2016 (Figure 7). Operation of the pilot GETS continues to be optimized to maximize the treatment of 1,4-dioxane and VOCs in extracted groundwater.

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
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Mr. Steve Rounds
January 13, 2017
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.
- _____, 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.
- _____, 2013. Email from W. Jeffers, DTSC, re: Groundwater Extraction and Treatment System Pilot Testing Corrective Measures Study Workplan, Addendum #6, dated April 16, 2013.
- 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.
- _____, 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.
- _____, 2013. Groundwater Extraction and Treatment System Pilot Testing, Corrective Measures Study Workplan Addendum No. 6, Raytheon Company (former Hughes Aircraft Company), 1901 West Malvern Avenue, Fullerton, California. February 27, 2013.



Mr. Steve Rounds
January 13, 2017
Page 6

Enclosures

Tables

- Table 1. Groundwater Monitoring Program
- Table 2. Groundwater Levels, Fourth Quarter 2016
- Table 3. Prevalent Volatile Organic Compounds and 1,4-Dioxane in Groundwater, Fourth Quarter 2016
- 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, Fourth Quarter 2016

Figures

- Figure 1. Site Location
- Figure 2. Well and Piezometer Locations
- Figure 3. Water Level and Water Quality, Unit B, November 2016
- 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
- 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)



Mr. Steve Rounds
January 13, 2017
Page 7

cc w/encl: (1 copy w-CD)

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(via Email only)

Mr. Carl Bernhardt, California RWQCB, Santa Ana Region
Mr. Duc Nguyen, Orange County Public Works

TABLE 1
GROUNDWATER MONITORING PROGRAM

WELL IDENTIFIER	HYDROGEOLOGIC ZONE	SAMPLED NOVEMBER	SAMPLING FREQUENCY			
			QUARTERLY FEB, MAY, AUG, NOV	SEMIANNUAL FEBRUARY, AUGUST	ANNUAL FEBRUARY	BIENNIAL FEB (EVEN YEARS)
P-07	Perched				VOCs; 1,4-Dioxane	
P-09	Perched				VOCs; 1,4-Dioxane	
MW-35A	Other					VOCs; 1,4-Dioxane
MW-17	A		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-18	A			VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
MW-19	A					VOCs
MW-22	A					VOCs; 1,4-Dioxane
MW-23	A					VOCs
MW-34A	A			VOCs; 1,4-Dioxane		
MW-35B	A					VOCs; 1,4-Dioxane
MW-38	A	X	VOCs; 1,4-Dioxane			
MW-13	AB				VOCs; 1,4-Dioxane	
MW-15	AB			VOCs		
MW-26A	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-26B	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-32A	AB			VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
EW-01	B	X	VOCs; 1,4-Dioxane			
EW-02*	B	X	VOCs; 1,4-Dioxane			
MW-16	B			VOCs; 1,4-Dioxane		
MW-26C	B	X	VOCs; 1,4-Dioxane			
MW-27	B				VOCs; 1,4-Dioxane	
MW-28	B	X	VOCs; 1,4-Dioxane			
MW-29*	B	X	VOCs; 1,4-Dioxane			
MW-30A	B	X	VOCs; 1,4-Dioxane			
MW-31	B	X	VOCs; 1,4-Dioxane			
MW-32B	B	X	VOCs; 1,4-Dioxane			
MW-33	B	X	VOCs; 1,4-Dioxane			
MW-34B	B	X	VOCs; 1,4-Dioxane			
MW-35C	B	X	VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)		
MW-36	B	X	VOCs; 1,4-Dioxane			
MW-39	B	X	VOCs; 1,4-Dioxane			
MW-40	B	X	VOCs; 1,4-Dioxane			
MW-41	B	X	VOCs; 1,4-Dioxane			
MW-21	BC	X	VOCs; 1,4-Dioxane			
MW-08	BC	X	VOCs; 1,4-Dioxane			
MW-30B	BC	X	VOCs; 1,4-Dioxane			
MW-34C	BC			VOCs; 1,4-Dioxane		
MW-09	C			VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
MW-24	C				VOCs; 1,4-Dioxane	
MW-32C	C			VOCs; 1,4-Dioxane	VOCs; 1,4-Dioxane ^(a)	
MW-06	D				VOCs	
MW-20	D			VOCs; 1,4-Dioxane		
MW-25	D		WATER LEVEL MEASUREMENT ONLY			
MW-37	D	X	VOCs; 1,4-Dioxane			

FOOTNOTES

(a)= Proposed reduced sampling schedule in Proposed Optimization to the Groundwater Monitoring Program 2014/2015 Letter (H+A, 2015)

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

VOCs = Volatile organic compounds

TABLE 2
GROUNDWATER LEVELS
FOURTH QUARTER 2016

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	11/07/16	181.29	181.63	-0.34	
MW-08	11/07/16	155.91	150.60	5.31	
MW-09	11/07/16	180.10	179.41	0.69	
MW-13	11/07/16	141.84	146.91	-5.07	
MW-15	11/07/16	144.95	152.92	-7.97	
MW-16	11/07/16	142.40	153.21	-10.81	
MW-17	11/07/16	142.70	148.30	-5.60	
MW-18	11/07/16	142.32	149.12	-6.80	
MW-19	11/07/16	142.06	148.77	-6.71	
MW-20	11/07/16	184.19	175.75	8.44	
MW-21	11/07/16	141.18	145.60	-4.42	
MW-22	11/07/16	138.65	144.84	-6.19	
MW-23	11/07/16	137.33	144.88	-7.55	
MW-24	11/07/16	142.83	142.40	0.43	
MW-25	11/07/16	142.64	145.72	-3.08	
MW-26A	11/07/16	137.04	142.78	-5.74	
MW-26B	11/07/16	137.05	144.57	-7.52	
MW-26C	11/07/16	137.22	150.54	-13.32	
MW-27	11/07/16	137.16	149.93	-12.77	
MW-28	11/07/16	140.77	154.36	-13.59	
MW-29	09/08/16	139.81	195.61	-55.80	Pilot GETS
MW-29	09/15/16	139.81	196.42	-56.61	Pilot GETS
MW-29	10/06/16	139.81	198.76	-58.95	Pilot GETS
MW-29	10/20/16	139.81	202.31	-62.50	Pilot GETS
MW-29	11/01/16	139.81	201.90	-62.09	Pilot GETS
MW-29	11/07/16	139.81	201.70	-61.89	Pilot GETS
MW-30A	11/07/16	129.44	144.10	-14.66	
MW-30B	11/07/16	129.39	140.60	-11.21	
MW-31	11/07/16	119.60	133.00	-13.40	
MW-32A	11/07/16	92.88	109.74	-16.86	
MW-32B	11/07/16	92.89	109.15	-16.26	
MW-32C	11/07/16	92.88	92.35	0.53	
MW-33	11/07/16	83.19	103.55	-20.36	

TABLE 2
GROUNDWATER LEVELS
FOURTH QUARTER 2016

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 (continued)</u>					
MW-34A	11/07/16	153.25	165.51	-12.26	
MW-34B	11/07/16	153.11	169.85	-16.74	
MW-34C	11/07/16	153.29	168.18	-14.89	
MW-35A	11/07/16	93.57	95.80	-2.23	
MW-35B	11/07/16	93.56	105.55	-11.99	
MW-35C	11/07/16	93.55	109.20	-15.65	
MW-36	11/07/16	86.65	108.73	-22.08	
MW-37	11/07/16	155.60	162.06	-6.46	
MW-38	11/07/16	154.90	169.69	-14.79	
MW-39	11/07/16	84.25	106.85	-22.60	
MW-40	11/07/16	123.40	133.75	-10.35	
MW-41	11/07/16	155.60	173.65	-18.05	
EW-01	11/07/16	141.07	152.30	-11.23	
EW-02	09/08/16	132.97	153.50	-20.53	Pilot GETS
EW-02	09/15/16	132.97	153.74	-20.77	Pilot GETS
EW-02	10/06/16	132.97	155.17	-22.20	Pilot GETS
EW-02	10/20/16	132.97	158.16	-25.19	Pilot GETS
EW-02	11/01/16	132.97	152.05	-19.08	Pilot GETS
EW-02	11/07/16	132.97	152.20	-19.23	Pilot GETS
<u>Perched Zone Water Levels</u>					
P-07	11/07/16	142.31	114.91	27.40	
P-09	11/07/16	183.86	120.99	62.87	

FOOTNOTES

- (a) Reference point elevations are relative to City of Fullerton datum.
 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
FOURTH QUARTER 2016

			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	11/08/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	9.6	1.20	< 0.50	< 0.50	< 0.50	19	< 0.50	< 0.50	< 0.20	
MW-08 Historical Range***			< 0.50 - 0.95	< 0.50 - 0.5	< 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 - 2.3	< 0.20 - 130	
MW-21	11/07/16	ORG	< 2.5	< 2.5	< 2.5	24	3.2	1,400	< 2.5	2.6	< 2.5	9.0	18	< 2.5	< 2.5	220	
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	11/08/16	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 - 57	
MW-28	11/09/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.84	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20	
MW-28 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 0.94	< 0.50	< 0.50 - 76 E	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 19	
MW-29	09/08/16	ORG	< 0.50	< 0.50	< 0.50	2.9	< 0.50	340	< 0.50	0.67	< 0.50	0.83	2.7	0.98	< 0.50	77	
MW-29	09/15/16	ORG	< 0.50	< 0.50	< 0.50	2.4	0.52	250	< 0.50	0.71	< 0.50	< 0.50	2.5	0.71	< 0.50	78	
MW-29	10/06/16	ORG	< 0.50	< 0.50	< 0.50	2.7	0.51	280	< 0.50	0.82	< 0.50	0.87	2.7	1.3	< 0.50	72	
MW-29	10/20/16	ORG	< 0.50	< 0.50	< 0.50	2.2	< 0.50	240	< 0.50	0.81	< 0.50	< 0.50	2.2	1.1	< 0.50	71	
MW-29	11/01/16	ORG	< 0.50	< 0.50	< 0.50	2.6	0.62	360	< 0.50	0.84	< 0.50	0.63	2.7	1.6	< 0.50	6.6 U	
MW-29	11/17/16	ORG	< 0.50	< 0.50	< 0.50	3.1	0.53	260	< 0.50	0.65	< 0.50	0.92	2.7	1.1	< 0.50	79	
MW-29 Historical Range***			< 0.50 - 0.57	< 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 - 2.2	< 0.50 - < 5.0	26 BE - 301	
MW-30A	11/08/16	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-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 - 1.9	< 0.50	< 0.50	< 0.20 - 95	
MW-30B	11/08/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	18	4.2	< 0.50	< 0.50	< 0.50	68	< 0.50	< 0.50	< 0.20	
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 - 110	< 0.50	< 0.50 - 4.5	< 0.20 - 28 E	
MW-31	11/09/16	ORG	< 0.50	< 0.50	< 0.50	1.30	< 0.50	120	< 0.50	< 0.50	< 0.50	< 0.50	4.8	< 0.50	0.69	3.8	
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 - 16	
MW-32B_1SV	11/08/16	ORG	< 0.50	< 0.50	< 0.50	0.77	< 0.50	78	2.8	< 0.50	< 0.50	< 0.50	24	< 0.50	< 0.50	2.9	
MW-32B	11/08/16	ORG	< 0.50	< 0.50	< 0.50	1.20	< 0.50	120	4.3	< 0.50	< 0.50	< 0.50	43	< 0.50	< 0.50	3.6	
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 - 4.6	
MW-33_1SV	11/08/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20	
MW-33	11/08/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.9	< 0.50	< 0.50	< 0.50	< 0.50	0.69	< 0.50	< 0.50	< 0.20	
MW-33 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.7 - 12	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 1.6	< 0.50	< 0.50 - 1.4	< 0.20 - < 2.0	
MW-34B	11/08/16	ORG	< 0.50	< 0.50	< 0.50	0.98	< 0.50	90	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	16	
MW-34B Historical Range***			< 0.50 - < 5.0	< 0.50 - < 5.0	< 0.50 - 0.50	< 0.50 - 9.8	< 0.50 - 1.4	20 E - 1,100	< 0.50 - < 5.0	< 0.50 - 1.1	< 0.50 - 1.0	< 0.50 - 2.6	< 0.50 - 2.1	< 0.50 - < 5.0	< 0.50 - 2.6	4.1 - 196	

TABLE 3

PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
FOURTH QUARTER 2016

			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-35C	11/08/16	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_1SV	11/08/16	ORG	< 0.50	< 0.50	< 0.50	0.79	< 0.50	77	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	3.3
MW-36	11/08/16	ORG	< 0.50	< 0.50	< 0.50	0.95	< 0.50	91	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	4.0
MW-36	11/08/16	DUP	< 0.50	< 0.50	< 0.50	1.0	< 0.50	98	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	4.2
MW-36	11/08/16	SPT	< 0.50	< 0.50	< 1.0	0.77	< 0.50	91	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	6.4
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 - 15
MW-37	11/09/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-37 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.66	< 0.50	<0.50 - 0.73	< 0.20
MW-38	11/08/16	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
Historical High/Low																
MW-38 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.20 - 0.34
MW-39	11/08/16	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	0.66	< 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 - 1.4	< 0.20
MW-40	11/08/16	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 - 0.60	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-41	11/09/16	ORG	< 0.50	< 0.50	0.72	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.20
MW-41 Historical Range***			< 0.50	< 0.50	< 0.50 - 0.72	< 0.50 - 1.1	< 0.50	< 0.50 - 110	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 110	< 0.50	< 0.50	< 0.20 - 10
EW-01	11/07/16	ORG	< 0.50	< 0.50	< 0.50	4.5	0.70	300	< 0.50	0.69	< 0.50	1.7	0.77	< 0.50	< 0.50	110
EW-01	11/07/16	DUP	< 0.50	< 0.50	< 0.50	4.5	0.72	270	< 0.50	0.64	< 0.50	1.8	0.70	< 0.50	< 0.50	100
EW-01	11/07/16	SPT	< 0.50	< 0.50	< 1.0	3.9	0.60	290	< 1.0	0.79	< 1.0	1.6	0.84	< 1.0	< 1.0	160
EW-01 Historical Range***			< 0.50 - 2.0	< 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 - 4.3	< 0.50 - < 2.5	< 0.50 - 10	< 0.50 - 3.3	< 0.50 - 0.61	< 0.50 - 4.6	5.1 - 990 E
EW-02	09/08/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	31	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	8.1
EW-02	09/15/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	27	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.2
EW-02	10/06/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	31	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	9.6
EW-02	10/20/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	23	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.8
EW-02	11/01/16	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	37	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	73 U
EW-02	11/1716	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	25	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.0
EW-02 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	5.2 - 160	< 0.50	< 0.50	< 0.50	< 0.50 - 0.59	< 0.50	< 0.50	< 0.50 - 0.85	5.1 - 48

TABLE 3

PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
FOURTH QUARTER 2016

.....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**)
QUALITY ASSURANCE/QUALITY CONTROL SAMPLES																
TB-090816	09/08/16	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-091516	09/15/16	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-100616	10/16/16	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-102016	10/20/16	TB	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	NA
TB-110116	11/01/16	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-110716A	11/07/16	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-110716B	11/07/16	TB-SPT	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	NA
TB-110816	11/08/16	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-111716	11/17/16	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	<0.20

NOTE: Detections are shown in **BOLD** type.
(1) Methylene chloride was detected at a concentration of 1.2 ug/l in trip blank TB-110515 collected on 11/05/2015

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.
TB = Trip blank sample
RB = Rinsate blank sample
U = Data qualified as Unusable based on trending as part of our data quality assessment
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%
2014^(g)	7,690,471	14.6	46.8	2,740	8,760	31%
2015^(h)	18,019,312	34.3	47.9	6,275	8,760	72%
Dec-15	2,185,005	43.4	46.6	782	843	93%
Jan-16	1,668,283	46.1	46.2	602	603	100%
Feb-16	1,938,403	43.8	45.0	717	738	97%
1Q2016	5,791,691	44.3	45.9	2,102	2,184	96%
Mar-16	1,846,995	38.9	40.2	766	792	97%
Apr-16	1,841,301	42.6	42.9	715	720	99%
May-16	1,679,010	43.1	43.7	641	649	99%
2Q2016	5,367,306	41.4	42.2	2,122	2,162	98%
Jun-16	1,802,389	34.8	43.2	696	862	81%
Jul-16	1,700,529	42.2	45.7	620	672	92%
Aug-16	2,256,396	44.8	46.5	808	840	96%
3Q2016	5,759,314	40.4	45.2	2,124	2,374	89%
Sep-16	1,827,211	45.3	45.5	670	672	100%
Oct-16	1,652,498	44.1	44.1	624	624	100%
Nov-16	1,579,384	36.6	40.9	643	720	89%
4Q2016	5,059,093	41.8	43.5	1,937	2,016	96%
SINCE INCEPTION	132,412,908	29.9	41.6	53,113	73,752	72%

FOOTNOTES

(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

(g) 2014 Calendar year is from 12/1/2013 through 11/30/2014

(h) 2015 Calendar year is from 12/1/2014 through 11/30/2015

gpm = gallons per minute

Refer to previous quarterly reports for detail of 2008 thru 2014 operational summary

Treatment of groundwater from EW-02 initiated in 2010

Treatment of groundwater from MW-29 initiated in 2014

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)																				
COMPOUNDS/CONSTITUENTS NORMALLY REQUIRED AS PART OF NPDES OR WDR PERMITS, PURSUANT TO CRWQCB REGION 8 ORDER NO. R8-2003-008E																							
Volatile Organic Compounds	EPA 8260B	3 - 40 mL VOA, HCl	QAPP ⁴	X		X	X	X		X	X	X	X		X	X		X	X	X			
1,4-Dioxane	EPA 8270 Modified	1 L Amber	0.002	X						X					X	X							
1,4-Dioxane	EPA 8270 SIM	1L Amber	0.0002			X					X							X	X	X			
Total Suspended Solids	SM2540D	250 mL poly	10													X							
Total Dissolved Solids	SM2540C	250 mL poly	10																		X	X	X
SELECTED METALS																							
Dissolved Metals (Iron, Manganese, Calcium, Sodium, Magnesium)	EPA 6010B	500 mL poly	QAPP ⁴	(a)																	X	X	
Selenium	EPA 6010B	500 mL poly, HNO ₃	QAPP ⁴																		X	X	
SELECTED INORGANIC CONSTITUENTS																							
Hydroxide Alkalinity	SM2320B	250 mL poly	2.0	(a)												X	X				X	X	
Bicarbonate Alkalinity	SM2320B	250 mL poly	2.0	(a)												X	X				X	X	
Carbonate Alkalinity	SM2320B	250 mL poly	2.0	(a)												X	X				X	X	
Total Alkalinity	SM2320B	250 mL poly	2.0	(a)												X	X				X	X	
BROMATE EVALUATION																							
Bromate	EPA 317.0	125 mL poly	0.0005			X					X						X						
Bromide	EPA 300.0	125 mL poly	0.05	(a)						(a)					X	X							
OTHER CONSTITUENTS/COMPOUNDS																							
Total Organic Carbon	SM5310B	3 - 40 mL VOA, HCl	3.0	(a)											X	X					X	X	X
Anions (Chloride, Sulfate, Nitrate, Nitrite, and Phosphate)	EPA 300.0	500 mL poly	Varies	(a)																	X	X	X
Chemical Oxygen Demand	EPA 410.4	125 mL poly, H ₂ SO ₄	5.0	(a)																	X	X	X
UV Absorption (UVA) @254nm	EPA 415.3	250mL Amber	N/A	(a)											X						X	X	X
Field Parameters																							
Dissolve Oxygen (DO)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Electrical Conductance (EC)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Redox Potential	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Temperature	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
pH	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Turbidity	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Flow-Meter	N/A	N/A	N/A	X						X					X	X							
Residual Hydrogen Peroxide	N/A	N/A	N/A			(a)	(a)	(a)			X	X	X				X	X	X				

FOOTNOTES

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

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

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

³ 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
FOURTH QUARTER 2016

Compound	Date	Units	MW-21 ^(a)	MW-29	EW-01 ^(a)	EW-02	INF*	PF	POX	CBT	CEFF
Extraction Rate	9/1/16 - 11/31/16	gpm	0	10	0	40	--	--	--	--	--
1,1,2-Trichloroethane (5 ug/L MCL)	09/08/16	ug/L	--	0.83	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/15/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/16	ug/L	--	0.87	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/20/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/01/16	ug/L	--	0.63	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/08/16	ug/L	9	--	1.7	--	--	--	--	--	--
	11/17/16	ug/L	--	0.92	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
1,1-Dichloroethane (5 ug/L MCL)	09/08/16	ug/L	--	2.9	--	<0.5	0.74	--	<0.5	0.58	0.53
	09/15/16	ug/L	--	2.4	--	<0.5	0.76	--	<0.5	0.58	0.52
	10/06/16	ug/L	--	2.7	--	<0.5	0.87	--	0.58	0.62	0.73
	10/20/16	ug/L	--	2.2	--	<0.5	0.73	--	<0.5	0.54	0.59
	11/01/16	ug/L	--	2.6	--	<0.5	0.85	--	0.57	0.62	0.61
	11/08/16	ug/L	24	--	4.5	--	--	--	--	--	--
	11/17/16	ug/L	--	3.1	--	<0.5	0.83	--	0.56	0.61	0.67
1,1-Dichloroethene (6 ug/L MCL)	09/08/16	ug/L	--	340	--	31	83	--	<0.5	<0.5	<0.5
	09/15/16	ug/L	--	250	--	27	70	--	<0.5	<0.5	<0.5
	10/06/16	ug/L	--	280	--	31	79	--	<0.5	<0.5	<0.5
	10/20/16	ug/L	--	240	--	23	73	--	<0.5	<0.5	<0.5
	11/01/16	ug/L	--	360	--	37	82	--	<0.5	<0.5	<0.5
	11/08/16	ug/L	1400	--	300	--	--	--	--	--	--
	11/17/16	ug/L	--	260	--	25	74	--	<0.5	<0.5	<0.5
1,2-Dichloroethane (0.5 ug/L MCL)	09/08/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/15/16	ug/L	--	0.52	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/16	ug/L	--	0.51	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/20/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/01/16	ug/L	--	0.62	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/08/16	ug/L	3.2	--	0.7	--	--	--	--	--	--
	11/17/16	ug/L	--	0.53	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene (6 ug/L MCL)	09/08/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/15/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/20/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/01/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/08/16	ug/L	<2.5	--	<0.5	--	--	--	--	--	--
	11/17/16	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
Tetrachloroethene (5 ug/L MCL)	09/08/16	ug/L	--	0.67	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/15/16	ug/L	--	0.71	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/16	ug/L	--	0.82	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/20/16	ug/L	--	0.81	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/01/16	ug/L	--	0.84	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/08/16	ug/L	2.6	--	0.69	--	--	--	--	--	--
	11/17/16	ug/L	--	0.65	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
Trichloroethene (5 ug/L MCL)	09/08/16	ug/L	--	2.7	--	<0.5	0.65	--	<0.5	<0.5	<0.5
	09/15/16	ug/L	--	2.5	--	<0.5	0.66	--	<0.5	<0.5	<0.5
	10/06/16	ug/L	--	2.7	--	<0.5	0.71	--	<0.5	<0.5	<0.5
	10/20/16	ug/L	--	2.2	--	<0.5	0.57	--	<0.5	<0.5	<0.5
	11/01/16	ug/L	--	2.7	--	<0.5	0.69	--	<0.5	<0.5	<0.5
	11/08/16	ug/L	18	--	0.77	--	--	--	--	--	--
	11/17/16	ug/L	--	2.7	--	<0.5	0.74	--	<0.5	<0.5	<0.5
1,4-Dioxane (1 ug/L California Notification Level)	09/08/16	ug/L	--	77	--	8.1	20	--	<0.2	<0.2	<0.2
	09/15/16	ug/L	--	78	--	7.2	19	--	<0.2	<0.2	<0.2
	10/06/16	ug/L	--	72	--	9.6	22	--	<0.2	<0.2	<0.2
	10/20/16	ug/L	--	71	--	7.8	22	--	<0.2	2.7	2.8
	11/01/16	ug/L	--	73	--	6.6	20	--	<0.2	<0.2	<0.2
	11/08/16	ug/L	220	--	110	--	--	--	--	--	--
	11/17/16	ug/L	--	79	--	7	23	--	<0.2	<0.2	<0.2
Bromide	09/08/16	mg/L	--	0.35	--	0.34	0.38	--	--	--	--
	10/06/16	mg/L	--	0.26	--	0.15	0.17	--	--	--	--
	11/01/16	mg/L	--	0.26	--	0.12	0.15	--	--	--	--
Bromate (10 ug/L MCL)	09/08/16	ug/L	--	--	--	--	--	--	<1.0	--	--
	10/06/16	ug/L	--	--	--	--	<1.0	--	<1.0	--	--
	11/01/16	ug/L	--	--	--	--	<0.2	--	<0.2	--	--
Total Non-Filterable-Residue	09/08/16	mg/L	--	--	--	--	--	<1.0	--	--	--
	10/06/16	mg/L	--	--	--	--	--	<1.0	--	--	--
	11/01/16	mg/L	--	--	--	--	--	<1.1	--	--	--
Total Filterable Residue (500 mg/L MCL)	09/08/16	mg/L	--	910	--	690	710	--	700	--	680

FOOTNOTES

(a) = inactive extraction wells; extraction wells MW-21 and EW-01 operated from July 2008 to November 2009

MCL = Maximum Contaminant Level or Drinking Water Action Level, if applicable

ug/L = micrograms per liter

mg/L = milligrams per liter

gpm = gallon per minute

(-) = Not scheduled for performance monitoring

(<) = Less than; the numerical value is the Limit of Detection for that compound

INF* = Influent (extraction wells EW-02 and MW-29)

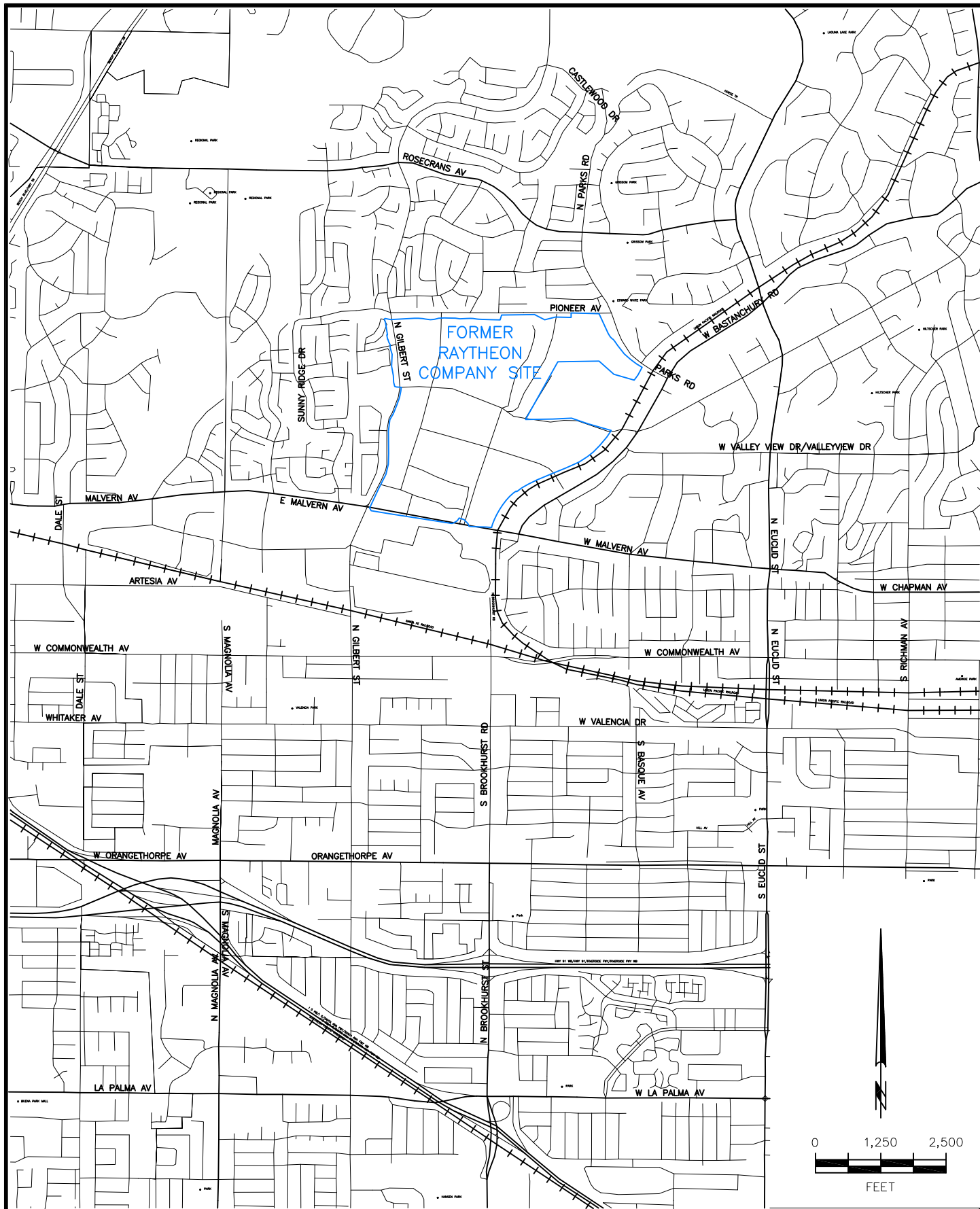
PF = Post Particulate Filter

POX = Post UV/Chem-Ox

CBT = Carbon Breakthrough

CEFF = Carbon Effluent

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



HARGIS+ASSOCIATES, INC.
Hydrogeology/Engineering

FIGURE 1. SITE LOCATION

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

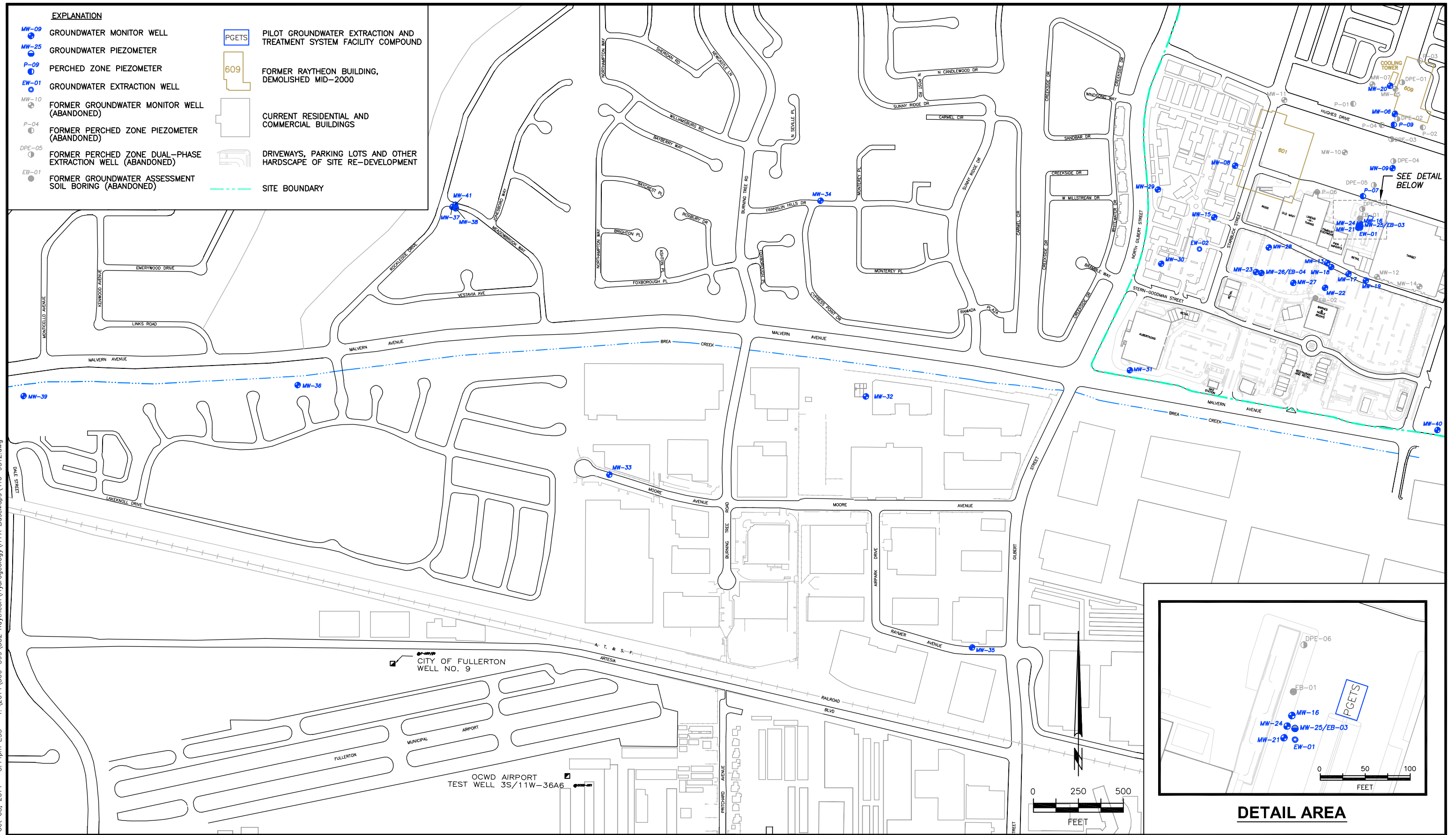


FIGURE 2.
WELL AND PIEZOMETER LOCATIONS

Dec 13, 2016 - 1:12pm ess - T:\2016\500-599\532 Raytheon\Hydrogeology\Water Lvl\220-2365.dwg

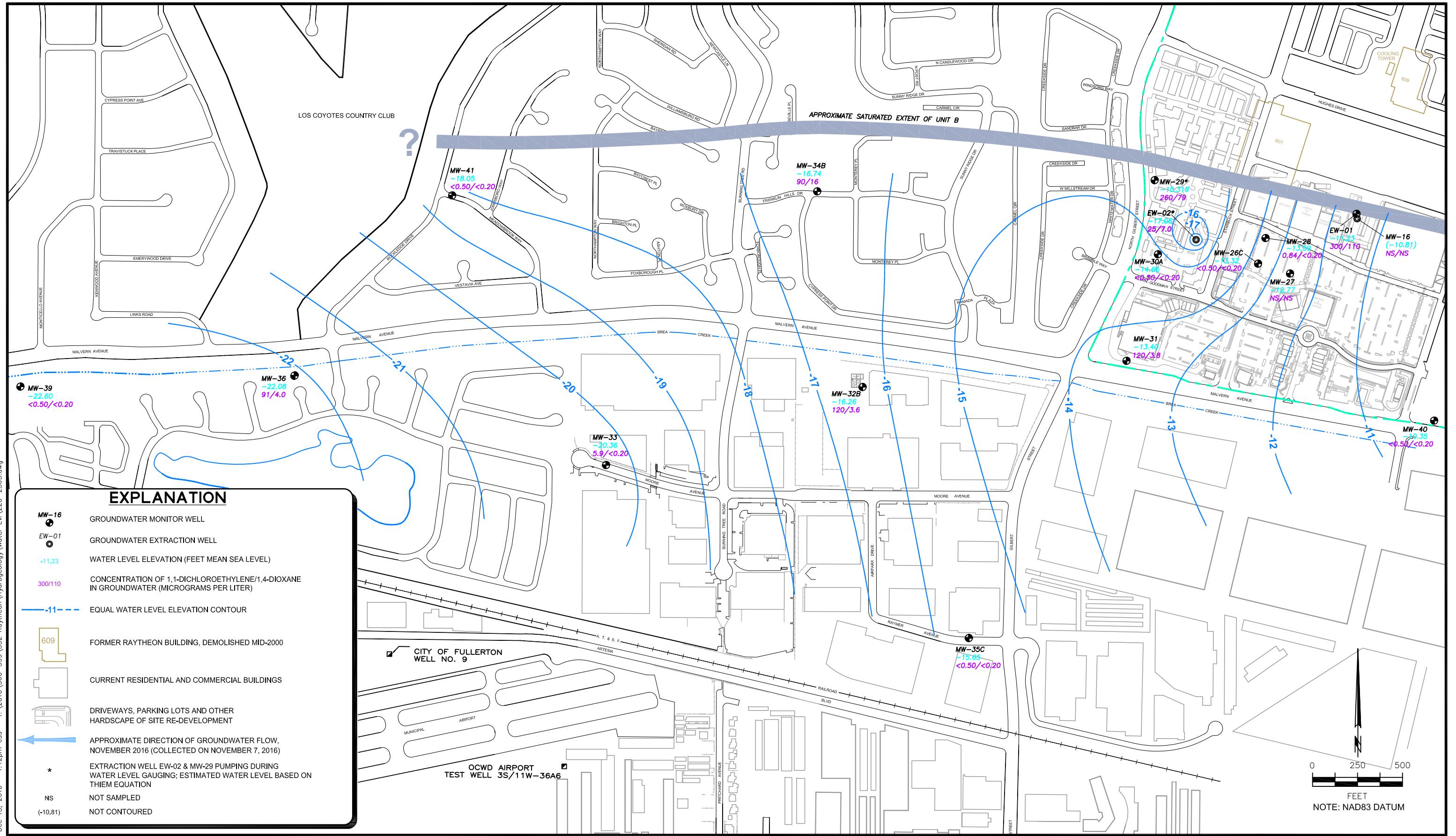


FIGURE 3.
WATER LEVEL AND WATER QUALITY UNIT B
NOVEMBER 2016

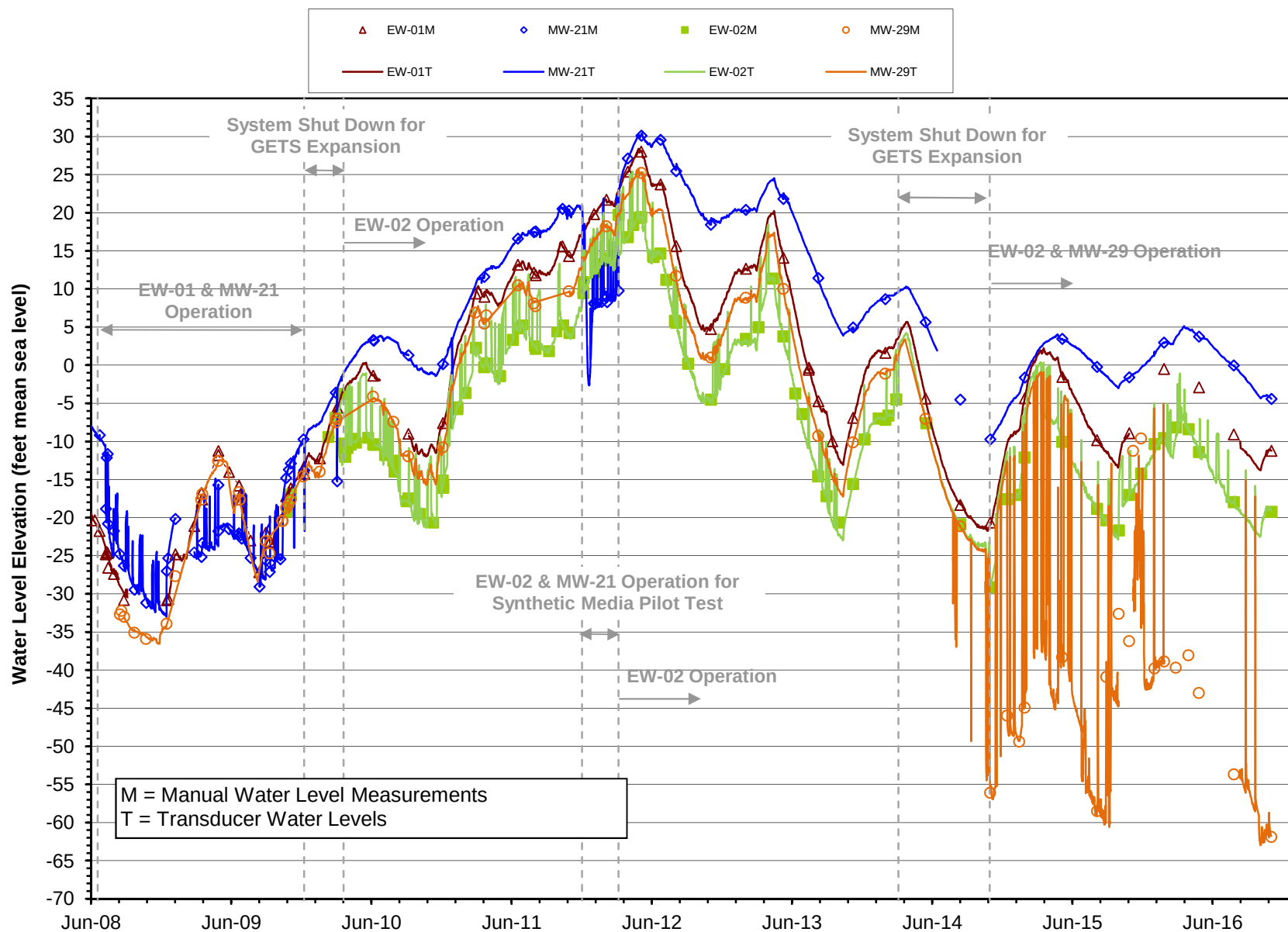


FIGURE 4.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATION
AND EXTRACTION WELL WATER LEVELS

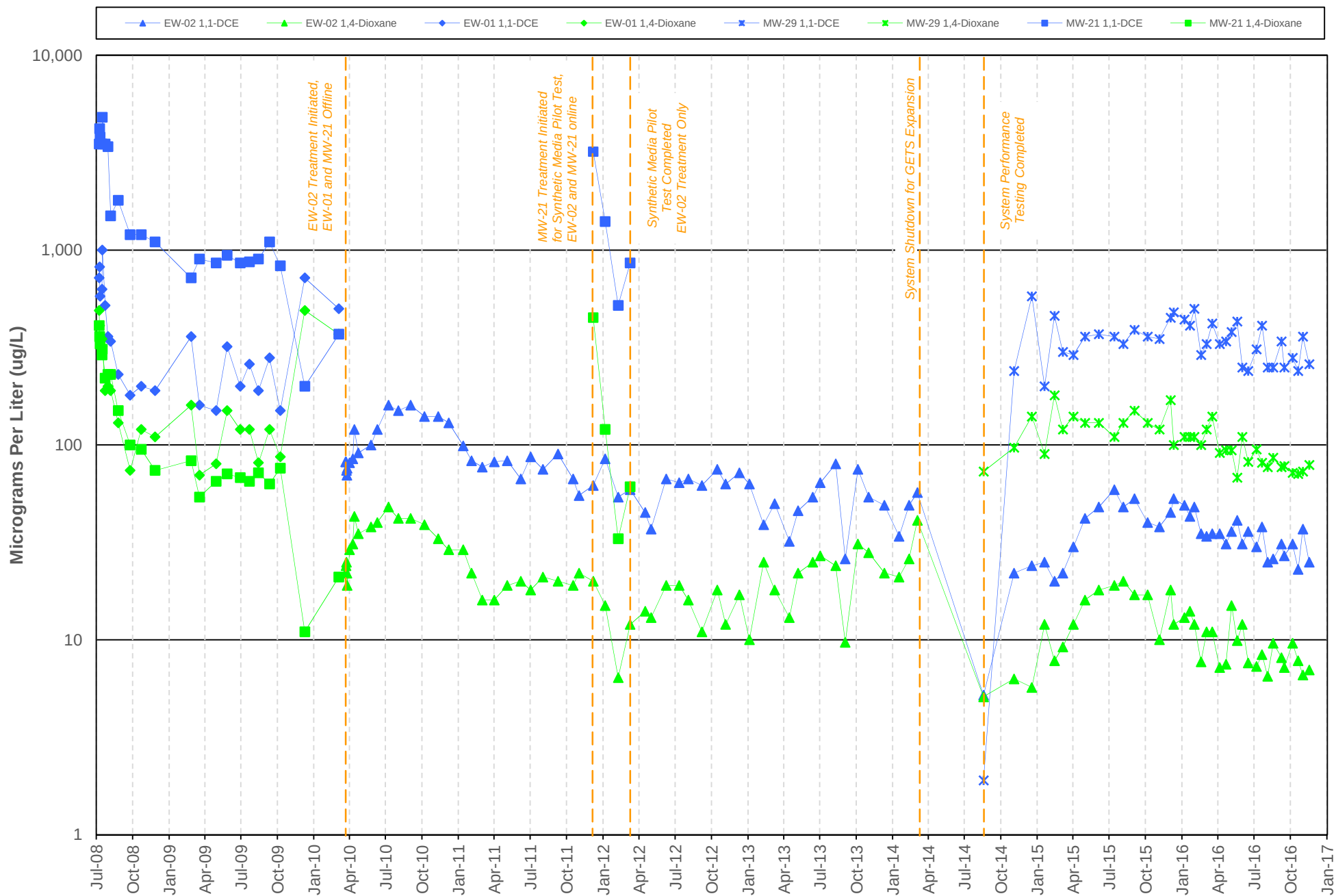


FIGURE 5.
1,1-DICHLOROETHYLENE AND 1,4-DIOXANE CONCENTRATIONS IN EXTRACTION WELLS

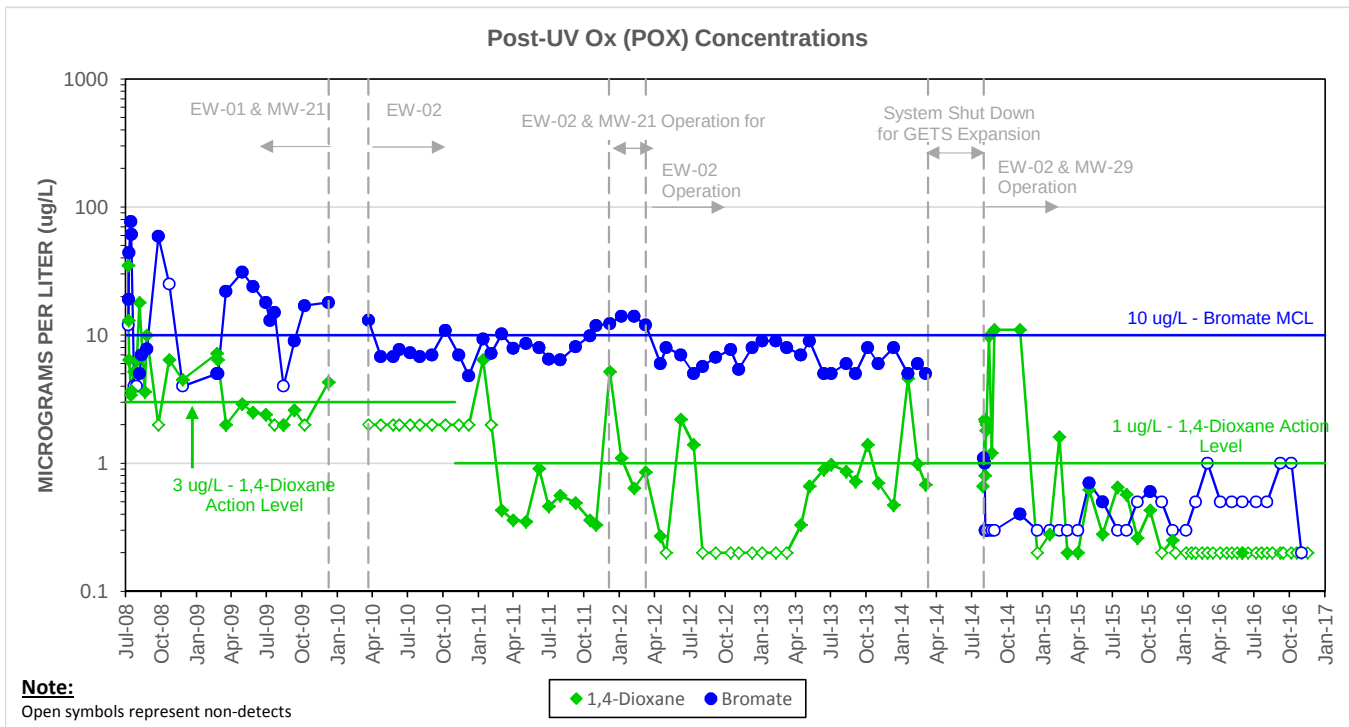
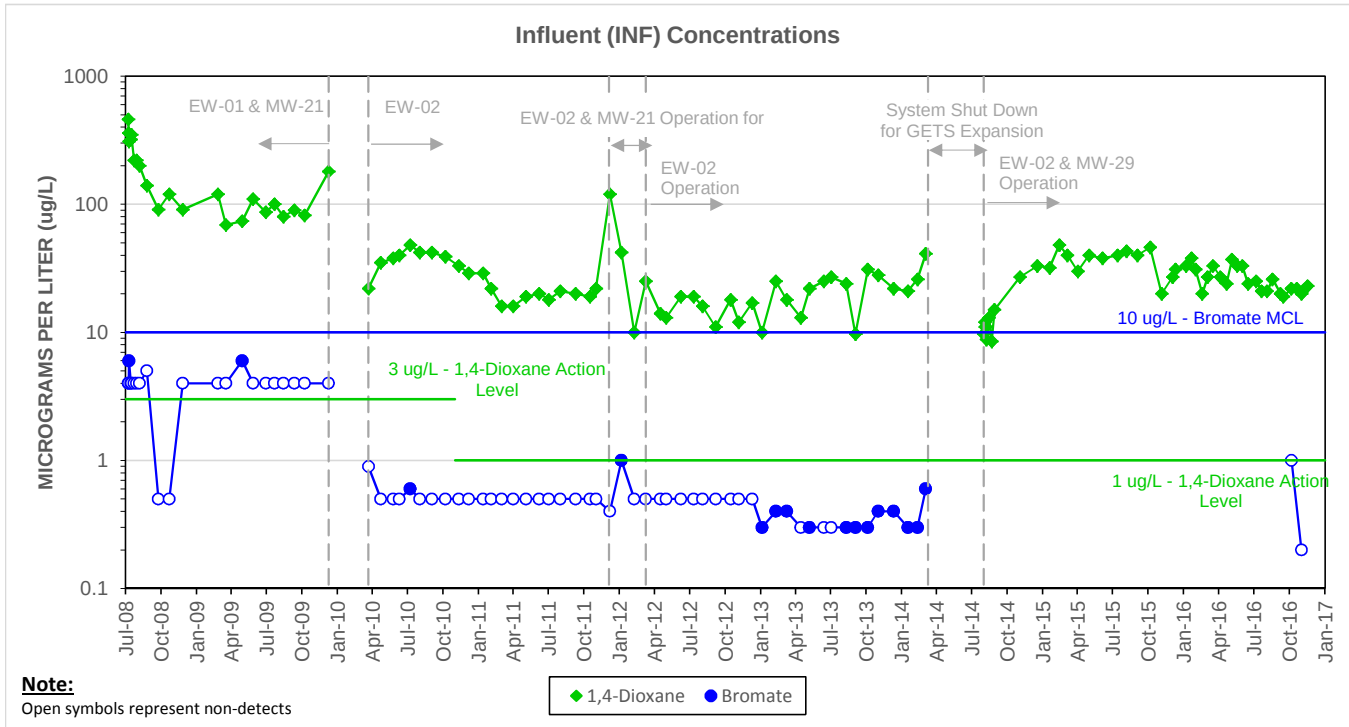


FIGURE 6.
1,4-DIOXANE AND BROMATE IN INFLUENT AND POST-OXIDATION SAMPLES

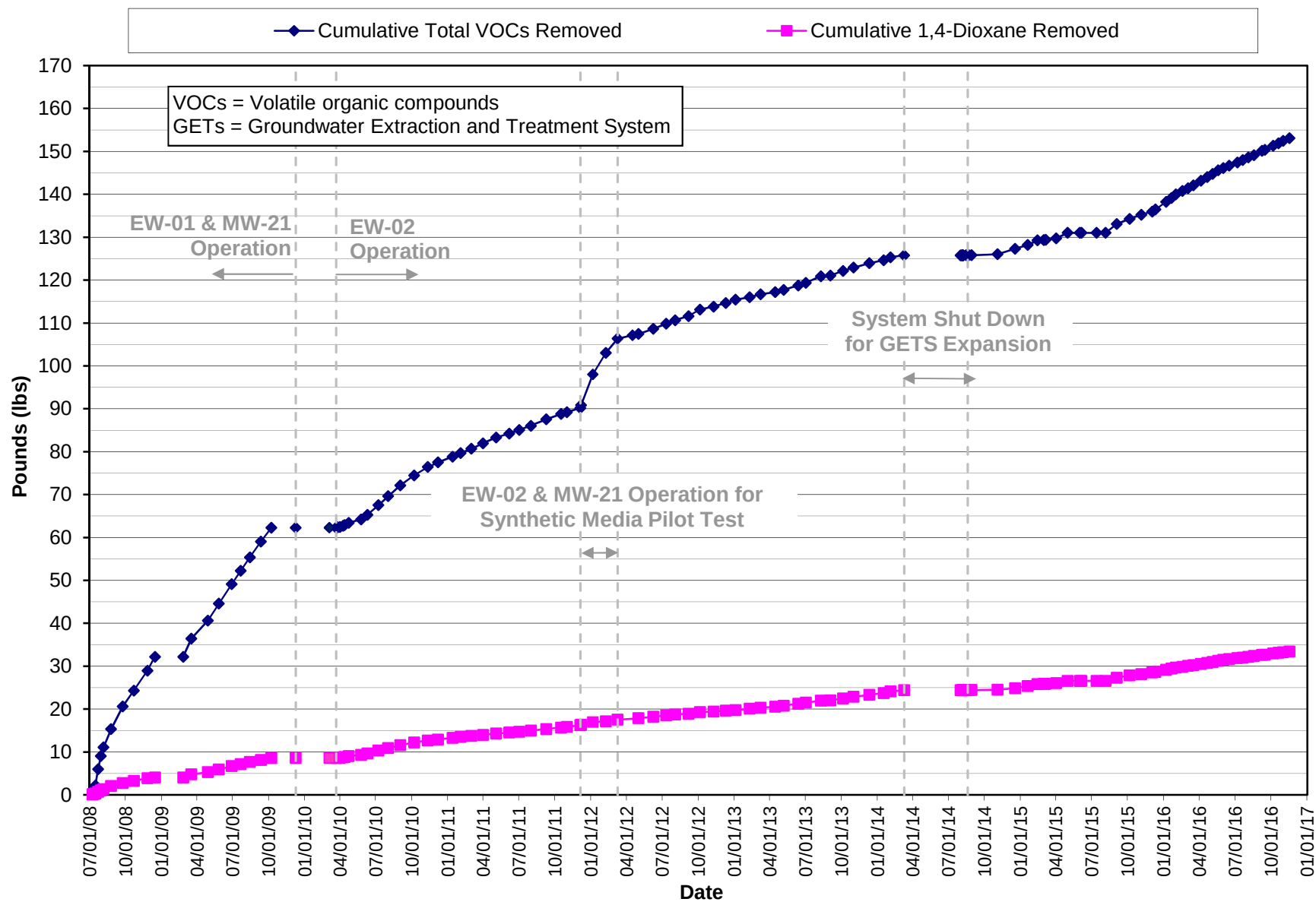


FIGURE 7.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM MASS REMOVAL

APPENDIX A

GROUNDWATER SAMPLING FIELD FORMS

NOVEMBER 2016

GROUNDWATER MONITORING
FIELD NOTEBOOK
LOW VOLUME MONITOR WELLS

RAYTHEON COMPANY

532.30

1901 MALVERN AVE.
FULLERTON, CALIFORNIA



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING



3.6 miles

3.8 miles

26 min

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: November 2016

METHOD OF MEASUREMENT/SOUNDER IDENTIFIER: FLAT TAPE ELECTRIC SOUNDER #211506

PROJECT NUMBER: 532.30

WELL IDENTIFIER	DATE	TIME	MEASURING POINT	DEPTH TO WATER FROM REFERENCE POINT (+feet)	REFERENCE POINT ELEVATION (ft msl)	WATER LEVEL ELEVATION (ft msl)	AUGUST 2016 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
P-07	11/07/16	1507	TOC	114.91	142.31	27.40	114.27	-0.67		ASF
P-08	11/7/16	09:56	TOC	120.99	183.88	62.87	120.90	-0.09		AMD/KDF
MW-06	11/7/16	0958	TOC	181.63	181.29	-0.34	177.64	-3.99	needs new vault top	AMD/KDF
MW-08	11/7/16	10:52	TOC	150.60	155.91	+5.31	148.75	-1.85		ASF
MW-09	11/7/16	0950	TOC	179.41	180.10	0.69	176.08	-3.33		AMD/KDF
MW-13	11/7/16	0858	TOC	146.91	141.84	-5.07	144.12	-2.79		AMD/KDF
MW-15	11/7/16	10:57	TOC	152.42	144.95	-7.47	150.34	-2.58		ASF
MW-16	11/7/16	11:59	TOC	153.21	142.40	-10.81	151.25	-1.96		ASF
MW-17	11/7/16	0902	TOC	148.30	142.70	-5.60	147.70	-0.60		AMD/KDF
MW-18	11/7/16	0855	TOC	149.12	142.32	-6.80	148.48	-0.64		AMD/KDF
MW-19	11/7/16	0905	TOST	148.77	142.06	-6.71	147.99	-0.78		AMD/KDF
MW-20	11/7/16	10:02	TOC	175.75	184.19	8.44	171.64	-4.11		AMD/KDF
MW-21	11/7/16	12:07	TOST	145.60	141.18	-4.42	141.20	-4.40	Totalizer: 563567 Pumping? N	ASF
MW-22	11/7/16	0907	TOST	144.84	138.85	-6.19	144.28	-0.56		AMD/KDF
MW-23	11/7/16	0930	TOST	144.88	137.33	-7.55	144.41	-0.47		AMD/KDF
MW-24	11/7/16	12:09	TOST	142.40	142.83	+0.43	139.10	-3.30		ASF
MW-25	11/7/16	12:03	TOC	145.72	142.84	-3.08	140.58	-5.14		ASF
MW-26A	11/7/16	0912	TOC	142.78	137.04	-5.74	139.86	-2.92		AMD/KDF
MW-26B	11/7/16	0913	TOC	144.57	137.05	-7.52 -5.73	142.03	-2.54		AMP/KDF
MW-26C	11/7/16	0919	TOC	150.54	137.22	-13.32	148.45	-2.09		AMD/KDF

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: November 2016

METHOD OF MEASUREMENT/SOUNDER IDENTIFIER: FLAT TAPE ELECTRIC SOUNDER # 211506

PROJECT NUMBER: 532.30

WELL IDENTIFIER	DATE	TIME	MEASURING POINT	DEPTH TO WATER FROM REFERENCE POINT (+feet)	REFERENCE POINT ELEVATION (ft msl)	WATER LEVEL ELEVATION (ft msl)	AUGUST 2016 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-27	11/ 7 /16	0830	TOST	149.93	137.16	-12.77	147.71	-2.22		AMD/KDF
MW-28	11/ 7 /16	0941	TOST	154.36	140.77	-13.59	152.25	-2.11	needs new bolts	AMD/KDF
MW-29	11/ 7 /16	10:37	TOST	201.70	139.81	-61.89	193.48	-8.22	Totalizer: 8717187.2 Pumping? y-e 10.33 9PM	ASF
MW-30A	11/ 7 /16	1030	TOST	144.10	129.44	-14.66	142.20	-1.90		
MW-30B	11/ 7 /16	1025	TOST	140.60	129.39	-11.21	138.20	-2.40		
MW-31	11/ 7 /16	1001	TOST	133.00	119.60	-13.40	130.85	-2.15		
MW-32A	11/ 7 /16	0818	TOST	109.74	92.88	-16.86	107.97	-1.83		
MW-32B	11/ 7 /16	0835	TOST	109.15	92.89	-16.26	107.20	-1.95		
MW-32C	11/ 7 /16	0816	TOST	92.35	92.88	+0.53	92.50	+0.15		
MW-33	11/ 7 /16	0923	TOST	103.55	83.19	-20.36	102.90	-0.65		
MW-34A	11/ 7 /16	12:13	TOST	165.51	153.25	-12.26	165.49	-0.02		AMD/KDF
MW-34B	11/ 7 /16	12:11	TOST	169.85	153.11	-16.74	168.68	-1.17		AMD/KDF
MW-34C	11/ 7 /16	12:09	TOST	168.18	153.29	-14.89	166.20	-1.98		AMD/KDF
MW-35A	11/ 7 /16	0856	TOST	95.80	93.57	-2.23	95.55	-0.25		ASF
MW-35B	11/ 7 /16	0857	TOST	105.55	93.56	-11.99	104.05	-1.50		ASF
MW-35C	11/ 7 /16	0901	TOST	109.20	93.55	-15.65	107.20	-2.00		ASF
MW-36	11/ 7 /16	1024	TOST	108.73	88.65	-22.08	108.38	-0.35		AMD/KDF
MW-37	11/ 7 /16	1050	TOST	162.06	155.60	-6.46	157.24	-4.82		AMD/KDF
MW-38	11/ 7 /16	1058	TOST	169.69	154.90	-14.79	169.55	-0.14		AMD/KDF
MW-39	11/ 7 /16	10:35	TOST	106.85	84.25	-22.6	106.20	-0.65		AMD/KDF
MW-40	11/ 7 /16	0938	TOST	133.75	123.40	-10.35	131.15	-2.60		ASF

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: November 2016

METHOD OF MEASUREMENT/SOUNDER IDENTIFIER: FLAT TAPE ELECTRIC SOUNDER # 211506

PROJECT NUMBER: 532.30

WELL IDENTIFIER	DATE	TIME	MEASURING POINT	DEPTH TO WATER FROM REFERENCE POINT (+feet)	REFERENCE POINT ELEVATION (ft msl)	WATER LEVEL ELEVATION (ft msl)	AUGUST 2016 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL ($\pm$ ft)	COMMENTS	INITIALS
MW-41	11/ 7 /16	1108	TOST	173.65	155.60	-18.05	172.88	-0.77		AMD/KDF
EW-01	11/ 7 /16	1217	TOST	152.30	141.07	-11.23	150.17	-2.13	SOUNDING TUBE TO 172.65 Totalizer: N/A Pumping? N	ASF
EW-02	11/ 7 /16	1014	TOST	152.20	132.97	-19.23	150.95	-1.25	Totalizer: 4321928 Pumping? Y	ASF

msl = Mean sea level
ft = feet

HARGIS + ASSOCIATES, INC.

NOV 2016 GROUNDWATER SAMPLE PLAN
TEAM 2

QA/QC	Total VOC's	1,4-Dioxane	APROX. GALLONS	ESTIMATE D TIME (minutes)	WELL IDENTIFIER	HYDROGEOLOGIC ZONE	FEBRUARY 2014 SAMPLING SCHEDULE	SAMPLE METHOD
	25	7	-	-	EW-02	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
	260	77	-	-	MW-29	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
SPT/DUP	439	90	175	25	EW-01	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
MS/MSD (Tu)	1567	250	381	31	MW-21	Water Table; BC	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
Wed	0.0	0.0	72	22	MW-38	Deep; A	VOCs; 1,4-Dioxane	Ded. 240V
	0.0	0.0	245	33	MW-40	Deep; B	VOCs; 1,4-Dioxane	Ded. 240V
	0.00	0.0	92	12	MW-30A	Deep; B	VOCs; 1,4-Dioxane	Ded. 240V
	0.0	0.0	193	55	MW-26C	Deep; B	VOCs; 1,4-Dioxane	Ded. 240V
Wed	0.6	0.0	168	25	MW-41	Deep; B	VOCs; 1,4-Dioxane	Ded. 240V
	0.9	0.0	160	20	MW-28	Deep; B	VOCs; 1,4-Dioxane	Ded. 240V
	49	0.00	9.5	11	MW-08	Water Table; BC	VOCs; 1,4-Dioxane	Redi-flo
	74	12	228	19	MW-34B	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded. 240V
	99	0.3	130	26	MW-30B	Deep; BC	VOCs; 1,4-Dioxane	Ded. 240V

NOTE

1 = Day - # refers to the day scheduled to sample and the corresponding dedicated pipestand to use: ND=1; 0-10=2; 10 - 100=3; >100=4
 A **MS** and **MSD** (3x40ml VOA and 1L amber) should be collected every day/ alternating 1,4-Dioxane methods as indicated
 1,4-Dioxane analysis method is 8270 SIM unless specified otherwise (if historical detect is > 5.0 ug/l MOD is used).
 Wells with dedicated pumps should follow concentration order when possible.

HARGIS + ASSOCIATES, INC

NOV 2016 GROUNDWATER SAMPLE PLAN
TEAM 1

QA/QC	Total VOC's	1,4-Dioxane	APPROX. GALLONS	ESTIMATE D TIME (minutes)	WELL IDENTIFI ER	HYDROGEOLOGIC ZONE	FEBRUARY 2014 SAMPLING SCHEDULE	SAMPLE METHOD
~~MS/MSD (W)~~	0	0	1185	83	MW-35G	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	568	42	MW-37	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	840	80	MW-38	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	7.6	0	888	86	MW-33	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	67	2.6	982	93	MW-36	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
~~MS/MSD~~	180	4.7	287	32	MW-31	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
	291	2.6	888	85	MW-32B	Deep; B	VOCs; 1,4-Dioxane	Ded.240V

NOTES

A **MS** and **MSD** (3x40ml VOA and 1L amber) should be collected every day/ alternating 1,4-Dioxane methods as indicated

1,4-Dioxane analysis method is 8270 SIM unless specified otherwise (if historical detect is > 5.0 ug/l MOD is used)

1 = Day - # refers to the day scheduled to sample and the corresponding dedicated pipestand to use: ND=1, 0-10=2; 10 - 100=3;
>100=4

Wells with dedicated pumps should follow concentration order when possible

RB = Rinsate blank taken on non-dedicated equipment each day- will vary with schedule and should be confirmed with both teams each morning.

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 8 / 16

TASK: 532.30

WELL ID: MW-40

Time <u>08:49</u> Static DTW (ft below reference point) <u>133.87</u>	Screen Casing Volume (CV) (gallons) <u>75</u> 3 CV (gallons) <u>225</u>	Weather Conditions	Initials: <u>AMD/KDF</u>
Casing Total Depth (ft below reference point) <u>470</u>	Purging Device <u>ded pump</u> Sampling Device <u>pipestand</u>	Time <u>0840</u> Temp. <u>75</u>	Begin Purge <u>0851</u> End Purge <u>0929</u>
Water Column (feet) <u>50</u>	Pump: Depth (ft brp) <u>420</u> Type <u>Grundfos</u> Voltage <u>240</u> HP	Skies <u>sunny</u>	Gallons Purged <u>239</u> CVs Purged <u>319</u>
Casing Capacity (Diameter <u>6"</u>) (gallons per foot) <u>1.5</u>	Monitor Well Recharge Rate: Slow Fast <u>X</u>	Wind (mph) <u>5</u> From <u>E</u>	DTW (ft brp) <u>134.47</u> Time <u>0929</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)		
0851	134.99	Ø	Ø	PUMP	ON	—	—	—	—	—	Q ≈ 7 gpm
0855	134.42	28	0.37	21.7	6.94	734	113.3	2.59	1.03	—	
0900	134.47	53	0.71	21.3	7.06	682	-228.2	1.45	0.55	—	
0906	134.47	97.8	1.30	21.7	7.19	733	-168.6	3.04	1.19	—	
0911	134.48	138.4	1.85	21.6	7.19	739	-169.3	1.65	0.31	—	
0917	134.48	179.4	2.39	21.5	7.23	743	-170.0	1.25	0.19	—	
0926	134.49	225.0	3.00	21.5	6.98	742	-170.1	1.18	0.50	—	sample @ 0927
0929	134.47	239.2	3.19	PUMP	OFF	—	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME <u>0927</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	3 40 ml VOA
8270 SIM 1,4 dioxane	1 L Amber
8270 MOD 1,4 dioxane	1 L Amber
DUPLICATES / SPLITS / BLANKS? Y (N)	
If yes, complete appropriate forms.	

AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA
NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 8 / 16

TASK: 532.30

WELL ID: MW-08

Time 1209 Static DTW (ft below reference point)	150.55	Casing Volume (CV) (gallons) 2.75 3 CV (gallons) 8.85	Weather Conditions
Casing Total Depth (ft below reference point)	166.10	Purging Device Ground For Sampling Device ded tubing	Time 1209 Temp 80
Water Column (feet)	17.36	Pump: Depth (ft brp) 163 Type ground for Voltage HP	Skies clear
Casing Capacity (Diameter 2") (gallons per foot)	0.17	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0 From
		Initials: AMD/KDF	Begin Purge 1226 End Purge 1241
		Gallons Purged 15 CVs Purged 5.08	DTW (ft brp) 156.99 Time 1241

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	FIELD PARAMETERS						Pump Frequency Hz	COMMENTS
				Temp. (C)	pH	EC (uS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1226	150.55	0	0	BEGIN	PURGE					370	Q ≈ 1
1227	153.05	1	0.34	25.3	7.6	1401	-75.2	7.00	143.8	390	
1229	154.15	3	1.01	25.1	7.81	1496	-113.4	2.18	87.9	390	
1230	154.51	4	1.35	26.8	7.14	1501	-109.1	1.94	58.6	390	
1231	154.90	5	1.69	27.6	7.65	1502	-76.0	6.10	59.7	394	
1233	155.33	7	2.37	27.8	7.13	1527	-111.3	1.79	36.5	394	
1235	156.10	9	3.05	29.0	7.10	1533	-120.3	1.36	40.3	394	
1238	156.61	12	4.06	29.2	7.07	1564	-118.5	1.78	38.3	394	sample @ 1238
1241	156.79	15	5.08	END	PURGE						

SAMPLE COLLECTION SAMPLE TIME 1238		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 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: 11 / 8 / 16

TASK: 532.30

WELL ID: MW-34B

Time 13:25 Static DTW (ft below reference point) 169.87	Screen 50 Casing Volume (gal) (gallons) 30 30 150	Weather Conditions	Initials: KDF/AMD
Casing Total Depth (ft below reference point) 536	Purging Device Del Pump Sampling Device Del Pump	Time 13:20 Temp. 80	Begin Purge 13:28 End Purge 13:44
Water Column (feet) 366.13	Pump: Depth (ft brp) 450 Type Grundfos Voltage 240 HP	Skies Clear	Gallons Purged 156 CVs Purged 5.2
Casing Capacity (Diameter 4") (gallons per foot) 0.06	Monitor Well Recharge Rate: Slow Fast	Wind (mph) 0 From	DTW (ft brp) 171.48 Time 13:44

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)		
13:28				Pump	On					NA	Q ≈ 12 gpm
13:30	171.30	24	0.8	21.6	7.44	903	-239.1	2.53	13.2		
13:32	171.37	48	1.6	22.0	7.59	905	-214.9	3.63	20.8		
13:34	171.39	69.2	2.4	22.1	7.61	904	-220.5	3.74	16.1		
13:36	171.42	96	3.2	22.1	7.61	905	-217.9	3.74	13.0		Q ≈ 12 gpm
13:38	171.44	120	4.0	22.1	7.62	900	-216.2	3.72	4.90		
13:41	171.48	156	5.2	22.1	7.60	901	-216.6	3.72	1.38		
13:44			Pump	Off							

SAMPLE COLLECTION SAMPLE TIME 13:42			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: 11 / 8 / 16

TASK: 532.30

WELL ID: MW-30A

Time <u>1425</u> Static DTW (ft below reference point)	<u>144.09</u>	Casing Volume (CV) (gallons) <u>17.6</u> 3 CV (gallons) <u>52.8</u>	Weather Conditions	Initials: <u>AMO/KDF</u>
Casing Total Depth (ft below reference point)	<u>564</u>	Purging Device <u>ded pump</u> Sampling Device <u>0-10 pipe stand</u>	Time <u>1425</u> Temp. <u>80°C</u>	Begin Purge <u>1431</u> End Purge <u>1445</u>
Water Column (feet)	<u>44</u>	Pump: Depth (ft brp) <u>520</u> Type <u>grundfos</u> Voltage <u>240</u> HP	Skies <u>clear</u>	Gallons Purged <u>62.3</u> CVs Purged <u>354</u>
Casing Capacity (Diameter <u>3"</u>) (gallons per foot)	<u>0.4</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0-5</u> From <u>E</u>	DTW (ft brp) <u>145.57</u> Time <u>1440</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)		
1431	144.09	0	0	BEGIN	PURGE						Q ≈ 5.5
1433	145.56	10.3	0.59	22.1	7.73	~~321.9~~ ⁶⁸⁸	-335.3	1.29	1.87	-	
1435	145.61	24.6	1.39	21.5	7.75	~~381.5~~ ⁶⁸⁴	-381.5	0.36	1.25	-	
1437	145.51	36.8	2.09	21.7	7.70	683	-348.1	0.40	0.26	-	
1438	145.56	42.9	2.43	21.7	7.68	682	-337.2	0.44	0.00	-	
1439	145.55	52.9	3.01	21.7	7.67	682	-335.2	0.45	0.00	-	
1440	145.57	57.7	3.27	21.7	7.67	681	-335.0	0.45	0.00	-	
1445	-	62.3	3.54	PUMP	OFF						

SAMPLE COLLECTION SAMPLE TIME	<u>1442</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		1 L Amber
DUPLICATES / SPLITS / BLANKS?	Y <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.)

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 8 / 16TASK: 532.30WELL ID: MW-30B

Time <u>1451</u> Static DTW (ft below reference point) <u>140.63</u>	Casing Volume (CV) (gallons) <u>40</u> 3 CV (gallons) <u>120</u>	Weather Conditions	Initials: <u>AMD/KDI</u>
Casing Total Depth (ft below reference point) <u>619</u>	Purging Device <u>ded pump</u> Sampling Device <u>>100 pipet stand</u>	Time <u>1450</u> Temp. <u>80°C</u>	Begin Purge <u>1451</u> End Purge <u>1527</u>
Water Column (feet) <u>99</u>	Pump: Depth (ft brp) <u>520</u> Type <u>grindfor</u> Voltage <u>240</u> HP	Skies <u>clear</u>	Gallons Purged <u>130</u> CVs Purged <u>3.25</u>
Casing Capacity (Diameter <u>3"</u>) (gallons per foot) <u>0.4</u>	Monitor Well Recharge Rate: Slow Fast <u>X</u>	Wind (mph) <u>5-10</u> From <u>E</u>	DTW (ft brp) <u>161.55</u> Time <u>1527</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)		
1451	140.63	0	0	BEGIN	PURGE						Q ≈ 4.8
1453	155.33	15.5	0.38	22.4	7.41	1066	-302.8	0.83	4.66	-	
1500	157.88	23.4	0.59	21.4	7.60	1130	-304.9	0.39	4.33	-	
1508	159.63	60.0	1.50	21.7	7.31	1284	-157.1	3.31	24.3	-	
1514	160.92	80.0	2.00	21.7	7.48	1033	-204.4	2.22	10.44	-	
1520	161.33	100.0	2.50	21.7	7.48	1037	-204.7	1.79	5.34	-	
1525	161.57	120.0	3.00	21.7	7.47	1040	-204.3	1.76	4.72	-	
1527	161.55	130.3	3.25	PUMP	OFF						

SAMPLE COLLECTION SAMPLE TIME <u>1526</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 <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.)

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 8 / 16TASK: 532.30WELL ID: MW-26C

Time <u>1618</u> Static DTW (ft below reference point)	<u>150.56</u>	Casing Volume (CV) (gallons) <u>60</u> 3 CV (gallons) <u>180</u>	Weather Conditions	Initials: <u>AMD/KDF</u>
Casing Total Depth (ft below reference point)	<u>499</u>	Purging Device <u>Grundfos</u> Sampling Device <u>ded. tubing</u>	Time <u>1615</u> Temp. <u>75°C</u>	Begin Purge <u>1618</u> End Purge <u>1702</u>
Water Column (feet)	<u>350.85</u>	Pump: Depth (ft brp) <u>200</u> Type <u>grundfos</u> Voltage <u>HP</u>	Skies <u>clear</u>	Gallons Purged <u>198.5</u> CVs Purged <u>3.31</u>
Casing Capacity (Diameter <u>2"</u>) (gallons per foot)	<u>0.17</u>	Monitor Well Recharge Rate: Slow <u>Fast</u> <u>X</u>	Wind (mph) <u>0-5</u> From <u>E</u>	DTW (ft brp) <u>152.08</u> Time <u>1702</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)		
1618	150.56	0	0	BEGIN	PURGE	—	—	—	—	390	
1620	151.57	9	0.13	22.3	8.43	550	-240.2	3.12	7.04	390	Q ≈ 4 gpm
1630	151.90	53	0.88	22.2	8.67	540	-354.1	0.24	9.62	400	Q ≈ 4.5 gpm
1638	152.01	90	1.50	22.2	7.76	791	-219.0	1.03	2.88	400	
1645	152.05	122	2.02	22.2	7.69	801	-207.6	1.23	1.14	400	
1652	152.04	153.5	2.55	22.2	7.66	808	-199.7	1.30	2.91	400	
1658	152.05	180.5	3.01	22.2	7.65	778	-190.0	1.57	1.58	400	
1702	152.08	198.5	3.31	PUMP	OFF	—	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME <u>1700</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? <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.)



HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 9 / 16TASK: 532.30WELL ID: MW-28

Time <u>0819</u> Static DTW (ft below reference point) <u>154.37</u>	Casing Volume (CV) (gallons) <u>2529.7</u> ³ CV (gallons) <u>7589.1</u>	Weather Conditions
Casing Total Depth (ft below reference point) <u>375</u>	Purging Device <u>ded. pump</u> Sampling Device <u>0-10 pipet</u>	Time <u>0819</u> Temp. <u>6</u>
Water Column (feet) <u>45</u>	Pump: Depth (ft brp) <u>330</u> Type <u>ground</u> Voltage <u>240</u> HP	Skies <u>clear</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>✓</u>
		Initials: <u>AMD/KDF</u>
		Begin Purge <u>0822</u> End Purge <u>0836</u>
		Gallons Purged <u>99</u> CVs Purged <u>3.30</u>
		DTW (ft brp) <u>160.67</u> Time <u>0838</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)		
0822	154.37	0	0	BEGIN PURGE							Q ≈ 6 gpm
0823	155.81	6	0.20	22.6	7.32	1175	-38.9	6.23	4.96	-	
0825	160.51	25.3	0.85	21.7	7.33	1128	-68.4	6.11	2.30	-	
0827	160.62	35.8	1.21	21.7	7.35	1133	-57.7	6.51	0.62	-	
0829	160.68	56.7	1.91	21.8	7.36	1139	-49.4	6.71	1.13	-	
0831	160.67	71.9	2.42	21.8	7.38	1139	-41.1	6.74	0.44	-	
0834	160.68	76.0	2.56	21.8	7.39	1140	-37.6	6.68	0.51	-	
0836	160.67	90.0	3.00	21.8	7.40	1141	-38.9	6.60	0.67	-	
0838	160.67	98.0	3.30	PUMP OFF							

SAMPLE COLLECTION SAMPLE TIME <u>0836</u>			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	<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>						
If yes, complete appropriate forms.						

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 9 / 16TASK: 532.30WELL ID: MW-31

Time <u>0854</u> Static DTW (ft below reference point) <u>133.33</u>	Casing Volume (CV) (gallons) <u>81</u> 3 CV (gallons) <u>243</u>	Weather Conditions	Initials: <u>AMD/KDF</u>
Casing Total Depth (ft below reference point) <u>996</u>	Purging Device <u>ged pump</u> Sampling Device <u>7100 pipetand</u>	Time <u>0854</u> Temp <u>75</u>	Begin Purge <u>0856</u> End Purge <u>0926</u>
<u>pump screen</u> Water Column (feet) <u>54</u>	Pump: Depth (ft brp) <u>942</u> Type <u>grundfos</u> Voltage <u>240</u> HP	Skies <u>clear</u>	Gallons Purged <u>261</u> CVs Purged <u>3.22</u>
Casing Capacity (Diameter <u>6"</u>) (gallons per foot) <u>1.5</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>-</u>	DTW (ft brp) <u>135.95</u> Time <u>0926</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)		
0856	133.33	0	0	BEGIN	PURGE						Q ≈ 9 gpm
0858	135.92	18	0.22	23.1	7.53	1021	-59.0	1.71	2.14	-	
0902	135.89	54	0.67	21.0	7.69	897	-273.3	0.44	17.0	-	
0907	135.91	99	1.22	21.4	7.86	1211	-308.2	0.17	12.7	-	
0917	135.93	135	1.67	21.5	7.68	1047	-280.3	0.30	12.1	-	
0918	135.95	189	2.33	21.5	7.67	971	-261.2	0.46	9.16	-	
0924	135.96	243	3.00	21.5	7.69	939	-259.1	0.60	8.99	-	
0926	135.95	261	3.22	PUMP	OFF						

SAMPLE COLLECTION SAMPLE TIME <u>0925</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? <u>Y</u> (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.)

TABLE 1
WELL CONSTRUCTION SUMMARY

Well Identifier	Date Installed	Current Land Surface Elevation (feet msl)	Current Reference Point Elevation (feet msl)	Total Depth of Borehole (feet bls)	Perforated Interval (feet bls)	Screen Slot Size (inches)	Borehole Diameter (inches)	Casing Diameter (inches) (a)	Filter Pack Interval (feet bls)	Filter Pack Sand Size	Grout/Filter/ Intermediate Seal Interval (feet bls) (b)	Annular Seal Interval (feet bls) (c)
Regional Groundwater System Monitor Wells, Extraction Wells and Piezometers												
MW-06	1/16/1997	184.96	184.70	190.9	149.6 - 189.6	0.010	8.5	2	145.4 - 190.9	#2/16	139.4 - 145.4 (d)	0 - 139.4
MW-08	1/22/1997	156.60	155.91	167.2	126.1 - 166.1	0.010	8.5	2	120.7 - 167.2	#2/16	115.7 - 120.7	0 - 115.7
MW-09	3/21/1997	180.48	180.10	194.2	152.2 - 192.2	0.010	8.5	2	146.2 - 194.2	#2/16	141.2 - 146.2	0 - 141.2
MW-13	4/18/1997	142.44	141.84	159.5	120.6 - 159.6	0.010	8.5	2	114.6 - 159.6	#2/16	109.6 - 114.6	0 - 109.6
MW-15	5/18/1998	145.54	144.95	174.7	120.8 - 170.8	0.010	8.5	2	115.8 - 174.8	#2/16	112.8 - 115.8	0 - 112.8
MW-16	11/20/1999	142.98	142.40	179.5	148.5 - 178.5	0.010	11.0	4	144.5 - 179.5	#2/16	134.5 - 144.5 (e)	0 - 134.5
MW-17	5/31/2000	142.70	142.70	203.6	173.1 - 193.1 (i)	0.020	10.0	4	159.7 - 193.1	#2/16	156.2 - 159.7 193.1 - 203.7 (j)	0 - 156.2
MW-18	5/24/2000	142.39	142.32	195.6	164.1 - 194.1	0.020	10.0	4	158.9 - 194.5	#2/16	154.2 - 158.9	0 - 154.2
MW-19	5/26/2000	142.72	142.06	205.5	184.9 - 204.9	0.020	10.0	4	177.0 - 205.3	#2/16	171.5 - 177.0	0 - 171.5
MW-20	6/26/2003	184.36	184.19	200.0	158.6 - 198.2	0.020	11.0	4 (f)	158.0 - 200.0	#2/12	151.0 - 158.0 (g)	0 - 151.1 (h)
MW-21	7/17/2003	143.34	141.18	238.3	212.1 - 232.1	0.010	8.0	4 (k)	205.0 - 234.5	#2/16	202.0 - 205.0 234.5 - 238 (j)	0 - 202.0 (h)
MW-22	8/13/2003	139.39	138.65	245.0	217.4 - 237.4	0.020	8.0	4 (l)	215.0 - 238.0	#2/12	208.0 - 215.0 (m)	0 - 208.0 (h)
MW-23	8/18/2003	137.75	137.33	235.6	215.2 - 235.2	0.020	8.0	4 (n)	209.4 - 235.6	#2/12	203.5 - 209.4 (m)	0 - 203.5 (h)
MW-24	9/15/2004	143.05	142.83	338.0	310.3 - 330.3	0.030	10.6	4 (o)	306 - 330	#3	301 - 306 (p)	0 - 301 (h)
MW-25	9/10/2004	142.97	142.64	805	449.4 - 479.8	0.010	8.5 (q)	2 (r)	429 - 485	#2/16	418 - 429	0 - 418 (h)
MW-26A (s)	10/1/2004	137.64	137.04	805	279 - 309	0.020	12.25 (q)	2 (l)	274 - 315	#2/12	268 - 274	0 - 266 (h)
MW-26B (s)	10/1/2004	137.64	137.05	805	339 - 379	0.020	12.25 (q)	2 (u)	334 - 387	#2/12	266 - 274	0 - 266 (h)
MW-26C (s)	10/1/2004	137.64	137.22	805	459 - 499	0.020	12.25 (q)	2 (v)	435 - 499	#2/12	387 - 435 (w)	0 - 266 (h)
MW-27	4/22/2008	137.60	137.16	550	475 - 505.2 (cc)	0.030	11.25 (q)	4 (z)	468 - 520	#3	457.5 - 468	0 - 457.5 (h)
MW-28	5/5/2008	141.38	140.77	425	335 - 375	0.040	12.25 (q)	4 (z)	325.4 - 377	#8	318 - 325.4	0 - 318 (h)
MW-29	8/15/2008	148.83	139.81	265.7	200 - 240	0.020	10.0 (aa)	4 (z)	185 - 246	#2/12	176 - 185	0 - 176 (h)
MW-30A(s)	11/26/2008	130.20	129.44	635 (j)	524-564	0.020	14.25	3 (y)	515.9-570.5	#2/12	495.5-515.9	0-495.5 (bb)
MW-30B(s)	11/26/2008	130.20	129.39	635 (j)	596-616	0.020	14.25	3 (y)	586.8-625	#2/12	586.8-570.5	0-495.5 (bb)
MW-31	10/2/2009	120.31	119.60	1,100 (jj)	946-996	0.020	13	6(kk)	922-1,006	#2/12	904-922	0-904
MW-32A(s)	12/10/2009	93.35	92.88	1,153 (gg)	890-905	0.020	18.5	4(dd)	880-910	#2/12	832-880	0-832
MW-32B(s)	12/10/2009	93.35	92.89	1,153 (gg)	969-999	0.020	18.5	4(dd)	960-1,004.5	#2/12	910-960	0-832
MW-32C(s)	12/10/2009	93.35	92.88	1,153 (gg)	1,070-1,090	0.020	18.5	4(dd)	1,054-1,100	#2/12	1,004.5-1,054	0-832
MW-33	7/2/2010	83.80	83.19	1,080 (hh)	980-1,020	0.020	11	4(dd)	970-1,025	#2/12	924-970	0-924 (ii)
MW-34A	2/3/2011	154.00	153.25	290	220 - 280	0.020	12.25	4(dd)	211 - 290	#2/12	175 - 211	0 - 175
MW-34B	2/1/2011	153.90	153.11	540	486 - 536	0.020	12.25	4(dd)	475 - 540	#2/12	449 - 475	0 - 449
MW-34C	1/19/2011	154.10	153.29	709 (ll)	556 - 576	0.020	12.25	4(dd)	551 - 582	#2/12	530 - 551	0 - 530
MW-35A	12/20/2010	94.30	93.57	1,101	420 - 470	0.020	18	4(dd)	401 - 482	#2/12	378 - 401	0 - 376
MW-35B	12/20/2010	94.30	93.56	1,101	745 - 805	0.020	18	4(dd)	725 - 816	#2/12	482 - 725	0 - 376
MW-35C	12/20/2010	94.30	93.55	1101 (ll)	990 - 1,040	0.020	12.25	4(dd)	980 - 1,048	#2/12	818 - 980	0 - 376
MW-36	1/3/2012	87.19	86.65	1030 (mm)	934 - 954 974 - 994	0.020	12.25	4(dd)	914 - 1,003	#2/12	95 - 853 (oo), 853 - 914 (pp)	0 - 95 (qq)
MW-37	10/17/2012	156.02	155.60	916	770-820	0.020	12.25	4(dd)	755-834	#2/12	229-724 (rr) 724-755 (pp)	0-229 (ss)
MW-38	7/29/2013	155.70	154.90	203	150-200	0.020	10	4(z)	140-203	#2/12	120-140 (pp)	0-120 (qq)
MW-39	7/25/2013	84.71	84.25	1,080 (ll)	982-1,012	0.020	12.25	4(dd)	974-1,017	#2/12	156 - 917 (rr) 917- 974 (pp)	0-156 (qq)
MW-40	7/2/2013	124.09	123.40	1040 (ll)	930-970	0.030	12.25	6(dd)	916-975	#3	175 - 880 (rr) 880- 916 (pp)	0-175 (qq)
MW-41	8/22/2014	156.02	155.60	436.3 (mm)	385-425	0.020	12.25	4(dd)	373.5-427	#2/16	165-357 (rr) 357- 373.5 (pp)	0-165 (qq)
EW-01	5/16/2005	143.30	141.07	185	138.1-188.1	0.020	7.6	4 (x)	134.1-195	#2/12	129-134.1 (rr)	0-129 (h)
EW-02	10/20/2009	136.04	132.97	473 (ee)	410-460	0.030	17.0	8 (ff)	400-465	#3	384-400	0-384
Perched Zone Piezometers												
P-07	6/6/1997	142.7	142.31	116.8	107.7 - 117.7	0.010	8.5	2	104.7 - 117.7	#2/16	101.7 - 104.7	0 - 101.7
P-09	6/30/2003	184.3	183.86	130.0	109.6 - 129.6	0.010	11.0	4	114.0 - 130.0	#2/16	101.0 - 108.0 (g)	0 - 101.0 (h)

TABLE 1
WELL CONSTRUCTION SUMMARY

NOTE: Refer to page 2 of this table for footnotes.

FOOTNOTES

msl = Mean sea level, City of Fullerton datum

bls = Below current land surface (October 2004)

(a) = Schedule 40 polyvinyl chloride (PVC) screen and casing, unless otherwise indicated

(b) = Medium bentonite chip seal, unless otherwise indicated

(c) = Bentonite grout annular seal unless otherwise indicated, completed at surface with vault set in concrete

(d) = No. 60 silica sand

(e) = Includes 2.0 feet of No. 60 silica sand placed above filter pack

(f) = Schedule 80 polyvinyl chloride screen and casing

(g) = Includes 2.5 to 3.0 feet of No. 60 silica sand placed above bentonite chip seal

(h) = Cement/bentonite grout, Type III Portland, less than 5% bentonite

(i) = Well plug, approximately 0.5-foot length, set at bottom of perforated interval

(j) = Bottom of borehole backfilled with bentonite chips

(k) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 122.0 - 212.1 feet bls; Schedule 40 mild steel casing 0 - 122.0 feet bls

(l) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 112.4 - 217.4 feet bls; Schedule 40 mild steel casing 0 - 112.4 feet bls

(m) = 1/4-inch coated bentonite pellets

(n) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 110.1 - 215.2 feet bls; Schedule 40 mild steel casing 0 - 110.1 feet bls

(o) = Mild steel wire wrap screen and Schedule 40 mild steel well casing

(p) = Includes 1 to 2 feet of #2/16 sand placed above bentonite chip seal

(q) = Below filter pack, diameter of the original pilot borehole is 5 to 6.25 inches to total depth of boring. Lower borehole backfilled with cement/bentonite grout, Type III Portland, less than 5% bentonite

(r) = Stainless steel wire wrap screen, Schedule 10 stainless steel casing 429.4 - 449.4 feet bls, Schedule 80 polyvinylchloride casing 429.0 - 429.4 feet bls, Schedule 40 mild steel casing 0 - 429.0 feet bls

(s) = Nested wells MW-26A, MW-26B, MW-26C, and MW-32A, MW-32B, MW-32C are constructed with three separate well casings in a single borehole; nested well MW-30A and MW-30B is constructed with two separate casings in a single borehole.

(t) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 259 - 279 feet bls and 0 - 19 feet bls; Schedule 40 mild steel casing 19 - 259 feet bls

(u) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 319 - 339 feet bls; Schedule 40 mild steel casing 0 - 319 feet bls

(v) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 439 - 459 feet bls; Schedule 40 mild steel casing 0 - 439 feet bls

(w) = #8 granular bentonite with exception of heavy mud/formational caving filling annular interval from 417 to 428 feet bls

(x) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 118.1-138.1 feet bls; Schedule 40 mild steel casing 0-118.1 feet bls

(y) = Schedule 40 Stainless steel endcaps; Schedule 10 stainless steel casing; Stainless steel wire wrap screen

(z) = Schedule 80 PVC blank and screen casing

(aa) = Below filter pack, diameter of the original pilot borehole is 8 inches to total depth of boring. Lower borehole backfilled with cement/bentonite grout, Type III Portland, less than 5% bentonite

(bb) = Neat cement

(cc) = Depth of screen interval adjusted to account for loss at bottom of casing due to breakage in casing wall. Original casing (515 ft bls) was sealed at 505.2 ft bls

(dd) = Schedule 40 Stainless steel endcaps; Schedule 80 polyvinyl chloride casing; Stainless steel wire wrap screen

(ee) = Pilot borehole drilled to a total depth of 493 feet bls and backfilled with 5% bentonite-cement grout seal to 465 feet bls

(ff) = Schedule 40 Stainless steel endcaps; Schedule 40 stainless steel casing; Stainless steel wire wrap screen; 2.5-foot stainless steel sump

(gg) = Pilot borehole drilled to a total depth of 1,153 feet bls and backfilled with 5% bentonite-cement grout seal to 1,100 feet bls

(hh) = Pilot borehole drilled to a total depth of 1,080 feet bls and backfilled with 5% bentonite-cement grout seal to 1,025 feet bls

(ii) = Annular seal interval is composed of cement grout with approximately 5% bentonite from 720 to 924 feet bls and bentonite grout from near land surface to 720 feet bls

(jj) = Pilot borehole drilled to a total depth of 1,100 feet bls and backfilled with 5% bentonite-cement grout seal to 1,006 feet bls

(kk) = Schedule 40 Stainless steel endcaps; Schedule 40 stainless steel casing; Stainless steel wire wrap screen; 5-foot stainless steel sump

(ll) = Bottom of borehole backfilled with approximately 5% bentonite-cement grout

(mm) = Bottom of borehole backfilled with bentonite pellets

(oo) = High solids bentonite grout

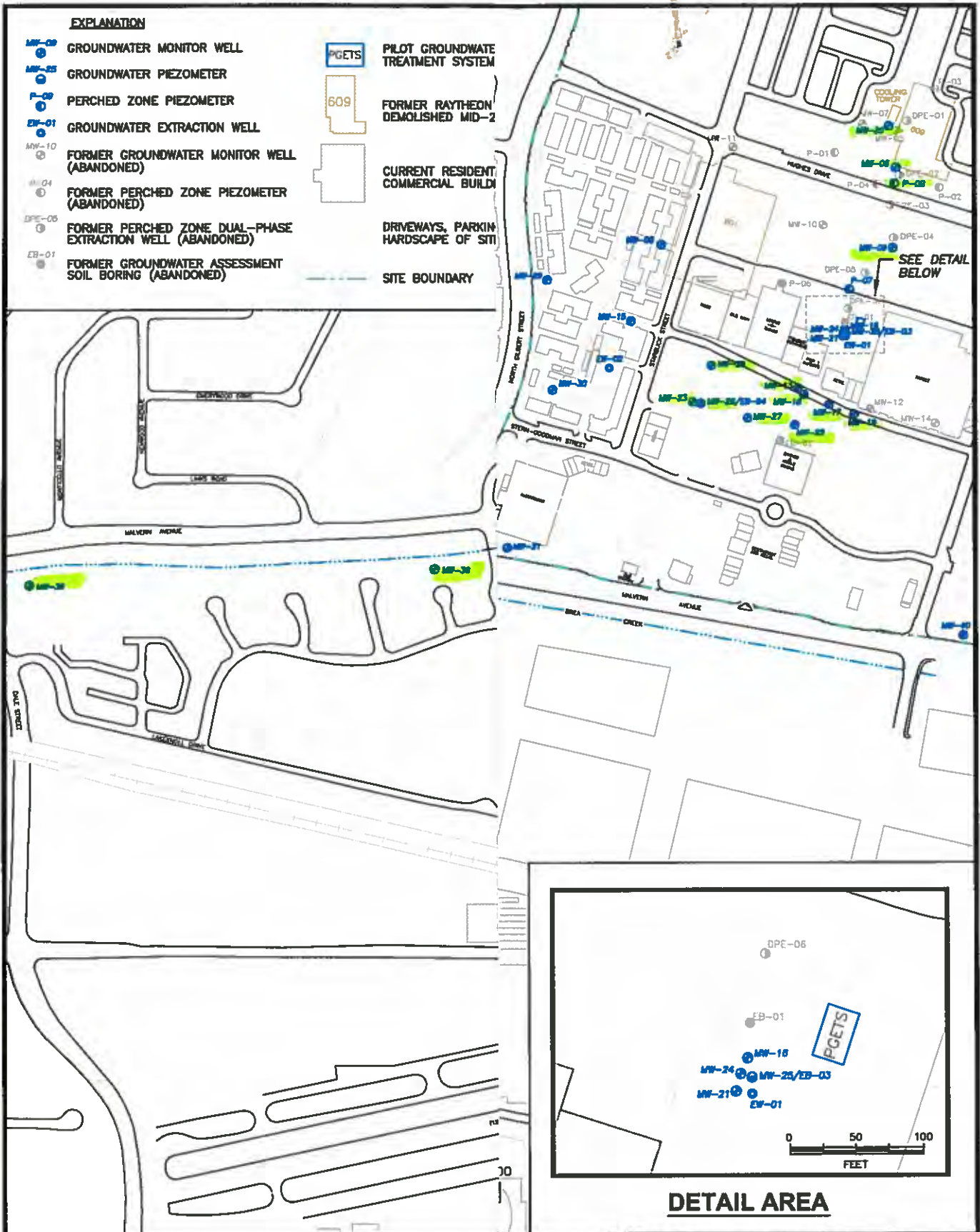
(pp) = Bentonite chips

(qq) = Portland cement with approximately 5% bentonite

(rr) = Medium bentonite chips and #2/12 Sand; 1:1 dry volume mix

(ss) = Portland cement with approximately 2.5% bentonite

Oct 08, 2014 - 3:14pm ESS - T:\2014\500-599\532 Raytheon\Hydrogeology\H+A Base\Map\410-9312.dwg



HARGIS+ASSOCIATES, INC.
Hydrogeology/Engineering

NOVEMBER 2016

GROUNDWATER MONITORING
FIELD NOTEBOOK
LARGE VOLUME MONITOR WELLS

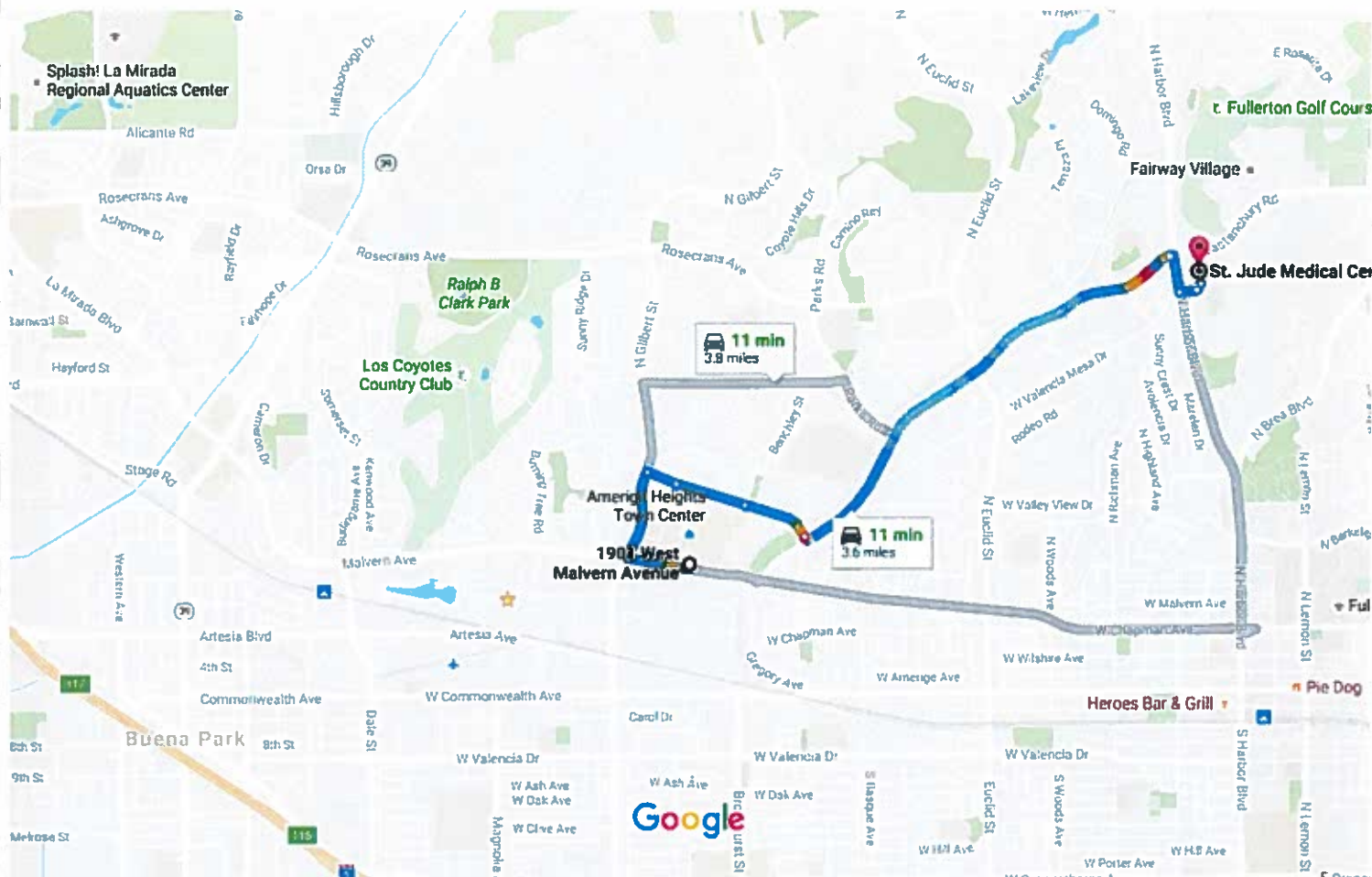
RAYTHEON COMPANY

532.30

1901 MALVERN AVE.
FULLERTON, CALIFORNIA



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING



Map data ©2016 Google 2000 ft

via W Bastanchury Rd 11 min 10 min without traffic 3.6 miles

via W Pioneer Ave and W Bastanchury Rd 11 min 10 min without traffic 3.8 miles

10:58 AM—11:24 AM 26 min

> 21 24 42 > 143

DAILY FIELD SAFETY BRIEFING ATTENDANCE SHEET

Date: 11/7/16
~~11/4/16~~

Location: FULLERTON, CA

Presented by: Tyler Evans

A. GENERAL INTRODUCTION

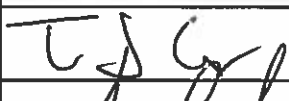
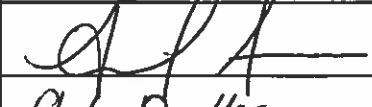
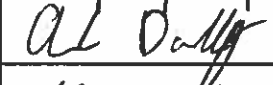
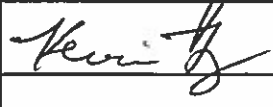
1. Location of site Health and Safety Plan (HSP) and ensure everyone has read the site HSP.
2. Primary hazards and controls (chemical, physical, and biological).
3. Sanitation and decontamination (potable water, nonpotable water, toilet, sink, shower).
4. General Site Rules.
5. Emergency Response Plan (location where emergency telephone numbers and hospital route posted, shower, first aid kit, fire extinguisher, alarm system, evacuation, meeting place, contingencies, upwind).
6. Establish buddy system.

B. SPECIFIC PRECAUTIONS FOR DAY'S ACTIVITIES Go over the hospital route daily; wear traffic vests, use safety cones, and be aware of traffic whenever in or near the roadways; wear sunscreen and hydrate well; wear gloves and take appropriate precautions when handling contaminated groundwater; watch for black widow spiders in vaults. Notify your supervisor and field partner of any issues.

C. ON-SITE ORGANIZATION AND COORDINATION

D. OTHER TOPICS: —

ATTENDEE LIST

PRINT NAME	SIGNATURE	COMPANY	DATE
Tyler Evans		H+A	11/7/16
Anielle Ferber		H+A	11/7/16
Andrew Donnelly		H+A	11/7/16
Kevin Fong		H+A	11/7/16

DAILY FIELD SAFETY BRIEFING ATTENDANCE SHEET

Date: 11/8/16

Location: FULLERTON, CA

Presented by: Tyler Evans

A. GENERAL INTRODUCTION

1. Location of site Health and Safety Plan (HSP) and ensure everyone has read the site HSP.
2. Primary hazards and controls (chemical, physical, and biological).
3. Sanitation and decontamination (potable water, nonpotable water, toilet, sink, shower).
4. General Site Rules.
5. Emergency Response Plan (location where emergency telephone numbers and hospital route posted, shower, first aid kit, fire extinguisher, alarm system, evacuation, meeting place, contingencies, upwind).
6. Establish buddy system.

B. SPECIFIC PRECAUTIONS FOR DAY'S ACTIVITIES Go over the hospital route daily; wear traffic vests, use safety cones, and be aware of traffic whenever in or near the roadways; wear sunscreen and hydrate well; wear gloves and take appropriate precautions when handling contaminated groundwater; watch for black widow spiders in vaults. Notify your supervisor and field partner of any issues.

C. ON-SITE ORGANIZATION AND COORDINATION

D. OTHER TOPICS:

ATTENDEE LIST

PRINT NAME	SIGNATURE	COMPANY	DATE
Tyler Evans		H+A	11/8/16
Kevin Fong		H+A	11/8/16
Andrew Donnelly		H+A	11/8/16
Arielle Fennel		H+A	11/08/16

DAILY FIELD SAFETY BRIEFING ATTENDANCE SHEET

Date: 11/9/16

Location: FULLERTON, CA

Presented by: Tyler Evans

A. GENERAL INTRODUCTION

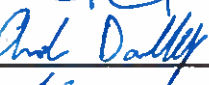
1. Location of site Health and Safety Plan (HSP) and ensure everyone has read the site HSP.
2. Primary hazards and controls (chemical, physical, and biological).
3. Sanitation and decontamination (potable water, nonpotable water, toilet, sink, shower).
4. General Site Rules.
5. Emergency Response Plan (location where emergency telephone numbers and hospital route posted, shower, first aid kit, fire extinguisher, alarm system, evacuation, meeting place, contingencies, upwind).
6. Establish buddy system.

B. SPECIFIC PRECAUTIONS FOR DAY'S ACTIVITIES Go over the hospital route daily; wear traffic vests, use safety cones, and be aware of traffic whenever in or near the roadways; wear sunscreen and hydrate well; wear gloves and take appropriate precautions when handling contaminated groundwater; watch for black widow spiders in vaults. Notify your supervisor and field partner of any issues.

C. ON-SITE ORGANIZATION AND COORDINATION

D. OTHER TOPICS:

ATTENDEE LIST

PRINT NAME	SIGNATURE	COMPANY	DATE
Tyler Evans		H+A	11/9/16
Arielle Fenber		H+A	11/09/16
Andrew Donnelly		H+A	11/9/16
Kevin Fong		H+A	11/9/16

INSTRUMENT CALIBRATION LOG FOR GROUNDWATER SAMPLING: Temp + pH + EC + DO + ORP

DATE	TIME	pH BUFF ER	pH READIN G	TEMP of Soln (C)	METER TYPE	EC STAN DARD (mS/c m)	EC READ -ING (mS/c m)	DO READ- ING (mg/l)	ORP READ-ING (mV)	COMMENTS/ TEMP OR ALTITUDE CORRECTION FACTOR	INITIALS
11/7/16	7:41	4.0	3.8	20.1	Pro Plus	—	—	—	—		TJE
		10.0	9.8	20.6	↓	—	—	—	—		↓
		7.0	7.0	20.4	↓	1413	1413	8.92	306.0		↓
11/08/16	0740	—	—	18.5	PRO PLUS	—	—	8.96	—		ASF
↓	0742	4.0	4.0	17.8	↓	—	—	—	—		↓
	0745	10.0	10.0	17.2	↓	—	—	—	—		↓
	0747	7.0	7.03	17.6	↓	—	—	—	—		↓
	0751	—	—	17.2	↓	1413	1415	—	137.7		↓
11/09/16	0740	—	—	16.5	PRO PLUS	—	—	9.59	—		ASF
↓	0742	4.0	4.0	17.7	↓	—	—	—	—		↓
	0745	10.0	10.0	17.3	↓	—	—	—	—		↓
	0747	7.0	7.09	17.6	↓	—	—	—	—		↓
	0751	—	—	17.3	↓	1413	1397	—	269.3		↓
11/04/16	0650	4.0	4.0	20.3	Pro Plus	—	—	—	—		TJE
		10.0	9.9	20.7	↓	—	—	—	—		↓
		7.0	7.1	20.6	↓	1415	1353	8.55	208.7		↓

INSTRUMENT CALIBRATION LOG FOR GROUNDWATER SAMPLING: Temp + pH + EC + DO + ORP

[illegible]

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: November 2016

METHOD OF MEASUREMENT/SOUNDER IDENTIFIER: FLAT TAPE ELECTRIC SOUNDER # _____

PROJECT NUMBER: 532.30

WELL IDENTIFIER	DATE	TIME	MEASURING POINT	DEPTH TO WATER FROM REFERENCE POINT (+feet)	REFERENCE POINT ELEVATION (ft msl)	WATER LEVEL ELEVATION (ft msl)	AUGUST 2016 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL ($\pm$ ft)	COMMENTS	INITIALS
P-07	11/07/16	1507	TDC	114.91	142.31	27.40	114.27	-0.67		ASF
P-09	11/ /16				183.86		120.90			
MW-06	11/ /16				181.29		177.64			
MW-08	11/07/16	1052	TDC	150.60	155.91	+5.31	148.75	-1.85		ASF
MW-09	11/ /16				180.10		176.08			
MW-13	11/ /16				141.84		144.12			
MW-15	11/07/16	1057	TDC	152.92	144.95	-7.97	150.34	-2.58		ASF
MW-16	11/07/16	1159	TDC	153.21	142.40	-10.81	151.25	-1.96		ASF
MW-17	11/ /16				142.70		147.70			
MW-18	11/ /16				142.32		148.48			
MW-19	11/ /16				142.06		147.98			
MW-20	11/ /16				184.19		171.64			
MW-21	11/07/16	1207	TOST	145.60	141.18	-4.42	141.20	-4.40	Totalizer: 503507 Pumping? N	ASF
MW-22	11/ /16				138.65		144.28			
MW-23	11/ /16				137.33		144.41			
MW-24	11/07/16	1201	TOST	142.40	142.83	+0.43	139.10	-3.30		ASF
MW-25	11/07/16	1203	TDC	145.72	142.64	-3.08	140.58	-5.14		ASF
MW-26A	11/ /16				137.04		139.86			
MW-26B	11/ /16				137.05		142.03			
MW-26C	11/ /16				137.22		148.45			

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: November 2016

METHOD OF MEASUREMENT/SOUNDER IDENTIFIER: FLAT TAPE ELECTRIC SOUNDER # _____

PROJECT NUMBER: 532.30

WELL IDENTIFIER	DATE	TIME	MEASURING POINT	DEPTH TO WATER FROM REFERENCE POINT (+feet)	REFERENCE POINT ELEVATION (ft msl)	WATER LEVEL ELEVATION (ft msl)	AUGUST 2016 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-27	11/ /16				137.16		147.71			
MW-28	11/ /16				140.77		152.25			
MW-29	11/07/16	1037	TOST	201.70	139.81	-61.89	193.48	-8.22	Totalizer: 8717187.2 Pumping? Y C10.33 gpm	ASF
MW-30A	11/07/16	1030	TOST	144.10	129.44	-14.60	142.20	-1.90		ASF
MW-30B	11/07/16	1025	TOST	140.60	129.39	-11.21	138.20	-2.40		ASF
MW-31	11/07/16	1001	TOST	133.00	119.60	-13.40	130.85	-2.15		ASF
MW-32A	11/07/16	0818	TOST	109.74	92.88	-16.86	107.97	-1.83		ASF
MW-32B	11/07/16	0835	TOST	109.15	92.89	-16.26	107.20	-1.95		ASF
MW-32C	11/07/16	0816	TOST	92.35	92.88	+0.53	92.50	+0.15		ASF
MW-33	11/07/16	0923	TOST	103.55	83.19	-20.36	102.90	-0.65		
MW-34A	11/ /16				153.25		165.49			
MW-34B	11/ /16				153.11		168.68			
MW-34C	11/ /16				153.29		166.20			
MW-35A	11/07/16	0856	TOST	95.80	93.57	-2.23	95.55	-0.25		ASF
MW-35B	11/07/16	0857	TOST	105.55	93.58	-11.99	104.05	-1.50		ASF
MW-35C	11/07/16	0901	TOST	109.20	93.55	-15.65	107.20	-2.00		ASF
MW-36	11/ /16				88.65		108.38			
MW-37	11/ /16				155.60		157.24			
MW-38	11/ /16				154.90		169.55			
MW-39	11/ /16				84.25		106.20			
MW-40	11/07/16	0938	TOST	133.75	123.40	-10.35	131.15	-2.60		ASF

msl = Mean sea level
ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: November 2016

METHOD OF MEASUREMENT/SOUNDER IDENTIFIER: FLAT TAPE ELECTRIC SOUNDER # _____

PROJECT NUMBER: 532.30

WELL IDENTIFIER	DATE	TIME	MEASURING POINT	DEPTH TO WATER FROM REFERENCE POINT (+feet)	REFERENCE POINT ELEVATION (ft msl)	WATER LEVEL ELEVATION (ft msl)	AUGUST 2016 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-41	11/ /16				155.60		172.88			
EW-01	11/07/16	12:17	TOST	152.30	141.07	-11.23	150.17	-2.13	SOUNDING TUBE TO 172.65 Totalizer: N/A Pumping? N	ASF
EW-02	11/07/16	10:14	TOST	152.20	132.97	-19.23	150.95	-1.25	Totalizer: 4321928 Pumping? Y	ASF

msl = Mean sea level
ft = feet

HARGIS + ASSOCIATES, INC.

NOV 2016 GROUNDWATER SAMPLE PLAN
TEAM 1

QA/QC	Total VOC's	1,4-Dioxane	APPROX. GALLONS	ESTIMATE D TIME (minutes)	WELL IDENTIFI ER	HYDROGEOLOGIC ZONE	FEBRUARY 2014 SAMPLING SCHEDULE	SAMPLE METHOD
~~MS-7350-840~~	0	0	1185	83	MW-35C	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~MS-7350~~	0	0	568	42	MW-37	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~MS-7350~~	0	0	840	60	MW-39	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~MS-7350~~	7.6	0	888	86	MW-33	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~MS-7350~~	67	2.6	992	93	MW-36	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
~~MS-7350~~	180	4.7	287	32	MW-31	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
~~MS-7350~~	231	2.6	803	85	MW-32B	Deep; B	VOCs; 1,4-Dioxane	Ded 320V

NOTES

A **MS** and **MSD** (3x40ml VOA and 1L amber) should be collected every day/ alternating 1,4-Dioxane methods as indicated

1,4-Dioxane analysis method is 8270 SIM unless specified otherwise (if historical detect is > 5.0 ug/l MOD is used).

1 = Day - # refers to the day scheduled to sample and the corresponding dedicated pipestand to use: ND=1, 0-10=2; 10 - 100=3;
>100=4

Wells with dedicated pumps should follow concentration order when possible.

RB = Rinsate blank taken on non-dedicated equipment each day- will vary with schedule and should be confirmed with both teams each morning.

HARGIS + ASSOCIATES, INC.

NOV 2016 GROUNDWATER SAMPLE PLAN
TEAM 2

QA/QC	Total VOC's	1,4-Dioxane	APROX. GALLONS	ESTIMATE D TIME (minutes)	WELL IDENTIFIER	HYDROGEOLOGIC ZONE	FEBRUARY 2014 SAMPLING SCHEDULE	SAMPLE METHOD
~~XXXX~~	25	7	-	-	EW-02	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
~~XXXX~~	260	77	-	-	MW-29	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
~~SPT/DUP~~	439	90	175	25	~~EW-01~~	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
~~MS/MSD (TU)~~	1567	250	381	31	~~MW-21~~	Water Table; BC	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
~~XXXX~~	0.0	0.0	72	22	MW-38	Deep; A	VOCs; 1,4-Dioxane	Ded.240V
~~XXXX~~	0.0	0.0	245	33	MW-40	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~XXXX~~	0.00	0.0	92	12	MW-30A	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~XXXX~~	0.0	0.0	193	55	MW-26C	Deep; B	VOCs; 1,4-Dioxane	Ded 240V
~~XXXX~~	0.6	0.0	168	25	MW-41	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~XXXX~~	0.9	0.0	100	20	MW-28	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
~~XXXX~~	49	0.00	9.5	11	MW-08	Water Table; BC	VOCs; 1,4-Dioxane	Redi-flo
~~XXXX~~	74	12	228	19	MW-34B	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded 240V
~~XXXX~~	99	0.3	130	26	MW-30B	Deep; BC	VOCs; 1,4-Dioxane	Ded.240V

NOTE

1 = Day - # refers to the day scheduled to sample and the corresponding dedicated pipestand to use: ND=1; 0-10=2; 10 - 100=3; >100=4
A **MS** and **MSD** (3x40ml VOA and 1L amber) should be collected every day/ alternating 1,4-Dioxane methods as indicated
1,4-Dioxane analysis method is 8270 SIM unless specified otherwise (if historical detect is > 5.0 ug/l MOD is used).
Wells with dedicated pumps should follow concentration order when possible.

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 07 / 2010TASK: 532.30WELL ID: EW-01

Time <u>1230</u> Static DTW (ft below reference point) <u>152.30</u>	Casing Volume (CV) (gallons) <u>24</u> 3 CV (gallons) <u>72</u>	Weather Conditions	Initials: <u>ASF/TJE</u>
Casing Total Depth (ft below reference point) <u>188</u>	Purging Device <u>ded. pump</u> Sampling Device <u>ded. sample port</u>	Time <u>1230</u> Temp. <u>75°F</u>	Begin Purge <u>1247</u> End Purge <u>1304</u>
Water Column (feet) <u>35.70</u>	Pump: Depth (ft brp) <u>N/A</u> Type _____ Voltage _____ HP _____	Skies <u>PARTLY CLOUDY</u>	Gallons Purged <u>119</u> CVs Purged <u>4.96</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.106</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>N/A</u>	DTW (ft brp) <u>152.45</u> Time <u>1304</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)		
<u>1247</u>	<u>152.30</u>	<u>0</u>	<u>0</u>	<u>—</u>	<u>PUMP</u>	<u>ON</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>Q ≈ 7 gpm</u>
<u>1248</u>	<u>152.89</u>	<u>7</u>	<u>0.29</u>	<u>28.3</u>	<u>7.29</u>	<u>1209</u>	<u>317.8</u>	<u>1.60</u>	<u>3.09</u>	<u>—</u>	
<u>1250</u>	<u>153.00</u>	<u>21</u>	<u>0.89</u>	<u>23.2</u>	<u>7.34</u>	<u>1232</u>	<u>290.2</u>	<u>7.06</u>	<u>3.70</u>	<u>—</u>	
<u>1252</u>	<u>152.85</u>	<u>35</u>	<u>1.46</u>	<u>24.5</u>	<u>7.38</u>	<u>1219</u>	<u>278.2</u>	<u>6.35</u>	<u>5.43</u>	<u>—</u>	
<u>1254</u>	<u>152.85</u>	<u>49</u>	<u>2.04</u>	<u>22.6</u>	<u>7.48</u>	<u>1218</u>	<u>268.0</u>	<u>108.11</u>	<u>4.41</u>	<u>—</u>	
<u>1256</u>	<u>152.92</u>	<u>63</u>	<u>2.63</u>	<u>22.5</u>	<u>7.41</u>	<u>1222</u>	<u>266.1</u>	<u>7.41</u>	<u>1.42</u>	<u>—</u>	
<u>1258</u>	<u>152.92</u>	<u>77</u>	<u>3.21</u>	<u>22.8</u>	<u>7.60</u>	<u>1220</u>	<u>262.1</u>	<u>7.02</u>	<u>0.44</u>	<u>—</u>	<u>SAMPLE</u>
<u>1304</u>	<u>152.45</u>	<u>119</u>	<u>4.96</u>	<u>—</u>	<u>PUMP</u>	<u>OFF</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	

SAMPLE COLLECTION SAMPLE TIME <u>1300</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>9</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>3</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>Y</u> 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.)

SPT/DUP
DUPPLICATE = EW-0100 @ 1310

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 07 / 2010TASK: 532.30WELL ID: MW-21

Time <u>1312</u> Static DTW (ft below reference point) <u>44.30</u>	Casing Volume (CV) (gallons) <u>58</u> 3 CV (gallons) <u>174</u>	Weather Conditions	Initials: <u>ASF/TJF</u>
Casing Total Depth (ft below reference point) <u>232</u>	Purging Device <u>ded. pump</u> Sampling Device <u>ded. sample port</u>	Time <u>1310</u> Temp. <u>75 F</u>	Begin Purge <u>1315</u> End Purge <u>1335</u>
Water Column (feet) <u>87.70</u>	Pump: Depth (ft brp) <u>N/A</u> Type _____ Voltage _____ HP _____	Skies <u>PARTLY CLOUDY</u>	Gallons Purged <u>308</u> CVs Purged <u>6.34</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.166</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0</u> From <u>NA</u>	DTW (ft brp) <u>146.74</u> Time <u>1340</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)		
1315	44.30	0	0	PUMP ON						1	TOT = 563567 @ 20gpm
1316	157.25	20	0.34	24.1	7.50	1797	177.6	3.17	73.2	-	
1318	157.75	77	1.33	22.5	7.50	1861	160.4	2.65	7.42	-	TOT = 563644
1320	157.99	125	2.16	23.0	7.52	1864	149.7	2.68	5.08	-	TOT = 563692
1322	158.11	156	2.69	22.7	7.50	1867	153.3	3.13	5.27	-	TOT = 563723
1324	159.21	194	3.34	22.9	7.49	1865	149.3	2.61	3.26	-	TOT = 563761
1326	159.41	233	4.02	22.9	7.47	1869	150.3	3.16	6.94	-	TOT = 563800 SAMPLE
1328				PUMP WELL TURNED OFF							
1330				PUMP TURNED ON							
1335	146.71	368	6.34	PUMP TURNED OFF						1	TOT = 563935

SAMPLE COLLECTION SAMPLE TIME <u>1330</u>		
ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>9</u>	40 ml VOA
8270 SIM 1,4 dioxane	<u>8</u>	1 L Amber
8270 MOD 1,4 dioxane	<u>3</u>	1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>(Y)</u> 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.)

MSD

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 08 / 2016TASK: 532.30WELL ID: MW-35C

Time <u>1010</u> Static DTW (ft below reference point) <u>109.45</u> ^{SCREEN}	Casing Volume (CV) (gallons) <u>378</u> ^{SV} 3 CV (gallons) <u>1134</u> ^{SV}	Weather Conditions	Initials: <u>ASF/TJE</u>
Casing Total Depth (ft below reference point) <u>1040</u>	Purging Device <u>ded. pump</u> Sampling Device <u>no. standard</u>	Time <u>1010</u> Temp. <u>67.0°F</u>	Begin Purge <u>1012</u> End Purge <u>1140</u>
<u>SCREEN</u> Water Column (feet) <u>630</u>	Pump: Depth (ft brp) <u>410</u> Type <u>Grundfos</u> Voltage _____ HP _____	Skies <u>clear</u>	Gallons Purged <u>1149</u> CVs Purged <u>3.04</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot) <u>0.06</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>0.5</u> From <u>W</u>	DTW (ft brp) <u>109.57</u> Time <u>1140</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)		
1012	109.45	0	0	—	—	—	—	—	—	—	Q ≈ 13 gpm
1013	112.00	20.6	0.05	21.0	7.61	714	7.3	3.14	0.88	—	
1025	112.05	20.7	0.44	20.5	7.43	896	22.9	2.25	3.53	—	Q ≈ 13 gpm
1044	112.10	434	1.15	20.7	7.62	719	22.6	3.64	2.63	—	
1102	112.05	678	1.79	20.8	7.62	719	46.7	3.65	0.89	—	
1120	112.05	906	2.40	20.8	7.63	718	61.1	3.71	2.21	—	
1138	112.05	1134	3.00	20.8	7.63	717	69.3	3.75	1.50	—	SAMPLE
1140	109.57	1149	3.04	—	—	—	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1140

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
 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: 11 / 08 / 2016

TASK: 532.30

WELL ID: MW-32B

Time <u>0815</u> Static DTW (ft below reference point)	<u>109.15</u> SCREEN SV	Casing Volume (CV) (gallons) <u>264</u> 3 CV (gallons) <u>791</u>	Weather Conditions	Initials: <u>AE/TJE</u>
Casing Total Depth (ft below reference point)	<u>999</u>	Purging Device <u>ded. pump</u> Sampling Device <u>> 100 ded. pipe stand</u>	Time <u>0810</u> Temp. <u>65°F</u>	Begin Purge <u>0839</u> End Purge <u>0946</u>
SCREEN Water Column (feet)	<u>436</u>	Pump: Depth (ft brp) <u>560</u> Type <u>Grundfos</u> Voltage HP	Skies <u>CLEAR</u>	Gallons Purged <u>797</u> CVs Purged <u>3.02</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</u> From <u>N/A</u>	DTW (ft brp) <u>115.27</u> Time <u>0946</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)		
0819	109.15	0	0	PUMP ON							Q ≈ 10 gpm
0820	120.19	12.4	0.05	20.5	7.93	905	16.0	1.55	5.09	—	
0828	121.19	81.1	0.31	20.9	7.67	913	-164.5	0.44	11.8	—	
0837	121.55	162	0.61	21.0	7.71	896	-173.5	0.44	0.68	—	Q ≈ 9 gpm
0847	121.65	264	1.00	21.2	7.77	830	-168.4	0.40	5.85	—	SAMPLE C 1 SV
0906	121.91	407	1.54	21.4	7.78	914	-152.0	0.24	3.33	—	
0927	122.16	606	2.33	21.4	7.81	914	-153.2	0.15	1.04	—	Q ≈ 10 gpm
0945	122.20	791	3.00	21.5	7.80	911	-157.4	0.12	0.67	—	SAMPLE
0946	115.27	797	3.02	PUMP OFF							

SAMPLE COLLECTION	SAMPLE TIME <u>0945</u>
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3/6</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>3/2</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>3/2</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.)

SAMPLE TAKEN C 1 SCREEN VOLUME => MW-32B-1SV @ 0947

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 08 / 2010

TASK: 532.30

WELL ID: MW-360

Time 1220 Static DTW (ft below reference point)	109.41	SCREEN SV	Casing Volume (CV) (gallons) 320	SV 960	Weather Conditions	Time 1220 Temp. 90°F	Initials: ASE/TIE
Casing Total Depth (ft below reference point)	994	Purging Device ded. pump	Sampling Device 10-100 ded. pipe stand		Begin Purge 1222 End Purge 1401		
SCREEN Water Column (feet)	534	Pump: Depth (ft brp) 400	Type Grounding	HP	Gallons Purged 993 CVs Purged 310		
Casing Capacity (Diameter 4") (gallons per foot)	0.60	Monitor Well Recharge Rate: Slow	Fast X		DTW (ft brp) 109.55	Time 1402	
					Skies CLEAR		
					Wind (mph) 0-5 From W		

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)		
1222	109.41	0	0								Q ≈ 10 gpm
1226	111.59	57.0	0.18	20.8	7.65	916	-12.2	2.33	0.46	-	
1244	111.70	204	0.64	21.4	7.75	814	-31.1	0.53	0.35	-	
1302	111.87	305	1.14	21.9	7.80	810	-80.4	0.37	0.80	-	SAMPLE
1319	111.89	567	1.77	21.9	7.70	970	-85.9	0.14	1.21	-	Q ≈ 10 gpm
1339	111.94	760	2.38	21.9	7.72	997	-100.7	0.12	1.52	-	
1359	111.95	960	3.00	21.9	7.74	1006	-114.5	0.11	1.05	-	SAMPLE
1401	109.55	993	3.10								

SAMPLE COLLECTION SAMPLE TIME	1400
ANALYSIS	QUANTITY
8260B VOCs	40 ml VOA
8270 SIM 1,4 dioxane	1 L Amber
8270 MOD 1,4 dioxane	1 L Amber
DUPLICATES / SPLITS / BLANKS?	Y
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.)

SAMPLE COLLECTED @ 1 SV => MW-36-1SV C 1300

DUPLICATE = MW-3600 C 1410

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 08 / 2010

TASK: 532.30

WELL ID: MW-391

Time 1410 Static DTW (ft below reference point) 107.21	Casing Volume (CV) (gallons) 271	3 CV (gallons) 814	Weather Conditions	Initials: ASF/TJE
Casing Total Depth (ft below reference point) 1020	Purging Device ded. pump	Sampling Device NP stand	Time 1415 Temp. 90°F	Begin Purge 1418 End Purge 1520
SCREEN Water Column (feet) 452	Pump: Depth (ft brp) 500 Type Voltage HP		Skies CLEAR	Gallons Purged 832 CVs Purged 307
Casing Capacity (Diameter 4") (gallons per foot) 0.60	Monitor Well Recharge Rate: Slow Fast X		Wind (mph) 0-5 From W	DTW (ft brp) 108.50 Time 1520

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)		
1418	107.21	0	0								Q ≈ 14 gpm
1420	116.20	30	0.11	20.7	8.78	385.6	-53.9	0.41	1.52	-	
1431	110.42	100	0.62	21.9	8.89	380.1	-158.9	0.05	0.51	-	
1442	116.60	321	1.18	22.6	9.23	375.0	-170.3	0.02	0.70	-	
1454	116.67	502	1.85	22.6	8.81	381.5	-175.5	0.02	0.57	-	
1506	116.71	644	2.38	22.6	8.74	385.3	-183.5	0.02	0.64	-	
1518	116.72	814	3.00	22.6	8.69	383.4	-181.1	0.03	0.37	-	SAMPLE
1520	108.50	832	3.07								

SAMPLE COLLECTION SAMPLE TIME 1520

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

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: 11 / 08 / 2010

TASK: 532.30

WELL ID: MW-33

Time <u>1540</u> Static DTW (ft below reference point) <u>104.50</u>	Casing Volume <u>SV</u> (gallons) <u>291</u> <u>SV</u> (gallons) <u>873</u>	Weather Conditions	Initials: <u>ASFTJE</u>
Casing Total Depth (ft below reference point) <u>1020</u>	Purging Device <u>ded pump</u> Sampling Device <u>0-10 ded. pipe stam</u>	Time <u>1540</u> Temp <u>85°F</u>	Begin Purge <u>1541</u> End Purge <u>1711</u>
Water Column (feet) <u>485</u>	Pump: Depth (ft brp) <u>535</u> Type <u>Grundfos</u> Voltage <u>HP</u>	Skies <u>CLEAR</u>	Gallons Purged <u>898</u> CVs Purged <u>3.09</u>
Casing Capacity (Diameter <u>4</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>X</u> Fast <u>X</u>	Wind (mph) <u>0-5</u> From <u>W</u>	DTW (ft brp) <u>105.02</u> Time <u>1502</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>1541</u>	<u>104.50</u>	<u>0</u>	<u>0</u>	<u>19.8</u>	<u>7.61</u>	<u>620</u>	<u>2.3</u>	<u>0.46</u>	<u>1.50</u>	<u>-</u>	<u>Q = 10 gpm</u>
<u>1544</u>	<u>105.52</u>	<u>21</u>	<u>0.07</u>	<u>19.8</u>	<u>7.61</u>	<u>620</u>	<u>2.3</u>	<u>0.46</u>	<u>1.50</u>	<u>-</u>	
<u>1558</u>	<u>105.72</u>	<u>158</u>	<u>0.54</u>	<u>20.8</u>	<u>7.80</u>	<u>618</u>	<u>-62.8</u>	<u>0.15</u>	<u>0.95</u>	<u>-</u>	
<u>1611</u>	<u>105.71</u>	<u>291</u>	<u>1.00</u>	<u>20.9</u>	<u>7.80</u>	<u>618</u>	<u>-72.2</u>	<u>0.16</u>	<u>0.33</u>	<u>-</u>	
<u>1630</u>	<u>105.75</u>	<u>477</u>	<u>1.64</u>	<u>21.0</u>	<u>7.74</u>	<u>619</u>	<u>-60.7</u>	<u>0.61</u>	<u>0.39</u>	<u>-</u>	
<u>1650</u>	<u>105.80</u>	<u>685</u>	<u>2.35</u>	<u>21.0</u>	<u>7.74</u>	<u>617</u>	<u>-57.5</u>	<u>0.61</u>	<u>0.33</u>	<u>-</u>	
<u>1709</u>	<u>105.84</u>	<u>875</u>	<u>3.01</u>	<u>21.0</u>	<u>7.73</u>	<u>616</u>	<u>-56.0</u>	<u>0.60</u>	<u>0.42</u>	<u>-</u>	<u>↓ SAMPLE</u>
<u>1711</u>	<u>105.02</u>	<u>898</u>	<u>3.09</u>	<u>19.8</u>	<u>7.61</u>	<u>620</u>	<u>2.3</u>	<u>0.46</u>	<u>1.50</u>	<u>-</u>	

SAMPLE COLLECTION SAMPLE TIME <u>1710</u>			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	<u>0</u>	40 ml VOA	<u>SAMPLE TAKEN @ 1 SV → MW-33. 1SV @ 1611</u>			
8270 SIM 1,4 dioxane	<u>2</u>	1 L Amber				
8270 MOD 1,4 dioxane	<u>2</u>	1 L Amber				
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>N</u> If yes, complete appropriate forms.						

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 09 / 2010

TASK: 532.30

WELL ID: MW-37

Time 0810 Static DTW (ft below reference point) 102.00	Casing Volume (CV) (gallons) 1820 3 CV (gallons) 540	Weather Conditions	Initials: ASF/TJE
Casing Total Depth (ft below reference point) 820	Purging Device ded. pump Sampling Device pipe stand	Time 0810 Temp. 70°F	Begin Purge 0812 End Purge 0859
SCREEN Water Column (feet) 300	Pump: Depth (ft brp) 520 Type Gwaltney Voltage HP	Skies CLEAR	Gallons Purged 570 CVs Purged 3.17
Casing Capacity (Diameter 4") (gallons per foot) 0.60	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0 From N/A	DTW (ft brp) 162.20 Time 0859

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)		
0812	102.00	0	0	PUMP ON						1	Q ≈ 13 gpm
0814	105.00	41	0.23	21.6	7.85	571	94.3	0.89	4.78	-	
0822	105.01	138	0.77	22.7	8.10	449.3	109.3	0.03	2.10	-	
0830	105.09	229	1.27	23.0	8.10	507.3	109.7	0.06	2.47	-	
0838	105.09	319	1.77	23.0	8.09	501.9	105.2	0.14	3.89	-	
0845	105.11	405	2.25	23.0	8.08	500.5	95.4	0.16	5.30	-	
0855	105.11	540	3.00	23.0	8.07	514.9	82.9	0.17	4.00	-	
0859	162.20	570	3.17	PUMP OFF							

SAMPLE COLLECTION SAMPLE TIME 0855	
ANALYSIS	QUANTITY TYPE
8260B VOCs	9 40 ml VOA
8270 SIM 1,4 dioxane	3 1 L Amber
8270 MOD 1,4 dioxane	8 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.)

MS/MSD COLLECTED

GROUNDWATER SAMPLING INFORMATION

DATE: 11 / 09 / 2010

TASK: 532.30

WELL ID: MW-38

Time 0905 Static DTW (ft below reference point) 169.70	Casing Volume (CV) (gallons) 20 3 CV (gallons) 60	Weather Conditions	Initials: ASF/TJE
Casing Total Depth (ft below reference point) 200	Purging Device ded pump Sampling Device N.D. pipe stand	Time 0905 Temp 75°F	Begin Purge 0908 End Purge 0930
Water Column (feet) 30.3	Pump: Depth (ft brp) 190 Type Grundfos Voltage 280 HP	Skies CLEAR	Gallons Purged 63 CVs Purged 3.15
Casing Capacity (Diameter 4") (gallons per foot) 0.60	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-5 From W	DTW (ft brp) 169.80 Time 0930

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)		
0908	169.70	8	8	PUMP ON						1	Q ≈ 3.0 gpm
0909	170.05	4	0.20	24.6	7.31	961	44.6	1.81	9.59	—	
0912	170.10	9	0.45	22.3	7.36	1148	54.0	1.04	7.16	—	
0916	170.10	22	1.10	22.3	7.40	1150	65.5	0.79	6.02	—	
0919	170.10	32	1.60	22.4	7.41	1151	68.4	0.74	2.42	—	
0921	170.11	40	2.00	22.4	7.42	1146	70.0	0.76	2.79	—	
0928	170.11	60	3.00	22.4	7.41	1153	72.7	0.73	2.72	—	SAMPLE
0930	169.80	63	3.15	PUMP OFF						1	

SAMPLE COLLECTION SAMPLE TIME 0930	
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

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: 11 / 18 / 2016

TASK: 532.30

WELL ID: MW-41

Time <u>0939</u> Static DTW (ft below reference point) <u>173.89</u>	Casing Volume (CV) (gallons) <u>39</u> 3 CV (gallons) <u>11.8</u>	Weather Conditions	Initials: <u>ASFTJE</u>
Casing Total Depth (ft below reference point) <u>425</u>	Purging Device <u>ded. pump</u> Sampling Device <u>0-10 ded. pipe stand</u>	Time <u>0940</u> Temp. <u>75°F</u>	Begin Purge <u>0939</u> End Purge <u>1016</u>
Water Column (feet) <u>65</u>	Pump: Depth (ft brp) <u>360</u> Type <u>5 minutes</u> Voltage <u>240</u> HP	Skies <u>clear</u>	Gallons Purged <u>257</u> CVs Purged <u>659</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>0-5</u> From <u>W</u>	DTW (ft brp) <u>176.25</u> Time <u>1016</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)		
0939	173.89	0	0	1	PU						
0940	181.50	6	0.15	22.1	7.10	1913	115.9	1.77	4.89	-	Q ≈ 7 gpm
0943	182.10	29	0.74	22.0	7.10	1940	4.1	1.30	4.37	-	
0946	182.09	53	1.36	22.3	7.07	1994	38.2	3.12	6.9	-	
0952	182.29	93	2.38	22.3	7.07	1995	49.7	3.41	107.7	-	
0957	182.22	130	3.33	22.3	7.07	1996	54.2	3.37	57.5	-	
1003	182.29	181	4.64	22.3	7.07	1996	59.8	3.43	21.3	-	
1009	182.75	212	5.44	22.3	7.07	1996	61.8	3.46	16.9	-	
1012	182.77	229	5.87	22.3	7.08	1996	62.2	3.55	9.63	-	
1015	182.28	249	6.38	22.3	7.08	1996	62.4	3.55	7.45	-	SAMPLE
1016	176.25	257	6.59	1	PU MP	OFF					

SAMPLE COLLECTION SAMPLE TIME 1015

ANALYSIS QUANTITY TYPE

8280B 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.)

TABLE 1
WELL CONSTRUCTION SUMMARY

Well Identifier	Date Installed	Current Land Surface Elevation (feet msl)	Current Reference Point Elevation (feet msl)	Total Depth of Borehole (feet bls)	Perforated Interval (feet bls)	Screen Slot Size (inches)	Borehole Diameter (inches)	Casing Diameter (inches) (a)	Filter Pack Interval (feet bls)	Filter Pack Sand Size	Grout Filter/ Intermediate Seal Interval (feet bls) (b)	Annular Seal Interval (feet bls) (c)
<u>Regional Groundwater System Monitor Wells, Extraction Wells and Piezometers</u>												
MW-06	1/16/1997	184.96	184.70	190.9	149.6 - 189.6	0.010	8.5	2	145.4 - 190.9	#2/16	139.4 - 145.4 (d)	0 - 139.4
MW-08	1/22/1997	156.60	155.91	167.2	126.1 - 166.1	0.010	8.5	2	120.7 - 167.2	#2/16	115.7 - 120.7	0 - 115.7
MW-09	3/21/1997	180.48	180.10	194.2	152.2 - 192.2	0.010	8.5	2	146.2 - 194.2	#2/16	141.2 - 146.2	0 - 141.2
MW-13	4/16/1997	142.44	141.84	159.5	120.6 - 159.6	0.010	8.5	2	114.6 - 159.6	#2/16	109.6 - 114.6	0 - 109.6
MW-15	5/18/1998	145.54	144.95	174.7	120.8 - 170.8	0.010	8.5	2	115.8 - 174.8	#2/16	112.8 - 115.8	0 - 112.8
MW-16	11/20/1999	142.98	142.40	179.5	148.5 - 178.5	0.010	11.0	4	144.5 - 179.5	#2/16	134.5 - 144.5 (e)	0 - 134.5
MW-17	5/31/2000	142.70	142.70	203.6	173.1 - 193.1 (f)	0.020	10.0	4	159.7 - 193.1	#2/16	156.2 - 159.7 193.1 - 203.7 (j)	0 - 156.2
MW-18	5/24/2000	142.39	142.32	195.6	164.1 - 194.1	0.020	10.0	4	158.9 - 194.5	#2/16	154.2 - 158.9	0 - 154.2
MW-19	5/28/2000	142.72	142.06	205.5	184.9 - 204.9	0.020	10.0	4	177.0 - 205.3	#2/16	171.5 - 177.0	0 - 171.5
MW-20	6/26/2003	184.36	184.19	200.0	158.6 - 198.2	0.020	11.0	4 (f)	158.0 - 200.0	#2/12	151.0 - 158.0 (g)	0 - 151.1 (h)
MW-21	7/17/2003	143.34	141.18	238.3	212.1 - 232.1	0.010	8.0	4 (k)	205.0 - 234.5	#2/16	202.0 - 205.0 234.5 - 238 (j)	0 - 202.0 (h)
MW-22	8/13/2003	139.39	138.65	245.0	217.4 - 237.4	0.020	8.0	4 (l)	215.0 - 238.0	#2/12	208.0 - 215.0 (m)	0 - 208.0 (h)
MW-23	8/16/2003	137.75	137.33	235.6	215.2 - 235.2	0.020	8.0	4 (n)	209.4 - 235.6	#2/12	203.5 - 209.4 (m)	0 - 203.5 (h)
MW-24	9/15/2004	143.05	142.83	338.0	310.3 - 330.3	0.030	10.6	4 (o)	306 - 330	#3	301 - 306 (p)	0 - 301 (h)
MW-25	9/10/2004	142.97	142.64	805	449.4 - 479.8	0.010	8.5 (q)	2 (r)	429 - 485	#2/16	418 - 429	0 - 418 (h)
MW-26A (s)	10/1/2004	137.64	137.04	805	279 - 309	0.020	12.25 (q)	2 (l)	274 - 315	#2/12	266 - 274	0 - 266 (h)
MW-26B (s)	10/1/2004	137.64	137.05	805	339 - 379	0.020	12.25 (q)	2 (u)	334 - 387	#2/12	266 - 274	0 - 266 (h)
MW-26C (s)	10/1/2004	137.64	137.22	805	459 - 499	0.020	12.25 (q)	2 (v)	435 - 499	#2/12	387 - 435 (w)	0 - 266 (h)
MW-27	4/22/2008	137.60	137.16	550	475 - 505.2 (cc)	0.030	11.25 (q)	4 (z)	468 - 520	#3	457.5 - 468	0 - 457.5 (h)
MW-28	5/5/2008	141.38	140.77	425	335 - 375	0.040	12.25 (q)	4 (z)	325.4 - 377	#8	318 - 325.4	0 - 318 (h)
MW-29	8/15/2008	148.83	139.81	265.7	200 - 240	0.020	10.0 (aa)	4 (z)	185 - 246	#2/12	176 - 185	0 - 176 (h)
MW-30A(s)	11/26/2008	130.20	129.44	635 (j)	524-564	0.020	14.25	3 (y)	515.9-570.5	#2/12	495.5-515.9	0-495.5 (bb)
MW-30B(s)	11/26/2008	130.20	129.39	635 (j)	596-616	0.020	14.25	3 (y)	586.8-625	#2/12	586.8-570.5	0-495.5 (bb)
MW-31	10/2/2009	120.31	119.60	1,100 (jj)	946-996	0.020	13	6(kk)	922-1,006	#2/12	904-922	0-904
MW-32A(s)	12/10/2009	93.35	92.88	1,153 (gg)	890-905	0.020	18.5	4(dd)	880-910	#2/12	832-880	0-832
MW-32B(s)	12/10/2009	93.35	92.89	1,153 (gg)	969-999	0.020	18.5	4(dd)	960-1,004.5	#2/12	910-960	0-832
MW-32C(s)	12/10/2009	93.35	92.88	1,153 (gg)	1,070-1,090	0.020	18.5	4(dd)	1,054-1,100	#2/12	1,004.5-1,054	0-832
MW-33	7/2/2010	83.80	83.19	1,080 (hh)	980-1,020	0.020	11	4(dd)	970-1,025	#2/12	924-970	0-924 (ii)
MW-34A	2/3/2011	154.00	153.25	290	220 - 280	0.020	12.25	4(dd)	211 - 290	#2/12	175 - 211	0 - 175
MW-34B	2/1/2011	153.90	153.11	540	486 - 536	0.020	12.25	4(dd)	475 - 540	#2/12	449 - 475	0 - 449
MW-34C	1/19/2011	154.10	153.29	709 (ll)	556 - 576	0.020	12.25	4(dd)	551 - 582	#2/12	530 - 551	0 - 530
MW-35A	12/20/2010	94.30	93.57	1,101	420 - 470	0.020	18	4(dd)	401 - 482	#2/12	378 - 401	0 - 376
MW-35B	12/20/2010	94.30	93.58	1,101	745 - 805	0.020	18	4(dd)	725 - 816	#2/12	482 - 725	0 - 376
MW-35C	12/20/2010	94.30	93.55	1101 (ll)	990 - 1,040	0.020	12.25	4(dd)	980 - 1,048	#2/12	816 - 980	0 - 376
MW-36	1/3/2012	87.19	86.65	1030 (mm)	934 - 954 974 - 994	0.020	12.25	4(dd)	914 - 1,003	#2/12	95 - 853 (oo), 853 - 914 (pp)	0 - 95 (qq)
MW-37	10/17/2012	156.02	155.60	916	770-820	0.020	12.25	4(dd)	755-834	#2/12	229-724 (rr) 724-755 (pp)	0-229 (ss)
MW-38	7/29/2013	155.70	154.90	203	150-200	0.020	10	4(z)	140-203	#2/12	120-140 (pp)	0-120 (qq)
MW-39	7/25/2013	84.71	84.25	1,080 (ll)	982-1,012	0.020	12.25	4(dd)	974-1,017	#2/12	156 - 917 (rr) 917- 974 (pp)	0-156 (qq)
MW-40	7/2/2013	124.09	123.40	1040 (ll)	930-970	0.030	12.25	6(dd)	916-975	#3	175 - 880 (rr) 880- 916 (pp)	0-175 (qq)
MW-41	8/22/2014	156.02	155.60	436.3 (mm)	385-425	0.020	12.25	4(dd)	373.5-427	#2/16	165-357 (rr) 357- 373.5 (pp)	0-165 (qq)
EW-01	5/16/2005	143.30	141.07	195	138.1-188.1	0.020	7.6	4 (x)	134.1-195	#2/12	129-134.1 (m)	0-129 (h)
EW-02	10/20/2009	136.04	132.97	473 (ee)	410-460	0.030	17.0	8 (ff)	400-465	#3	384-400	0-384
<u>Perched Zone Piezometers</u>												
P-07	6/6/1997	142.7	142.31	116.8	107.7 - 117.7	0.010	8.5	2	104.7 - 117.7	#2/16	101.7 - 104.7	0 - 101.7
P-09	6/30/2003	184.3	183.88	130.0	109.6 - 129.6	0.010	11.0	4	114.0 - 130.0	#2/16	101.0 - 108.0 (g)	0 - 101.0 (h)

TABLE 1
WELL CONSTRUCTION SUMMARY

NOTE: Refer to page 2 of this table for footnotes.

FOOTNOTES

msl = Mean sea level, City of Fullerton datum

bis = Below current land surface (October 2004)

(a) = Schedule 40 polyvinyl chloride (PVC) screen and casing, unless otherwise indicated

(b) = Medium bentonite chip seal, unless otherwise indicated

(c) = Bentonite grout annular seal unless otherwise indicated, completed at surface with vault set in concrete

(d) = No. 60 silica sand

(e) = Includes 2.0 feet of No. 60 silica sand placed above filter pack

(f) = Schedule 80 polyvinyl chloride screen and casing

(g) = Includes 2.5 to 3.0 feet of No. 60 silica sand placed above bentonite chip seal

(h) = Cement/bentonite grout, Type I/II Portland, less than 5% bentonite

(i) = Well plug, approximately 0.5-foot length, set at bottom of perforated interval

(j) = Bottom of borehole backfilled with bentonite chips

(k) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 122.0 - 212.1 feet bis; Schedule 40 mild steel casing 0 - 122.0 feet bis

(l) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 112.4 - 217.4 feet bis; Schedule 40 mild steel casing 0 - 112.4 feet bis

(m) = 1/4-inch coated bentonite pellets

(n) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 110.1 - 215.2 feet bis; Schedule 40 mild steel casing 0 - 110.1 feet bis

(o) = Mild steel wire wrap screen and Schedule 40 mild steel well casing

(p) = Includes 1 to 2 feet of #2/16 sand placed above bentonite chip seal

(q) = Below filter pack, diameter of the original pilot borehole is 5 to 6.25 inches to total depth of boring. Lower borehole backfilled with cement/bentonite grout, Type I/II Portland, less than 5% bentonite

(r) = Stainless steel wire wrap screen, Schedule 10 stainless steel casing 429.4 - 449.4 feet bis, Schedule 80 polyvinylchloride casing 429.0 - 429.4 feet bis, Schedule 40 mild steel casing 0 - 429.0 feet bis

(s) = Nested wells MW-26A, MW-26B, MW-26C, and MW-32A, MW-32B, MW-32C are constructed with three separate well casings in a single borehole; nested well MW-30A and MW-30B is constructed with two separate casings in a single borehole.

(t) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 259 - 279 feet bis and 0 - 19 feet bis; Schedule 40 mild steel casing 19 - 259 feet bis

(u) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 319 - 339 feet bis; Schedule 40 mild steel casing 0 - 319 feet bis

(v) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 439 - 459 feet bis; Schedule 40 mild steel casing 0 - 439 feet bis

(w) = #8 granular bentonite with exception of heavy mud/formational caving filling annular interval from 417 to 428 feet bis

(x) = Stainless steel wire wrap screen; Schedule 10 stainless steel casing 118.1-138.1 feet bis; Schedule 40 mild steel casing 0-118.1 feet bis

(y) = Schedule 40 Stainless steel endcaps; Schedule 10 stainless steel casing; Stainless steel wire wrap screen

(z) = Schedule 80 PVC blank and screen casing

(aa) = Below filter pack, diameter of the original pilot borehole is 8 inches to total depth of boring. Lower borehole backfilled with cement/bentonite grout, Type I/II Portland, less than 5% bentonite

(bb) = Neat cement

(cc) = Depth of screen interval adjusted to account for loss at bottom of casing due to breakage in casing wall. Original casing (515 ft bis) was sealed at 505.2 ft bis

(dd) = Schedule 40 Stainless steel endcaps; Schedule 80 polyvinyl chloride casing; Stainless steel wire wrap screen

(ee) = Pilot borehole drilled to a total depth of 493 feet bis and backfilled with 5% bentonite-cement grout seal to 465 feet bis

(ff) = Schedule 40 Stainless steel endcaps; Schedule 40 stainless steel casing; Stainless steel wire wrap screen; 2.5-foot stainless steel sump

(gg) = Pilot borehole drilled to a total depth of 1,153 feet bis and backfilled with 5% bentonite-cement grout seal to 1,100 feet bis

(hh) = Pilot borehole drilled to a total depth of 1,080 feet bis and backfilled with 5% bentonite-cement grout seal to 1,025 feet bis

(ii) = Annular seal interval is composed of cement grout with approximately 5% bentonite from 720 to 924 feet bis and bentonite grout from near land surface to 720 feet bis

(jj) = Pilot borehole drilled to a total depth of 1,100 feet bis and backfilled with 5% bentonite-cement grout seal to 1,006 feet bis

(kk) = Schedule 40 Stainless steel endcaps; Schedule 40 stainless steel casing; Stainless steel wire wrap screen; 5-foot stainless steel sump

(ll) = Bottom of borehole backfilled with approximately 5% bentonite-cement grout

(mm) = Bottom of borehole backfilled with bentonite pellets

(oo) = High solids bentonite grout

(pp) = Bentonite chips

(qq) = Portland cement with approximately 5% bentonite

(rr) = Medium bentonite chips and #2/12 Sand; 1:1 dry volume mix

(ss) = Portland cement with approximately 2.5% bentonite

Oct 08, 2014 - 3:14pm ESS - T \2014\500-595\532 Raytheon\Hydrogeology\H+A Base\aps\410-9312.dwg

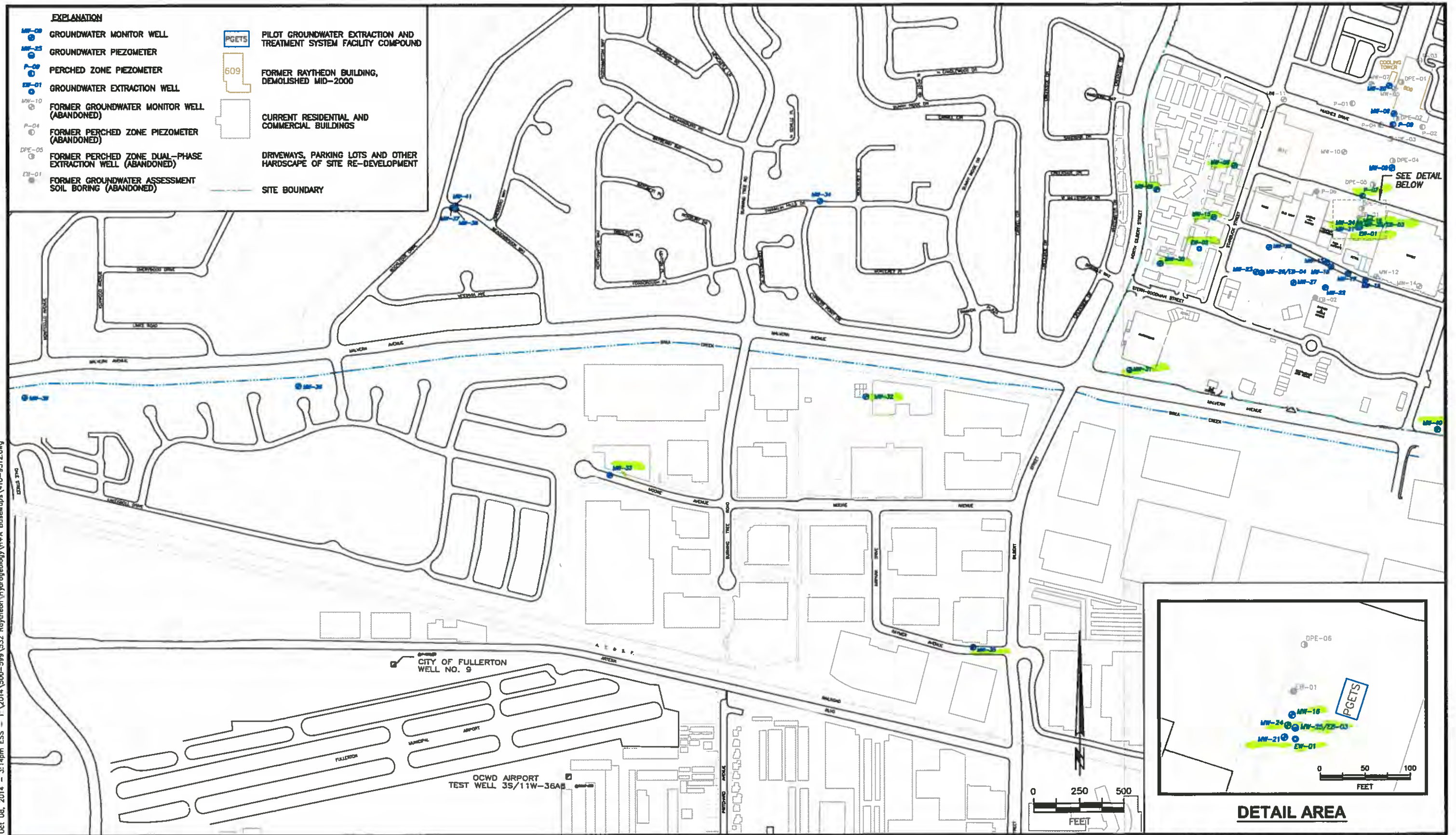


FIGURE 2.
WELL AND PIEZOMETER LOCATIONS

APPENDIX B

LABORATORY ANALYTICAL REPORTS

GROUNDWATER SAMPLING ANALYTICAL RESULTS



November 17, 2016

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 : 1603972
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on November 08, 2016 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 above the printed name.

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 : 11/17/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-110716A	1603972-01	Lab prepared water	11/07/16 7:40	11/08/16 17:10
EW-01	1603972-02	Groundwater	11/07/16 13:00	11/08/16 17:10
EW-0100	1603972-03	Groundwater	11/07/16 13:10	11/08/16 17:10
MW-21	1603972-04	Groundwater	11/07/16 13:30	11/08/16 17:10
MW-32B-1SV	1603972-05	Groundwater	11/08/16 8:47	11/08/16 17:10
MW-32B	1603972-06	Groundwater	11/08/16 9:45	11/08/16 17:10
MW-35C	1603972-07	Groundwater	11/08/16 11:40	11/08/16 17:10
MW-36-1SV	1603972-08	Groundwater	11/08/16 13:00	11/08/16 17:10
MW-36	1603972-09	Groundwater	11/08/16 14:00	11/08/16 17:10
MW-3600	1603972-10	Groundwater	11/08/16 14:10	11/08/16 17:10
MW-39	1603972-11	Groundwater	11/08/16 15:20	11/08/16 17:10
MW-40	1603972-12	Groundwater	11/08/16 9:27	11/08/16 17:10
MW-08	1603972-13	Groundwater	11/08/16 12:38	11/08/16 17:10
MW-34B	1603972-14	Groundwater	11/08/16 13:42	11/08/16 17:10
MW-30A	1603972-15	Groundwater	11/08/16 14:42	11/08/16 17:10
MW-30B	1603972-16	Groundwater	11/08/16 15:26	11/08/16 17:10
MW-26C	1603972-17	Groundwater	11/08/16 17:00	11/08/16 17:10



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 : 11/17/2016

Client Sample ID TB-110716A

Lab ID: 1603972-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,1,1-Trichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,1,2-Trichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,1-Dichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,1-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,1-Dichloropropene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2,3-Trichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2-Dibromoethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2-Dichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,2-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,3-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,3-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
1,4-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
2,2-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
2-Chlorotoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
4-Chlorotoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
4-Isopropyltoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Benzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Bromobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Bromodichloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Bromoform	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Bromomethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Carbon tetrachloride	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Chlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Chloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Chloroform	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Chloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Dibromochloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	



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 : 11/17/2016

Client Sample ID TB-110716A

Lab ID: 1603972-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Dichlorodifluoromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Ethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Hexachlorobutadiene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Isopropylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
m,p-Xylene	ND	1.0	1	B6K0347	11/09/2016	11/09/16 19:00	
Methylene chloride	ND	1.0	1	B6K0347	11/09/2016	11/09/16 19:00	
n-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
n-Propylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Naphthalene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
o-Xylene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
sec-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Styrene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
tert-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Tetrachloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Toluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Trichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Trichlorofluoromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Vinyl chloride	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:00	
Surrogate: 1,2-Dichloroethane-d4	109 %	51 - 157		B6K0347	11/09/2016	11/09/16 19:00	
Surrogate: 4-Bromofluorobenzene	106 %	61 - 123		B6K0347	11/09/2016	11/09/16 19:00	
Surrogate: Dibromofluoromethane	111 %	57 - 147		B6K0347	11/09/2016	11/09/16 19:00	
Surrogate: Toluene-d8	106 %	61 - 119		B6K0347	11/09/2016	11/09/16 19:00	



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 : 11/17/2016

Client Sample ID EW-01

Lab ID: 1603972-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,1,1-Trichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,1,2-Trichloroethane	1.7	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,1-Dichloroethane	4.5	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,1-Dichloroethene	300	5.0	10	B6K0414	11/11/2016	11/11/16 01:39	
1,1-Dichloropropene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2,3-Trichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2-Dibromoethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2-Dichloroethane	0.70	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,2-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,3-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,3-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
1,4-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
2,2-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
2-Chlorotoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
4-Chlorotoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
4-Isopropyltoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Benzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Bromobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Bromodichloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Bromoform	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Bromomethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Carbon tetrachloride	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Chlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Chloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Chloroform	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Chloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Dibromochloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	



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 : 11/17/2016

Client Sample ID EW-01

Lab ID: 1603972-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Dichlorodifluoromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Ethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Hexachlorobutadiene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Isopropylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
m,p-Xylene	ND	1.0	1	B6K0347	11/09/2016	11/09/16 20:10	
Methylene chloride	ND	1.0	1	B6K0347	11/09/2016	11/09/16 20:10	
n-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
n-Propylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Naphthalene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
o-Xylene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
sec-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Styrene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
tert-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Tetrachloroethene	0.69	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Toluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Trichloroethene	0.77	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Trichlorofluoromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
Vinyl chloride	ND	0.50	1	B6K0347	11/09/2016	11/09/16 20:10	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>	<i>51 - 157</i>		B6K0414	11/11/2016	<i>11/11/16 01:39</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>117 %</i>	<i>51 - 157</i>		B6K0347	11/09/2016	<i>11/09/16 20:10</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>	<i>61 - 123</i>		B6K0414	11/11/2016	<i>11/11/16 01:39</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>61 - 123</i>		B6K0347	11/09/2016	<i>11/09/16 20:10</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>117 %</i>	<i>57 - 147</i>		B6K0347	11/09/2016	<i>11/09/16 20:10</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>	<i>57 - 147</i>		B6K0414	11/11/2016	<i>11/11/16 01:39</i>	
<i>Surrogate: Toluene-d8</i>	<i>108 %</i>	<i>61 - 119</i>		B6K0347	11/09/2016	<i>11/09/16 20:10</i>	
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>	<i>61 - 119</i>		B6K0414	11/11/2016	<i>11/11/16 01:39</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 : 11/17/2016

Client Sample ID EW-01

Lab ID: 1603972-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	110	2.0	1	B6K0397	11/10/2016	11/10/16 17:27	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>49.6 %</i>	<i>42 - 106</i>		B6K0397	11/10/2016	<i>11/10/16 17:27</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>50.5 %</i>	<i>55 - 117</i>		B6K0397	11/10/2016	<i>11/10/16 17:27</i>	S2
<i>Surrogate: 4-Terphenyl-d14</i>	<i>86.2 %</i>	<i>52 - 142</i>		B6K0397	11/10/2016	<i>11/10/16 17:27</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>50.5 %</i>	<i>43 - 116</i>		B6K0397	11/10/2016	<i>11/10/16 17:27</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID EW-0100

Lab ID: 1603972-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,1,2-Trichloroethane	1.8	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,1-Dichloroethane	4.5	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,1-Dichloroethene	270	5.0	10	B6K0424	11/11/2016	11/11/16 12:30	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2-Dichloroethane	0.72	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Benzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Bromobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Bromodichloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Bromoform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Bromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Chlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Chloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Chloroform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Chloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Dibromochloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	



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 : 11/17/2016

Client Sample ID EW-0100

Lab ID: 1603972-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Ethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Isopropylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
m,p-Xylene	ND	1.0	1	B6K0414	11/11/2016	11/11/16 02:02	
Methylene chloride	ND	1.0	1	B6K0414	11/11/2016	11/11/16 02:02	
n-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
n-Propylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Naphthalene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
o-Xylene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Styrene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Tetrachloroethene	0.64	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Toluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Trichloroethene	0.70	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	
Vinyl chloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 02:02	

Surrogate: 1,2-Dichloroethane-d4	122 %	51 - 157	B6K0424	11/11/2016	11/11/16 12:30
Surrogate: 1,2-Dichloroethane-d4	123 %	51 - 157	B6K0414	11/11/2016	11/11/16 02:02
Surrogate: 4-Bromofluorobenzene	108 %	61 - 123	B6K0424	11/11/2016	11/11/16 12:30
Surrogate: 4-Bromofluorobenzene	107 %	61 - 123	B6K0414	11/11/2016	11/11/16 02:02
Surrogate: Dibromofluoromethane	119 %	57 - 147	B6K0414	11/11/2016	11/11/16 02:02
Surrogate: Dibromofluoromethane	118 %	57 - 147	B6K0424	11/11/2016	11/11/16 12:30
Surrogate: Toluene-d8	112 %	61 - 119	B6K0414	11/11/2016	11/11/16 02:02
Surrogate: Toluene-d8	110 %	61 - 119	B6K0424	11/11/2016	11/11/16 12:30



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID EW-0100

Lab ID: 1603972-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	100	2.0	1	B6K0397	11/10/2016	11/10/16 17:55	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>47.8 %</i>	<i>42 - 106</i>		B6K0397	11/10/2016	<i>11/10/16 17:55</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>51.7 %</i>	<i>55 - 117</i>		B6K0397	11/10/2016	<i>11/10/16 17:55</i>	S2
<i>Surrogate: 4-Terphenyl-d14</i>	<i>87.9 %</i>	<i>52 - 142</i>		B6K0397	11/10/2016	<i>11/10/16 17:55</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>49.1 %</i>	<i>43 - 116</i>		B6K0397	11/10/2016	<i>11/10/16 17:55</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-21

Lab ID: 1603972-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,1,1-Trichloroethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,1,2,2-Tetrachloroethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,1,2-Trichloroethane	9.0	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,1-Dichloroethane	24	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,1-Dichloroethene	1400	10	20	B6K0414	11/11/2016	11/11/16 02:49	
1,1-Dichloropropene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2,3-Trichloropropane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2,3-Trichlorobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2,4-Trichlorobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2,4-Trimethylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2-Dibromo-3-chloropropane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2-Dibromoethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2-Dichlorobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2-Dichloroethane	3.2	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,2-Dichloropropane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,3,5-Trimethylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,3-Dichlorobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,3-Dichloropropane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
1,4-Dichlorobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
2,2-Dichloropropane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
2-Chlorotoluene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
4-Chlorotoluene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
4-Isopropyltoluene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Benzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Bromobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Bromodichloromethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Bromoform	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Bromomethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Carbon tetrachloride	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Chlorobenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Chloroethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Chloroform	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Chloromethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
cis-1,2-Dichloroethene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
cis-1,3-Dichloropropene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Dibromochloromethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-21

Lab ID: 1603972-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Dichlorodifluoromethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Ethylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Hexachlorobutadiene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Isopropylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
m,p-Xylene	ND	5.0	5	B6K0414	11/11/2016	11/11/16 02:26	
Methylene chloride	ND	5.0	5	B6K0414	11/11/2016	11/11/16 02:26	
n-Butylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
n-Propylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Naphthalene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
o-Xylene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
sec-Butylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Styrene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
tert-Butylbenzene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Tetrachloroethene	2.6	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Toluene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
trans-1,2-Dichloroethene	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Trichloroethene	18	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Trichlorofluoromethane	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
Vinyl chloride	ND	2.5	5	B6K0414	11/11/2016	11/11/16 02:26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>121 %</i>	<i>51 - 157</i>		B6K0414	11/11/2016	<i>11/11/16 02:49</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>122 %</i>	<i>51 - 157</i>		B6K0414	11/11/2016	<i>11/11/16 02:26</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>	<i>61 - 123</i>		B6K0414	11/11/2016	<i>11/11/16 02:49</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>61 - 123</i>		B6K0414	11/11/2016	<i>11/11/16 02:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>118 %</i>	<i>57 - 147</i>		B6K0414	11/11/2016	<i>11/11/16 02:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>119 %</i>	<i>57 - 147</i>		B6K0414	11/11/2016	<i>11/11/16 02:49</i>	
<i>Surrogate: Toluene-d8</i>	<i>112 %</i>	<i>61 - 119</i>		B6K0414	11/11/2016	<i>11/11/16 02:49</i>	
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>	<i>61 - 119</i>		B6K0414	11/11/2016	<i>11/11/16 02:26</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 : 11/17/2016

Client Sample ID MW-21

Lab ID: 1603972-04

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	220	2.0	1	B6K0397	11/10/2016	11/10/16 18:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>58.6 %</i>	<i>42 - 106</i>		B6K0397	11/10/2016	<i>11/10/16 18:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>61.2 %</i>	<i>55 - 117</i>		B6K0397	11/10/2016	<i>11/10/16 18:23</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>89.4 %</i>	<i>52 - 142</i>		B6K0397	11/10/2016	<i>11/10/16 18:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>59.6 %</i>	<i>43 - 116</i>		B6K0397	11/10/2016	<i>11/10/16 18:23</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-32B-1SV

Lab ID: 1603972-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,1-Dichloroethane	0.77	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,1-Dichloroethene	78	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
cis-1,2-Dichloroethene	2.8	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	



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 : 11/17/2016

Client Sample ID MW-32B-1SV

Lab ID: 1603972-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 12:53	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 12:53	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Trichloroethene	24	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:53	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>121 %</i>	<i>51 - 157</i>		B6K0424	11/11/2016	<i>11/11/16 12:53</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>61 - 123</i>		B6K0424	11/11/2016	<i>11/11/16 12:53</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>117 %</i>	<i>57 - 147</i>		B6K0424	11/11/2016	<i>11/11/16 12:53</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 119</i>		B6K0424	11/11/2016	<i>11/11/16 12:53</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-32B-1SV

Lab ID: 1603972-05

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.9	0.20	1	B6K0444	11/11/2016	11/11/16 16:33	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>45.6 %</i>	<i>31 - 106</i>		B6K0444	11/11/2016	<i>11/11/16 16:33</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>49.4 %</i>	<i>28 - 122</i>		B6K0444	11/11/2016	<i>11/11/16 16:33</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>54.3 %</i>	<i>43 - 131</i>		B6K0444	11/11/2016	<i>11/11/16 16:33</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>59.5 %</i>	<i>20 - 119</i>		B6K0444	11/11/2016	<i>11/11/16 16:33</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-32B

Lab ID: 1603972-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,1,1-Trichloroethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,1,2-Trichloroethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,1-Dichloroethane	1.2	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,1-Dichloroethene	120	5.0	10	B6K0424	11/11/2016	11/11/16 13:40	
1,1-Dichloropropene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2,3-Trichloropropane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2-Dibromoethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2-Dichlorobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2-Dichloroethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,2-Dichloropropane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,3-Dichlorobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,3-Dichloropropane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
1,4-Dichlorobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
2,2-Dichloropropane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
2-Chlorotoluene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
4-Chlorotoluene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
4-Isopropyltoluene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Benzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Bromobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Bromodichloromethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Bromoform	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Bromomethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Carbon tetrachloride	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Chlorobenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Chloroethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Chloroform	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Chloromethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
cis-1,2-Dichloroethene	4.3	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Dibromochloromethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-32B

Lab ID: 1603972-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Dichlorodifluoromethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Ethylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Hexachlorobutadiene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Isopropylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
m,p-Xylene	ND	1.0	1	B6K0562	11/15/2016	11/15/16 23:37	
Methylene chloride	ND	1.0	1	B6K0562	11/15/2016	11/15/16 23:37	
n-Butylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
n-Propylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Naphthalene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
o-Xylene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
sec-Butylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Styrene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
tert-Butylbenzene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Tetrachloroethene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Toluene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Trichloroethene	43	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Trichlorofluoromethane	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
Vinyl chloride	ND	0.50	1	B6K0562	11/15/2016	11/15/16 23:37	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>	<i>51 - 157</i>		B6K0562	11/15/2016	<i>11/15/16 23:37</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>122 %</i>	<i>51 - 157</i>		B6K0424	11/11/2016	<i>11/11/16 13:40</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>61 - 123</i>		B6K0562	11/15/2016	<i>11/15/16 23:37</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>61 - 123</i>		B6K0424	11/11/2016	<i>11/11/16 13:40</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>117 %</i>	<i>57 - 147</i>		B6K0424	11/11/2016	<i>11/11/16 13:40</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>57 - 147</i>		B6K0562	11/15/2016	<i>11/15/16 23:37</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>61 - 119</i>		B6K0562	11/15/2016	<i>11/15/16 23:37</i>	
<i>Surrogate: Toluene-d8</i>	<i>107 %</i>	<i>61 - 119</i>		B6K0424	11/11/2016	<i>11/11/16 13:40</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 : 11/17/2016

Client Sample ID MW-32B

Lab ID: 1603972-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	3.6	0.20	1	B6K0444	11/11/2016	11/11/16 17:00	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>55.4 %</i>	<i>31 - 106</i>		B6K0444	11/11/2016	<i>11/11/16 17:00</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>59.4 %</i>	<i>28 - 122</i>		B6K0444	11/11/2016	<i>11/11/16 17:00</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>70.9 %</i>	<i>43 - 131</i>		B6K0444	11/11/2016	<i>11/11/16 17:00</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>71.8 %</i>	<i>20 - 119</i>		B6K0444	11/11/2016	<i>11/11/16 17:00</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-35C

Lab ID: 1603972-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,1,1-Trichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,1,2-Trichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,1-Dichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,1-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,1-Dichloropropene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2,3-Trichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2-Dibromoethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2-Dichloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,2-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,3-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,3-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
1,4-Dichlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
2,2-Dichloropropane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
2-Chlorotoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
4-Chlorotoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
4-Isopropyltoluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Benzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Bromobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Bromodichloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Bromoform	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Bromomethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Carbon tetrachloride	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Chlorobenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Chloroethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Chloroform	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Chloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Dibromochloromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-35C

Lab ID: 1603972-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Dichlorodifluoromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Ethylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Hexachlorobutadiene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Isopropylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
m,p-Xylene	ND	1.0	1	B6K0347	11/09/2016	11/09/16 19:46	
Methylene chloride	ND	1.0	1	B6K0347	11/09/2016	11/09/16 19:46	
n-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
n-Propylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Naphthalene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
o-Xylene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
sec-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Styrene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
tert-Butylbenzene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Tetrachloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Toluene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Trichloroethene	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Trichlorofluoromethane	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Vinyl chloride	ND	0.50	1	B6K0347	11/09/2016	11/09/16 19:46	
Surrogate: 1,2-Dichloroethane-d4	116 %	51 - 157		B6K0347	11/09/2016	11/09/16 19:46	
Surrogate: 4-Bromofluorobenzene	106 %	61 - 123		B6K0347	11/09/2016	11/09/16 19:46	
Surrogate: Dibromofluoromethane	115 %	57 - 147		B6K0347	11/09/2016	11/09/16 19:46	
Surrogate: Toluene-d8	107 %	61 - 119		B6K0347	11/09/2016	11/09/16 19:46	



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 : 11/17/2016

Client Sample ID MW-35C

Lab ID: 1603972-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 17:27	
Surrogate: 1,2-Dichlorobenzene-d4	60.9 %	31 - 106		B6K0444	11/11/2016	11/11/16 17:27	
Surrogate: 2-Fluorobiphenyl	65.1 %	28 - 122		B6K0444	11/11/2016	11/11/16 17:27	
Surrogate: 4-Terphenyl-d14	67.6 %	43 - 131		B6K0444	11/11/2016	11/11/16 17:27	
Surrogate: Nitrobenzene-d5	79.6 %	20 - 119		B6K0444	11/11/2016	11/11/16 17:27	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-36-1SV

Lab ID: 1603972-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,1-Dichloroethane	0.79	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,1-Dichloroethene	77	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Benzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Bromobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Bromodichloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Bromoform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Bromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Chlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Chloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Chloroform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Chloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Dibromochloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	



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 : 11/17/2016

Client Sample ID MW-36-1SV

Lab ID: 1603972-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Ethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Isopropylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
m,p-Xylene	ND	1.0	1	B6K0414	11/10/2016	11/10/16 23:42	
Methylene chloride	ND	1.0	1	B6K0414	11/10/2016	11/10/16 23:42	
n-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
n-Propylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Naphthalene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
o-Xylene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Styrene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Tetrachloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Toluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Trichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Vinyl chloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:42	
Surrogate: 1,2-Dichloroethane-d4	118 %	51 - 157		B6K0414	11/10/2016	11/10/16 23:42	
Surrogate: 4-Bromofluorobenzene	105 %	61 - 123		B6K0414	11/10/2016	11/10/16 23:42	
Surrogate: Dibromofluoromethane	117 %	57 - 147		B6K0414	11/10/2016	11/10/16 23:42	
Surrogate: Toluene-d8	109 %	61 - 119		B6K0414	11/10/2016	11/10/16 23:42	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-36-1SV

Lab ID: 1603972-08

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	3.3	0.20	1	B6K0444	11/11/2016	11/11/16 17:55	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>59.6 %</i>	<i>31 - 106</i>		B6K0444	11/11/2016	<i>11/11/16 17:55</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>65.0 %</i>	<i>28 - 122</i>		B6K0444	11/11/2016	<i>11/11/16 17:55</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>66.0 %</i>	<i>43 - 131</i>		B6K0444	11/11/2016	<i>11/11/16 17:55</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.6 %</i>	<i>20 - 119</i>		B6K0444	11/11/2016	<i>11/11/16 17:55</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-36

Lab ID: 1603972-09

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,1-Dichloroethane	0.95	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,1-Dichloroethene	91	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Benzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Bromobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Bromodichloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Bromoform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Bromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Chlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Chloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Chloroform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Chloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Dibromochloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	



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 : 11/17/2016

Client Sample ID MW-36

Lab ID: 1603972-09

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Ethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Isopropylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
m,p-Xylene	ND	1.0	1	B6K0414	11/11/2016	11/11/16 00:05	
Methylene chloride	ND	1.0	1	B6K0414	11/11/2016	11/11/16 00:05	
n-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
n-Propylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Naphthalene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
o-Xylene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Styrene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Tetrachloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Toluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Trichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Vinyl chloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:05	
Surrogate: 1,2-Dichloroethane-d4	118 %	51 - 157		B6K0414	11/11/2016	11/11/16 00:05	
Surrogate: 4-Bromofluorobenzene	108 %	61 - 123		B6K0414	11/11/2016	11/11/16 00:05	
Surrogate: Dibromofluoromethane	117 %	57 - 147		B6K0414	11/11/2016	11/11/16 00:05	
Surrogate: Toluene-d8	109 %	61 - 119		B6K0414	11/11/2016	11/11/16 00:05	



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 : 11/17/2016

Client Sample ID MW-36

Lab ID: 1603972-09

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	4.0	0.20	1	B6K0444	11/11/2016	11/11/16 18:21	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>51.6 %</i>	<i>31 - 106</i>		B6K0444	11/11/2016	<i>11/11/16 18:21</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>55.3 %</i>	<i>28 - 122</i>		B6K0444	11/11/2016	<i>11/11/16 18:21</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>67.8 %</i>	<i>43 - 131</i>		B6K0444	11/11/2016	<i>11/11/16 18:21</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>66.5 %</i>	<i>20 - 119</i>		B6K0444	11/11/2016	<i>11/11/16 18:21</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 : 11/17/2016

Client Sample ID MW-3600

Lab ID: 1603972-10

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,1-Dichloroethane	1.0	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,1-Dichloroethene	98	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Benzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Bromobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Bromodichloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Bromoform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Bromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Chlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Chloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Chloroform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Chloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Dibromochloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	



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 : 11/17/2016

Client Sample ID MW-3600

Lab ID: 1603972-10

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Ethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Isopropylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
m,p-Xylene	ND	1.0	1	B6K0414	11/11/2016	11/11/16 00:29	
Methylene chloride	ND	1.0	1	B6K0414	11/11/2016	11/11/16 00:29	
n-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
n-Propylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Naphthalene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
o-Xylene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Styrene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Tetrachloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Toluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Trichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Vinyl chloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:29	
Surrogate: 1,2-Dichloroethane-d4	120 %	51 - 157		B6K0414	11/11/2016	11/11/16 00:29	
Surrogate: 4-Bromofluorobenzene	107 %	61 - 123		B6K0414	11/11/2016	11/11/16 00:29	
Surrogate: Dibromofluoromethane	118 %	57 - 147		B6K0414	11/11/2016	11/11/16 00:29	
Surrogate: Toluene-d8	110 %	61 - 119		B6K0414	11/11/2016	11/11/16 00:29	



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 : 11/17/2016

Client Sample ID MW-3600

Lab ID: 1603972-10

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	4.2	0.20	1	B6K0444	11/11/2016	11/11/16 18:48	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>59.6 %</i>	<i>31 - 106</i>		B6K0444	11/11/2016	<i>11/11/16 18:48</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>65.8 %</i>	<i>28 - 122</i>		B6K0444	11/11/2016	<i>11/11/16 18:48</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>75.0 %</i>	<i>43 - 131</i>		B6K0444	11/11/2016	<i>11/11/16 18:48</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>78.3 %</i>	<i>20 - 119</i>		B6K0444	11/11/2016	<i>11/11/16 18:48</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-39

Lab ID: 1603972-11

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,1-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,1-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Benzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Bromobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Bromodichloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Bromoform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Bromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Chlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Chloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Chloroform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Chloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Dibromochloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	



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 : 11/17/2016

Client Sample ID MW-39

Lab ID: 1603972-11

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Ethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Isopropylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
m,p-Xylene	ND	1.0	1	B6K0414	11/10/2016	11/10/16 23:18	
Methylene chloride	ND	1.0	1	B6K0414	11/10/2016	11/10/16 23:18	
n-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
n-Propylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Naphthalene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
o-Xylene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Styrene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Tetrachloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Toluene	0.66	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Trichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
Vinyl chloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 23:18	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>	<i>51 - 157</i>		B6K0414	11/10/2016	<i>11/10/16 23:18</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>61 - 123</i>		B6K0414	11/10/2016	<i>11/10/16 23:18</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>119 %</i>	<i>57 - 147</i>		B6K0414	11/10/2016	<i>11/10/16 23:18</i>	
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>	<i>61 - 119</i>		B6K0414	11/10/2016	<i>11/10/16 23:18</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-39

Lab ID: 1603972-11

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 19:15	
Surrogate: 1,2-Dichlorobenzene-d4	60.1 %	31 - 106		B6K0444	11/11/2016	11/11/16 19:15	
Surrogate: 2-Fluorobiphenyl	68.1 %	28 - 122		B6K0444	11/11/2016	11/11/16 19:15	
Surrogate: 4-Terphenyl-d14	81.8 %	43 - 131		B6K0444	11/11/2016	11/11/16 19:15	
Surrogate: Nitrobenzene-d5	78.1 %	20 - 119		B6K0444	11/11/2016	11/11/16 19:15	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-40

Lab ID: 1603972-12

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,1-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,1-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Benzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Bromobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Bromodichloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Bromoform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Bromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Chlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Chloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Chloroform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Chloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Dibromochloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-40

Lab ID: 1603972-12

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Ethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Isopropylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
m,p-Xylene	ND	1.0	1	B6K0414	11/10/2016	11/10/16 22:08	
Methylene chloride	ND	1.0	1	B6K0414	11/10/2016	11/10/16 22:08	
n-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
n-Propylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Naphthalene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
o-Xylene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Styrene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Tetrachloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Toluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Trichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Vinyl chloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:08	
Surrogate: 1,2-Dichloroethane-d4	117 %	51 - 157		B6K0414	11/10/2016	11/10/16 22:08	
Surrogate: 4-Bromofluorobenzene	109 %	61 - 123		B6K0414	11/10/2016	11/10/16 22:08	
Surrogate: Dibromofluoromethane	117 %	57 - 147		B6K0414	11/10/2016	11/10/16 22:08	
Surrogate: Toluene-d8	108 %	61 - 119		B6K0414	11/10/2016	11/10/16 22:08	



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 : 11/17/2016

Client Sample ID MW-40

Lab ID: 1603972-12

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 19:41	
Surrogate: 1,2-Dichlorobenzene-d4	67.4 %	31 - 106		B6K0444	11/11/2016	11/11/16 19:41	
Surrogate: 2-Fluorobiphenyl	71.6 %	28 - 122		B6K0444	11/11/2016	11/11/16 19:41	
Surrogate: 4-Terphenyl-d14	81.2 %	43 - 131		B6K0444	11/11/2016	11/11/16 19:41	
Surrogate: Nitrobenzene-d5	87.0 %	20 - 119		B6K0444	11/11/2016	11/11/16 19:41	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-08

Lab ID: 1603972-13

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,1-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,1-Dichloroethene	9.6	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Benzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Bromobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Bromodichloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Bromoform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Bromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Chlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Chloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Chloroform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Chloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
cis-1,2-Dichloroethene	1.2	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Dibromochloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	



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 : 11/17/2016

Client Sample ID MW-08

Lab ID: 1603972-13

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Ethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Isopropylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
m,p-Xylene	ND	1.0	1	B6K0414	11/10/2016	11/10/16 22:32	
Methylene chloride	ND	1.0	1	B6K0414	11/10/2016	11/10/16 22:32	
n-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
n-Propylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Naphthalene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
o-Xylene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Styrene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Tetrachloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Toluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Trichloroethene	19	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
Vinyl chloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:32	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>	<i>51 - 157</i>		B6K0414	11/10/2016	<i>11/10/16 22:32</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>61 - 123</i>		B6K0414	11/10/2016	<i>11/10/16 22:32</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>	<i>57 - 147</i>		B6K0414	11/10/2016	<i>11/10/16 22:32</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 119</i>		B6K0414	11/10/2016	<i>11/10/16 22:32</i>	



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Project Number : Raytheon Main, 532.30

Report To : Steve Netto

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Client Sample ID MW-08

Lab ID: 1603972-13

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 20:08	
Surrogate: 1,2-Dichlorobenzene-d4	38.7 %	31 - 106		B6K0444	11/11/2016	11/11/16 20:08	
Surrogate: 2-Fluorobiphenyl	41.3 %	28 - 122		B6K0444	11/11/2016	11/11/16 20:08	
Surrogate: 4-Terphenyl-d14	72.3 %	43 - 131		B6K0444	11/11/2016	11/11/16 20:08	
Surrogate: Nitrobenzene-d5	50.0 %	20 - 119		B6K0444	11/11/2016	11/11/16 20:08	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-34B

Lab ID: 1603972-14

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,1-Dichloroethane	0.98	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,1-Dichloroethene	90	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Benzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Bromobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Bromodichloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Bromoform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Bromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Chlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Chloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Chloroform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Chloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Dibromochloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-34B

Lab ID: 1603972-14

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Ethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Isopropylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
m,p-Xylene	ND	1.0	1	B6K0414	11/11/2016	11/11/16 00:52	
Methylene chloride	ND	1.0	1	B6K0414	11/11/2016	11/11/16 00:52	
n-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
n-Propylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Naphthalene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
o-Xylene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Styrene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Tetrachloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Toluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Trichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Vinyl chloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 00:52	
Surrogate: 1,2-Dichloroethane-d4	120 %	51 - 157		B6K0414	11/11/2016	11/11/16 00:52	
Surrogate: 4-Bromofluorobenzene	105 %	61 - 123		B6K0414	11/11/2016	11/11/16 00:52	
Surrogate: Dibromofluoromethane	120 %	57 - 147		B6K0414	11/11/2016	11/11/16 00:52	
Surrogate: Toluene-d8	109 %	61 - 119		B6K0414	11/11/2016	11/11/16 00:52	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-34B

Lab ID: 1603972-14

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	16	2.0	1	B6K0397	11/10/2016	11/10/16 18:50	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>53.2 %</i>	<i>42 - 106</i>		B6K0397	11/10/2016	<i>11/10/16 18:50</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>55.6 %</i>	<i>55 - 117</i>		B6K0397	11/10/2016	<i>11/10/16 18:50</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>94.0 %</i>	<i>52 - 142</i>		B6K0397	11/10/2016	<i>11/10/16 18:50</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>53.2 %</i>	<i>43 - 116</i>		B6K0397	11/10/2016	<i>11/10/16 18:50</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-30A

Lab ID: 1603972-15

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,1-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,1-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Benzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Bromobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Bromodichloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Bromoform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Bromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Chlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Chloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Chloroform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Chloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Dibromochloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	



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 : 11/17/2016

Client Sample ID MW-30A

Lab ID: 1603972-15

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Ethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Isopropylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
m,p-Xylene	ND	1.0	1	B6K0414	11/10/2016	11/10/16 21:45	
Methylene chloride	ND	1.0	1	B6K0414	11/10/2016	11/10/16 21:45	
n-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
n-Propylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Naphthalene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
o-Xylene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Styrene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Tetrachloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Toluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Trichloroethene	0.50	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
Vinyl chloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 21:45	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>	<i>51 - 157</i>		B6K0414	11/10/2016	<i>11/10/16 21:45</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>	<i>61 - 123</i>		B6K0414	11/10/2016	<i>11/10/16 21:45</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>118 %</i>	<i>57 - 147</i>		B6K0414	11/10/2016	<i>11/10/16 21:45</i>	
<i>Surrogate: Toluene-d8</i>	<i>112 %</i>	<i>61 - 119</i>		B6K0414	11/10/2016	<i>11/10/16 21:45</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-30A

Lab ID: 1603972-15

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 20:34	
Surrogate: 1,2-Dichlorobenzene-d4	45.7 %	31 - 106		B6K0444	11/11/2016	11/11/16 20:34	
Surrogate: 2-Fluorobiphenyl	50.9 %	28 - 122		B6K0444	11/11/2016	11/11/16 20:34	
Surrogate: 4-Terphenyl-d14	70.1 %	43 - 131		B6K0444	11/11/2016	11/11/16 20:34	
Surrogate: Nitrobenzene-d5	59.4 %	20 - 119		B6K0444	11/11/2016	11/11/16 20:34	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-30B

Lab ID: 1603972-16

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,1-Dichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,1-Dichloroethene	18	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Benzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Bromobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Bromodichloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Bromoform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Bromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Chlorobenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Chloroethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Chloroform	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Chloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
cis-1,2-Dichloroethene	4.2	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Dibromochloromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-30B

Lab ID: 1603972-16

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Ethylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Isopropylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
m,p-Xylene	ND	1.0	1	B6K0414	11/11/2016	11/11/16 01:16	
Methylene chloride	ND	1.0	1	B6K0414	11/11/2016	11/11/16 01:16	
n-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
n-Propylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Naphthalene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
o-Xylene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Styrene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Tetrachloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Toluene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Trichloroethene	68	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
Vinyl chloride	ND	0.50	1	B6K0414	11/11/2016	11/11/16 01:16	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>120 %</i>	<i>51 - 157</i>		B6K0414	11/11/2016	<i>11/11/16 01:16</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107 %</i>	<i>61 - 123</i>		B6K0414	11/11/2016	<i>11/11/16 01:16</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>118 %</i>	<i>57 - 147</i>		B6K0414	11/11/2016	<i>11/11/16 01:16</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>61 - 119</i>		B6K0414	11/11/2016	<i>11/11/16 01:16</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-30B

Lab ID: 1603972-16

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 21:01	
Surrogate: 1,2-Dichlorobenzene-d4	59.8 %	31 - 106		B6K0444	11/11/2016	11/11/16 21:01	
Surrogate: 2-Fluorobiphenyl	63.7 %	28 - 122		B6K0444	11/11/2016	11/11/16 21:01	
Surrogate: 4-Terphenyl-d14	81.5 %	43 - 131		B6K0444	11/11/2016	11/11/16 21:01	
Surrogate: Nitrobenzene-d5	76.9 %	20 - 119		B6K0444	11/11/2016	11/11/16 21:01	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-26C

Lab ID: 1603972-17

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,1,1-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,1,2-Trichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,1-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,1-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,1-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2,3-Trichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2-Dibromoethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2-Dichloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,3-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,3-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
1,4-Dichlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
2,2-Dichloropropane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
2-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
4-Chlorotoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
4-Isopropyltoluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Benzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Bromobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Bromodichloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Bromoform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Bromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Carbon tetrachloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Chlorobenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Chloroethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Chloroform	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Chloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Dibromochloromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-26C

Lab ID: 1603972-17

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Dichlorodifluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Ethylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Hexachlorobutadiene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Isopropylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
m,p-Xylene	ND	1.0	1	B6K0414	11/10/2016	11/10/16 22:55	
Methylene chloride	ND	1.0	1	B6K0414	11/10/2016	11/10/16 22:55	
n-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
n-Propylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Naphthalene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
o-Xylene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
sec-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Styrene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
tert-Butylbenzene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Tetrachloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Toluene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Trichloroethene	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Trichlorofluoromethane	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Vinyl chloride	ND	0.50	1	B6K0414	11/10/2016	11/10/16 22:55	
Surrogate: 1,2-Dichloroethane-d4	117 %	51 - 157		B6K0414	11/10/2016	11/10/16 22:55	
Surrogate: 4-Bromofluorobenzene	108 %	61 - 123		B6K0414	11/10/2016	11/10/16 22:55	
Surrogate: Dibromofluoromethane	117 %	57 - 147		B6K0414	11/10/2016	11/10/16 22:55	
Surrogate: Toluene-d8	109 %	61 - 119		B6K0414	11/10/2016	11/10/16 22:55	



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 : 11/17/2016

Client Sample ID MW-26C

Lab ID: 1603972-17

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 21:28	
Surrogate: 1,2-Dichlorobenzene-d4	58.7 %	31 - 106		B6K0444	11/11/2016	11/11/16 21:28	
Surrogate: 2-Fluorobiphenyl	64.6 %	28 - 122		B6K0444	11/11/2016	11/11/16 21:28	
Surrogate: 4-Terphenyl-d14	68.2 %	43 - 131		B6K0444	11/11/2016	11/11/16 21:28	
Surrogate: Nitrobenzene-d5	75.5 %	20 - 119		B6K0444	11/11/2016	11/11/16 21:28	



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 : 11/17/2016

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 B6K0347 - MSVOA_W

Blank (B6K0347-BLK1)

Prepared: 11/9/2016 Analyzed: 11/9/2016

1,1,1,2-Tetrachloroethane	ND	0.50				NR			
1,1,1-Trichloroethane	ND	0.50				NR			
1,1,2,2-Tetrachloroethane	ND	0.50				NR			
1,1,2-Trichloroethane	ND	0.50				NR			
1,1-Dichloroethane	ND	0.50				NR			
1,1-Dichloroethene	ND	0.50				NR			
1,1-Dichloropropene	ND	0.50				NR			
1,2,3-Trichloropropane	ND	0.50				NR			
1,2,3-Trichlorobenzene	ND	0.50				NR			
1,2,4-Trichlorobenzene	ND	0.50				NR			
1,2,4-Trimethylbenzene	ND	0.50				NR			
1,2-Dibromo-3-chloropropane	ND	0.50				NR			
1,2-Dibromoethane	ND	0.50				NR			
1,2-Dichlorobenzene	ND	0.50				NR			
1,2-Dichloroethane	ND	0.50				NR			
1,2-Dichloropropane	ND	0.50				NR			
1,3,5-Trimethylbenzene	ND	0.50				NR			
1,3-Dichlorobenzene	ND	0.50				NR			
1,3-Dichloropropane	ND	0.50				NR			
1,4-Dichlorobenzene	ND	0.50				NR			
2,2-Dichloropropane	ND	0.50				NR			
2-Chlorotoluene	ND	0.50				NR			
4-Chlorotoluene	ND	0.50				NR			
4-Isopropyltoluene	ND	0.50				NR			
Benzene	ND	0.50				NR			
Bromobenzene	ND	0.50				NR			
Bromodichloromethane	ND	0.50				NR			
Bromoform	ND	0.50				NR			
Bromomethane	ND	0.50				NR			
Carbon tetrachloride	ND	0.50				NR			
Chlorobenzene	ND	0.50				NR			
Chloroethane	ND	0.50				NR			
Chloroform	ND	0.50				NR			
Chloromethane	ND	0.50				NR			
cis-1,2-Dichloroethene	ND	0.50				NR			
cis-1,3-Dichloropropene	ND	0.50				NR			
Dibromochloromethane	ND	0.50				NR			
Dibromomethane	ND	0.50				NR			
Dichlorodifluoromethane	ND	0.50				NR			



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San Diego , CA 92122

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

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

Batch B6K0347 - MSVOA_W (continued)

Blank (B6K0347-BLK1) - Continued

Prepared: 11/9/2016 Analyzed: 11/9/2016

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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>27.10</i>		<i>25.0000</i>		<i>108</i>	<i>51 - 157</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>26.43</i>		<i>25.0000</i>		<i>106</i>	<i>61 - 123</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>27.13</i>		<i>25.0000</i>		<i>109</i>	<i>57 - 147</i>			
<i>Surrogate: Toluene-d8</i>	<i>26.47</i>		<i>25.0000</i>		<i>106</i>	<i>61 - 119</i>			

LCS (B6K0347-BS1)

Prepared: 11/9/2016 Analyzed: 11/9/2016

1,1,1,2-Tetrachloroethane	18.3100	0.50	20.0000		91.6	76 - 132			
1,1,1-Trichloroethane	19.9400	0.50	20.0000		99.7	72 - 144			
1,1,2,2-Tetrachloroethane	20.2700	0.50	20.0000		101	70 - 120			
1,1,2-Trichloroethane	19.2300	0.50	20.0000		96.2	75 - 120			
1,1-Dichloroethane	22.2400	0.50	20.0000		111	65 - 127			
1,1-Dichloroethene	18.8600	0.50	20.0000		94.3	63 - 142			
1,1-Dichloropropene	20.3400	0.50	20.0000		102	78 - 137			
1,2,3-Trichloropropane	19.4200	0.50	20.0000		97.1	73 - 118			
1,2,3-Trichlorobenzene	18.5400	0.50	20.0000		92.7	53 - 164			
1,2,4-Trichlorobenzene	19.8800	0.50	20.0000		99.4	58 - 144			
1,2,4-Trimethylbenzene	23.5600	0.50	20.0000		118	75 - 140			
1,2-Dibromo-3-chloropropane	17.1800	0.50	20.0000		85.9	61 - 131			
1,2-Dibromoethane	17.8200	0.50	20.0000		89.1	74 - 125			
1,2-Dichlorobenzene	19.3600	0.50	20.0000		96.8	78 - 122			
1,2-Dichloroethane	17.8700	0.50	20.0000		89.4	70 - 126			
1,2-Dichloropropane	21.3000	0.50	20.0000		106	69 - 120			
1,3,5-Trimethylbenzene	23.6500	0.50	20.0000		118	73 - 145			



Certificate of Analysis

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

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

Batch B6K0347 - MSVOA_W (continued)

LCS (B6K0347-BS1) - Continued

Prepared: 11/9/2016 Analyzed: 11/9/2016

1,3-Dichlorobenzene	20.3200	0.50	20.0000		102	76 - 126			
1,3-Dichloropropane	19.2400	0.50	20.0000		96.2	76 - 117			
1,4-Dichlorobenzene	20.1300	0.50	20.0000		101	77 - 120			
2,2-Dichloropropane	23.7200	0.50	20.0000		119	47 - 169			
2-Chlorotoluene	22.6300	0.50	20.0000		113	75 - 135			
4-Chlorotoluene	22.6100	0.50	20.0000		113	70 - 133			
4-Isopropyltoluene	23.5200	0.50	20.0000		118	72 - 153			
Benzene	41.4600	0.50	40.0000		104	73 - 123			
Bromobenzene	19.4400	0.50	20.0000		97.2	75 - 121			
Bromodichloromethane	18.1900	0.50	20.0000		91.0	73 - 124			
Bromoform	15.7100	0.50	20.0000		78.6	70 - 135			
Bromomethane	24.7200	0.50	20.0000		124	10 - 166			
Carbon tetrachloride	17.9900	0.50	20.0000		90.0	65 - 171			
Chlorobenzene	19.2900	0.50	20.0000		96.4	80 - 121			
Chloroethane	25.6300	0.50	20.0000		128	55 - 143			
Chloroform	20.2100	0.50	20.0000		101	65 - 130			
Chloromethane	29.4400	0.50	20.0000		147	21 - 141			L4
cis-1,2-Dichloroethene	20.9500	0.50	20.0000		105	64 - 126			
cis-1,3-Dichloropropene	20.9400	0.50	20.0000		105	70 - 131			
Dibromochloromethane	17.6300	0.50	20.0000		88.2	74 - 125			
Dibromomethane	18.2800	0.50	20.0000		91.4	74 - 116			
Dichlorodifluoromethane	25.8800	0.50	20.0000		129	40 - 186			
Ethylbenzene	40.7000	0.50	40.0000		102	77 - 130			
Hexachlorobutadiene	18.3100	0.50	20.0000		91.6	52 - 176			
Isopropylbenzene	23.5700	0.50	20.0000		118	77 - 144			
m,p-Xylene	43.9700	1.0	40.0000		110	84 - 136			
Methylene chloride	22.6700	1.0	20.0000		113	72 - 150			
n-Butylbenzene	24.7200	0.50	20.0000		124	73 - 154			
n-Propylbenzene	23.9300	0.50	20.0000		120	77 - 145			
Naphthalene	21.4400	0.50	20.0000		107	55 - 137			
o-Xylene	42.6100	0.50	40.0000		107	79 - 135			
sec-Butylbenzene	23.6000	0.50	20.0000		118	73 - 157			
Styrene	22.0400	0.50	20.0000		110	78 - 125			
tert-Butylbenzene	22.6600	0.50	20.0000		113	78 - 149			
Tetrachloroethene	17.4800	0.50	20.0000		87.4	74 - 136			
Toluene	40.1100	0.50	40.0000		100	78 - 124			
trans-1,2-Dichloroethene	21.3200	0.50	20.0000		107	66 - 131			
Trichloroethene	18.7200	0.50	20.0000		93.6	78 - 128			
Trichlorofluoromethane	17.7200	0.50	20.0000		88.6	60 - 170			
Vinyl chloride	24.6600	0.50	20.0000		123	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	25.31		25.0000		101	51 - 157			



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

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

Batch B6K0347 - MSVOA_W (continued)

LCS (B6K0347-BS1) - Continued

Prepared: 11/9/2016 Analyzed: 11/9/2016

Surrogate: 4-Bromofluorobenzene	26.53		25.0000		106	61 - 123			
Surrogate: Dibromofluoromethane	25.23		25.0000		101	57 - 147			
Surrogate: Toluene-d8	26.22		25.0000		105	61 - 119			

LCS Dup (B6K0347-BSD1)

Prepared: 11/9/2016 Analyzed: 11/9/2016

1,1,1,2-Tetrachloroethane	17.8600	0.50	20.0000		89.3	76 - 132	2.49	20	
1,1,1-Trichloroethane	19.8900	0.50	20.0000		99.4	72 - 144	0.251	20	
1,1,2,2-Tetrachloroethane	20.2600	0.50	20.0000		101	70 - 120	0.0493	20	
1,1,2-Trichloroethane	19.3500	0.50	20.0000		96.8	75 - 120	0.622	20	
1,1-Dichloroethane	22.0600	0.50	20.0000		110	65 - 127	0.813	20	
1,1-Dichloroethene	18.0700	0.50	20.0000		90.4	63 - 142	4.28	20	
1,1-Dichloropropene	19.9700	0.50	20.0000		99.8	78 - 137	1.84	20	
1,2,3-Trichloropropane	19.1000	0.50	20.0000		95.5	73 - 118	1.66	20	
1,2,3-Trichlorobenzene	17.5700	0.50	20.0000		87.8	53 - 164	5.37	20	
1,2,4-Trichlorobenzene	18.7800	0.50	20.0000		93.9	58 - 144	5.69	20	
1,2,4-Trimethylbenzene	21.8600	0.50	20.0000		109	75 - 140	7.49	20	
1,2-Dibromo-3-chloropropane	17.2500	0.50	20.0000		86.2	61 - 131	0.407	20	
1,2-Dibromoethane	18.2000	0.50	20.0000		91.0	74 - 125	2.11	20	
1,2-Dichlorobenzene	18.5200	0.50	20.0000		92.6	78 - 122	4.44	20	
1,2-Dichloroethane	17.5200	0.50	20.0000		87.6	70 - 126	1.98	20	
1,2-Dichloropropane	21.2700	0.50	20.0000		106	69 - 120	0.141	20	
1,3,5-Trimethylbenzene	22.0300	0.50	20.0000		110	73 - 145	7.09	20	
1,3-Dichlorobenzene	18.8300	0.50	20.0000		94.2	76 - 126	7.61	20	
1,3-Dichloropropane	19.3900	0.50	20.0000		97.0	76 - 117	0.777	20	
1,4-Dichlorobenzene	18.9600	0.50	20.0000		94.8	77 - 120	5.99	20	
2,2-Dichloropropane	23.5700	0.50	20.0000		118	47 - 169	0.634	20	
2-Chlorotoluene	21.0000	0.50	20.0000		105	75 - 135	7.47	20	
4-Chlorotoluene	21.4300	0.50	20.0000		107	70 - 133	5.36	20	
4-Isopropyltoluene	21.7300	0.50	20.0000		109	72 - 153	7.91	20	
Benzene	40.4600	0.50	40.0000		101	73 - 123	2.44	20	
Bromobenzene	18.6800	0.50	20.0000		93.4	75 - 121	3.99	20	
Bromodichloromethane	18.0800	0.50	20.0000		90.4	73 - 124	0.607	20	
Bromoform	15.8200	0.50	20.0000		79.1	70 - 135	0.698	20	
Bromomethane	27.7000	0.50	20.0000		138	10 - 166	11.4	20	
Carbon tetrachloride	17.0500	0.50	20.0000		85.2	65 - 171	5.37	20	
Chlorobenzene	18.8200	0.50	20.0000		94.1	80 - 121	2.47	20	
Chloroethane	22.5200	0.50	20.0000		113	55 - 143	12.9	20	
Chloroform	20.1800	0.50	20.0000		101	65 - 130	0.149	20	
Chloromethane	24.7400	0.50	20.0000		124	21 - 141	17.3	20	
cis-1,2-Dichloroethene	20.9300	0.50	20.0000		105	64 - 126	0.0955	20	
cis-1,3-Dichloropropene	20.9100	0.50	20.0000		105	70 - 131	0.143	20	
Dibromochloromethane	17.6800	0.50	20.0000		88.4	74 - 125	0.283	20	



Certificate of Analysis

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

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

Batch B6K0347 - MSVOA_W (continued)

LCS Dup (B6K0347-BSD1) - Continued

Prepared: 11/9/2016 Analyzed: 11/9/2016

Dibromomethane	17.9400	0.50	20.0000		89.7	74 - 116	1.88	20	
Dichlorodifluoromethane	25.2600	0.50	20.0000		126	40 - 186	2.42	20	
Ethylbenzene	39.6600	0.50	40.0000		99.2	77 - 130	2.59	20	
Hexachlorobutadiene	16.8100	0.50	20.0000		84.0	52 - 176	8.54	20	
Isopropylbenzene	21.9700	0.50	20.0000		110	77 - 144	7.03	20	
m,p-Xylene	42.4700	1.0	40.0000		106	84 - 136	3.47	20	
Methylene chloride	19.6400	1.0	20.0000		98.2	72 - 150	14.3	20	
n-Butylbenzene	22.9700	0.50	20.0000		115	73 - 154	7.34	20	
n-Propylbenzene	22.3200	0.50	20.0000		112	77 - 145	6.96	20	
Naphthalene	21.1100	0.50	20.0000		106	55 - 137	1.55	20	
o-Xylene	41.5900	0.50	40.0000		104	79 - 135	2.42	20	
sec-Butylbenzene	21.8200	0.50	20.0000		109	73 - 157	7.84	20	
Styrene	21.2900	0.50	20.0000		106	78 - 125	3.46	20	
tert-Butylbenzene	21.0800	0.50	20.0000		105	78 - 149	7.22	20	
Tetrachloroethene	16.8700	0.50	20.0000		84.4	74 - 136	3.55	20	
Toluene	39.4700	0.50	40.0000		98.7	78 - 124	1.61	20	
trans-1,2-Dichloroethene	21.3200	0.50	20.0000		107	66 - 131	0.00	20	
Trichloroethene	18.4300	0.50	20.0000		92.2	78 - 128	1.56	20	
Trichlorofluoromethane	16.7700	0.50	20.0000		83.8	60 - 170	5.51	20	
Vinyl chloride	22.3000	0.50	20.0000		112	55 - 148	10.1	20	
Surrogate: 1,2-Dichloroethane-d4	24.59		25.0000		98.4	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.84		25.0000		103	61 - 123			
Surrogate: Dibromofluoromethane	25.50		25.0000		102	57 - 147			
Surrogate: Toluene-d8	25.53		25.0000		102	61 - 119			



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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 B6K0414 - MSVOA_W

Blank (B6K0414-BLK1)

Prepared: 11/10/2016 Analyzed: 11/10/2016

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



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

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

Batch B6K0414 - MSVOA_W (continued)

Blank (B6K0414-BLK1) - Continued

Prepared: 11/10/2016 Analyzed: 11/10/2016

Isopropylbenzene	ND	0.50				NR			
m,p-Xylene	ND	1.0				NR			
Methylene chloride	ND	1.0				NR			
n-Butylbenzene	ND	0.50				NR			
n-Propylbenzene	ND	0.50				NR			
Naphthalene	ND	0.50				NR			
o-Xylene	ND	0.50				NR			
sec-Butylbenzene	ND	0.50				NR			
Styrene	ND	0.50				NR			
tert-Butylbenzene	ND	0.50				NR			
Tetrachloroethene	ND	0.50				NR			
Toluene	ND	0.50				NR			
trans-1,2-Dichloroethene	ND	0.50				NR			
Trichloroethene	ND	0.50				NR			
Trichlorofluoromethane	ND	0.50				NR			
Vinyl chloride	ND	0.50				NR			

Surrogate: 1,2-Dichloroethane-d4	28.07		25.0000		112	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.06		25.0000		108	61 - 123			
Surrogate: Dibromofluoromethane	27.90		25.0000		112	57 - 147			
Surrogate: Toluene-d8	27.45		25.0000		110	61 - 119			

LCS (B6K0414-BS1)

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,1,1,2-Tetrachloroethane	17.4300	0.50	20.0000		87.2	76 - 132			
1,1,1-Trichloroethane	20.2500	0.50	20.0000		101	72 - 144			
1,1,2,2-Tetrachloroethane	19.3500	0.50	20.0000		96.8	70 - 120			
1,1,2-Trichloroethane	18.8500	0.50	20.0000		94.2	75 - 120			
1,1-Dichloroethane	22.7500	0.50	20.0000		114	65 - 127			
1,1-Dichloroethene	20.4800	0.50	20.0000		102	63 - 142			
1,1-Dichloropropene	19.8500	0.50	20.0000		99.2	78 - 137			
1,2,3-Trichloropropane	18.4100	0.50	20.0000		92.0	73 - 118			
1,2,3-Trichlorobenzene	16.6800	0.50	20.0000		83.4	53 - 164			
1,2,4-Trichlorobenzene	18.1400	0.50	20.0000		90.7	58 - 144			
1,2,4-Trimethylbenzene	22.2600	0.50	20.0000		111	75 - 140			
1,2-Dibromo-3-chloropropane	16.4200	0.50	20.0000		82.1	61 - 131			
1,2-Dibromoethane	17.3500	0.50	20.0000		86.8	74 - 125			
1,2-Dichlorobenzene	18.3300	0.50	20.0000		91.6	78 - 122			
1,2-Dichloroethane	17.7700	0.50	20.0000		88.8	70 - 126			
1,2-Dichloropropane	21.3200	0.50	20.0000		107	69 - 120			
1,3,5-Trimethylbenzene	22.5300	0.50	20.0000		113	73 - 145			
1,3-Dichlorobenzene	19.1100	0.50	20.0000		95.6	76 - 126			
1,3-Dichloropropane	19.0800	0.50	20.0000		95.4	76 - 117			



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 : 11/17/2016

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 B6K0414 - MSVOA_W (continued)

LCS (B6K0414-BS1) - Continued

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,4-Dichlorobenzene	19.2200	0.50	20.0000		96.1	77 - 120			
2,2-Dichloropropane	24.8200	0.50	20.0000		124	47 - 169			
2-Chlorotoluene	21.8700	0.50	20.0000		109	75 - 135			
4-Chlorotoluene	21.9200	0.50	20.0000		110	70 - 133			
4-Isopropyltoluene	22.2300	0.50	20.0000		111	72 - 153			
Benzene	41.0200	0.50	40.0000		103	73 - 123			
Bromobenzene	18.1500	0.50	20.0000		90.8	75 - 121			
Bromodichloromethane	18.0100	0.50	20.0000		90.0	73 - 124			
Bromoform	14.5100	0.50	20.0000		72.6	70 - 135			
Bromomethane	31.2100	0.50	20.0000		156	10 - 166			
Carbon tetrachloride	17.6000	0.50	20.0000		88.0	65 - 171			
Chlorobenzene	18.6700	0.50	20.0000		93.4	80 - 121			
Chloroethane	24.9400	0.50	20.0000		125	55 - 143			
Chloroform	20.4900	0.50	20.0000		102	65 - 130			
Chloromethane	27.3400	0.50	20.0000		137	21 - 141			
cis-1,2-Dichloroethene	21.3600	0.50	20.0000		107	64 - 126			
cis-1,3-Dichloropropene	20.7200	0.50	20.0000		104	70 - 131			
Dibromochloromethane	16.6600	0.50	20.0000		83.3	74 - 125			
Dibromomethane	17.6900	0.50	20.0000		88.4	74 - 116			
Dichlorodifluoromethane	26.9400	0.50	20.0000		135	40 - 186			
Ethylbenzene	39.9900	0.50	40.0000		100	77 - 130			
Hexachlorobutadiene	16.1700	0.50	20.0000		80.8	52 - 176			
Isopropylbenzene	22.5400	0.50	20.0000		113	77 - 144			
m,p-Xylene	43.0400	1.0	40.0000		108	84 - 136			
Methylene chloride	22.6700	1.0	20.0000		113	72 - 150			
n-Butylbenzene	23.6300	0.50	20.0000		118	73 - 154			
n-Propylbenzene	23.1900	0.50	20.0000		116	77 - 145			
Naphthalene	19.6600	0.50	20.0000		98.3	55 - 137			
o-Xylene	41.8500	0.50	40.0000		105	79 - 135			
sec-Butylbenzene	22.2200	0.50	20.0000		111	73 - 157			
Styrene	21.1200	0.50	20.0000		106	78 - 125			
tert-Butylbenzene	21.3100	0.50	20.0000		107	78 - 149			
Tetrachloroethene	16.3100	0.50	20.0000		81.6	74 - 136			
Toluene	39.6700	0.50	40.0000		99.2	78 - 124			
trans-1,2-Dichloroethene	21.5900	0.50	20.0000		108	66 - 131			
Trichloroethene	18.2200	0.50	20.0000		91.1	78 - 128			
Trichlorofluoromethane	18.7500	0.50	20.0000		93.8	60 - 170			
Vinyl chloride	24.7300	0.50	20.0000		124	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	25.92		25.0000		104	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.11		25.0000		104	61 - 123			
Surrogate: Dibromofluoromethane	25.67		25.0000		103	57 - 147			



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

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Reported : 11/17/2016

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 B6K0414 - MSVOA_W (continued)

LCS (B6K0414-BS1) - Continued

Prepared: 11/10/2016 Analyzed: 11/10/2016

Surrogate: Toluene-d8

25.66

25.0000

103

61 - 119

LCS Dup (B6K0414-BSD1)

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,1,1,2-Tetrachloroethane	18.2700	0.50	20.0000	91.4	76 - 132	4.71	20
1,1,1-Trichloroethane	21.1700	0.50	20.0000	106	72 - 144	4.44	20
1,1,2,2-Tetrachloroethane	21.7300	0.50	20.0000	109	70 - 120	11.6	20
1,1,2-Trichloroethane	20.3500	0.50	20.0000	102	75 - 120	7.65	20
1,1-Dichloroethane	24.1300	0.50	20.0000	121	65 - 127	5.89	20
1,1-Dichloroethene	20.7000	0.50	20.0000	104	63 - 142	1.07	20
1,1-Dichloropropene	19.9500	0.50	20.0000	99.8	78 - 137	0.503	20
1,2,3-Trichloropropane	21.5700	0.50	20.0000	108	73 - 118	15.8	20
1,2,3-Trichlorobenzene	18.0400	0.50	20.0000	90.2	53 - 164	7.83	20
1,2,4-Trichlorobenzene	18.9200	0.50	20.0000	94.6	58 - 144	4.21	20
1,2,4-Trimethylbenzene	22.7500	0.50	20.0000	114	75 - 140	2.18	20
1,2-Dibromo-3-chloropropane	18.9000	0.50	20.0000	94.5	61 - 131	14.0	20
1,2-Dibromoethane	19.3200	0.50	20.0000	96.6	74 - 125	10.7	20
1,2-Dichlorobenzene	19.3500	0.50	20.0000	96.8	78 - 122	5.41	20
1,2-Dichloroethane	19.1400	0.50	20.0000	95.7	70 - 126	7.42	20
1,2-Dichloropropane	22.5000	0.50	20.0000	112	69 - 120	5.39	20
1,3,5-Trimethylbenzene	23.1100	0.50	20.0000	116	73 - 145	2.54	20
1,3-Dichlorobenzene	19.6200	0.50	20.0000	98.1	76 - 126	2.63	20
1,3-Dichloropropane	20.9800	0.50	20.0000	105	76 - 117	9.49	20
1,4-Dichlorobenzene	19.7100	0.50	20.0000	98.6	77 - 120	2.52	20
2,2-Dichloropropane	25.8100	0.50	20.0000	129	47 - 169	3.91	20
2-Chlorotoluene	22.3500	0.50	20.0000	112	75 - 135	2.17	20
4-Chlorotoluene	22.9100	0.50	20.0000	115	70 - 133	4.42	20
4-Isopropyltoluene	22.7300	0.50	20.0000	114	72 - 153	2.22	20
Benzene	42.6500	0.50	40.0000	107	73 - 123	3.90	20
Bromobenzene	18.9300	0.50	20.0000	94.6	75 - 121	4.21	20
Bromodichloromethane	18.7600	0.50	20.0000	93.8	73 - 124	4.08	20
Bromoform	16.2500	0.50	20.0000	81.2	70 - 135	11.3	20
Bromomethane	34.2200	0.50	20.0000	171	10 - 166	9.20	20
Carbon tetrachloride	17.5500	0.50	20.0000	87.8	65 - 171	0.285	20
Chlorobenzene	19.6700	0.50	20.0000	98.4	80 - 121	5.22	20
Chloroethane	25.4900	0.50	20.0000	127	55 - 143	2.18	20
Chloroform	21.8600	0.50	20.0000	109	65 - 130	6.47	20
Chloromethane	28.1400	0.50	20.0000	141	21 - 141	2.88	20
cis-1,2-Dichloroethene	22.0300	0.50	20.0000	110	64 - 126	3.09	20
cis-1,3-Dichloropropene	22.0600	0.50	20.0000	110	70 - 131	6.26	20
Dibromochloromethane	17.8400	0.50	20.0000	89.2	74 - 125	6.84	20
Dibromomethane	19.3000	0.50	20.0000	96.5	74 - 116	8.71	20
Dichlorodifluoromethane	27.4900	0.50	20.0000	137	40 - 186	2.02	20

L4



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Hargis & Associates, Inc.

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

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Reported : 11/17/2016

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 B6K0414 - MSVOA_W (continued)

LCS Dup (B6K0414-BSD1) - Continued

Prepared: 11/10/2016 Analyzed: 11/10/2016

Ethylbenzene	41.6700	0.50	40.0000		104	77 - 130	4.11	20	
Hexachlorobutadiene	16.0700	0.50	20.0000		80.4	52 - 176	0.620	20	
Isopropylbenzene	23.0200	0.50	20.0000		115	77 - 144	2.11	20	
m,p-Xylene	44.6900	1.0	40.0000		112	84 - 136	3.76	20	
Methylene chloride	28.9400	1.0	20.0000		145	72 - 150	24.3	20	R
n-Butylbenzene	24.3500	0.50	20.0000		122	73 - 154	3.00	20	
n-Propylbenzene	23.9100	0.50	20.0000		120	77 - 145	3.06	20	
Naphthalene	22.2300	0.50	20.0000		111	55 - 137	12.3	20	
o-Xylene	43.8400	0.50	40.0000		110	79 - 135	4.64	20	
sec-Butylbenzene	22.7900	0.50	20.0000		114	73 - 157	2.53	20	
Styrene	22.0200	0.50	20.0000		110	78 - 125	4.17	20	
tert-Butylbenzene	21.8200	0.50	20.0000		109	78 - 149	2.36	20	
Tetrachloroethene	16.2400	0.50	20.0000		81.2	74 - 136	0.430	20	
Toluene	41.5100	0.50	40.0000		104	78 - 124	4.53	20	
trans-1,2-Dichloroethene	22.3700	0.50	20.0000		112	66 - 131	3.55	20	
Trichloroethene	18.1100	0.50	20.0000		90.6	78 - 128	0.606	20	
Trichlorofluoromethane	18.6400	0.50	20.0000		93.2	60 - 170	0.588	20	
Vinyl chloride	25.9300	0.50	20.0000		130	55 - 148	4.74	20	
Surrogate: 1,2-Dichloroethane-d4	28.93		25.0000		116	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.65		25.0000		111	61 - 123			
Surrogate: Dibromofluoromethane	27.80		25.0000		111	57 - 147			
Surrogate: Toluene-d8	27.67		25.0000		111	61 - 119			

Matrix Spike (B6K0414-MS1)

Source: 1603972-04RE1

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	284.200	10	400.000	ND	71.0	76 - 132			M2
1,1,1-Trichloroethane	333.800	10	400.000	ND	83.4	72 - 144			
1,1,2,2-Tetrachloroethane	361.200	10	400.000	ND	90.3	70 - 120			
1,1,2-Trichloroethane	355.000	10	400.000	10.4000	86.2	75 - 120			
1,1-Dichloroethane	395.800	10	400.000	25.6000	92.6	65 - 127			
1,1-Dichloroethene	1552.60	10	400.000	1398.40	38.5	63 - 142			M2
1,1-Dichloropropene	292.400	10	400.000	ND	73.1	78 - 137			M2
1,2,3-Trichloropropane	356.000	10	400.000	ND	89.0	73 - 118			
1,2,3-Trichlorobenzene	271.800	10	400.000	ND	68.0	53 - 164			
1,2,4-Trichlorobenzene	275.000	10	400.000	ND	68.8	58 - 144			
1,2,4-Trimethylbenzene	343.200	10	400.000	ND	85.8	75 - 140			
1,2-Dibromo-3-chloropropane	319.800	10	400.000	ND	80.0	61 - 131			
1,2-Dibromoethane	320.200	10	400.000	ND	80.0	74 - 125			
1,2-Dichlorobenzene	304.600	10	400.000	ND	76.2	78 - 122			M2
1,2-Dichloroethane	319.000	10	400.000	ND	79.8	70 - 126			
1,2-Dichloropropane	353.800	10	400.000	ND	88.4	69 - 120			
1,3,5-Trimethylbenzene	340.600	10	400.000	ND	85.2	73 - 145			



Certificate of Analysis

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B6K0414 - MSVOA_W (continued)									
Matrix Spike (B6K0414-MS1) - Continued		Source: 1603972-04RE1		Prepared: 11/11/2016 Analyzed: 11/11/2016					
1,3-Dichlorobenzene	301.400	10	400.000	ND	75.4	76 - 126			M2
1,3-Dichloropropane	338.200	10	400.000	ND	84.6	76 - 117			
1,4-Dichlorobenzene	303.800	10	400.000	ND	76.0	77 - 120			M2
2,2-Dichloropropane	289.600	10	400.000	ND	72.4	47 - 169			
2-Chlorotoluene	338.400	10	400.000	ND	84.6	75 - 135			
4-Chlorotoluene	347.600	10	400.000	ND	86.9	77 - 130			
4-Isopropyltoluene	329.400	10	400.000	ND	82.4	72 - 153			
Benzene	679.200	10	800.000	ND	84.9	73 - 123			
Bromobenzene	292.600	10	400.000	ND	73.2	75 - 121			M2
Bromodichloromethane	305.600	10	400.000	ND	76.4	73 - 124			
Bromoform	263.400	10	400.000	ND	65.8	70 - 135			M2
Bromomethane	618.400	10	400.000	ND	155	10 - 166			
Carbon tetrachloride	273.000	10	400.000	ND	68.2	65 - 171			
Chlorobenzene	303.200	10	400.000	ND	75.8	80 - 121			M2
Chloroethane	437.600	10	400.000	ND	109	55 - 143			
Chloroform	346.800	10	400.000	ND	86.7	65 - 130			
Chloromethane	448.600	10	400.000	ND	112	21 - 141			
cis-1,2-Dichloroethene	345.000	10	400.000	ND	86.2	64 - 126			
cis-1,3-Dichloropropene	294.200	10	400.000	ND	73.6	70 - 131			
Dibromochloromethane	285.600	10	400.000	ND	71.4	74 - 125			M2
Dibromomethane	314.400	10	400.000	ND	78.6	74 - 116			
Dichlorodifluoromethane	422.200	10	400.000	ND	106	40 - 186			
Ethylbenzene	643.400	10	800.000	ND	80.4	77 - 130			
Hexachlorobutadiene	223.600	10	400.000	ND	55.9	52 - 176			
Isopropylbenzene	331.200	10	400.000	ND	82.8	77 - 144			
m,p-Xylene	696.600	20	800.000	ND	87.1	84 - 136			
Methylene chloride	470.000	20	400.000	ND	118	72 - 150			
n-Butylbenzene	349.200	10	400.000	ND	87.3	73 - 154			
n-Propylbenzene	357.200	10	400.000	ND	89.3	77 - 145			
Naphthalene	349.000	10	400.000	ND	87.2	55 - 137			
o-Xylene	687.200	10	800.000	ND	85.9	79 - 135			
sec-Butylbenzene	335.200	10	400.000	ND	83.8	73 - 157			
Styrene	339.600	10	400.000	ND	84.9	78 - 125			
tert-Butylbenzene	318.800	10	400.000	ND	79.7	78 - 149			
Tetrachloroethene	235.000	10	400.000	ND	58.8	74 - 136			M2
Toluene	656.800	10	800.000	ND	82.1	78 - 124			
trans-1,2-Dichloroethene	339.200	10	400.000	ND	84.8	66 - 131			
Trichloroethene	293.600	10	400.000	18.6000	68.8	78 - 128			M2
Trichlorofluoromethane	332.800	10	400.000	ND	83.2	60 - 170			
Vinyl chloride	404.200	10	400.000	ND	101	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	28.37		25.0000		113	51 - 157			



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

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

Batch B6K0414 - MSVOA_W (continued)

Matrix Spike (B6K0414-MS1) - Continued

Source: 1603972-04RE1

Prepared: 11/11/2016 Analyzed: 11/11/2016

Surrogate: 4-Bromofluorobenzene	26.86		25.0000		107	61 - 123			
Surrogate: Dibromofluoromethane	28.22		25.0000		113	57 - 147			
Surrogate: Toluene-d8	27.18		25.0000		109	61 - 119			

Matrix Spike Dup (B6K0414-MSD1)

Source: 1603972-04RE1

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	389.800	10	400.000	ND	97.4	76 - 132	31.3	20	R
1,1,1-Trichloroethane	458.400	10	400.000	ND	115	72 - 144	31.5	20	R
1,1,2,2-Tetrachloroethane	460.000	10	400.000	ND	115	70 - 120	24.1	20	R
1,1,2-Trichloroethane	449.800	10	400.000	10.4000	110	75 - 120	23.6	20	R
1,1-Dichloroethane	531.800	10	400.000	25.6000	127	65 - 127	29.3	20	R
1,1-Dichloroethene	1613.20	10	400.000	1398.40	53.7	63 - 142	3.83	20	M2
1,1-Dichloropropene	423.200	10	400.000	ND	106	78 - 137	36.6	20	R
1,2,3-Trichloropropane	451.800	10	400.000	ND	113	73 - 118	23.7	20	R
1,2,3-Trichlorobenzene	373.800	10	400.000	ND	93.4	53 - 164	31.6	20	R
1,2,4-Trichlorobenzene	390.600	10	400.000	ND	97.6	58 - 144	34.7	20	R
1,2,4-Trimethylbenzene	486.000	10	400.000	ND	122	75 - 140	34.4	20	R
1,2-Dibromo-3-chloropropane	391.000	10	400.000	ND	97.8	61 - 131	20.0	20	R
1,2-Dibromoethane	401.600	10	400.000	ND	100	74 - 125	22.6	20	R
1,2-Dichlorobenzene	411.000	10	400.000	ND	103	78 - 122	29.7	20	R
1,2-Dichloroethane	413.800	10	400.000	ND	103	70 - 126	25.9	20	R
1,2-Dichloropropane	475.800	10	400.000	ND	119	69 - 120	29.4	20	R
1,3,5-Trimethylbenzene	488.000	10	400.000	ND	122	73 - 145	35.6	20	R
1,3-Dichlorobenzene	416.400	10	400.000	ND	104	76 - 126	32.0	20	R
1,3-Dichloropropane	437.200	10	400.000	ND	109	76 - 117	25.5	20	R
1,4-Dichlorobenzene	416.600	10	400.000	ND	104	77 - 120	31.3	20	R
2,2-Dichloropropane	417.600	10	400.000	ND	104	47 - 169	36.2	20	R
2-Chlorotoluene	479.000	10	400.000	ND	120	75 - 135	34.4	20	R
4-Chlorotoluene	481.200	10	400.000	ND	120	77 - 130	32.2	20	R
4-Isopropyltoluene	474.800	10	400.000	ND	119	72 - 153	36.2	20	R
Benzene	921.400	10	800.000	ND	115	73 - 123	30.3	20	R
Bromobenzene	395.200	10	400.000	ND	98.8	75 - 121	29.8	20	R
Bromodichloromethane	400.600	10	400.000	ND	100	73 - 124	26.9	20	R
Bromoform	339.000	10	400.000	ND	84.8	70 - 135	25.1	20	R
Bromomethane	631.600	10	400.000	ND	158	10 - 166	2.11	20	
Carbon tetrachloride	387.400	10	400.000	ND	96.8	65 - 171	34.6	20	R
Chlorobenzene	413.600	10	400.000	ND	103	80 - 121	30.8	20	R
Chloroethane	593.400	10	400.000	ND	148	55 - 143	30.2	20	M2, R
Chloroform	466.200	10	400.000	ND	117	65 - 130	29.4	20	R
Chloromethane	609.200	10	400.000	ND	152	21 - 141	30.4	20	M2, R
cis-1,2-Dichloroethene	479.400	10	400.000	ND	120	64 - 126	32.6	20	R
cis-1,3-Dichloropropene	409.200	10	400.000	ND	102	70 - 131	32.7	20	R
Dibromochloromethane	371.600	10	400.000	ND	92.9	74 - 125	26.2	20	R



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 : 11/17/2016

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 B6K0414 - MSVOA_W (continued)

Matrix Spike Dup (B6K0414-MSD1) - Continued

Source: 1603972-04RE1

Prepared: 11/11/2016 Analyzed: 11/11/2016

Dibromomethane	406.400	10	400.000	ND	102	74 - 116	25.5	20	R
Dichlorodifluoromethane	591.400	10	400.000	ND	148	40 - 186	33.4	20	R
Ethylbenzene	886.000	10	800.000	ND	111	77 - 130	31.7	20	R
Hexachlorobutadiene	327.600	10	400.000	ND	81.9	52 - 176	37.7	20	R
Isopropylbenzene	485.200	10	400.000	ND	121	77 - 144	37.7	20	R
m,p-Xylene	957.000	20	800.000	ND	120	84 - 136	31.5	20	R
Methylene chloride	535.600	20	400.000	ND	134	72 - 150	13.0	20	
n-Butylbenzene	507.200	10	400.000	ND	127	73 - 154	36.9	20	R
n-Propylbenzene	503.400	10	400.000	ND	126	77 - 145	34.0	20	R
Naphthalene	459.800	10	400.000	ND	115	55 - 137	27.4	20	R
o-Xylene	942.000	10	800.000	ND	118	79 - 135	31.3	20	R
sec-Butylbenzene	480.200	10	400.000	ND	120	73 - 157	35.6	20	R
Styrene	466.400	10	400.000	ND	117	78 - 125	31.5	20	R
tert-Butylbenzene	459.600	10	400.000	ND	115	78 - 149	36.2	20	R
Tetrachloroethene	333.600	10	400.000	ND	83.4	74 - 136	34.7	20	R
Toluene	888.800	10	800.000	ND	111	78 - 124	30.0	20	R
trans-1,2-Dichloroethene	464.400	10	400.000	ND	116	66 - 131	31.2	20	R
Trichloroethene	396.800	10	400.000	18.6000	94.6	78 - 128	29.9	20	R
Trichlorofluoromethane	431.800	10	400.000	ND	108	60 - 170	25.9	20	R
Vinyl chloride	565.400	10	400.000	ND	141	55 - 148	33.3	20	R
Surrogate: 1,2-Dichloroethane-d4	29.03		25.0000		116	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.64		25.0000		107	61 - 123			
Surrogate: Dibromofluoromethane	27.56		25.0000		110	57 - 147			
Surrogate: Toluene-d8	26.92		25.0000		108	61 - 119			



Certificate of Analysis

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Reported : 11/17/2016

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 B6K0424 - MSVOA_W

Blank (B6K0424-BLK1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

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

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

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

Batch B6K0424 - MSVOA_W (continued)

Blank (B6K0424-BLK1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				

Surrogate: 1,2-Dichloroethane-d4	28.68		25.0000		115	51 - 157
Surrogate: 4-Bromofluorobenzene	25.64		25.0000		103	61 - 123
Surrogate: Dibromofluoromethane	27.74		25.0000		111	57 - 147
Surrogate: Toluene-d8	26.41		25.0000		106	61 - 119

LCS (B6K0424-BS1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	18.5200	0.50	20.0000		92.6	76 - 132
1,1,1-Trichloroethane	20.8900	0.50	20.0000		104	72 - 144
1,1,2,2-Tetrachloroethane	20.6300	0.50	20.0000		103	70 - 120
1,1,2-Trichloroethane	20.0500	0.50	20.0000		100	75 - 120
1,1-Dichloroethane	23.4200	0.50	20.0000		117	65 - 127
1,1-Dichloroethene	21.4000	0.50	20.0000		107	63 - 142
1,1-Dichloropropene	20.0400	0.50	20.0000		100	78 - 137
1,2,3-Trichloropropane	19.9100	0.50	20.0000		99.6	73 - 118
1,2,3-Trichlorobenzene	17.5900	0.50	20.0000		88.0	53 - 164
1,2,4-Trichlorobenzene	18.8500	0.50	20.0000		94.2	58 - 144
1,2,4-Trimethylbenzene	23.4900	0.50	20.0000		117	75 - 140
1,2-Dibromo-3-chloropropane	17.6800	0.50	20.0000		88.4	61 - 131
1,2-Dibromoethane	18.3500	0.50	20.0000		91.8	74 - 125
1,2-Dichlorobenzene	19.2700	0.50	20.0000		96.4	78 - 122
1,2-Dichloroethane	19.1700	0.50	20.0000		95.8	70 - 126
1,2-Dichloropropane	22.1200	0.50	20.0000		111	69 - 120
1,3,5-Trimethylbenzene	23.6700	0.50	20.0000		118	73 - 145
1,3-Dichlorobenzene	19.8200	0.50	20.0000		99.1	76 - 126
1,3-Dichloropropane	19.9900	0.50	20.0000		100	76 - 117



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

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Reported : 11/17/2016

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 B6K0424 - MSVOA_W (continued)

LCS (B6K0424-BS1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dichlorobenzene	20.0000	0.50	20.0000		100	77 - 120			
2,2-Dichloropropane	25.3800	0.50	20.0000		127	47 - 169			
2-Chlorotoluene	22.8400	0.50	20.0000		114	75 - 135			
4-Chlorotoluene	23.1200	0.50	20.0000		116	70 - 133			
4-Isopropyltoluene	23.3800	0.50	20.0000		117	72 - 153			
Benzene	43.3900	0.50	40.0000		108	73 - 123			
Bromobenzene	18.8100	0.50	20.0000		94.0	75 - 121			
Bromodichloromethane	19.0000	0.50	20.0000		95.0	73 - 124			
Bromoform	15.5400	0.50	20.0000		77.7	70 - 135			
Bromomethane	32.5800	0.50	20.0000		163	10 - 166			
Carbon tetrachloride	18.6000	0.50	20.0000		93.0	65 - 171			
Chlorobenzene	19.5000	0.50	20.0000		97.5	80 - 121			
Chloroethane	25.8100	0.50	20.0000		129	55 - 143			
Chloroform	21.2100	0.50	20.0000		106	65 - 130			
Chloromethane	28.5900	0.50	20.0000		143	21 - 141			L4
cis-1,2-Dichloroethene	21.4200	0.50	20.0000		107	64 - 126			
cis-1,3-Dichloropropene	21.8200	0.50	20.0000		109	70 - 131			
Dibromochloromethane	17.4300	0.50	20.0000		87.2	74 - 125			
Dibromomethane	18.5500	0.50	20.0000		92.8	74 - 116			
Dichlorodifluoromethane	28.2100	0.50	20.0000		141	40 - 186			
Ethylbenzene	42.4500	0.50	40.0000		106	77 - 130			
Hexachlorobutadiene	17.3400	0.50	20.0000		86.7	52 - 176			
Isopropylbenzene	23.3100	0.50	20.0000		117	77 - 144			
m,p-Xylene	45.9800	1.0	40.0000		115	84 - 136			
Methylene chloride	23.7600	1.0	20.0000		119	72 - 150			
n-Butylbenzene	25.2300	0.50	20.0000		126	73 - 154			
n-Propylbenzene	24.3500	0.50	20.0000		122	77 - 145			
Naphthalene	20.6400	0.50	20.0000		103	55 - 137			
o-Xylene	44.8200	0.50	40.0000		112	79 - 135			
sec-Butylbenzene	23.5600	0.50	20.0000		118	73 - 157			
Styrene	22.5200	0.50	20.0000		113	78 - 125			
tert-Butylbenzene	22.3700	0.50	20.0000		112	78 - 149			
Tetrachloroethene	16.8200	0.50	20.0000		84.1	74 - 136			
Toluene	42.4000	0.50	40.0000		106	78 - 124			
trans-1,2-Dichloroethene	21.6200	0.50	20.0000		108	66 - 131			
Trichloroethene	18.6100	0.50	20.0000		93.0	78 - 128			
Trichlorofluoromethane	19.6900	0.50	20.0000		98.4	60 - 170			
Vinyl chloride	26.5400	0.50	20.0000		133	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	26.69		25.0000		107	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.65		25.0000		107	61 - 123			
Surrogate: Dibromofluoromethane	25.53		25.0000		102	57 - 147			



Certificate of Analysis

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Reported : 11/17/2016

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 B6K0424 - MSVOA_W (continued)

LCS (B6K0424-BS1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

Surrogate: Toluene-d8

26.40

25.0000

106

61 - 119

LCS Dup (B6K0424-BS1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	17.8800	0.50	20.0000	89.4	76 - 132	3.52	20	
1,1,1-Trichloroethane	21.1300	0.50	20.0000	106	72 - 144	1.14	20	
1,1,2,2-Tetrachloroethane	20.7000	0.50	20.0000	104	70 - 120	0.339	20	
1,1,2-Trichloroethane	19.5400	0.50	20.0000	97.7	75 - 120	2.58	20	
1,1-Dichloroethane	23.7700	0.50	20.0000	119	65 - 127	1.48	20	
1,1-Dichloroethene	20.9700	0.50	20.0000	105	63 - 142	2.03	20	
1,1-Dichloropropene	19.6500	0.50	20.0000	98.2	78 - 137	1.97	20	
1,2,3-Trichloropropane	20.3400	0.50	20.0000	102	73 - 118	2.14	20	
1,2,3-Trichlorobenzene	17.7500	0.50	20.0000	88.8	53 - 164	0.905	20	
1,2,4-Trichlorobenzene	18.7000	0.50	20.0000	93.5	58 - 144	0.799	20	
1,2,4-Trimethylbenzene	23.3000	0.50	20.0000	116	75 - 140	0.812	20	
1,2-Dibromo-3-chloropropane	17.5300	0.50	20.0000	87.6	61 - 131	0.852	20	
1,2-Dibromoethane	18.0600	0.50	20.0000	90.3	74 - 125	1.59	20	
1,2-Dichlorobenzene	19.1000	0.50	20.0000	95.5	78 - 122	0.886	20	
1,2-Dichloroethane	18.5400	0.50	20.0000	92.7	70 - 126	3.34	20	
1,2-Dichloropropane	21.7200	0.50	20.0000	109	69 - 120	1.82	20	
1,3,5-Trimethylbenzene	23.2000	0.50	20.0000	116	73 - 145	2.01	20	
1,3-Dichlorobenzene	19.5100	0.50	20.0000	97.6	76 - 126	1.58	20	
1,3-Dichloropropane	20.0400	0.50	20.0000	100	76 - 117	0.250	20	
1,4-Dichlorobenzene	19.8400	0.50	20.0000	99.2	77 - 120	0.803	20	
2,2-Dichloropropane	25.2800	0.50	20.0000	126	47 - 169	0.395	20	
2-Chlorotoluene	22.5800	0.50	20.0000	113	75 - 135	1.14	20	
4-Chlorotoluene	22.8500	0.50	20.0000	114	70 - 133	1.17	20	
4-Isopropyltoluene	23.0600	0.50	20.0000	115	72 - 153	1.38	20	
Benzene	42.1800	0.50	40.0000	105	73 - 123	2.83	20	
Bromobenzene	18.5900	0.50	20.0000	93.0	75 - 121	1.18	20	
Bromodichloromethane	18.5100	0.50	20.0000	92.6	73 - 124	2.61	20	
Bromoform	15.0800	0.50	20.0000	75.4	70 - 135	3.00	20	
Bromomethane	33.1300	0.50	20.0000	166	10 - 166	1.67	20	
Carbon tetrachloride	17.8600	0.50	20.0000	89.3	65 - 171	4.06	20	
Chlorobenzene	18.9700	0.50	20.0000	94.8	80 - 121	2.76	20	
Chloroethane	27.0800	0.50	20.0000	135	55 - 143	4.80	20	
Chloroform	21.3800	0.50	20.0000	107	65 - 130	0.798	20	
Chloromethane	28.9200	0.50	20.0000	145	21 - 141	1.15	20	L4
cis-1,2-Dichloroethene	21.4300	0.50	20.0000	107	64 - 126	0.0467	20	
cis-1,3-Dichloropropene	21.1200	0.50	20.0000	106	70 - 131	3.26	20	
Dibromochloromethane	17.0800	0.50	20.0000	85.4	74 - 125	2.03	20	
Dibromomethane	18.4100	0.50	20.0000	92.0	74 - 116	0.758	20	
Dichlorodifluoromethane	27.8600	0.50	20.0000	139	40 - 186	1.25	20	



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

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

Batch B6K0424 - MSVOA_W (continued)

LCS Dup (B6K0424-BSD1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

Ethylbenzene	41.0200	0.50	40.0000		103	77 - 130	3.43	20	
Hexachlorobutadiene	16.8500	0.50	20.0000		84.2	52 - 176	2.87	20	
Isopropylbenzene	23.3600	0.50	20.0000		117	77 - 144	0.214	20	
m,p-Xylene	44.0300	1.0	40.0000		110	84 - 136	4.33	20	
Methylene chloride	28.7400	1.0	20.0000		144	72 - 150	19.0	20	
n-Butylbenzene	24.8100	0.50	20.0000		124	73 - 154	1.68	20	
n-Propylbenzene	24.1400	0.50	20.0000		121	77 - 145	0.866	20	
Naphthalene	20.8400	0.50	20.0000		104	55 - 137	0.964	20	
o-Xylene	43.1200	0.50	40.0000		108	79 - 135	3.87	20	
sec-Butylbenzene	23.2100	0.50	20.0000		116	73 - 157	1.50	20	
Styrene	21.5400	0.50	20.0000		108	78 - 125	4.45	20	
tert-Butylbenzene	22.0700	0.50	20.0000		110	78 - 149	1.35	20	
Tetrachloroethene	16.5300	0.50	20.0000		82.6	74 - 136	1.74	20	
Toluene	40.3600	0.50	40.0000		101	78 - 124	4.93	20	
trans-1,2-Dichloroethene	21.9100	0.50	20.0000		110	66 - 131	1.33	20	
Trichloroethene	18.0700	0.50	20.0000		90.4	78 - 128	2.94	20	
Trichlorofluoromethane	19.2600	0.50	20.0000		96.3	60 - 170	2.21	20	
Vinyl chloride	26.0900	0.50	20.0000		130	55 - 148	1.71	20	
Surrogate: 1,2-Dichloroethane-d4	26.58		25.0000		106	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.48		25.0000		106	61 - 123			
Surrogate: Dibromofluoromethane	26.48		25.0000		106	57 - 147			
Surrogate: Toluene-d8	25.90		25.0000		104	61 - 119			

Matrix Spike (B6K0424-MS1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	19.8300	0.50	20.0000	ND	99.2	76 - 132			
1,1,1-Trichloroethane	22.9000	0.50	20.0000	ND	114	72 - 144			
1,1,2,2-Tetrachloroethane	23.7400	0.50	20.0000	ND	119	70 - 120			
1,1,2-Trichloroethane	22.7400	0.50	20.0000	ND	114	75 - 120			
1,1-Dichloroethane	25.5800	0.50	20.0000	ND	128	65 - 127			M2
1,1-Dichloroethene	23.5700	0.50	20.0000	ND	118	63 - 142			
1,1-Dichloropropene	20.7300	0.50	20.0000	ND	104	78 - 137			
1,2,3-Trichloropropane	23.6200	0.50	20.0000	ND	118	73 - 118			M2
1,2,3-Trichlorobenzene	18.8200	0.50	20.0000	ND	94.1	53 - 164			
1,2,4-Trichlorobenzene	19.1300	0.50	20.0000	ND	95.6	58 - 144			
1,2,4-Trimethylbenzene	24.0500	0.50	20.0000	ND	120	75 - 140			
1,2-Dibromo-3-chloropropane	20.9800	0.50	20.0000	ND	105	61 - 131			
1,2-Dibromoethane	21.0600	0.50	20.0000	ND	105	74 - 125			
1,2-Dichlorobenzene	20.2800	0.50	20.0000	ND	101	78 - 122			
1,2-Dichloroethane	21.4800	0.50	20.0000	ND	107	70 - 126			
1,2-Dichloropropane	24.3300	0.50	20.0000	ND	122	69 - 120			M2
1,3,5-Trimethylbenzene	24.2400	0.50	20.0000	ND	121	73 - 145			



Certificate of Analysis

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

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

Batch B6K0424 - MSVOA_W (continued)

Matrix Spike (B6K0424-MS1) - Continued

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,3-Dichlorobenzene	20.5500	0.50	20.0000	ND	103	76 - 126			
1,3-Dichloropropane	22.4800	0.50	20.0000	ND	112	76 - 117			
1,4-Dichlorobenzene	20.4800	0.50	20.0000	ND	102	77 - 120			
2,2-Dichloropropane	22.3700	0.50	20.0000	ND	112	47 - 169			
2-Chlorotoluene	23.6900	0.50	20.0000	ND	118	75 - 135			
4-Chlorotoluene	23.8800	0.50	20.0000	ND	119	77 - 130			
4-Isopropyltoluene	23.1900	0.50	20.0000	ND	116	72 - 153			
Benzene	46.4500	0.50	40.0000	ND	116	73 - 123			
Bromobenzene	19.4300	0.50	20.0000	ND	97.2	75 - 121			
Bromodichloromethane	20.8600	0.50	20.0000	ND	104	73 - 124			
Bromoform	17.5800	0.50	20.0000	ND	87.9	70 - 135			
Bromomethane	39.2700	0.50	20.0000	ND	196	10 - 166			M2
Carbon tetrachloride	19.2900	0.50	20.0000	ND	96.4	65 - 171			
Chlorobenzene	20.8300	0.50	20.0000	ND	104	80 - 121			
Chloroethane	29.1500	0.50	20.0000	ND	146	55 - 143			M2
Chloroform	23.5000	0.50	20.0000	ND	118	65 - 130			
Chloromethane	30.1200	0.50	20.0000	ND	151	21 - 141			M2
cis-1,2-Dichloroethene	23.3600	0.50	20.0000	ND	117	64 - 126			
cis-1,3-Dichloropropene	21.2200	0.50	20.0000	ND	106	70 - 131			
Dibromochloromethane	19.2700	0.50	20.0000	ND	96.4	74 - 125			
Dibromomethane	21.1700	0.50	20.0000	ND	106	74 - 116			
Dichlorodifluoromethane	29.0300	0.50	20.0000	ND	145	40 - 186			
Ethylbenzene	44.9900	0.50	40.0000	ND	112	77 - 130			
Hexachlorobutadiene	15.6500	0.50	20.0000	ND	78.2	52 - 176			
Isopropylbenzene	23.6000	0.50	20.0000	ND	118	77 - 144			
m,p-Xylene	47.8900	1.0	40.0000	ND	120	84 - 136			
Methylene chloride	30.1500	1.0	20.0000	ND	151	72 - 150			M2
n-Butylbenzene	25.0100	0.50	20.0000	ND	125	73 - 154			
n-Propylbenzene	25.0200	0.50	20.0000	ND	125	77 - 145			
Naphthalene	23.6100	0.50	20.0000	ND	118	55 - 137			
o-Xylene	47.3200	0.50	40.0000	ND	118	79 - 135			
sec-Butylbenzene	23.7900	0.50	20.0000	ND	119	73 - 157			
Styrene	23.3100	0.50	20.0000	ND	117	78 - 125			
tert-Butylbenzene	22.6300	0.50	20.0000	ND	113	78 - 149			
Tetrachloroethene	16.1800	0.50	20.0000	ND	80.9	74 - 136			
Toluene	45.5500	0.50	40.0000	ND	114	78 - 124			
trans-1,2-Dichloroethene	22.4200	0.50	20.0000	ND	112	66 - 131			
Trichloroethene	18.7600	0.50	20.0000	ND	93.8	78 - 128			
Trichlorofluoromethane	21.6400	0.50	20.0000	ND	108	60 - 170			
Vinyl chloride	27.5900	0.50	20.0000	ND	138	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	30.37		25.0000		121	51 - 157			



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/17/2016

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 B6K0424 - MSVOA_W (continued)

Matrix Spike (B6K0424-MS1) - Continued

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

Surrogate: 4-Bromofluorobenzene	27.22		25.0000		109	61 - 123			
Surrogate: Dibromofluoromethane	28.26		25.0000		113	57 - 147			
Surrogate: Toluene-d8	27.69		25.0000		111	61 - 119			

Matrix Spike Dup (B6K0424-MSD1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	19.8100	0.50	20.0000	ND	99.0	76 - 132	0.101	20	
1,1,1-Trichloroethane	23.1700	0.50	20.0000	ND	116	72 - 144	1.17	20	
1,1,2,2-Tetrachloroethane	24.8300	0.50	20.0000	ND	124	70 - 120	4.49	20	M2
1,1,2-Trichloroethane	23.0800	0.50	20.0000	ND	115	75 - 120	1.48	20	
1,1-Dichloroethane	26.2900	0.50	20.0000	ND	131	65 - 127	2.74	20	M2
1,1-Dichloroethene	23.5700	0.50	20.0000	ND	118	63 - 142	0.00	20	
1,1-Dichloropropene	21.3300	0.50	20.0000	ND	107	78 - 137	2.85	20	
1,2,3-Trichloropropane	24.4000	0.50	20.0000	ND	122	73 - 118	3.25	20	M2
1,2,3-Trichlorobenzene	19.3500	0.50	20.0000	ND	96.8	53 - 164	2.78	20	
1,2,4-Trichlorobenzene	19.7800	0.50	20.0000	ND	98.9	58 - 144	3.34	20	
1,2,4-Trimethylbenzene	24.7200	0.50	20.0000	ND	124	75 - 140	2.75	20	
1,2-Dibromo-3-chloropropane	21.4300	0.50	20.0000	ND	107	61 - 131	2.12	20	
1,2-Dibromoethane	21.1300	0.50	20.0000	ND	106	74 - 125	0.332	20	
1,2-Dichlorobenzene	20.8300	0.50	20.0000	ND	104	78 - 122	2.68	20	
1,2-Dichloroethane	21.8200	0.50	20.0000	ND	109	70 - 126	1.57	20	
1,2-Dichloropropane	24.8900	0.50	20.0000	ND	124	69 - 120	2.28	20	M2
1,3,5-Trimethylbenzene	24.5800	0.50	20.0000	ND	123	73 - 145	1.39	20	
1,3-Dichlorobenzene	20.8500	0.50	20.0000	ND	104	76 - 126	1.45	20	
1,3-Dichloropropane	22.6400	0.50	20.0000	ND	113	76 - 117	0.709	20	
1,4-Dichlorobenzene	21.2100	0.50	20.0000	ND	106	77 - 120	3.50	20	
2,2-Dichloropropane	23.1900	0.50	20.0000	ND	116	47 - 169	3.60	20	
2-Chlorotoluene	24.4100	0.50	20.0000	ND	122	75 - 135	2.99	20	
4-Chlorotoluene	24.6300	0.50	20.0000	ND	123	77 - 130	3.09	20	
4-Isopropyltoluene	23.9400	0.50	20.0000	ND	120	72 - 153	3.18	20	
Benzene	47.0700	0.50	40.0000	ND	118	73 - 123	1.33	20	
Bromobenzene	20.2800	0.50	20.0000	ND	101	75 - 121	4.28	20	
Bromodichloromethane	20.8400	0.50	20.0000	ND	104	73 - 124	0.0959	20	
Bromoform	17.4600	0.50	20.0000	ND	87.3	70 - 135	0.685	20	
Bromomethane	37.5900	0.50	20.0000	ND	188	10 - 166	4.37	20	M2
Carbon tetrachloride	19.4700	0.50	20.0000	ND	97.4	65 - 171	0.929	20	
Chlorobenzene	20.9700	0.50	20.0000	ND	105	80 - 121	0.670	20	
Chloroethane	30.6500	0.50	20.0000	ND	153	55 - 143	5.02	20	M2
Chloroform	23.6400	0.50	20.0000	ND	118	65 - 130	0.594	20	
Chloromethane	31.3800	0.50	20.0000	ND	157	21 - 141	4.10	20	M2
cis-1,2-Dichloroethene	23.9600	0.50	20.0000	ND	120	64 - 126	2.54	20	
cis-1,3-Dichloropropene	21.9000	0.50	20.0000	ND	110	70 - 131	3.15	20	
Dibromochloromethane	19.1900	0.50	20.0000	ND	96.0	74 - 125	0.416	20	



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

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

Batch B6K0424 - MSVOA_W (continued)

Matrix Spike Dup (B6K0424-MSD1) - Continued

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

Dibromomethane	21.4200	0.50	20.0000	ND	107	74 - 116	1.17	20	
Dichlorodifluoromethane	29.6700	0.50	20.0000	ND	148	40 - 186	2.18	20	
Ethylbenzene	45.0500	0.50	40.0000	ND	113	77 - 130	0.133	20	
Hexachlorobutadiene	16.8700	0.50	20.0000	ND	84.4	52 - 176	7.50	20	
Isopropylbenzene	24.3900	0.50	20.0000	ND	122	77 - 144	3.29	20	
m,p-Xylene	48.3900	1.0	40.0000	ND	121	84 - 136	1.04	20	
Methylene chloride	26.7200	1.0	20.0000	ND	134	72 - 150	12.1	20	
n-Butylbenzene	25.7100	0.50	20.0000	ND	129	73 - 154	2.76	20	
n-Propylbenzene	25.6900	0.50	20.0000	ND	128	77 - 145	2.64	20	
Naphthalene	24.2700	0.50	20.0000	ND	121	55 - 137	2.76	20	
o-Xylene	47.8300	0.50	40.0000	ND	120	79 - 135	1.07	20	
sec-Butylbenzene	24.5900	0.50	20.0000	ND	123	73 - 157	3.31	20	
Styrene	23.6900	0.50	20.0000	ND	118	78 - 125	1.62	20	
tert-Butylbenzene	23.1100	0.50	20.0000	ND	116	78 - 149	2.10	20	
Tetrachloroethene	16.5200	0.50	20.0000	ND	82.6	74 - 136	2.08	20	
Toluene	45.7100	0.50	40.0000	ND	114	78 - 124	0.351	20	
trans-1,2-Dichloroethene	23.6900	0.50	20.0000	ND	118	66 - 131	5.51	20	
Trichloroethene	19.1700	0.50	20.0000	ND	95.8	78 - 128	2.16	20	
Trichlorofluoromethane	21.2100	0.50	20.0000	ND	106	60 - 170	2.01	20	
Vinyl chloride	29.3600	0.50	20.0000	ND	147	55 - 148	6.22	20	
Surrogate: 1,2-Dichloroethane-d4	30.10		25.0000		120	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.70		25.0000		111	61 - 123			
Surrogate: Dibromofluoromethane	27.88		25.0000		112	57 - 147			
Surrogate: Toluene-d8	27.81		25.0000		111	61 - 119			



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Reported : 11/17/2016

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 B6K0562 - MSVOA_W

Blank (B6K0562-BLK1)

Prepared: 11/15/2016 Analyzed: 11/15/2016

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

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

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

Batch B6K0562 - MSVOA_W (continued)

Blank (B6K0562-BLK1) - Continued

Prepared: 11/15/2016 Analyzed: 11/15/2016

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	27.26		25.0000		109	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.83		25.0000		103	61 - 123			
Surrogate: Dibromofluoromethane	25.62		25.0000		102	57 - 147			
Surrogate: Toluene-d8	25.61		25.0000		102	61 - 119			

LCS (B6K0562-BS1)

Prepared: 11/15/2016 Analyzed: 11/15/2016

1,1,1,2-Tetrachloroethane	9.63000	0.50	10.0000		96.3	76 - 132			
1,1,1-Trichloroethane	9.65000	0.50	10.0000		96.5	72 - 144			
1,1,2,2-Tetrachloroethane	9.92000	0.50	10.0000		99.2	70 - 120			
1,1,2-Trichloroethane	9.84000	0.50	10.0000		98.4	75 - 120			
1,1-Dichloroethane	10.3800	0.50	10.0000		104	65 - 127			
1,1-Dichloroethene	10.1500	0.50	10.0000		102	63 - 142			
1,1-Dichloropropene	9.98000	0.50	10.0000		99.8	78 - 137			
1,2,3-Trichloropropane	9.67000	0.50	10.0000		96.7	73 - 118			
1,2,3-Trichlorobenzene	10.1900	0.50	10.0000		102	53 - 164			
1,2,4-Trichlorobenzene	10.3900	0.50	10.0000		104	58 - 144			
1,2,4-Trimethylbenzene	10.4100	0.50	10.0000		104	75 - 140			
1,2-Dibromo-3-chloropropane	8.67000	0.50	10.0000		86.7	61 - 131			
1,2-Dibromoethane	9.95000	0.50	10.0000		99.5	74 - 125			
1,2-Dichlorobenzene	10.0600	0.50	10.0000		101	78 - 122			
1,2-Dichloroethane	9.98000	0.50	10.0000		99.8	70 - 126			
1,2-Dichloropropane	10.2300	0.50	10.0000		102	69 - 120			
1,3,5-Trimethylbenzene	10.0700	0.50	10.0000		101	73 - 145			
1,3-Dichlorobenzene	10.1200	0.50	10.0000		101	76 - 126			
1,3-Dichloropropane	10.1600	0.50	10.0000		102	76 - 117			



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

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

Batch B6K0562 - MSVOA_W (continued)

LCS (B6K0562-BS1) - Continued

Prepared: 11/15/2016 Analyzed: 11/15/2016

1,4-Dichlorobenzene	10.0600	0.50	10.0000		101	77 - 120			
2,2-Dichloropropane	10.3100	0.50	10.0000		103	47 - 169			
2-Chlorotoluene	9.96000	0.50	10.0000		99.6	75 - 135			
4-Chlorotoluene	10.0900	0.50	10.0000		101	70 - 133			
4-Isopropyltoluene	10.3600	0.50	10.0000		104	72 - 153			
Benzene	19.4800	0.50	20.0000		97.4	73 - 123			
Bromobenzene	10.1800	0.50	10.0000		102	75 - 121			
Bromodichloromethane	9.51000	0.50	10.0000		95.1	73 - 124			
Bromoform	9.02000	0.50	10.0000		90.2	70 - 135			
Bromomethane	13.6400	0.50	10.0000		136	10 - 166			
Carbon tetrachloride	9.17000	0.50	10.0000		91.7	65 - 171			
Chlorobenzene	10.2300	0.50	10.0000		102	80 - 121			
Chloroethane	11.0900	0.50	10.0000		111	55 - 143			
Chloroform	9.75000	0.50	10.0000		97.5	65 - 130			
Chloromethane	10.5800	0.50	10.0000		106	21 - 141			
cis-1,2-Dichloroethene	9.88000	0.50	10.0000		98.8	64 - 126			
cis-1,3-Dichloropropene	10.0400	0.50	10.0000		100	70 - 131			
Dibromochloromethane	9.16000	0.50	10.0000		91.6	74 - 125			
Dibromomethane	9.51000	0.50	10.0000		95.1	74 - 116			
Dichlorodifluoromethane	13.4700	0.50	10.0000		135	40 - 186			
Ethylbenzene	18.6500	0.50	20.0000		93.2	77 - 130			
Hexachlorobutadiene	10.2000	0.50	10.0000		102	52 - 176			
Isopropylbenzene	9.72000	0.50	10.0000		97.2	77 - 144			
m,p-Xylene	18.3700	1.0	20.0000		91.8	84 - 136			
Methylene chloride	9.90000	1.0	10.0000		99.0	72 - 150			
n-Butylbenzene	10.4700	0.50	10.0000		105	73 - 154			
n-Propylbenzene	11.3000	0.50	10.0000		113	77 - 145			
Naphthalene	9.80000	0.50	10.0000		98.0	55 - 137			
o-Xylene	18.6600	0.50	20.0000		93.3	79 - 135			
sec-Butylbenzene	9.81000	0.50	10.0000		98.1	73 - 157			
Styrene	10.4400	0.50	10.0000		104	78 - 125			
tert-Butylbenzene	9.87000	0.50	10.0000		98.7	78 - 149			
Tetrachloroethene	9.97000	0.50	10.0000		99.7	74 - 136			
Toluene	19.5500	0.50	20.0000		97.8	78 - 124			
trans-1,2-Dichloroethene	9.96000	0.50	10.0000		99.6	66 - 131			
Trichloroethene	9.71000	0.50	10.0000		97.1	78 - 128			
Trichlorofluoromethane	10.7200	0.50	10.0000		107	60 - 170			
Vinyl chloride	10.4500	0.50	10.0000		104	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	26.35		25.0000		105	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.98		25.0000		104	61 - 123			
Surrogate: Dibromofluoromethane	25.43		25.0000		102	57 - 147			



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

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

Batch B6K0562 - MSVOA_W (continued)

LCS (B6K0562-BS1) - Continued

Prepared: 11/15/2016 Analyzed: 11/15/2016

Surrogate: Toluene-d8

25.75

25.0000

103

61 - 119

LCS Dup (B6K0562-BS1)

Prepared: 11/15/2016 Analyzed: 11/15/2016

1,1,1,2-Tetrachloroethane	9.93000	0.50	10.0000	99.3	76 - 132	3.07	20
1,1,1-Trichloroethane	10.2300	0.50	10.0000	102	72 - 144	5.84	20
1,1,2,2-Tetrachloroethane	11.0400	0.50	10.0000	110	70 - 120	10.7	20
1,1,2-Trichloroethane	10.7400	0.50	10.0000	107	75 - 120	8.75	20
1,1-Dichloroethane	11.3800	0.50	10.0000	114	65 - 127	9.19	20
1,1-Dichloroethene	10.9200	0.50	10.0000	109	63 - 142	7.31	20
1,1-Dichloropropene	10.4700	0.50	10.0000	105	78 - 137	4.79	20
1,2,3-Trichloropropane	10.5700	0.50	10.0000	106	73 - 118	8.89	20
1,2,3-Trichlorobenzene	10.5500	0.50	10.0000	106	53 - 164	3.47	20
1,2,4-Trichlorobenzene	10.7600	0.50	10.0000	108	58 - 144	3.50	20
1,2,4-Trimethylbenzene	10.7700	0.50	10.0000	108	75 - 140	3.40	20
1,2-Dibromo-3-chloropropane	8.97000	0.50	10.0000	89.7	61 - 131	3.40	20
1,2-Dibromoethane	10.7600	0.50	10.0000	108	74 - 125	7.82	20
1,2-Dichlorobenzene	10.5100	0.50	10.0000	105	78 - 122	4.38	20
1,2-Dichloroethane	10.7100	0.50	10.0000	107	70 - 126	7.06	20
1,2-Dichloropropane	10.8200	0.50	10.0000	108	69 - 120	5.61	20
1,3,5-Trimethylbenzene	10.4200	0.50	10.0000	104	73 - 145	3.42	20
1,3-Dichlorobenzene	10.6000	0.50	10.0000	106	76 - 126	4.63	20
1,3-Dichloropropane	11.0000	0.50	10.0000	110	76 - 117	7.94	20
1,4-Dichlorobenzene	10.5300	0.50	10.0000	105	77 - 120	4.57	20
2,2-Dichloropropane	11.2100	0.50	10.0000	112	47 - 169	8.36	20
2-Chlorotoluene	10.4500	0.50	10.0000	104	75 - 135	4.80	20
4-Chlorotoluene	10.4600	0.50	10.0000	105	70 - 133	3.60	20
4-Isopropyltoluene	10.6900	0.50	10.0000	107	72 - 153	3.14	20
Benzene	20.5800	0.50	20.0000	103	73 - 123	5.49	20
Bromobenzene	10.4000	0.50	10.0000	104	75 - 121	2.14	20
Bromodichloromethane	9.87000	0.50	10.0000	98.7	73 - 124	3.72	20
Bromoform	8.93000	0.50	10.0000	89.3	70 - 135	1.00	20
Bromomethane	18.3100	0.50	10.0000	183	10 - 166	29.2	20
Carbon tetrachloride	9.20000	0.50	10.0000	92.0	65 - 171	0.327	20
Chlorobenzene	10.8100	0.50	10.0000	108	80 - 121	5.51	20
Chloroethane	12.3500	0.50	10.0000	124	55 - 143	10.8	20
Chloroform	10.6900	0.50	10.0000	107	65 - 130	9.20	20
Chloromethane	10.7200	0.50	10.0000	107	21 - 141	1.31	20
cis-1,2-Dichloroethene	10.7900	0.50	10.0000	108	64 - 126	8.81	20
cis-1,3-Dichloropropene	10.4600	0.50	10.0000	105	70 - 131	4.10	20
Dibromochloromethane	9.25000	0.50	10.0000	92.5	74 - 125	0.978	20
Dibromomethane	10.5000	0.50	10.0000	105	74 - 116	9.90	20
Dichlorodifluoromethane	13.7800	0.50	10.0000	138	40 - 186	2.28	20

L4



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 : 11/17/2016

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 B6K0562 - MSVOA_W (continued)

LCS Dup (B6K0562-BSD1) - Continued

Prepared: 11/15/2016 Analyzed: 11/15/2016

Ethylbenzene	19.5400	0.50	20.0000		97.7	77 - 130	4.66	20	
Hexachlorobutadiene	10.2900	0.50	10.0000		103	52 - 176	0.878	20	
Isopropylbenzene	10.0500	0.50	10.0000		100	77 - 144	3.34	20	
m,p-Xylene	19.3600	1.0	20.0000		96.8	84 - 136	5.25	20	
Methylene chloride	10.7600	1.0	10.0000		108	72 - 150	8.33	20	
n-Butylbenzene	10.7900	0.50	10.0000		108	73 - 154	3.01	20	
n-Propylbenzene	11.7200	0.50	10.0000		117	77 - 145	3.65	20	
Naphthalene	10.5900	0.50	10.0000		106	55 - 137	7.75	20	
o-Xylene	19.6200	0.50	20.0000		98.1	79 - 135	5.02	20	
sec-Butylbenzene	10.2500	0.50	10.0000		102	73 - 157	4.39	20	
Styrene	10.9800	0.50	10.0000		110	78 - 125	5.04	20	
tert-Butylbenzene	10.2200	0.50	10.0000		102	78 - 149	3.48	20	
Tetrachloroethene	10.5300	0.50	10.0000		105	74 - 136	5.46	20	
Toluene	20.6700	0.50	20.0000		103	78 - 124	5.57	20	
trans-1,2-Dichloroethene	10.7600	0.50	10.0000		108	66 - 131	7.72	20	
Trichloroethene	10.1400	0.50	10.0000		101	78 - 128	4.33	20	
Trichlorofluoromethane	11.2400	0.50	10.0000		112	60 - 170	4.74	20	
Vinyl chloride	11.4200	0.50	10.0000		114	55 - 148	8.87	20	
Surrogate: 1,2-Dichloroethane-d4	26.98		25.0000		108	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.51		25.0000		102	61 - 123			
Surrogate: Dibromofluoromethane	25.79		25.0000		103	57 - 147			
Surrogate: Toluene-d8	25.53		25.0000		102	61 - 119			



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 : 11/17/2016

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 B6K0397 - MSSEMI_W

Blank (B6K0397-BLK1)

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	61.73		100.000		61.7	42 - 106			
Surrogate: 2-Fluorobiphenyl	64.32		100.000		64.3	55 - 117			
Surrogate: 4-Terphenyl-d14	100.2		100.000		100	52 - 142			
Surrogate: Nitrobenzene-d5	63.64		100.000		63.6	43 - 116			

LCS (B6K0397-BS1)

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,4-Dioxane	103.040	2.0	100.000		103	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	64.30		100.000		64.3	42 - 106			
Surrogate: 2-Fluorobiphenyl	79.69		100.000		79.7	55 - 117			
Surrogate: 4-Terphenyl-d14	88.61		100.000		88.6	52 - 142			
Surrogate: Nitrobenzene-d5	73.59		100.000		73.6	43 - 116			

LCS Dup (B6K0397-BS1)

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,4-Dioxane	102.750	2.0	100.000		103	62 - 127	0.282	20	
Surrogate: 1,2-Dichlorobenzene-d4	63.14		100.000		63.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	77.54		100.000		77.5	55 - 117			
Surrogate: 4-Terphenyl-d14	88.98		100.000		89.0	52 - 142			
Surrogate: Nitrobenzene-d5	71.14		100.000		71.1	43 - 116			

Matrix Spike (B6K0397-MS1)

Source: 1603972-04

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,4-Dioxane	365.290	2.0	100.000	219.590	146	62 - 127			M2
Surrogate: 1,2-Dichlorobenzene-d4	55.60		100.000		55.6	42 - 106			
Surrogate: 2-Fluorobiphenyl	70.97		100.000		71.0	55 - 117			
Surrogate: 4-Terphenyl-d14	84.65		100.000		84.6	52 - 142			
Surrogate: Nitrobenzene-d5	61.73		100.000		61.7	43 - 116			

Matrix Spike Dup (B6K0397-MSD1)

Source: 1603972-04

Prepared: 11/10/2016 Analyzed: 11/10/2016

1,4-Dioxane	319.030	2.0	100.000	219.590	99.4	62 - 127	13.5	20	
Surrogate: 1,2-Dichlorobenzene-d4	60.49		100.000		60.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	74.43		100.000		74.4	55 - 117			
Surrogate: 4-Terphenyl-d14	85.62		100.000		85.6	52 - 142			
Surrogate: Nitrobenzene-d5	66.83		100.000		66.8	43 - 116			



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 : 11/17/2016

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 B6K0444 - MSSEMI_ISOTOPEDILN_W

Blank (B6K0444-BLK1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.7318		1.00000		73.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7565		1.00000		75.6	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7786		1.00000		77.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.8941		1.00000		89.4	20 - 119			

LCS (B6K0444-BS1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	1.12401	0.20	1.00000		112	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.4071		1.00000		40.7	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.4326		1.00000		43.3	28 - 122			
Surrogate: 4-Terphenyl-d14	0.5792		1.00000		57.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.4737		1.00000		47.4	20 - 119			

Matrix Spike (B6K0444-MS1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	1.17027	0.20	1.00000	ND	117	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.6494		1.00000		64.9	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6905		1.00000		69.0	28 - 122			
Surrogate: 4-Terphenyl-d14	0.6903		1.00000		69.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.8404		1.00000		84.0	20 - 119			

Matrix Spike Dup (B6K0444-MSD1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	1.25269	0.20	1.00000	ND	125	49 - 169	6.80	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6099		1.00000		61.0	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6264		1.00000		62.6	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7190		1.00000		71.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.7831		1.00000		78.3	20 - 119			



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 : 11/17/2016

Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysis confirms low recovery caused by matrix effects.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
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.

PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

11/07/16
Date: 11/03/16
Page 1 of 3

Sampled By:				SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED				Expected Concentration Range (ppb) for VOA's				SPECIAL HANDLING				REMARKS
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)						VOCs by EPA 8260B	1,4 Dioxane 8270 SIM	1,4-Dioxane 8270 MOD		0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 hr TAT	Standard TAT	MS/MSD Requested	
1603-72-1	TB-110716A	11/07/16	0740	X	X	X						X				X								
-	EW-01		1300	X								X				X								
-	EW-0100		1310	X	X							X		X		X								
-	MW-21		1330	X	X							X		X		X								
-	MW-32B-1SV	11/08/16	0947	X	X							X		X		X							X	
-	MW-32B		1145	X	X							X	X			X								
-	MW-35C		1140	X	X							X	X			X								
-	MW-36-1SV		1300	X	X							X	X			X								
-	MW-36		1400	X	X							X	X			X								

Total number of containers per analysis:

Total No. of Containers: 0

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>TC/HA</u>	<u>11/8/16 1710</u>	<u>[Signature]</u>	<u>11/8/16 1710</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature]</u>	<u>11/8/16 1830</u>	<u>FPD [Signature]</u>	<u>11/8/16 1830</u>

- ☒ No. of containers correct
- ☒ Received in good condition
- ☐ Custody seals secure
- ☒ Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive
Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

Instructions

- Fill out form completely and sign only after verified for completeness
- Complete in ballpoint pen. Draw one line through error, initial and date correction
- Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✕
- Note applicable preservatives, special instructions, and deviations from typical environmental samples.
- Consult project QA documents for specific instructions.

2.1 / 1.8 Temperature on receipt

PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Sampled By:

ASF

TJE

SAMPLE COLLECTION

LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Ice	40-ml VOA	1 L Amber	VOCs by EPA 8260B	1,4 Dioxane 8270 SIM	1,4-Dioxane 8270 MOD	Expected Concentration Range (ppb) for VOA's	24 hr TAT	48 hr TAT	Standard TAT	MS/MSD Requested	REMARKS
1603972 - 9	MW-30	11/08/10	1400	X			X				X		0 - 10					
- 10	MW-3000		1410	X	X		X	3		X	X		10 - 100					
	↓		↓	X			X				X		100 - 1,000					
- 11	MW-31		1520	X	X		X	3		X	X		>1,000					
	↓		↓	X			X		1		X							

Total number of containers per analysis:

Total No. of Containers: 0

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature]</u> / H+A	11/8/10 1710	<u>[Signature]</u>	11/8/10 1710
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature]</u>	11/8/10 1830	<u>[Signature]</u> / ATR	11/12/10 1830

- ☒ No. of containers correct
☒ Received in good condition
☒ Custody seals secure
☒ Conforms to COC document

Instructions

1. Fill out form completely and sign only after verified for completeness
2. Complete in ballpoint pen. Draw one line through error, initial and date correction
3. Indicate the number of sample containers in analytical 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.

2.1, 1.8 Temperature on receipt

Send Results to:

Steve Netto

9171 Towne Centre Drive
Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Ice	40-ml VOA	1 L Amber	VOCs by EPA 8260B	1,4 Dioxane 8270 SIM	1,4-Dioxane 8270 MOD	Expected Concentration Range (ppb) for VOA's				SPECIAL HANDLING			MS/MSD Requested	REMARKS
LAB ID	SAMPLE ID	Date	Time										0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 hr TAT	Standard TAT		
16 0397 ~ 12	MW-40	11/8/16	9:27	X	X		X	3	1	X	X			X							
-13	MW-08		12:38	X	X		X	3	1	X	X			X							
-14	MW-34B		13:42	X	X		X	3	1	X		X		X							
-15	MW-30A		14:42	X	X		X	3	1	X				X							
-16	MW-30B		15:26	X	X		X	3	1	X				X							
-17	MW-26C		17:00	X	X		X	3	1	X				X							

Total number of containers per analysis:

Total No. of Containers: 0

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature]</u> / H+H	<u>11/8/16</u>	<u>[Signature]</u>	<u>11/8/16 1710</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature]</u>	<u>11/8/16 1830</u>	<u>[Signature]</u> / <u>1830</u>	<u>11/8/16 1830</u>

- ☒ No. of containers correct
- ☒ Received in good condition
- ☐ Custody seals secure
- ☒ Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Driv
Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

Instructions

- Fill out form completely and sign only after verified for completeness
- Complete in ballpoint pen. Draw one line through error, initial and date correction
- Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✗
- Note applicable preservatives, special instructions, and deviations from typical environmental samples.
- Consult project QA documents for specific instructions.

2.1, 1.8 Temperature on receipt



November 16, 2016

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 : 1603984
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on November 09, 2016 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 written 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 : 11/16/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-110816	1603984-01	Lab prepared water	11/08/16 15:00	11/09/16 12:48
MW-33_1SV	1603984-02	Groundwater	11/08/16 16:11	11/09/16 12:48
MW-33	1603984-03	Groundwater	11/08/16 17:10	11/09/16 12:48
MW-37	1603984-04	Groundwater	11/09/16 8:55	11/09/16 12:48
MW-38	1603984-05	Groundwater	11/09/16 9:30	11/09/16 12:48
MW-41	1603984-06	Groundwater	11/09/16 10:15	11/09/16 12:48
MW-28	1603984-07	Groundwater	11/09/16 8:36	11/09/16 12:48
MW-31	1603984-08	Groundwater	11/09/16 9:25	11/09/16 12:48



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 : 11/16/2016

Client Sample ID TB-110816

Lab ID: 1603984-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,1-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	



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 : 11/16/2016

Client Sample ID TB-110816

Lab ID: 1603984-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 12:06	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 12:06	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Trichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 12:06	
Surrogate: 1,2-Dichloroethane-d4	122 %	51 - 157		B6K0424	11/11/2016	11/11/16 12:06	
Surrogate: 4-Bromofluorobenzene	111 %	61 - 123		B6K0424	11/11/2016	11/11/16 12:06	
Surrogate: Dibromofluoromethane	119 %	57 - 147		B6K0424	11/11/2016	11/11/16 12:06	
Surrogate: Toluene-d8	114 %	61 - 119		B6K0424	11/11/2016	11/11/16 12:06	



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 : 11/16/2016

Client Sample ID MW-33_1SV

Lab ID: 1603984-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,1-Dichloroethene	4.2	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	



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 : 11/16/2016

Client Sample ID MW-33_1SV

Lab ID: 1603984-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 14:50	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 14:50	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Trichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 14:50	
Surrogate: 1,2-Dichloroethane-d4	125 %	51 - 157		B6K0424	11/11/2016	11/11/16 14:50	
Surrogate: 4-Bromofluorobenzene	109 %	61 - 123		B6K0424	11/11/2016	11/11/16 14:50	
Surrogate: Dibromofluoromethane	123 %	57 - 147		B6K0424	11/11/2016	11/11/16 14:50	
Surrogate: Toluene-d8	114 %	61 - 119		B6K0424	11/11/2016	11/11/16 14:50	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-33_1SV

Lab ID: 1603984-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 21:55	
Surrogate: 1,2-Dichlorobenzene-d4	59.4 %	31 - 106		B6K0444	11/11/2016	11/11/16 21:55	
Surrogate: 2-Fluorobiphenyl	60.5 %	28 - 122		B6K0444	11/11/2016	11/11/16 21:55	
Surrogate: 4-Terphenyl-d14	74.2 %	43 - 131		B6K0444	11/11/2016	11/11/16 21:55	
Surrogate: Nitrobenzene-d5	76.1 %	20 - 119		B6K0444	11/11/2016	11/11/16 21:55	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-33

Lab ID: 1603984-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,1-Dichloroethene	5.9	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-33

Lab ID: 1603984-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 15:14	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 15:14	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Trichloroethene	0.69	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:14	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>123 %</i>	<i>51 - 157</i>		B6K0424	11/11/2016	<i>11/11/16 15:14</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>	<i>61 - 123</i>		B6K0424	11/11/2016	<i>11/11/16 15:14</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>122 %</i>	<i>57 - 147</i>		B6K0424	11/11/2016	<i>11/11/16 15:14</i>	
<i>Surrogate: Toluene-d8</i>	<i>108 %</i>	<i>61 - 119</i>		B6K0424	11/11/2016	<i>11/11/16 15:14</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 : 11/16/2016

Client Sample ID MW-33

Lab ID: 1603984-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 22:22	
Surrogate: 1,2-Dichlorobenzene-d4	64.0 %	31 - 106		B6K0444	11/11/2016	11/11/16 22:22	
Surrogate: 2-Fluorobiphenyl	65.7 %	28 - 122		B6K0444	11/11/2016	11/11/16 22:22	
Surrogate: 4-Terphenyl-d14	84.3 %	43 - 131		B6K0444	11/11/2016	11/11/16 22:22	
Surrogate: Nitrobenzene-d5	81.8 %	20 - 119		B6K0444	11/11/2016	11/11/16 22:22	



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 : 11/16/2016

Client Sample ID MW-37

Lab ID: 1603984-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,1-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	



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 : 11/16/2016

Client Sample ID MW-37

Lab ID: 1603984-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 15:37	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 15:37	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Trichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 15:37	
Surrogate: 1,2-Dichloroethane-d4	127 %	51 - 157		B6K0424	11/11/2016	11/11/16 15:37	
Surrogate: 4-Bromofluorobenzene	108 %	61 - 123		B6K0424	11/11/2016	11/11/16 15:37	
Surrogate: Dibromofluoromethane	121 %	57 - 147		B6K0424	11/11/2016	11/11/16 15:37	
Surrogate: Toluene-d8	114 %	61 - 119		B6K0424	11/11/2016	11/11/16 15:37	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-37

Lab ID: 1603984-04

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 22:49	
Surrogate: 1,2-Dichlorobenzene-d4	70.1 %	31 - 106		B6K0444	11/11/2016	11/11/16 22:49	
Surrogate: 2-Fluorobiphenyl	72.2 %	28 - 122		B6K0444	11/11/2016	11/11/16 22:49	
Surrogate: 4-Terphenyl-d14	78.5 %	43 - 131		B6K0444	11/11/2016	11/11/16 22:49	
Surrogate: Nitrobenzene-d5	89.2 %	20 - 119		B6K0444	11/11/2016	11/11/16 22:49	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-38

Lab ID: 1603984-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,1-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	



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 : 11/16/2016

Client Sample ID MW-38

Lab ID: 1603984-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 16:00	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 16:00	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Trichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 16:00	
Surrogate: 1,2-Dichloroethane-d4	122 %	51 - 157		B6K0424	11/11/2016	11/11/16 16:00	
Surrogate: 4-Bromofluorobenzene	108 %	61 - 123		B6K0424	11/11/2016	11/11/16 16:00	
Surrogate: Dibromofluoromethane	119 %	57 - 147		B6K0424	11/11/2016	11/11/16 16:00	
Surrogate: Toluene-d8	111 %	61 - 119		B6K0424	11/11/2016	11/11/16 16:00	



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 : 11/16/2016

Client Sample ID MW-38

Lab ID: 1603984-05

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 23:16	
Surrogate: 1,2-Dichlorobenzene-d4	55.3 %	31 - 106		B6K0444	11/11/2016	11/11/16 23:16	
Surrogate: 2-Fluorobiphenyl	54.2 %	28 - 122		B6K0444	11/11/2016	11/11/16 23:16	
Surrogate: 4-Terphenyl-d14	68.6 %	43 - 131		B6K0444	11/11/2016	11/11/16 23:16	
Surrogate: Nitrobenzene-d5	71.4 %	20 - 119		B6K0444	11/11/2016	11/11/16 23:16	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-41

Lab ID: 1603984-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,1-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Chloroform	0.72	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	



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 : 11/16/2016

Client Sample ID MW-41

Lab ID: 1603984-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 17:11	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 17:11	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Trichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:11	
Surrogate: 1,2-Dichloroethane-d4	123 %	51 - 157		B6K0424	11/11/2016	11/11/16 17:11	
Surrogate: 4-Bromofluorobenzene	105 %	61 - 123		B6K0424	11/11/2016	11/11/16 17:11	
Surrogate: Dibromofluoromethane	120 %	57 - 147		B6K0424	11/11/2016	11/11/16 17:11	
Surrogate: Toluene-d8	108 %	61 - 119		B6K0424	11/11/2016	11/11/16 17:11	



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 : 11/16/2016

Client Sample ID MW-41

Lab ID: 1603984-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/11/16 23:43	
Surrogate: 1,2-Dichlorobenzene-d4	66.3 %	31 - 106		B6K0444	11/11/2016	11/11/16 23:43	
Surrogate: 2-Fluorobiphenyl	70.4 %	28 - 122		B6K0444	11/11/2016	11/11/16 23:43	
Surrogate: 4-Terphenyl-d14	79.8 %	43 - 131		B6K0444	11/11/2016	11/11/16 23:43	
Surrogate: Nitrobenzene-d5	87.0 %	20 - 119		B6K0444	11/11/2016	11/11/16 23:43	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-28

Lab ID: 1603984-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,1-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,1-Dichloroethene	0.84	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	



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 : 11/16/2016

Client Sample ID MW-28

Lab ID: 1603984-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 17:34	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 17:34	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Toluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Trichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:34	
Surrogate: 1,2-Dichloroethane-d4	123 %	51 - 157		B6K0424	11/11/2016	11/11/16 17:34	
Surrogate: 4-Bromofluorobenzene	101 %	61 - 123		B6K0424	11/11/2016	11/11/16 17:34	
Surrogate: Dibromofluoromethane	117 %	57 - 147		B6K0424	11/11/2016	11/11/16 17:34	
Surrogate: Toluene-d8	108 %	61 - 119		B6K0424	11/11/2016	11/11/16 17:34	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-28

Lab ID: 1603984-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0444	11/11/2016	11/12/16 00:11	
Surrogate: 1,2-Dichlorobenzene-d4	61.8 %	31 - 106		B6K0444	11/11/2016	11/12/16 00:11	
Surrogate: 2-Fluorobiphenyl	66.5 %	28 - 122		B6K0444	11/11/2016	11/12/16 00:11	
Surrogate: 4-Terphenyl-d14	85.0 %	43 - 131		B6K0444	11/11/2016	11/12/16 00:11	
Surrogate: Nitrobenzene-d5	80.7 %	20 - 119		B6K0444	11/11/2016	11/12/16 00:11	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-31

Lab ID: 1603984-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,1,1-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,1,2-Trichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,1-Dichloroethane	1.3	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,1-Dichloroethene	120	5.0	10	B6K0424	11/11/2016	11/11/16 18:21	
1,1-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2,3-Trichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2-Dibromoethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2-Dichloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,3-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,3-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
1,4-Dichlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
2,2-Dichloropropane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
2-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
4-Chlorotoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
4-Isopropyltoluene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Benzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Bromobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Bromodichloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Bromoform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Bromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Carbon tetrachloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Chlorobenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Chloroethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Chloroform	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Chloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Dibromochloromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	



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 : 11/16/2016

Client Sample ID MW-31

Lab ID: 1603984-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Dichlorodifluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Ethylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Hexachlorobutadiene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Isopropylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
m,p-Xylene	ND	1.0	1	B6K0424	11/11/2016	11/11/16 17:57	
Methylene chloride	ND	1.0	1	B6K0424	11/11/2016	11/11/16 17:57	
n-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
n-Propylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Naphthalene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
o-Xylene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
sec-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Styrene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
tert-Butylbenzene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Tetrachloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Toluene	0.69	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Trichloroethene	4.8	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Trichlorofluoromethane	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	
Vinyl chloride	ND	0.50	1	B6K0424	11/11/2016	11/11/16 17:57	

Surrogate: 1,2-Dichloroethane-d4	127 %	51 - 157	B6K0424	11/11/2016	11/11/16 18:21
Surrogate: 1,2-Dichloroethane-d4	128 %	51 - 157	B6K0424	11/11/2016	11/11/16 17:57
Surrogate: 4-Bromofluorobenzene	106 %	61 - 123	B6K0424	11/11/2016	11/11/16 18:21
Surrogate: 4-Bromofluorobenzene	106 %	61 - 123	B6K0424	11/11/2016	11/11/16 17:57
Surrogate: Dibromofluoromethane	121 %	57 - 147	B6K0424	11/11/2016	11/11/16 18:21
Surrogate: Dibromofluoromethane	122 %	57 - 147	B6K0424	11/11/2016	11/11/16 17:57
Surrogate: Toluene-d8	110 %	61 - 119	B6K0424	11/11/2016	11/11/16 17:57
Surrogate: Toluene-d8	112 %	61 - 119	B6K0424	11/11/2016	11/11/16 18:21



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

Client Sample ID MW-31

Lab ID: 1603984-08

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	3.8	2.0	1	B6K0497	11/14/2016	11/14/16 15:53	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>48.4 %</i>	<i>42 - 106</i>		<i>B6K0497</i>	<i>11/14/2016</i>	<i>11/14/16 15:53</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>57.6 %</i>	<i>55 - 117</i>		<i>B6K0497</i>	<i>11/14/2016</i>	<i>11/14/16 15:53</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>101 %</i>	<i>52 - 142</i>		<i>B6K0497</i>	<i>11/14/2016</i>	<i>11/14/16 15:53</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>52.3 %</i>	<i>43 - 116</i>		<i>B6K0497</i>	<i>11/14/2016</i>	<i>11/14/16 15:53</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

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 B6K0424 - MSVOA_W

Blank (B6K0424-BLK1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	ND	0.50			NR
1,1,1-Trichloroethane	ND	0.50			NR
1,1,2,2-Tetrachloroethane	ND	0.50			NR
1,1,2-Trichloroethane	ND	0.50			NR
1,1-Dichloroethane	ND	0.50			NR
1,1-Dichloroethene	ND	0.50			NR
1,1-Dichloropropene	ND	0.50			NR
1,2,3-Trichloropropane	ND	0.50			NR
1,2,3-Trichlorobenzene	ND	0.50			NR
1,2,4-Trichlorobenzene	ND	0.50			NR
1,2,4-Trimethylbenzene	ND	0.50			NR
1,2-Dibromo-3-chloropropane	ND	0.50			NR
1,2-Dibromoethane	ND	0.50			NR
1,2-Dichlorobenzene	ND	0.50			NR
1,2-Dichloroethane	ND	0.50			NR
1,2-Dichloropropane	ND	0.50			NR
1,3,5-Trimethylbenzene	ND	0.50			NR
1,3-Dichlorobenzene	ND	0.50			NR
1,3-Dichloropropane	ND	0.50			NR
1,4-Dichlorobenzene	ND	0.50			NR
2,2-Dichloropropane	ND	0.50			NR
2-Chlorotoluene	ND	0.50			NR
4-Chlorotoluene	ND	0.50			NR
4-Isopropyltoluene	ND	0.50			NR
Benzene	ND	0.50			NR
Bromobenzene	ND	0.50			NR
Bromodichloromethane	ND	0.50			NR
Bromoform	ND	0.50			NR
Bromomethane	ND	0.50			NR
Carbon tetrachloride	ND	0.50			NR
Chlorobenzene	ND	0.50			NR
Chloroethane	ND	0.50			NR
Chloroform	ND	0.50			NR
Chloromethane	ND	0.50			NR
cis-1,2-Dichloroethene	ND	0.50			NR
cis-1,3-Dichloropropene	ND	0.50			NR
Dibromochloromethane	ND	0.50			NR
Dibromomethane	ND	0.50			NR
Dichlorodifluoromethane	ND	0.50			NR



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/16/2016

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 B6K0424 - MSVOA_W (continued)

Blank (B6K0424-BLK1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

Ethylbenzene	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	28.68		25.0000		115	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.64		25.0000		103	61 - 123			
Surrogate: Dibromofluoromethane	27.74		25.0000		111	57 - 147			
Surrogate: Toluene-d8	26.41		25.0000		106	61 - 119			

LCS (B6K0424-BS1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	18.5200	0.50	20.0000		92.6	76 - 132
1,1,1-Trichloroethane	20.8900	0.50	20.0000		104	72 - 144
1,1,2,2-Tetrachloroethane	20.6300	0.50	20.0000		103	70 - 120
1,1,2-Trichloroethane	20.0500	0.50	20.0000		100	75 - 120
1,1-Dichloroethane	23.4200	0.50	20.0000		117	65 - 127
1,1-Dichloroethene	21.4000	0.50	20.0000		107	63 - 142
1,1-Dichloropropene	20.0400	0.50	20.0000		100	78 - 137
1,2,3-Trichloropropane	19.9100	0.50	20.0000		99.6	73 - 118
1,2,3-Trichlorobenzene	17.5900	0.50	20.0000		88.0	53 - 164
1,2,4-Trichlorobenzene	18.8500	0.50	20.0000		94.2	58 - 144
1,2,4-Trimethylbenzene	23.4900	0.50	20.0000		117	75 - 140
1,2-Dibromo-3-chloropropane	17.6800	0.50	20.0000		88.4	61 - 131
1,2-Dibromoethane	18.3500	0.50	20.0000		91.8	74 - 125
1,2-Dichlorobenzene	19.2700	0.50	20.0000		96.4	78 - 122
1,2-Dichloroethane	19.1700	0.50	20.0000		95.8	70 - 126
1,2-Dichloropropane	22.1200	0.50	20.0000		111	69 - 120
1,3,5-Trimethylbenzene	23.6700	0.50	20.0000		118	73 - 145



Certificate of Analysis

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

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

Batch B6K0424 - MSVOA_W (continued)

LCS (B6K0424-BS1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,3-Dichlorobenzene	19.8200	0.50	20.0000		99.1	76 - 126			
1,3-Dichloropropane	19.9900	0.50	20.0000		100	76 - 117			
1,4-Dichlorobenzene	20.0000	0.50	20.0000		100	77 - 120			
2,2-Dichloropropane	25.3800	0.50	20.0000		127	47 - 169			
2-Chlorotoluene	22.8400	0.50	20.0000		114	75 - 135			
4-Chlorotoluene	23.1200	0.50	20.0000		116	70 - 133			
4-Isopropyltoluene	23.3800	0.50	20.0000		117	72 - 153			
Benzene	43.3900	0.50	40.0000		108	73 - 123			
Bromobenzene	18.8100	0.50	20.0000		94.0	75 - 121			
Bromodichloromethane	19.0000	0.50	20.0000		95.0	73 - 124			
Bromoform	15.5400	0.50	20.0000		77.7	70 - 135			
Bromomethane	32.5800	0.50	20.0000		163	10 - 166			
Carbon tetrachloride	18.6000	0.50	20.0000		93.0	65 - 171			
Chlorobenzene	19.5000	0.50	20.0000		97.5	80 - 121			
Chloroethane	25.8100	0.50	20.0000		129	55 - 143			
Chloroform	21.2100	0.50	20.0000		106	65 - 130			
Chloromethane	28.5900	0.50	20.0000		143	21 - 141			L4
cis-1,2-Dichloroethene	21.4200	0.50	20.0000		107	64 - 126			
cis-1,3-Dichloropropene	21.8200	0.50	20.0000		109	70 - 131			
Dibromochloromethane	17.4300	0.50	20.0000		87.2	74 - 125			
Dibromomethane	18.5500	0.50	20.0000		92.8	74 - 116			
Dichlorodifluoromethane	28.2100	0.50	20.0000		141	40 - 186			
Ethylbenzene	42.4500	0.50	40.0000		106	77 - 130			
Hexachlorobutadiene	17.3400	0.50	20.0000		86.7	52 - 176			
Isopropylbenzene	23.3100	0.50	20.0000		117	77 - 144			
m,p-Xylene	45.9800	1.0	40.0000		115	84 - 136			
Methylene chloride	23.7600	1.0	20.0000		119	72 - 150			
n-Butylbenzene	25.2300	0.50	20.0000		126	73 - 154			
n-Propylbenzene	24.3500	0.50	20.0000		122	77 - 145			
Naphthalene	20.6400	0.50	20.0000		103	55 - 137			
o-Xylene	44.8200	0.50	40.0000		112	79 - 135			
sec-Butylbenzene	23.5600	0.50	20.0000		118	73 - 157			
Styrene	22.5200	0.50	20.0000		113	78 - 125			
tert-Butylbenzene	22.3700	0.50	20.0000		112	78 - 149			
Tetrachloroethene	16.8200	0.50	20.0000		84.1	74 - 136			
Toluene	42.4000	0.50	40.0000		106	78 - 124			
trans-1,2-Dichloroethene	21.6200	0.50	20.0000		108	66 - 131			
Trichloroethene	18.6100	0.50	20.0000		93.0	78 - 128			
Trichlorofluoromethane	19.6900	0.50	20.0000		98.4	60 - 170			
Vinyl chloride	26.5400	0.50	20.0000		133	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	26.69		25.0000		107	51 - 157			



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

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

Batch B6K0424 - MSVOA_W (continued)

LCS (B6K0424-BS1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

Surrogate: 4-Bromofluorobenzene	26.65		25.0000		107	61 - 123			
Surrogate: Dibromofluoromethane	25.53		25.0000		102	57 - 147			
Surrogate: Toluene-d8	26.40		25.0000		106	61 - 119			

LCS Dup (B6K0424-BSD1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	17.8800	0.50	20.0000		89.4	76 - 132	3.52	20	
1,1,1-Trichloroethane	21.1300	0.50	20.0000		106	72 - 144	1.14	20	
1,1,2,2-Tetrachloroethane	20.7000	0.50	20.0000		104	70 - 120	0.339	20	
1,1,2-Trichloroethane	19.5400	0.50	20.0000		97.7	75 - 120	2.58	20	
1,1-Dichloroethane	23.7700	0.50	20.0000		119	65 - 127	1.48	20	
1,1-Dichloroethene	20.9700	0.50	20.0000		105	63 - 142	2.03	20	
1,1-Dichloropropene	19.6500	0.50	20.0000		98.2	78 - 137	1.97	20	
1,2,3-Trichloropropane	20.3400	0.50	20.0000		102	73 - 118	2.14	20	
1,2,3-Trichlorobenzene	17.7500	0.50	20.0000		88.8	53 - 164	0.905	20	
1,2,4-Trichlorobenzene	18.7000	0.50	20.0000		93.5	58 - 144	0.799	20	
1,2,4-Trimethylbenzene	23.3000	0.50	20.0000		116	75 - 140	0.812	20	
1,2-Dibromo-3-chloropropane	17.5300	0.50	20.0000		87.6	61 - 131	0.852	20	
1,2-Dibromoethane	18.0600	0.50	20.0000		90.3	74 - 125	1.59	20	
1,2-Dichlorobenzene	19.1000	0.50	20.0000		95.5	78 - 122	0.886	20	
1,2-Dichloroethane	18.5400	0.50	20.0000		92.7	70 - 126	3.34	20	
1,2-Dichloropropane	21.7200	0.50	20.0000		109	69 - 120	1.82	20	
1,3,5-Trimethylbenzene	23.2000	0.50	20.0000		116	73 - 145	2.01	20	
1,3-Dichlorobenzene	19.5100	0.50	20.0000		97.6	76 - 126	1.58	20	
1,3-Dichloropropane	20.0400	0.50	20.0000		100	76 - 117	0.250	20	
1,4-Dichlorobenzene	19.8400	0.50	20.0000		99.2	77 - 120	0.803	20	
2,2-Dichloropropane	25.2800	0.50	20.0000		126	47 - 169	0.395	20	
2-Chlorotoluene	22.5800	0.50	20.0000		113	75 - 135	1.14	20	
4-Chlorotoluene	22.8500	0.50	20.0000		114	70 - 133	1.17	20	
4-Isopropyltoluene	23.0600	0.50	20.0000		115	72 - 153	1.38	20	
Benzene	42.1800	0.50	40.0000		105	73 - 123	2.83	20	
Bromobenzene	18.5900	0.50	20.0000		93.0	75 - 121	1.18	20	
Bromodichloromethane	18.5100	0.50	20.0000		92.6	73 - 124	2.61	20	
Bromoform	15.0800	0.50	20.0000		75.4	70 - 135	3.00	20	
Bromomethane	33.1300	0.50	20.0000		166	10 - 166	1.67	20	
Carbon tetrachloride	17.8600	0.50	20.0000		89.3	65 - 171	4.06	20	
Chlorobenzene	18.9700	0.50	20.0000		94.8	80 - 121	2.76	20	
Chloroethane	27.0800	0.50	20.0000		135	55 - 143	4.80	20	
Chloroform	21.3800	0.50	20.0000		107	65 - 130	0.798	20	
Chloromethane	28.9200	0.50	20.0000		145	21 - 141	1.15	20	L4
cis-1,2-Dichloroethene	21.4300	0.50	20.0000		107	64 - 126	0.0467	20	
cis-1,3-Dichloropropene	21.1200	0.50	20.0000		106	70 - 131	3.26	20	
Dibromochloromethane	17.0800	0.50	20.0000		85.4	74 - 125	2.03	20	



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9171 Towne Centre Drive, Suite 375

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

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

Batch B6K0424 - MSVOA_W (continued)

LCS Dup (B6K0424-BSD1) - Continued

Prepared: 11/11/2016 Analyzed: 11/11/2016

Dibromomethane	18.4100	0.50	20.0000		92.0	74 - 116	0.758	20	
Dichlorodifluoromethane	27.8600	0.50	20.0000		139	40 - 186	1.25	20	
Ethylbenzene	41.0200	0.50	40.0000		103	77 - 130	3.43	20	
Hexachlorobutadiene	16.8500	0.50	20.0000		84.2	52 - 176	2.87	20	
Isopropylbenzene	23.3600	0.50	20.0000		117	77 - 144	0.214	20	
m,p-Xylene	44.0300	1.0	40.0000		110	84 - 136	4.33	20	
Methylene chloride	28.7400	1.0	20.0000		144	72 - 150	19.0	20	
n-Butylbenzene	24.8100	0.50	20.0000		124	73 - 154	1.68	20	
n-Propylbenzene	24.1400	0.50	20.0000		121	77 - 145	0.866	20	
Naphthalene	20.8400	0.50	20.0000		104	55 - 137	0.964	20	
o-Xylene	43.1200	0.50	40.0000		108	79 - 135	3.87	20	
sec-Butylbenzene	23.2100	0.50	20.0000		116	73 - 157	1.50	20	
Styrene	21.5400	0.50	20.0000		108	78 - 125	4.45	20	
tert-Butylbenzene	22.0700	0.50	20.0000		110	78 - 149	1.35	20	
Tetrachloroethene	16.5300	0.50	20.0000		82.6	74 - 136	1.74	20	
Toluene	40.3600	0.50	40.0000		101	78 - 124	4.93	20	
trans-1,2-Dichloroethene	21.9100	0.50	20.0000		110	66 - 131	1.33	20	
Trichloroethene	18.0700	0.50	20.0000		90.4	78 - 128	2.94	20	
Trichlorofluoromethane	19.2600	0.50	20.0000		96.3	60 - 170	2.21	20	
Vinyl chloride	26.0900	0.50	20.0000		130	55 - 148	1.71	20	

Surrogate: 1,2-Dichloroethane-d4

26.58

25.0000

106

51 - 157

Surrogate: 4-Bromofluorobenzene

26.48

25.0000

106

61 - 123

Surrogate: Dibromofluoromethane

26.48

25.0000

106

57 - 147

Surrogate: Toluene-d8

25.90

25.0000

104

61 - 119

Matrix Spike (B6K0424-MS1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,1,1,2-Tetrachloroethane	19.8300	0.50	20.0000	ND	99.2	76 - 132			
1,1,1-Trichloroethane	22.9000	0.50	20.0000	ND	114	72 - 144			
1,1,2,2-Tetrachloroethane	23.7400	0.50	20.0000	ND	119	70 - 120			
1,1,2-Trichloroethane	22.7400	0.50	20.0000	ND	114	75 - 120			
1,1-Dichloroethane	25.5800	0.50	20.0000	ND	128	65 - 127			M2
1,1-Dichloroethene	23.5700	0.50	20.0000	ND	118	63 - 142			
1,1-Dichloropropene	20.7300	0.50	20.0000	ND	104	78 - 137			
1,2,3-Trichloropropane	23.6200	0.50	20.0000	ND	118	73 - 118			M2
1,2,3-Trichlorobenzene	18.8200	0.50	20.0000	ND	94.1	53 - 164			
1,2,4-Trichlorobenzene	19.1300	0.50	20.0000	ND	95.6	58 - 144			
1,2,4-Trimethylbenzene	24.0500	0.50	20.0000	ND	120	75 - 140			
1,2-Dibromo-3-chloropropane	20.9800	0.50	20.0000	ND	105	61 - 131			
1,2-Dibromoethane	21.0600	0.50	20.0000	ND	105	74 - 125			
1,2-Dichlorobenzene	20.2800	0.50	20.0000	ND	101	78 - 122			
1,2-Dichloroethane	21.4800	0.50	20.0000	ND	107	70 - 126			



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

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

Batch B6K0424 - MSVOA_W (continued)

Matrix Spike (B6K0424-MS1) - Continued

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,2-Dichloropropane	24.3300	0.50	20.0000	ND	122	69 - 120			M2
1,3,5-Trimethylbenzene	24.2400	0.50	20.0000	ND	121	73 - 145			
1,3-Dichlorobenzene	20.5500	0.50	20.0000	ND	103	76 - 126			
1,3-Dichloropropane	22.4800	0.50	20.0000	ND	112	76 - 117			
1,4-Dichlorobenzene	20.4800	0.50	20.0000	ND	102	77 - 120			
2,2-Dichloropropane	22.3700	0.50	20.0000	ND	112	47 - 169			
2-Chlorotoluene	23.6900	0.50	20.0000	ND	118	75 - 135			
4-Chlorotoluene	23.8800	0.50	20.0000	ND	119	77 - 130			
4-Isopropyltoluene	23.1900	0.50	20.0000	ND	116	72 - 153			
Benzene	46.4500	0.50	40.0000	ND	116	73 - 123			
Bromobenzene	19.4300	0.50	20.0000	ND	97.2	75 - 121			
Bromodichloromethane	20.8600	0.50	20.0000	ND	104	73 - 124			
Bromoform	17.5800	0.50	20.0000	ND	87.9	70 - 135			
Bromomethane	39.2700	0.50	20.0000	ND	196	10 - 166			M2
Carbon tetrachloride	19.2900	0.50	20.0000	ND	96.4	65 - 171			
Chlorobenzene	20.8300	0.50	20.0000	ND	104	80 - 121			
Chloroethane	29.1500	0.50	20.0000	ND	146	55 - 143			M2
Chloroform	23.5000	0.50	20.0000	ND	118	65 - 130			
Chloromethane	30.1200	0.50	20.0000	ND	151	21 - 141			M2
cis-1,2-Dichloroethene	23.3600	0.50	20.0000	ND	117	64 - 126			
cis-1,3-Dichloropropene	21.2200	0.50	20.0000	ND	106	70 - 131			
Dibromochloromethane	19.2700	0.50	20.0000	ND	96.4	74 - 125			
Dibromomethane	21.1700	0.50	20.0000	ND	106	74 - 116			
Dichlorodifluoromethane	29.0300	0.50	20.0000	ND	145	40 - 186			
Ethylbenzene	44.9900	0.50	40.0000	ND	112	77 - 130			
Hexachlorobutadiene	15.6500	0.50	20.0000	ND	78.2	52 - 176			
Isopropylbenzene	23.6000	0.50	20.0000	ND	118	77 - 144			
m,p-Xylene	47.8900	1.0	40.0000	ND	120	84 - 136			
Methylene chloride	30.1500	1.0	20.0000	ND	151	72 - 150			M2
n-Butylbenzene	25.0100	0.50	20.0000	ND	125	73 - 154			
n-Propylbenzene	25.0200	0.50	20.0000	ND	125	77 - 145			
Naphthalene	23.6100	0.50	20.0000	ND	118	55 - 137			
o-Xylene	47.3200	0.50	40.0000	ND	118	79 - 135			
sec-Butylbenzene	23.7900	0.50	20.0000	ND	119	73 - 157			
Styrene	23.3100	0.50	20.0000	ND	117	78 - 125			
tert-Butylbenzene	22.6300	0.50	20.0000	ND	113	78 - 149			
Tetrachloroethene	16.1800	0.50	20.0000	ND	80.9	74 - 136			
Toluene	45.5500	0.50	40.0000	ND	114	78 - 124			
trans-1,2-Dichloroethene	22.4200	0.50	20.0000	ND	112	66 - 131			
Trichloroethene	18.7600	0.50	20.0000	ND	93.8	78 - 128			
Trichlorofluoromethane	21.6400	0.50	20.0000	ND	108	60 - 170			
Vinyl chloride	27.5900	0.50	20.0000	ND	138	55 - 148			



Certificate of Analysis

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

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

Batch B6K0424 - MSVOA_W (continued)

Matrix Spike (B6K0424-MS1) - Continued

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

Surrogate: 1,2-Dichloroethane-d4	30.37		25.0000		121	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.22		25.0000		109	61 - 123			
Surrogate: Dibromofluoromethane	28.26		25.0000		113	57 - 147			
Surrogate: Toluene-d8	27.69		25.0000		111	61 - 119			



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Reported : 11/16/2016

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 B6K0497 - MSSEMI_W

Blank (B6K0497-BLK1)

Prepared: 11/14/2016 Analyzed: 11/14/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	57.90		100.000		57.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	64.69		100.000		64.7	55 - 117			
Surrogate: 4-Terphenyl-d14	101.4		100.000		101	52 - 142			
Surrogate: Nitrobenzene-d5	62.27		100.000		62.3	43 - 116			

LCS (B6K0497-BS1)

Prepared: 11/14/2016 Analyzed: 11/14/2016

1,4-Dioxane	102.720	2.0	100.000		103	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	57.26		100.000		57.3	42 - 106			
Surrogate: 2-Fluorobiphenyl	80.96		100.000		81.0	55 - 117			
Surrogate: 4-Terphenyl-d14	94.50		100.000		94.5	52 - 142			
Surrogate: Nitrobenzene-d5	68.73		100.000		68.7	43 - 116			

LCS Dup (B6K0497-BS1)

Prepared: 11/14/2016 Analyzed: 11/14/2016

1,4-Dioxane	103.410	2.0	100.000		103	62 - 127	0.669	20	
Surrogate: 1,2-Dichlorobenzene-d4	48.36		100.000		48.4	42 - 106			
Surrogate: 2-Fluorobiphenyl	73.07		100.000		73.1	55 - 117			
Surrogate: 4-Terphenyl-d14	86.16		100.000		86.2	52 - 142			
Surrogate: Nitrobenzene-d5	57.43		100.000		57.4	43 - 116			



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 : 11/16/2016

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 B6K0444 - MSSEMI_ISOTOPEDILN_W

Blank (B6K0444-BLK1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.7318		1.00000		73.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7565		1.00000		75.6	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7786		1.00000		77.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.8941		1.00000		89.4	20 - 119			

LCS (B6K0444-BS1)

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	1.12401	0.20	1.00000		112	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.4071		1.00000		40.7	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.4326		1.00000		43.3	28 - 122			
Surrogate: 4-Terphenyl-d14	0.5792		1.00000		57.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.4737		1.00000		47.4	20 - 119			

Matrix Spike (B6K0444-MS1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	1.17027	0.20	1.00000	ND	117	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.6494		1.00000		64.9	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6905		1.00000		69.0	28 - 122			
Surrogate: 4-Terphenyl-d14	0.6903		1.00000		69.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.8404		1.00000		84.0	20 - 119			

Matrix Spike Dup (B6K0444-MSD1)

Source: 1603984-04

Prepared: 11/11/2016 Analyzed: 11/11/2016

1,4-Dioxane	1.25269	0.20	1.00000	ND	125	49 - 169	6.80	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6099		1.00000		61.0	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6264		1.00000		62.6	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7190		1.00000		71.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.7831		1.00000		78.3	20 - 119			



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 : 11/16/2016

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
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.

PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED				Expected Concentration Range (ppb) for VOA's				SPECIAL HANDLING				REMARKS
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)																
1603784 - 1	TB-11021W	11/02/16	1500		X	X																
- 2	MW-33-1SV		1611	X	X																	
	↓		↓	X	X																	
- 3	MW-33		1710	X	X																	
	↓		↓	X	X																	
- 4	MW-37	11/09/16	0856	X	X																	
	↓		↓	X	X																	
- 5	MW-38		0930	X	X																	
	↓		↓	X	X																	
- 6	MW-41		1015	X	X																	
	↓		↓	X	X																	

Total number of containers per analysis:

Total No. of Containers: 0

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>Kevin J. HAA</u>	<u>11/9/16 12:46</u>	<u>ATL</u>	<u>11/9/16 12:46</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>ATL</u>	<u>11/9/16 15:21</u>	<u>ATL</u>	<u>11/9/16 15:21</u>

- ☒ No. of containers correct
☒ Received in good condition
☒ Custody seals secure
☒ Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive

Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

Instructions

Fill out form completely and sign only after verified for completeness
 Complete in ballpoint pen. Draw one line through error, initial and date correction
 Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✗
 Note applicable preservatives, special instructions, and deviations from typical environmental samples.
 Consult project QA documents for specific instructions.

1.8 Temperature on receipt



PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Date: 11/19/16
Page 1 of 1
22

Date: 11/19/16
Page 1 of 1
2 2

	Laboratory

Sampled By:

SAMPLE COLLECTION

[illegible]

Total number of containers per analysis:

Total No. of Containers: 0

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Kevin J. HHA	11/2/16 12:46	JKE ATL	11/9/16 12:46
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
JKE ATL	11/9/16 15:21	Chad ATL	11/9/16 15:21

☒	No. of containers correct
☒	Received in good condition
☐	Custody seals secure
☒	Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive
Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

Instructions

1. Fill out form completely and sign only after verified for completeness
 Complete in ballpoint pen. Draw one line through error, initial and date correction
 Indicate the number of sample containers in analytical 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.

Temperature on receipt

**WORK ORDER NUMBER: 16-11-0705***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 Patel", enclosed in a simple oval border.

Approved for release on 11/17/2016 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: 16-11-0705

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.	17
	5.1 MS/MSD.	17
	5.2 LCS/LCSD.	20
6	Sample Analysis Summary.	23
7	Glossary of Terms and Qualifiers.	24
8	Chain-of-Custody/Sample Receipt Form.	25

Work Order Narrative

Work Order: 16-11-0705

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 11/08/16. They were assigned to Work Order 16-11-0705.

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.

Subcontractor Information:

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

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.

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.

Sample Summary

Client:	Hargis + Associates, Inc.	Work Order:	16-11-0705
	9171 Towne Centre Drive, Suite 375	Project Name:	Raytheon Main / 532.30
	San Diego, CA 92122-6215	PO Number:	
		Date/Time Received:	11/08/16 17:50
		Number of Containers:	10

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-110716B	16-11-0705-1	11/07/16 07:45	2	Aqueous
EW-01	16-11-0705-2	11/07/16 13:00	4	Aqueous
MW-36	16-11-0705-3	11/08/16 14:00	4	Aqueous

Detections Summary

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

Work Order: 16-11-0705
 Project Name: Raytheon Main / 532.30
 Received: 11/08/16

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>
EW-01 (16-11-0705-2)						
1,1-Dichloroethane	3.9		1.0	ug/L	EPA 8260B	EPA 5030C
1,2-Dichloroethane	0.60		0.50	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	290		5.0	ug/L	EPA 8260B	EPA 5030C
Tetrachloroethene	0.79	J	0.39*	ug/L	EPA 8260B	EPA 5030C
1,1,2-Trichloroethane	1.6		1.0	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	0.84	J	0.37*	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	160		5.0	ug/L	EPA 8270C (M) Isotope Dilution	EPA 3510C
MW-36 (16-11-0705-3)						
Acetone	30		20	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethane	0.77	J	0.28*	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	91		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	6.4		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: 11/08/16
 Work Order: 16-11-0705
 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
EW-01	16-11-0705-2-D	11/07/16 13:00	Aqueous	GC/MS DDD	11/10/16	11/11/16 21:45	161110L08

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	160	5.0	1.4	5.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	98	56-123	
1,4-Dioxane-d8(IDS-IS)	44	30-120	

MW-36	16-11-0705-3-D	11/08/16 14:00	Aqueous	GC/MS DDD	11/10/16	11/11/16 01:54	161110L08

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	6.4	1.0	0.28	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	69	56-123	
1,4-Dioxane-d8(IDS-IS)	43	30-120	

Method Blank	099-16-216-877	N/A	Aqueous	GC/MS DDD	11/10/16	11/10/16 23:14	161110L08

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
1,4-Dioxane	ND	1.0	0.28	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	84	56-123	
1,4-Dioxane-d8(IDS-IS)	48	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-110716B	16-11-0705-1-A	11/07/16 07:45	Aqueous	GC/MS XX	11/09/16	11/09/16 14:25	161109L001

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acetone	ND	20	10	1.00	
Benzene	ND	0.50	0.14	1.00	
Bromobenzene	ND	1.0	0.30	1.00	
Bromochloromethane	ND	1.0	0.48	1.00	
Bromodichloromethane	ND	1.0	0.21	1.00	
Bromoform	ND	1.0	0.50	1.00	
Bromomethane	ND	10	3.9	1.00	
2-Butanone	ND	10	4.4	1.00	
n-Butylbenzene	ND	1.0	0.23	1.00	
sec-Butylbenzene	ND	1.0	0.25	1.00	
tert-Butylbenzene	ND	1.0	0.28	1.00	
Carbon Disulfide	ND	10	4.1	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	3.5	1.00	
2-Chlorotoluene	ND	1.0	0.24	1.00	
4-Chlorotoluene	ND	1.0	0.13	1.00	
Dibromochloromethane	ND	1.0	0.25	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.2	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
Dibromomethane	ND	1.0	0.46	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	ND	1.0	0.28	1.00	
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	ND	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
t-1,2-Dichloroethene	ND	1.0	0.37	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
1,3-Dichloropropane	ND	1.0	0.30	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 2 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,2-Dichloropropane	ND	1.0	0.36	1.00	
1,1-Dichloropropene	ND	1.0	0.46	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
2-Hexanone	ND	10	4.2	1.00	
Isopropylbenzene	ND	1.0	0.58	1.00	
p-Isopropyltoluene	ND	1.0	0.16	1.00	
Methylene Chloride	ND	10	3.8	1.00	
4-Methyl-2-Pentanone	ND	10	4.4	1.00	
Naphthalene	ND	10	5.0	1.00	
n-Propylbenzene	ND	1.0	0.17	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	0.40	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,3-Trichlorobenzene	ND	1.0	0.51	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	3.9	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	3.3	1.00	
1,2,3-Trichloropropane	ND	5.0	0.64	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	
Vinyl Acetate	ND	10	5.6	1.00	
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.30	1.00	
o-Xylene	ND	1.0	0.23	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	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 3 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-01	16-11-0705-2-A	11/07/16 13:00	Aqueous	GC/MS XX	11/09/16	11/09/16 19:05	161109L001

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Acetone	ND	20	10	1.00	
Benzene	ND	0.50	0.14	1.00	
Bromobenzene	ND	1.0	0.30	1.00	
Bromochloromethane	ND	1.0	0.48	1.00	
Bromodichloromethane	ND	1.0	0.21	1.00	
Bromoform	ND	1.0	0.50	1.00	
Bromomethane	ND	10	3.9	1.00	
2-Butanone	ND	10	4.4	1.00	
n-Butylbenzene	ND	1.0	0.23	1.00	
sec-Butylbenzene	ND	1.0	0.25	1.00	
tert-Butylbenzene	ND	1.0	0.28	1.00	
Carbon Disulfide	ND	10	4.1	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	3.5	1.00	
2-Chlorotoluene	ND	1.0	0.24	1.00	
4-Chlorotoluene	ND	1.0	0.13	1.00	
Dibromochloromethane	ND	1.0	0.25	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.2	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
Dibromomethane	ND	1.0	0.46	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	3.9	1.0	0.28	1.00	
1,2-Dichloroethane	0.60	0.50	0.24	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
t-1,2-Dichloroethene	ND	1.0	0.37	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
1,3-Dichloropropane	ND	1.0	0.30	1.00	
2,2-Dichloropropane	ND	1.0	0.36	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 4 of 10

Parameter	Result	RL	MDL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	0.46	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
2-Hexanone	ND	10	4.2	1.00	
Isopropylbenzene	ND	1.0	0.58	1.00	
p-Isopropyltoluene	ND	1.0	0.16	1.00	
Methylene Chloride	ND	10	3.8	1.00	
4-Methyl-2-Pentanone	ND	10	4.4	1.00	
Naphthalene	ND	10	5.0	1.00	
n-Propylbenzene	ND	1.0	0.17	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	0.40	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	0.79	1.0	0.39	1.00	J
Toluene	ND	1.0	0.24	1.00	
1,2,3-Trichlorobenzene	ND	1.0	0.51	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	3.9	1.00	
1,1,2-Trichloroethane	1.6	1.0	0.38	1.00	
Trichloroethene	0.84	1.0	0.37	1.00	J
Trichlorofluoromethane	ND	10	3.3	1.00	
1,2,3-Trichloropropane	ND	5.0	0.64	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	
Vinyl Acetate	ND	10	5.6	1.00	
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.30	1.00	
o-Xylene	ND	1.0	0.23	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	93	80-120	
Dibromofluoromethane	102	78-126	
1,2-Dichloroethane-d4	104	75-135	
Toluene-d8	96	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 5 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-01	16-11-0705-2-B	11/07/16 13:00	Aqueous	GC/MS XX	11/10/16	11/10/16 12:22	161110L003

Comment(s): - Results were evaluated to the MDL (DL), concentrations $\geq$ to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
1,1-Dichloroethene	290	5.0	2.2	5.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	96	80-120	
Dibromofluoromethane	99	78-126	
1,2-Dichloroethane-d4	99	75-135	
Toluene-d8	97	80-120	

Analytical Report

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

Date Received: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 6 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-36	16-11-0705-3-A	11/08/16 14:00	Aqueous	GC/MS XX	11/09/16	11/09/16 19:33	161109L001

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acetone	30	20	10	1.00	
Benzene	ND	0.50	0.14	1.00	
Bromobenzene	ND	1.0	0.30	1.00	
Bromochloromethane	ND	1.0	0.48	1.00	
Bromodichloromethane	ND	1.0	0.21	1.00	
Bromoform	ND	1.0	0.50	1.00	
Bromomethane	ND	10	3.9	1.00	
2-Butanone	ND	10	4.4	1.00	
n-Butylbenzene	ND	1.0	0.23	1.00	
sec-Butylbenzene	ND	1.0	0.25	1.00	
tert-Butylbenzene	ND	1.0	0.28	1.00	
Carbon Disulfide	ND	10	4.1	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	3.5	1.00	
2-Chlorotoluene	ND	1.0	0.24	1.00	
4-Chlorotoluene	ND	1.0	0.13	1.00	
Dibromochloromethane	ND	1.0	0.25	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.2	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
Dibromomethane	ND	1.0	0.46	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	0.77	1.0	0.28	1.00	J
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	91	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
t-1,2-Dichloroethene	ND	1.0	0.37	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
1,3-Dichloropropane	ND	1.0	0.30	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 7 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,2-Dichloropropane	ND	1.0	0.36	1.00	
1,1-Dichloropropene	ND	1.0	0.46	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
2-Hexanone	ND	10	4.2	1.00	
Isopropylbenzene	ND	1.0	0.58	1.00	
p-Isopropyltoluene	ND	1.0	0.16	1.00	
Methylene Chloride	ND	10	3.8	1.00	
4-Methyl-2-Pentanone	ND	10	4.4	1.00	
Naphthalene	ND	10	5.0	1.00	
n-Propylbenzene	ND	1.0	0.17	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	0.40	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,3-Trichlorobenzene	ND	1.0	0.51	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	3.9	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	3.3	1.00	
1,2,3-Trichloropropane	ND	5.0	0.64	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	
Vinyl Acetate	ND	10	5.6	1.00	
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.30	1.00	
o-Xylene	ND	1.0	0.23	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	101	78-126	
1,2-Dichloroethane-d4	102	75-135	
Toluene-d8	97	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 8 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-21803	N/A	Aqueous	GC/MS XX	11/09/16	11/09/16 10:41	161109L001

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Acetone	ND	20	10	1.00	
Benzene	ND	0.50	0.14	1.00	
Bromobenzene	ND	1.0	0.30	1.00	
Bromochloromethane	ND	1.0	0.48	1.00	
Bromodichloromethane	ND	1.0	0.21	1.00	
Bromoform	ND	1.0	0.50	1.00	
Bromomethane	ND	10	3.9	1.00	
2-Butanone	ND	10	4.4	1.00	
n-Butylbenzene	ND	1.0	0.23	1.00	
sec-Butylbenzene	ND	1.0	0.25	1.00	
tert-Butylbenzene	ND	1.0	0.28	1.00	
Carbon Disulfide	ND	10	4.1	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	3.5	1.00	
2-Chlorotoluene	ND	1.0	0.24	1.00	
4-Chlorotoluene	ND	1.0	0.13	1.00	
Dibromochloromethane	ND	1.0	0.25	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.2	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
Dibromomethane	ND	1.0	0.46	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	ND	1.0	0.28	1.00	
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	ND	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
t-1,2-Dichloroethene	ND	1.0	0.37	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
1,3-Dichloropropane	ND	1.0	0.30	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: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 9 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,2-Dichloropropane	ND	1.0	0.36	1.00	
1,1-Dichloropropene	ND	1.0	0.46	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
2-Hexanone	ND	10	4.2	1.00	
Isopropylbenzene	ND	1.0	0.58	1.00	
p-Isopropyltoluene	ND	1.0	0.16	1.00	
Methylene Chloride	ND	10	3.8	1.00	
4-Methyl-2-Pentanone	ND	10	4.4	1.00	
Naphthalene	ND	10	5.0	1.00	
n-Propylbenzene	ND	1.0	0.17	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	0.40	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,3-Trichlorobenzene	ND	1.0	0.51	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	3.9	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	3.3	1.00	
1,2,3-Trichloropropane	ND	5.0	0.64	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	
Vinyl Acetate	ND	10	5.6	1.00	
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.30	1.00	
o-Xylene	ND	1.0	0.23	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	92	80-120	
Dibromofluoromethane	101	78-126	
1,2-Dichloroethane-d4	102	75-135	
Toluene-d8	97	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: 11/08/16
Work Order: 16-11-0705
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: Raytheon Main / 532.30

Page 10 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-21812	N/A	Aqueous	GC/MS XX	11/10/16	11/10/16 10:30	161110L003

Comment(s): - Results were evaluated to the MDL (DL), concentrations $\geq$ to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
1,1-Dichloroethene	ND	1.0	0.43	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	96	80-120	
Dibromofluoromethane	100	78-126	
1,2-Dichloroethane-d4	101	75-135	
Toluene-d8	99	80-120	

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: 11/08/16
Work Order: 16-11-0705
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
16-11-0720-2	Sample	Aqueous	GC/MS DDD	11/10/16	11/11/16 00:18	161110S08
16-11-0720-2	Matrix Spike	Aqueous	GC/MS DDD	11/10/16	11/10/16 23:46	161110S08
16-11-0720-2	Matrix Spike Duplicate	Aqueous	GC/MS DDD	11/10/16	11/11/16 00:02	161110S08

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	21.55	108	19.74	99	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: 11/08/16
Work Order: 16-11-0705
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
16-11-0628-3	Sample	Aqueous	GC/MS XX	11/09/16	11/09/16 11:09	161109S001
16-11-0628-3	Matrix Spike	Aqueous	GC/MS XX	11/09/16	11/09/16 11:37	161109S001
16-11-0628-3	Matrix Spike Duplicate	Aqueous	GC/MS XX	11/09/16	11/09/16 12:05	161109S001

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	54.51	109	56.02	112	74-122	3	0-21	
Carbon Tetrachloride	ND	50.00	57.15	114	58.28	117	60-144	2	0-21	
Chlorobenzene	ND	50.00	52.44	105	53.54	107	73-120	2	0-22	
1,2-Dibromoethane	ND	50.00	55.65	111	55.10	110	80-122	1	0-20	
1,2-Dichlorobenzene	ND	50.00	51.76	104	53.48	107	70-120	3	0-26	
1,2-Dichloroethane	ND	50.00	51.81	104	53.18	106	64-142	3	0-20	
1,1-Dichloroethene	ND	50.00	57.18	114	58.24	116	52-136	2	0-21	
Ethylbenzene	ND	50.00	54.53	109	56.33	113	77-125	3	0-24	
Toluene	ND	50.00	54.57	109	56.71	113	72-126	4	0-23	
Trichloroethene	ND	50.00	52.94	106	54.36	109	74-128	3	0-22	
Vinyl Chloride	ND	50.00	55.00	110	59.31	119	67-133	8	0-20	
p/m-Xylene	ND	100.0	107.6	108	114.1	114	63-129	6	0-25	
o-Xylene	ND	50.00	54.32	109	57.30	115	62-128	5	0-24	

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: 11/08/16
Work Order: 16-11-0705
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-11-0874-3	Sample	Aqueous	GC/MS XX	11/10/16	11/10/16 10:58	161110S002
16-11-0874-3	Matrix Spike	Aqueous	GC/MS XX	11/10/16	11/10/16 11:26	161110S002
16-11-0874-3	Matrix Spike Duplicate	Aqueous	GC/MS XX	11/10/16	11/10/16 11:53	161110S002

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	57.20	114	56.95	114	74-122	0	0-21	
Carbon Tetrachloride	ND	50.00	54.60	109	55.77	112	60-144	2	0-21	
Chlorobenzene	ND	50.00	56.03	112	56.39	113	73-120	1	0-22	
1,2-Dibromoethane	ND	50.00	57.06	114	58.35	117	80-122	2	0-20	
1,2-Dichlorobenzene	ND	50.00	56.68	113	57.23	114	70-120	1	0-26	
1,2-Dichloroethane	0.9989	50.00	55.62	109	55.89	110	64-142	0	0-20	
1,1-Dichloroethene	ND	50.00	55.20	110	55.35	111	52-136	0	0-21	
Ethylbenzene	ND	50.00	58.26	117	57.85	116	77-125	1	0-24	
Toluene	ND	50.00	57.72	115	57.88	116	72-126	0	0-23	
Trichloroethene	4.931	50.00	59.76	110	59.66	109	74-128	0	0-22	
Vinyl Chloride	ND	50.00	54.12	108	56.64	113	67-133	5	0-20	
p/m-Xylene	ND	100.0	116.4	116	116.1	116	63-129	0	0-25	
o-Xylene	ND	50.00	58.76	118	59.15	118	62-128	1	0-24	

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: 11/08/16
 Work Order: 16-11-0705
 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	LCS Batch Number
099-16-216-877	LCS	Aqueous	GC/MS DDD	11/10/16	11/10/16 23:30	161110L08

<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	20.39	102	50-130	

Quality Control - LCS

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

Date Received: 11/08/16
 Work Order: 16-11-0705
 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	LCS Batch Number	
099-14-001-21803	LCS	Aqueous	GC/MS XX	11/09/16	11/09/16 09:17	161109L001	
Parameter		Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene		50.00	53.93	108	80-120	73-127	
Carbon Tetrachloride		50.00	58.77	118	67-139	55-151	
Chlorobenzene		50.00	52.25	105	78-120	71-127	
1,2-Dibromoethane		50.00	55.79	112	80-120	73-127	
1,2-Dichlorobenzene		50.00	53.64	107	63-129	52-140	
1,2-Dichloroethane		50.00	52.83	106	70-130	60-140	
1,1-Dichloroethene		50.00	54.71	109	66-126	56-136	
Ethylbenzene		50.00	53.87	108	80-123	73-130	
Toluene		50.00	53.98	108	80-120	73-127	
Trichloroethene		50.00	53.31	107	80-122	73-129	
Vinyl Chloride		50.00	49.07	98	70-130	60-140	
p/m-Xylene		100.0	107.8	108	75-123	67-131	
o-Xylene		50.00	54.82	110	74-122	66-130	

Total number of LCS compounds: 13

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Quality Control - LCS

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

Date Received: 11/08/16
 Work Order: 16-11-0705
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-21812	LCS	Aqueous	GC/MS XX	11/10/16	11/10/16 09:05	161110L003
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	52.10	104	80-120	73-127	
Carbon Tetrachloride	50.00	53.49	107	67-139	55-151	
Chlorobenzene	50.00	51.12	102	78-120	71-127	
1,2-Dibromoethane	50.00	53.98	108	80-120	73-127	
1,2-Dichlorobenzene	50.00	52.20	104	63-129	52-140	
1,2-Dichloroethane	50.00	50.73	101	70-130	60-140	
1,1-Dichloroethene	50.00	51.84	104	66-126	56-136	
Ethylbenzene	50.00	52.57	105	80-123	73-130	
Toluene	50.00	52.42	105	80-120	73-127	
Trichloroethene	50.00	50.30	101	80-122	73-129	
Vinyl Chloride	50.00	49.56	99	70-130	60-140	
p/m-Xylene	100.0	105.6	106	75-123	67-131	
o-Xylene	50.00	53.40	107	74-122	66-130	

Total number of LCS compounds: 13

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: 16-11-0705

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	1042	GC/MS XX	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: 16-11-0705

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.
CI	See case narrative.
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.

Virendra Patel

From: Tyler Evans <TEvans@HARGIS.COM>
Sent: Wednesday, November 09, 2016 3:11 PM
To: Virendra Patel; Anita Akacki; Chris Ross; Kevin Fong; Stacia Prazen; Steve Netto
Cc: Erick Ovalle
Subject: RE: Sample receipt confirmation / 16-11-0705 / Raytheon Main / 532.30 <response requested>

Virendra,
 Please report J flags.

Thanks,
 Tyler Evans

Sent via the Samsung Galaxy Note5, an AT&T 4G LTE smartphone

----- Original message -----

From: Virendra Patel <VirendraPatel@eurofinsUS.com>
 Date: 11/9/16 3:06 PM (GMT-08:00)
 To: Anita Akacki <AAKACKI@HARGIS.COM>, Chris Ross <CRoss@HARGIS.COM>, Kevin Fong <KFONG@HARGIS.COM>, Stacia Prazen <SPRAZEN@HARGIS.COM>, Steve Netto <SNETTO@HARGIS.COM>, Tyler Evans <TEvans@HARGIS.COM>
 Cc: Erick Ovalle <ErickOvalle@eurofinsUS.com>
 Subject: RE: Sample receipt confirmation / 16-11-0705 / Raytheon Main / 532.30 <response requested>

All -

Please review the attached COC and advise if "J" flag reporting (results down to the MDL) for this set of samples is required? The COC does not list this requirement, the previous set had this listed on the COC?

Please revisit your COC procedures to ensure all the required information is listed and accurate on the COCs to ensure consistency in reporting of final results. We must follow what is listed on the COCs, therefore it is important all required instructions are present.

Please give me a call to discuss further if necessary. Thank you!

Best Regards,

Virendra Patel
 Project Manager

Eurofins Calscience, Inc.
 7440 Lincoln Way
 Garden Grove, CA 92841
 USA
 P: +1 714 895 5494
 F: +1 714 894 7501

Email: virendrapatel@eurofinsUS.com
 Website: www.eurofinsUS.com/Calscience

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

From: Tyler Evans [<mailto:TEvans@HARGIS.COM>]
 Sent: Wednesday, November 09, 2016 11:44 AM
 To: Erick Ovalle
 Cc: Virendra Patel
 Subject: RE: Sample receipt confirmation / 16-11-0705 / Raytheon Main / 532.30

Erick,
 Please analyze for mod. Your lab doesn't do sim correct?

Tyler

Sent via the Samsung Galaxy Note5, an AT&T 4G LTE smartphone

----- Original message -----

From: Erick Ovalle <ErickOvalle@eurofinsUS.com>
 Date: 11/9/16 11:42 AM (GMT-08:00)
 To: Anita Akacki <AAKACKI@HARGIS.COM>, Chris Ross <CRoss@HARGIS.COM>, Stacia Prazen <SPRAZEN@HARGIS.COM>, Steve Netto <SNETTO@HARGIS.COM>, Tyler Evans <TEvans@HARGIS.COM>
 Cc: Virendra Patel <VirendraPatel@eurofinsUS.com>
 Subject: Sample receipt confirmation / 16-11-0705 / Raytheon Main / 532.30

Sample receipt confirmation attached. Please review and advise of any changes required.

MW-36: 1,4-Dioxane was checked off on 8270 SIM instead of 8270 MOD.

[\[cid:image001.png@01D23A7E.3E1BB820\]](#)

Please call with any questions or concerns.

Best Regards,
 Erick Ovalle
 Project Manager Assistant

Eurofins Calscience, Inc.
 7440 Lincoln Way
 Garden Grove, CA 92841-1427
 USA
 Phone: +1 (714) 895-5494

PRIVACY NOTICE:

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PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

16-11-0705

Date: 11/07/10
Page 1 of 1

Page 1 of 1[illegible]

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
WJC / H&A	11/8/16 1700	Randy W ECI	11/8/16 1700
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Rup / ECI	11/8/16 17:50	Dan Wyle ECI	11/8/16 17:50

☐	No. of containers correct
☐	Received in good condition
☐	Custody seals secure
☐	Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive
Suite 375

San Diego, CA 92122

Ph: 858.455.5400.

snetto@hargis.com

Shelley@nar.gov.com

Instructions

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

Temperature on receipt

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Hargis + Assoc.

DATE: 11 / 08 / 2016

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

Thermometer ID: SC3A (CF: 0.0°C); Temperature (w/o CF): 2.7 °C (w/ CF): 2.7 °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

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 676

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 1069

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/A

COC document(s) received complete ☒ Yes ☐ No ☐ N/A

☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers

☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time

Sampler's name indicated on COC ☒ Yes ☐ No ☐ N/A

Sample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/A

Sample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/A

Proper containers for analyses requested ☒ Yes ☐ No ☐ N/A

Sufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/A

Samples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☐ No ☒ N/A

Proper preservation chemical(s) noted on COC and/or sample container ☒ Yes ☐ No ☐ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals

Container(s) for certain analysis free of headspace ☒ Yes ☐ No ☐ N/A

☒ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)

☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: N/A)

Aqueous: ☐ VOA ☒ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB

☐ 125PB_{znna} ☐ 250AGB ☐ 250CGB ☐ 250CGB_s ☐ 250PB ☐ 250PB_n ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s
☐ 500PB ☒ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s ☐ 1PB ☐ 1PB_{na} ☐ ☐ ☐ ☐

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

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ Other Matrix (): ☐ ☐

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1069

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 659

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANALYTICAL RESULTS



September 23, 2016

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 : 1603101

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on September 08, 2016 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 positioned above the printed name.

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 GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-090816	1603101-01	Lab prepared water	9/08/16 7:00	9/08/16 10:05
CEFF	1603101-02	Groundwater	9/08/16 7:50	9/08/16 10:05
CBT	1603101-03	Groundwater	9/08/16 8:00	9/08/16 10:05
POX	1603101-04	Groundwater	9/08/16 8:05	9/08/16 10:05
PF	1603101-05	Groundwater	9/08/16 8:10	9/08/16 10:05
INF	1603101-06	Groundwater	9/08/16 8:15	9/08/16 10:05
EW-02	1603101-07	Groundwater	9/08/16 9:02	9/08/16 10:05
MW-29	1603101-08	Groundwater	9/08/16 9:30	9/08/16 10:05

CASE NARRATIVE

The sample for EPA 317 (Bromate) analysis was subcontracted to Exova, Inc. with ELAP Cert.# 2652.

Sample Receiving/General Comments:

The following analytes lists were taken from sample containers: Alkalinity - Hydroxide, Bicarbonate, Carbonate, and Total.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID TB-090816

Lab ID: 1603101-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,1,1-Trichloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,1,2-Trichloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,1-Dichloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,1-Dichloroethene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,1-Dichloropropene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2,3-Trichloropropane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2-Dibromoethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2-Dichlorobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2-Dichloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,2-Dichloropropane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,3-Dichlorobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,3-Dichloropropane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
1,4-Dichlorobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
2,2-Dichloropropane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
2-Chlorotoluene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
4-Chlorotoluene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
4-Isopropyltoluene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Benzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Bromobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Bromodichloromethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Bromoform	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Bromomethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Carbon tetrachloride	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Chlorobenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Chloroethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Chloroform	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Chloromethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Dibromochloromethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID TB-090816

Lab ID: 1603101-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Dichlorodifluoromethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Ethylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Hexachlorobutadiene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Isopropylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
m,p-Xylene	ND	1.0	1	B6I0275	09/13/2016	09/13/16 19:01	
Methylene chloride	ND	1.0	1	B6I0275	09/13/2016	09/13/16 19:01	
n-Butylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
n-Propylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Naphthalene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
o-Xylene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
sec-Butylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Styrene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
tert-Butylbenzene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Tetrachloroethene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Toluene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Trichloroethene	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Trichlorofluoromethane	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Vinyl chloride	ND	0.50	1	B6I0275	09/13/2016	09/13/16 19:01	
Surrogate: 1,2-Dichloroethane-d4	105 %	51 - 157		B6I0275	09/13/2016	09/13/16 19:01	
Surrogate: 4-Bromofluorobenzene	102 %	61 - 123		B6I0275	09/13/2016	09/13/16 19:01	
Surrogate: Dibromofluoromethane	106 %	57 - 147		B6I0275	09/13/2016	09/13/16 19:01	
Surrogate: Toluene-d8	108 %	61 - 119		B6I0275	09/13/2016	09/13/16 19:01	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID CEFF

Lab ID: 1603101-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,1,1-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,1,2-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,1-Dichloroethane	0.53	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,1-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,1-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2,3-Trichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2-Dibromoethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,3-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,3-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
1,4-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
2,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
2-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
4-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
4-Isopropyltoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Benzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Bromobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Bromodichloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Bromoform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Bromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Carbon tetrachloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Chlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Chloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Chloroform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Chloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Dibromochloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID CEFF

Lab ID: 1603101-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Dichlorodifluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Ethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Hexachlorobutadiene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Isopropylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
m,p-Xylene	ND	1.0	1	B6I0235	09/12/2016	09/12/16 14:03	
Methylene chloride	ND	1.0	1	B6I0235	09/12/2016	09/12/16 14:03	
n-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
n-Propylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Naphthalene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
o-Xylene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
sec-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Styrene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
tert-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Tetrachloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Toluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Trichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Trichlorofluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Vinyl chloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:03	
Surrogate: 1,2-Dichloroethane-d4	105 %	51 - 157		B6I0235	09/12/2016	09/12/16 14:03	
Surrogate: 4-Bromofluorobenzene	105 %	61 - 123		B6I0235	09/12/2016	09/12/16 14:03	
Surrogate: Dibromofluoromethane	103 %	57 - 147		B6I0235	09/12/2016	09/12/16 14:03	
Surrogate: Toluene-d8	108 %	61 - 119		B6I0235	09/12/2016	09/12/16 14:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID CEFF

Lab ID: 1603101-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6I0290	09/13/2016	09/14/16 19:04	
Surrogate: 1,2-Dichlorobenzene-d4	78.2 %	31 - 106		B6I0290	09/13/2016	09/14/16 19:04	
Surrogate: 2-Fluorobiphenyl	85.1 %	28 - 122		B6I0290	09/13/2016	09/14/16 19:04	
Surrogate: 4-Terphenyl-d14	90.3 %	43 - 131		B6I0290	09/13/2016	09/14/16 19:04	
Surrogate: Nitrobenzene-d5	77.3 %	20 - 119		B6I0290	09/13/2016	09/14/16 19:04	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID CBT

Lab ID: 1603101-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,1,1-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,1,2-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,1-Dichloroethane	0.58	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,1-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,1-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2,3-Trichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2-Dibromoethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,3-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,3-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
1,4-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
2,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
2-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
4-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
4-Isopropyltoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Benzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Bromobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Bromodichloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Bromoform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Bromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Carbon tetrachloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Chlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Chloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Chloroform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Chloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Dibromochloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID CBT

Lab ID: 1603101-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Dichlorodifluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Ethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Hexachlorobutadiene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Isopropylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
m,p-Xylene	ND	1.0	1	B6I0235	09/12/2016	09/12/16 14:26	
Methylene chloride	ND	1.0	1	B6I0235	09/12/2016	09/12/16 14:26	
n-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
n-Propylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Naphthalene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
o-Xylene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
sec-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Styrene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
tert-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Tetrachloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Toluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Trichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Trichlorofluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Vinyl chloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:26	
Surrogate: 1,2-Dichloroethane-d4	109 %	51 - 157		B6I0235	09/12/2016	09/12/16 14:26	
Surrogate: 4-Bromofluorobenzene	105 %	61 - 123		B6I0235	09/12/2016	09/12/16 14:26	
Surrogate: Dibromofluoromethane	107 %	57 - 147		B6I0235	09/12/2016	09/12/16 14:26	
Surrogate: Toluene-d8	109 %	61 - 119		B6I0235	09/12/2016	09/12/16 14:26	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID CBT

Lab ID: 1603101-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6I0290	09/13/2016	09/14/16 19:31	
Surrogate: 1,2-Dichlorobenzene-d4	72.0 %	31 - 106		B6I0290	09/13/2016	09/14/16 19:31	
Surrogate: 2-Fluorobiphenyl	78.2 %	28 - 122		B6I0290	09/13/2016	09/14/16 19:31	
Surrogate: 4-Terphenyl-d14	88.7 %	43 - 131		B6I0290	09/13/2016	09/14/16 19:31	
Surrogate: Nitrobenzene-d5	73.5 %	20 - 119		B6I0290	09/13/2016	09/14/16 19:31	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID POX

Lab ID: 1603101-04

Alkalinity, Speciated by SM 2320B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	

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	B6I0356	09/13/2016	09/14/16 05:30	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,1,1-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,1,2-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,1-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,1-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,1-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2,3-Trichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2-Dibromoethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,3-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,3-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
1,4-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
2,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
2-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID POX

Lab ID: 1603101-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
4-Isopropyltoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Benzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Bromobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Bromodichloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Bromoform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Bromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Carbon tetrachloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Chlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Chloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Chloroform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Chloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Dibromochloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Dibromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Dichlorodifluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Ethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Hexachlorobutadiene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Isopropylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
m,p-Xylene	ND	1.0	1	B6I0235	09/12/2016	09/12/16 14:49	
Methylene chloride	ND	1.0	1	B6I0235	09/12/2016	09/12/16 14:49	
n-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
n-Propylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Naphthalene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
o-Xylene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
sec-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Styrene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
tert-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Tetrachloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Toluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Trichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Trichlorofluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	
Vinyl chloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 14:49	

Surrogate: 1,2-Dichloroethane-d4 108 % 51 - 157 B6I0235 09/12/2016 09/12/16 14:49

Surrogate: 4-Bromofluorobenzene 105 % 61 - 123 B6I0235 09/12/2016 09/12/16 14:49



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID POX

Lab ID: 1603101-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Dibromofluoromethane	105 %	57 - 147		B6I0235	09/12/2016	09/12/16 14:49	
Surrogate: Toluene-d8	108 %	61 - 119		B6I0235	09/12/2016	09/12/16 14:49	

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6I0290	09/13/2016	09/14/16 19:58	
Surrogate: 1,2-Dichlorobenzene-d4	68.3 %	31 - 106		B6I0290	09/13/2016	09/14/16 19:58	
Surrogate: 2-Fluorobiphenyl	75.3 %	28 - 122		B6I0290	09/13/2016	09/14/16 19:58	
Surrogate: 4-Terphenyl-d14	82.3 %	43 - 131		B6I0290	09/13/2016	09/14/16 19:58	
Surrogate: Nitrobenzene-d5	68.8 %	20 - 119		B6I0290	09/13/2016	09/14/16 19:58	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID PF

Lab ID: 1603101-05

UV Absorption by EPA 415.3

Analyst: PT

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B6I0350	09/09/2016	09/09/16 10:00	

Alkalinity, Speciated by SM 2320B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	210	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	
Alkalinity, Carbonate (as CaCO ₃)	8.0	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B6I0341	09/15/2016	09/15/16 11:30	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B6I0293	09/13/2016	09/13/16 14:45	

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	B6I0356	09/13/2016	09/14/16 05:47	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID INF

Lab ID: 1603101-06

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.38	0.05	1	B6I0276	09/13/2016	09/13/16 10:54	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,1,1-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,1,2-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,1-Dichloroethane	0.74	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,1-Dichloroethene	83	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,1-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2,3-Trichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2-Dibromoethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,3-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,3-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
1,4-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
2,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
2-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
4-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
4-Isopropyltoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Benzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Bromobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Bromodichloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Bromoform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Bromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Carbon tetrachloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Chlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID INF

Lab ID: 1603101-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Chloroform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Chloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Dibromochloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Dibromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Dichlorodifluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Ethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Hexachlorobutadiene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Isopropylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
m,p-Xylene	ND	1.0	1	B6I0235	09/12/2016	09/12/16 15:12	
Methylene chloride	ND	1.0	1	B6I0235	09/12/2016	09/12/16 15:12	
n-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
n-Propylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Naphthalene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
o-Xylene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
sec-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Styrene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
tert-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Tetrachloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Toluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Trichloroethene	0.65	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Trichlorofluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
Vinyl chloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:12	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>	<i>51 - 157</i>		B6I0235	09/12/2016	<i>09/12/16 15:12</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107 %</i>	<i>61 - 123</i>		B6I0235	09/12/2016	<i>09/12/16 15:12</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>	<i>57 - 147</i>		B6I0235	09/12/2016	<i>09/12/16 15:12</i>	
<i>Surrogate: Toluene-d8</i>	<i>111 %</i>	<i>61 - 119</i>		B6I0235	09/12/2016	<i>09/12/16 15:12</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID INF

Lab ID: 1603101-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	20	2.0	1	B6I0251	09/12/2016	09/13/16 11:03	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.4 %</i>	<i>42 - 106</i>		B6I0251	09/12/2016	<i>09/13/16 11:03</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80.7 %</i>	<i>55 - 117</i>		B6I0251	09/12/2016	<i>09/13/16 11:03</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>112 %</i>	<i>52 - 142</i>		B6I0251	09/12/2016	<i>09/13/16 11:03</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>78.7 %</i>	<i>43 - 116</i>		B6I0251	09/12/2016	<i>09/13/16 11:03</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID EW-02

Lab ID: 1603101-07

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.34	0.05	1	B6I0276	09/13/2016	09/13/16 11:05	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,1,1-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,1,2-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,1-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,1-Dichloroethene	31	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,1-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2,3-Trichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2-Dibromoethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,3-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,3-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
1,4-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
2,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
2-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
4-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
4-Isopropyltoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Benzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Bromobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Bromodichloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Bromoform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Bromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Carbon tetrachloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Chlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID EW-02

Lab ID: 1603101-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Chloroform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Chloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Dibromochloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Dibromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Dichlorodifluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Ethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Hexachlorobutadiene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Isopropylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
m,p-Xylene	ND	1.0	1	B6I0235	09/12/2016	09/12/16 15:35	
Methylene chloride	ND	1.0	1	B6I0235	09/12/2016	09/12/16 15:35	
n-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
n-Propylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Naphthalene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
o-Xylene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
sec-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Styrene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
tert-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Tetrachloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Toluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Trichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Trichlorofluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
Vinyl chloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 15:35	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>	<i>51 - 157</i>		B6I0235	09/12/2016	<i>09/12/16 15:35</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>	<i>61 - 123</i>		B6I0235	09/12/2016	<i>09/12/16 15:35</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>	<i>57 - 147</i>		B6I0235	09/12/2016	<i>09/12/16 15:35</i>	
<i>Surrogate: Toluene-d8</i>	<i>111 %</i>	<i>61 - 119</i>		B6I0235	09/12/2016	<i>09/12/16 15:35</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID EW-02

Lab ID: 1603101-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	8.1	2.0	1	B6I0251	09/12/2016	09/13/16 11:30	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.3 %</i>	<i>42 - 106</i>		B6I0251	09/12/2016	<i>09/13/16 11:30</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>83.2 %</i>	<i>55 - 117</i>		B6I0251	09/12/2016	<i>09/13/16 11:30</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>117 %</i>	<i>52 - 142</i>		B6I0251	09/12/2016	<i>09/13/16 11:30</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>79.1 %</i>	<i>43 - 116</i>		B6I0251	09/12/2016	<i>09/13/16 11:30</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID MW-29

Lab ID: 1603101-08

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.35	0.05	1	B6I0276	09/13/2016	09/13/16 13:00	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,1,1-Trichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,1,2-Trichloroethane	0.83	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,1-Dichloroethane	2.9	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,1-Dichloroethene	340	2.5	5	B6I0235	09/12/2016	09/12/16 20:12	
1,1-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2,3-Trichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2-Dibromoethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2-Dichloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,3-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,3-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
1,4-Dichlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
2,2-Dichloropropane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
2-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
4-Chlorotoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
4-Isopropyltoluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Benzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Bromobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Bromodichloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Bromoform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Bromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Carbon tetrachloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Chlorobenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID MW-29

Lab ID: 1603101-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Chloroform	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Chloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Dibromochloromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Dibromomethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Dichlorodifluoromethane	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Ethylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Hexachlorobutadiene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Isopropylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
m,p-Xylene	ND	1.0	1	B6I0235	09/12/2016	09/12/16 19:49	
Methylene chloride	ND	1.0	1	B6I0235	09/12/2016	09/12/16 19:49	
n-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
n-Propylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Naphthalene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
o-Xylene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
sec-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Styrene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
tert-Butylbenzene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Tetrachloroethene	0.67	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Toluene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Trichloroethene	2.7	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Trichlorofluoromethane	0.98	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
Vinyl chloride	ND	0.50	1	B6I0235	09/12/2016	09/12/16 19:49	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>	<i>51 - 157</i>		B6I0235	09/12/2016	<i>09/12/16 20:12</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>	<i>51 - 157</i>		B6I0235	09/12/2016	<i>09/12/16 19:49</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>	<i>61 - 123</i>		B6I0235	09/12/2016	<i>09/12/16 20:12</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>61 - 123</i>		B6I0235	09/12/2016	<i>09/12/16 19:49</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>111 %</i>	<i>57 - 147</i>		B6I0235	09/12/2016	<i>09/12/16 20:12</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>	<i>57 - 147</i>		B6I0235	09/12/2016	<i>09/12/16 19:49</i>	
<i>Surrogate: Toluene-d8</i>	<i>112 %</i>	<i>61 - 119</i>		B6I0235	09/12/2016	<i>09/12/16 20:12</i>	
<i>Surrogate: Toluene-d8</i>	<i>111 %</i>	<i>61 - 119</i>		B6I0235	09/12/2016	<i>09/12/16 19:49</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Client Sample ID MW-29

Lab ID: 1603101-08

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	77	2.0	1	B6I0251	09/12/2016	09/13/16 11:57	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>69.0 %</i>	<i>42 - 106</i>		<i>B6I0251</i>	<i>09/12/2016</i>	<i>09/13/16 11:57</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>82.3 %</i>	<i>55 - 117</i>		<i>B6I0251</i>	<i>09/12/2016</i>	<i>09/13/16 11:57</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>117 %</i>	<i>52 - 142</i>		<i>B6I0251</i>	<i>09/12/2016</i>	<i>09/13/16 11:57</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>79.4 %</i>	<i>43 - 116</i>		<i>B6I0251</i>	<i>09/12/2016</i>	<i>09/13/16 11:57</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

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

Batch B6I0341 - No_Prep_WC1_W

Blank (B6I0341-BLK1)

Prepared: 9/15/2016 Analyzed: 9/15/2016

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Total (as CaCO ₃)	ND	5.0			NR				

LCS (B6I0341-BS1)

Prepared: 9/15/2016 Analyzed: 9/15/2016

Alkalinity, Total (as CaCO ₃)	100.400	5.0	99.9580		100	80 - 120			

Duplicate (B6I0341-DUP1)

Source: 1603100-03

Prepared: 9/15/2016 Analyzed: 9/15/2016

Alkalinity, Total (as CaCO ₃)	212.850	5.0		214.860	NR		0.940	20	

Matrix Spike (B6I0341-MS1)

Source: 1603100-03

Prepared: 9/15/2016 Analyzed: 9/15/2016

Alkalinity, Total (as CaCO ₃)	310.240	5.0	99.9580	214.860	95.4	80 - 120			

Matrix Spike Dup (B6I0341-MSD1)

Source: 1603100-03

Prepared: 9/15/2016 Analyzed: 9/15/2016

Alkalinity, Total (as CaCO ₃)	308.230	5.0	99.9580	214.860	93.4	80 - 120	0.650	20	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D - Quality Control

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

Batch B6I0293 - No_Prep_WC1_W

Blank (B6I0293-BLK1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

Residue, Suspended

ND

1.0

NR

LCS (B6I0293-BS1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

Residue, Suspended

91.0000

10

92.1000

98.8

80 - 120

Duplicate (B6I0293-DUP1)

Source: 1603129-01

Prepared: 9/13/2016 Analyzed: 9/13/2016

Residue, Suspended

540.000

20

546.000

NR

1.10

10



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0276 - No_Prep_IC1_W

Blank (B6I0276-BLK1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

Bromide ND 0.05 NR

LCS (B6I0276-BS1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

Bromide 0.982400 0.05 1.00000 98.2 90 - 110

Duplicate (B6I0276-DUP1)

Source: 1603140-04

Prepared: 9/13/2016 Analyzed: 9/13/2016

Bromide ND 5.0 ND NR 20

Matrix Spike (B6I0276-MS1)

Source: 1603140-04

Prepared: 9/13/2016 Analyzed: 9/13/2016

Bromide 2.92200 2.50000 0.00000 117 80 - 120

Matrix Spike Dup (B6I0276-MSD1)

Source: 1603140-04

Prepared: 9/13/2016 Analyzed: 9/13/2016

Bromide 2.94300 2.50000 0.00000 118 80 - 120 0.716 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

UV Absorption by EPA 415.3 - Quality Control

Analyte	Result (1/cm)	PQL (1/cm)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes

Batch B6I0350 - No_Prep_II_W

Duplicate (B6I0350-DUP1)			Source: 1603100-02	Prepared: 9/9/2016 Analyzed: 9/9/2016					
UV Absorption	ND	0.01		ND	NR			20	
Duplicate (B6I0350-DUP2)			Source: 1603100-03	Prepared: 9/9/2016 Analyzed: 9/9/2016					
UV Absorption	ND	0.01		ND	NR			20	
Duplicate (B6I0350-DUP3)			Source: 1603100-04	Prepared: 9/9/2016 Analyzed: 9/9/2016					
UV Absorption	ND	0.01		ND	NR			20	
Duplicate (B6I0350-DUP4)			Source: 1603100-05	Prepared: 9/9/2016 Analyzed: 9/9/2016					
UV Absorption	ND	0.01		ND	NR			20	
Duplicate (B6I0350-DUP5)			Source: 1603101-05	Prepared: 9/9/2016 Analyzed: 9/9/2016					
UV Absorption	ND	0.01		ND	NR			20	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0356 - No_Prep_II_W

Blank (B6I0356-BLK1)

Prepared: 9/13/2016 Analyzed: 9/14/2016

Organic Carbon, Total

ND

3.0

NR

LCS (B6I0356-BS1)

Prepared: 9/13/2016 Analyzed: 9/14/2016

Organic Carbon, Total

21.1000

3.0

20.0000

106

80 - 120

LCS Dup (B6I0356-BSD1)

Prepared: 9/13/2016 Analyzed: 9/14/2016

Organic Carbon, Total

18.8500

3.0

20.0000

94.2

80 - 120

11.3

20



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0235 - MSVOA_W

Blank (B6I0235-BLK1)

Prepared: 9/12/2016 Analyzed: 9/12/2016

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 GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0235 - MSVOA_W (continued)

Blank (B6I0235-BLK1) - Continued

Prepared: 9/12/2016 Analyzed: 9/12/2016

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	24.99		25.0000		100	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.96		25.0000		104	61 - 123			
Surrogate: Dibromofluoromethane	25.47		25.0000		102	57 - 147			
Surrogate: Toluene-d8	26.22		25.0000		105	61 - 119			

LCS (B6I0235-BS1)

Prepared: 9/12/2016 Analyzed: 9/12/2016

1,1,1,2-Tetrachloroethane	17.1500	0.50	20.0000		85.8	76 - 132			
1,1,1-Trichloroethane	16.3400	0.50	20.0000		81.7	72 - 144			
1,1,2,2-Tetrachloroethane	13.8900	0.50	20.0000		69.4	70 - 120			L4
1,1,2-Trichloroethane	14.4100	0.50	20.0000		72.0	75 - 120			L4
1,1-Dichloroethane	17.0200	0.50	20.0000		85.1	65 - 127			
1,1-Dichloroethene	19.3900	0.50	20.0000		97.0	63 - 142			
1,1-Dichloropropene	17.0000	0.50	20.0000		85.0	78 - 137			
1,2,3-Trichloropropane	13.9000	0.50	20.0000		69.5	73 - 118			L4
1,2,3-Trichlorobenzene	17.1900	0.50	20.0000		86.0	53 - 164			
1,2,4-Trichlorobenzene	16.1200	0.50	20.0000		80.6	58 - 144			
1,2,4-Trimethylbenzene	16.7400	0.50	20.0000		83.7	75 - 140			
1,2-Dibromo-3-chloropropane	13.7000	0.50	20.0000		68.5	61 - 131			
1,2-Dibromoethane	14.4300	0.50	20.0000		72.2	74 - 125			L4
1,2-Dichlorobenzene	17.2100	0.50	20.0000		86.0	78 - 122			
1,2-Dichloroethane	16.1200	0.50	20.0000		80.6	70 - 126			
1,2-Dichloropropane	14.9500	0.50	20.0000		74.8	69 - 120			
1,3,5-Trimethylbenzene	15.8800	0.50	20.0000		79.4	73 - 145			
1,3-Dichlorobenzene	17.3700	0.50	20.0000		86.8	76 - 126			
1,3-Dichloropropane	16.0600	0.50	20.0000		80.3	76 - 117			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0235 - MSVOA_W (continued)

LCS (B6I0235-BS1) - Continued

Prepared: 9/12/2016 Analyzed: 9/12/2016

1,4-Dichlorobenzene	17.4100	0.50	20.0000		87.0	77 - 120			
2,2-Dichloropropane	19.1300	0.50	20.0000		95.6	47 - 169			
2-Chlorotoluene	17.6100	0.50	20.0000		88.0	75 - 135			
4-Chlorotoluene	17.7900	0.50	20.0000		89.0	70 - 133			
4-Isopropyltoluene	16.4600	0.50	20.0000		82.3	72 - 153			
Benzene	32.8600	0.50	40.0000		82.2	73 - 123			
Bromobenzene	16.2600	0.50	20.0000		81.3	75 - 121			
Bromodichloromethane	15.8100	0.50	20.0000		79.0	73 - 124			
Bromoform	16.2300	0.50	20.0000		81.2	70 - 135			
Bromomethane	22.9700	0.50	20.0000		115	10 - 166			
Carbon tetrachloride	17.5500	0.50	20.0000		87.8	65 - 171			
Chlorobenzene	17.8200	0.50	20.0000		89.1	80 - 121			
Chloroethane	22.8700	0.50	20.0000		114	55 - 143			
Chloroform	16.0100	0.50	20.0000		80.0	65 - 130			
Chloromethane	17.7100	0.50	20.0000		88.6	21 - 141			
cis-1,2-Dichloroethene	16.0500	0.50	20.0000		80.2	64 - 126			
cis-1,3-Dichloropropene	16.9800	0.50	20.0000		84.9	70 - 131			
Dibromochloromethane	15.7100	0.50	20.0000		78.6	74 - 125			
Dibromomethane	15.7000	0.50	20.0000		78.5	74 - 116			
Dichlorodifluoromethane	16.2900	0.50	20.0000		81.4	40 - 186			
Ethylbenzene	37.2500	0.50	40.0000		93.1	77 - 130			
Hexachlorobutadiene	17.2700	0.50	20.0000		86.4	52 - 176			
Isopropylbenzene	16.8300	0.50	20.0000		84.2	77 - 144			
m,p-Xylene	38.5800	1.0	40.0000		96.4	84 - 136			
Methylene chloride	15.6800	1.0	20.0000		78.4	72 - 150			
n-Butylbenzene	17.3900	0.50	20.0000		87.0	73 - 154			
n-Propylbenzene	18.2100	0.50	20.0000		91.0	77 - 145			
Naphthalene	16.0500	0.50	20.0000		80.2	55 - 137			
o-Xylene	37.3600	0.50	40.0000		93.4	79 - 135			
sec-Butylbenzene	18.2800	0.50	20.0000		91.4	73 - 157			
Styrene	17.5400	0.50	20.0000		87.7	78 - 125			
tert-Butylbenzene	16.7800	0.50	20.0000		83.9	78 - 149			
Tetrachloroethene	16.1600	0.50	20.0000		80.8	74 - 136			
Toluene	32.1100	0.50	40.0000		80.3	78 - 124			
trans-1,2-Dichloroethene	16.2400	0.50	20.0000		81.2	66 - 131			
Trichloroethene	15.8900	0.50	20.0000		79.4	78 - 128			
Trichlorofluoromethane	17.8600	0.50	20.0000		89.3	60 - 170			
Vinyl chloride	18.2100	0.50	20.0000		91.0	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	25.42		25.0000		102	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.38		25.0000		110	61 - 123			
Surrogate: Dibromofluoromethane	25.49		25.0000		102	57 - 147			



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0235 - MSVOA_W (continued)

LCS (B6I0235-BS1) - Continued

Prepared: 9/12/2016 Analyzed: 9/12/2016

Surrogate: Toluene-d8

26.12

25.0000

104

61 - 119

LCS Dup (B6I0235-BSD1)

Prepared: 9/12/2016 Analyzed: 9/12/2016

1,1,1,2-Tetrachloroethane	19.7600	0.50	20.0000	98.8	76 - 132	14.1	20
1,1,1-Trichloroethane	19.6400	0.50	20.0000	98.2	72 - 144	18.3	20
1,1,2,2-Tetrachloroethane	16.3600	0.50	20.0000	81.8	70 - 120	16.3	20
1,1,2-Trichloroethane	16.6700	0.50	20.0000	83.4	75 - 120	14.5	20
1,1-Dichloroethane	20.5500	0.50	20.0000	103	65 - 127	18.8	20
1,1-Dichloroethene	22.9100	0.50	20.0000	115	63 - 142	16.6	20
1,1-Dichloropropene	20.1900	0.50	20.0000	101	78 - 137	17.2	20
1,2,3-Trichloropropane	16.5300	0.50	20.0000	82.6	73 - 118	17.3	20
1,2,3-Trichlorobenzene	20.0800	0.50	20.0000	100	53 - 164	15.5	20
1,2,4-Trichlorobenzene	19.0800	0.50	20.0000	95.4	58 - 144	16.8	20
1,2,4-Trimethylbenzene	19.7800	0.50	20.0000	98.9	75 - 140	16.6	20
1,2-Dibromo-3-chloropropane	16.4300	0.50	20.0000	82.2	61 - 131	18.1	20
1,2-Dibromoethane	16.9400	0.50	20.0000	84.7	74 - 125	16.0	20
1,2-Dichlorobenzene	20.6000	0.50	20.0000	103	78 - 122	17.9	20
1,2-Dichloroethane	18.6300	0.50	20.0000	93.2	70 - 126	14.4	20
1,2-Dichloropropane	17.7100	0.50	20.0000	88.6	69 - 120	16.9	20
1,3,5-Trimethylbenzene	18.9100	0.50	20.0000	94.6	73 - 145	17.4	20
1,3-Dichlorobenzene	20.7400	0.50	20.0000	104	76 - 126	17.7	20
1,3-Dichloropropane	18.5500	0.50	20.0000	92.8	76 - 117	14.4	20
1,4-Dichlorobenzene	20.8000	0.50	20.0000	104	77 - 120	17.7	20
2,2-Dichloropropane	22.6100	0.50	20.0000	113	47 - 169	16.7	20
2-Chlorotoluene	21.1200	0.50	20.0000	106	75 - 135	18.1	20
4-Chlorotoluene	21.2700	0.50	20.0000	106	70 - 133	17.8	20
4-Isopropyltoluene	19.4200	0.50	20.0000	97.1	72 - 153	16.5	20
Benzene	38.1500	0.50	40.0000	95.4	73 - 123	14.9	20
Bromobenzene	19.1500	0.50	20.0000	95.8	75 - 121	16.3	20
Bromodichloromethane	18.0400	0.50	20.0000	90.2	73 - 124	13.2	20
Bromoform	18.6100	0.50	20.0000	93.0	70 - 135	13.7	20
Bromomethane	24.5800	0.50	20.0000	123	10 - 166	6.77	20
Carbon tetrachloride	20.8000	0.50	20.0000	104	65 - 171	16.9	20
Chlorobenzene	20.9800	0.50	20.0000	105	80 - 121	16.3	20
Chloroethane	25.4400	0.50	20.0000	127	55 - 143	10.6	20
Chloroform	18.7600	0.50	20.0000	93.8	65 - 130	15.8	20
Chloromethane	20.5200	0.50	20.0000	103	21 - 141	14.7	20
cis-1,2-Dichloroethene	19.1200	0.50	20.0000	95.6	64 - 126	17.5	20
cis-1,3-Dichloropropene	19.8800	0.50	20.0000	99.4	70 - 131	15.7	20
Dibromochloromethane	18.3000	0.50	20.0000	91.5	74 - 125	15.2	20
Dibromomethane	17.7100	0.50	20.0000	88.6	74 - 116	12.0	20
Dichlorodifluoromethane	19.1400	0.50	20.0000	95.7	40 - 186	16.1	20



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

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Reported : 09/23/2016

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 B6I0235 - MSVOA_W (continued)

LCS Dup (B6I0235-BSD1) - Continued

Prepared: 9/12/2016 Analyzed: 9/12/2016

Ethylbenzene	43.5000	0.50	40.0000		109	77 - 130	15.5	20	
Hexachlorobutadiene	19.6900	0.50	20.0000		98.4	52 - 176	13.1	20	
Isopropylbenzene	19.8100	0.50	20.0000		99.0	77 - 144	16.3	20	
m,p-Xylene	45.6500	1.0	40.0000		114	84 - 136	16.8	20	
Methylene chloride	18.4500	1.0	20.0000		92.2	72 - 150	16.2	20	
n-Butylbenzene	20.4000	0.50	20.0000		102	73 - 154	15.9	20	
n-Propylbenzene	21.9500	0.50	20.0000		110	77 - 145	18.6	20	
Naphthalene	19.2000	0.50	20.0000		96.0	55 - 137	17.9	20	
o-Xylene	43.6300	0.50	40.0000		109	79 - 135	15.5	20	
sec-Butylbenzene	21.7800	0.50	20.0000		109	73 - 157	17.5	20	
Styrene	20.4100	0.50	20.0000		102	78 - 125	15.1	20	
tert-Butylbenzene	19.7600	0.50	20.0000		98.8	78 - 149	16.3	20	
Tetrachloroethene	18.7500	0.50	20.0000		93.8	74 - 136	14.8	20	
Toluene	37.8800	0.50	40.0000		94.7	78 - 124	16.5	20	
trans-1,2-Dichloroethene	19.1200	0.50	20.0000		95.6	66 - 131	16.3	20	
Trichloroethene	18.4500	0.50	20.0000		92.2	78 - 128	14.9	20	
Trichlorofluoromethane	21.1900	0.50	20.0000		106	60 - 170	17.1	20	
Vinyl chloride	21.9700	0.50	20.0000		110	55 - 148	18.7	20	
Surrogate: 1,2-Dichloroethane-d4	25.63		25.0000		103	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.25		25.0000		109	61 - 123			
Surrogate: Dibromofluoromethane	25.99		25.0000		104	57 - 147			
Surrogate: Toluene-d8	26.10		25.0000		104	61 - 119			



Certificate of Analysis

Hargis & Associates, Inc.

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0275 - MSVOA_LL_W

Blank (B6I0275-BLK1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

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

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0275 - MSVOA_LL_W (continued)

Blank (B6I0275-BLK1) - Continued

Prepared: 9/13/2016 Analyzed: 9/13/2016

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	26.53		25.0000		106	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.10		25.0000		104	61 - 123			
Surrogate: Dibromofluoromethane	26.34		25.0000		105	57 - 147			
Surrogate: Toluene-d8	27.15		25.0000		109	61 - 119			

LCS (B6I0275-BS1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

1,1,1,2-Tetrachloroethane	18.1500	0.50	20.0000		90.8	76 - 132			
1,1,1-Trichloroethane	17.7700	0.50	20.0000		88.8	72 - 144			
1,1,2,2-Tetrachloroethane	14.8700	0.50	20.0000		74.4	70 - 120			
1,1,2-Trichloroethane	15.2300	0.50	20.0000		76.2	75 - 120			
1,1-Dichloroethane	18.5500	0.50	20.0000		92.8	65 - 127			
1,1-Dichloroethene	21.6300	0.50	20.0000		108	63 - 142			
1,1-Dichloropropene	18.6400	0.50	20.0000		93.2	78 - 137			
1,2,3-Trichloropropane	14.8900	0.50	20.0000		74.4	73 - 118			
1,2,3-Trichlorobenzene	18.2100	0.50	20.0000		91.0	53 - 164			
1,2,4-Trichlorobenzene	17.0300	0.50	20.0000		85.2	58 - 144			
1,2,4-Trimethylbenzene	17.6500	0.50	20.0000		88.2	75 - 140			
1,2-Dibromo-3-chloropropane	15.0500	0.50	20.0000		75.2	61 - 131			
1,2-Dibromoethane	15.6100	0.50	20.0000		78.0	74 - 125			
1,2-Dichlorobenzene	18.1500	0.50	20.0000		90.8	78 - 122			
1,2-Dichloroethane	17.1600	0.50	20.0000		85.8	70 - 126			
1,2-Dichloropropane	15.9600	0.50	20.0000		79.8	69 - 120			
1,3,5-Trimethylbenzene	17.0200	0.50	20.0000		85.1	73 - 145			
1,3-Dichlorobenzene	18.3400	0.50	20.0000		91.7	76 - 126			
1,3-Dichloropropane	16.7500	0.50	20.0000		83.8	76 - 117			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0275 - MSVOA_LL_W (continued)

LCS (B6I0275-BS1) - Continued

Prepared: 9/13/2016 Analyzed: 9/13/2016

1,4-Dichlorobenzene	18.5400	0.50	20.0000		92.7	77 - 120			
2,2-Dichloropropane	20.2700	0.50	20.0000		101	47 - 169			
2-Chlorotoluene	18.6100	0.50	20.0000		93.0	75 - 135			
4-Chlorotoluene	18.7500	0.50	20.0000		93.8	70 - 133			
4-Isopropyltoluene	17.2700	0.50	20.0000		86.4	72 - 153			
Benzene	35.2200	0.50	40.0000		88.0	73 - 123			
Bromobenzene	17.2600	0.50	20.0000		86.3	75 - 121			
Bromodichloromethane	16.6200	0.50	20.0000		83.1	73 - 124			
Bromoform	17.1100	0.50	20.0000		85.6	70 - 135			
Bromomethane	23.7800	0.50	20.0000		119	10 - 166			
Carbon tetrachloride	19.1800	0.50	20.0000		95.9	65 - 171			
Chlorobenzene	18.8200	0.50	20.0000		94.1	80 - 121			
Chloroethane	25.5300	0.50	20.0000		128	55 - 143			
Chloroform	17.2100	0.50	20.0000		86.0	65 - 130			
Chloromethane	19.2800	0.50	20.0000		96.4	21 - 141			
cis-1,2-Dichloroethene	17.1300	0.50	20.0000		85.6	64 - 126			
cis-1,3-Dichloropropene	18.0700	0.50	20.0000		90.4	70 - 131			
Dibromochloromethane	16.5900	0.50	20.0000		83.0	74 - 125			
Dibromomethane	16.1900	0.50	20.0000		81.0	74 - 116			
Dichlorodifluoromethane	18.1100	0.50	20.0000		90.6	40 - 186			
Ethylbenzene	39.7700	0.50	40.0000		99.4	77 - 130			
Hexachlorobutadiene	17.8800	0.50	20.0000		89.4	52 - 176			
Isopropylbenzene	17.6400	0.50	20.0000		88.2	77 - 144			
m,p-Xylene	41.3600	1.0	40.0000		103	84 - 136			
Methylene chloride	16.8800	1.0	20.0000		84.4	72 - 150			
n-Butylbenzene	18.3900	0.50	20.0000		92.0	73 - 154			
n-Propylbenzene	19.3400	0.50	20.0000		96.7	77 - 145			
Naphthalene	16.8600	0.50	20.0000		84.3	55 - 137			
o-Xylene	39.3700	0.50	40.0000		98.4	79 - 135			
sec-Butylbenzene	19.4400	0.50	20.0000		97.2	73 - 157			
Styrene	18.5800	0.50	20.0000		92.9	78 - 125			
tert-Butylbenzene	17.5300	0.50	20.0000		87.6	78 - 149			
Tetrachloroethene	17.3700	0.50	20.0000		86.8	74 - 136			
Toluene	34.8300	0.50	40.0000		87.1	78 - 124			
trans-1,2-Dichloroethene	17.6300	0.50	20.0000		88.2	66 - 131			
Trichloroethene	16.9900	0.50	20.0000		85.0	78 - 128			
Trichlorofluoromethane	20.1800	0.50	20.0000		101	60 - 170			
Vinyl chloride	20.4800	0.50	20.0000		102	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	26.02		25.0000		104	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.31		25.0000		109	61 - 123			
Surrogate: Dibromofluoromethane	26.16		25.0000		105	57 - 147			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0275 - MSVOA_LL_W (continued)

LCS (B6I0275-BS1) - Continued

Prepared: 9/13/2016 Analyzed: 9/13/2016

Surrogate: Toluene-d8

26.46

25.0000

106

61 - 119

LCS Dup (B6I0275-BSD1)

Prepared: 9/13/2016 Analyzed: 9/13/2016

1,1,1,2-Tetrachloroethane	19.6200	0.50	20.0000	98.1	76 - 132	7.78	20
1,1,1-Trichloroethane	19.8100	0.50	20.0000	99.0	72 - 144	10.9	20
1,1,2,2-Tetrachloroethane	15.9000	0.50	20.0000	79.5	70 - 120	6.69	20
1,1,2-Trichloroethane	16.4200	0.50	20.0000	82.1	75 - 120	7.52	20
1,1-Dichloroethane	20.7500	0.50	20.0000	104	65 - 127	11.2	20
1,1-Dichloroethene	23.7400	0.50	20.0000	119	63 - 142	9.30	20
1,1-Dichloropropene	20.5300	0.50	20.0000	103	78 - 137	9.65	20
1,2,3-Trichloropropane	15.9700	0.50	20.0000	79.8	73 - 118	7.00	20
1,2,3-Trichlorobenzene	20.1300	0.50	20.0000	101	53 - 164	10.0	20
1,2,4-Trichlorobenzene	19.0300	0.50	20.0000	95.2	58 - 144	11.1	20
1,2,4-Trimethylbenzene	19.4700	0.50	20.0000	97.4	75 - 140	9.81	20
1,2-Dibromo-3-chloropropane	15.5300	0.50	20.0000	77.6	61 - 131	3.14	20
1,2-Dibromoethane	16.8600	0.50	20.0000	84.3	74 - 125	7.70	20
1,2-Dichlorobenzene	20.3500	0.50	20.0000	102	78 - 122	11.4	20
1,2-Dichloroethane	18.5800	0.50	20.0000	92.9	70 - 126	7.95	20
1,2-Dichloropropane	17.8300	0.50	20.0000	89.2	69 - 120	11.1	20
1,3,5-Trimethylbenzene	18.8600	0.50	20.0000	94.3	73 - 145	10.3	20
1,3-Dichlorobenzene	20.6400	0.50	20.0000	103	76 - 126	11.8	20
1,3-Dichloropropane	18.4700	0.50	20.0000	92.4	76 - 117	9.77	20
1,4-Dichlorobenzene	20.5700	0.50	20.0000	103	77 - 120	10.4	20
2,2-Dichloropropane	22.5800	0.50	20.0000	113	47 - 169	10.8	20
2-Chlorotoluene	20.8900	0.50	20.0000	104	75 - 135	11.5	20
4-Chlorotoluene	21.0100	0.50	20.0000	105	70 - 133	11.4	20
4-Isopropyltoluene	19.2700	0.50	20.0000	96.4	72 - 153	10.9	20
Benzene	38.4400	0.50	40.0000	96.1	73 - 123	8.74	20
Bromobenzene	18.8500	0.50	20.0000	94.2	75 - 121	8.81	20
Bromodichloromethane	18.2500	0.50	20.0000	91.2	73 - 124	9.35	20
Bromoform	17.9400	0.50	20.0000	89.7	70 - 135	4.74	20
Bromomethane	26.0600	0.50	20.0000	130	10 - 166	9.15	20
Carbon tetrachloride	21.0500	0.50	20.0000	105	65 - 171	9.30	20
Chlorobenzene	20.8000	0.50	20.0000	104	80 - 121	9.99	20
Chloroethane	25.8000	0.50	20.0000	129	55 - 143	1.05	20
Chloroform	19.2900	0.50	20.0000	96.4	65 - 130	11.4	20
Chloromethane	21.7300	0.50	20.0000	109	21 - 141	11.9	20
cis-1,2-Dichloroethene	19.3100	0.50	20.0000	96.6	64 - 126	12.0	20
cis-1,3-Dichloropropene	19.7900	0.50	20.0000	99.0	70 - 131	9.09	20
Dibromochloromethane	17.8300	0.50	20.0000	89.2	74 - 125	7.21	20
Dibromomethane	17.9100	0.50	20.0000	89.6	74 - 116	10.1	20
Dichlorodifluoromethane	19.7800	0.50	20.0000	98.9	40 - 186	8.81	20



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0275 - MSVOA_LL_W (continued)

LCS Dup (B6I0275-BSD1) - Continued

Prepared: 9/13/2016 Analyzed: 9/13/2016

Ethylbenzene	43.7100	0.50	40.0000		109	77 - 130	9.44	20	
Hexachlorobutadiene	20.0600	0.50	20.0000		100	52 - 176	11.5	20	
Isopropylbenzene	19.5800	0.50	20.0000		97.9	77 - 144	10.4	20	
m,p-Xylene	45.8100	1.0	40.0000		115	84 - 136	10.2	20	
Methylene chloride	18.6600	1.0	20.0000		93.3	72 - 150	10.0	20	
n-Butylbenzene	20.5000	0.50	20.0000		102	73 - 154	10.9	20	
n-Propylbenzene	21.8300	0.50	20.0000		109	77 - 145	12.1	20	
Naphthalene	18.6200	0.50	20.0000		93.1	55 - 137	9.92	20	
o-Xylene	43.8200	0.50	40.0000		110	79 - 135	10.7	20	
sec-Butylbenzene	21.9600	0.50	20.0000		110	73 - 157	12.2	20	
Styrene	20.5000	0.50	20.0000		102	78 - 125	9.83	20	
tert-Butylbenzene	19.7500	0.50	20.0000		98.8	78 - 149	11.9	20	
Tetrachloroethene	18.9000	0.50	20.0000		94.5	74 - 136	8.44	20	
Toluene	37.6700	0.50	40.0000		94.2	78 - 124	7.83	20	
trans-1,2-Dichloroethene	19.5900	0.50	20.0000		98.0	66 - 131	10.5	20	
Trichloroethene	18.7600	0.50	20.0000		93.8	78 - 128	9.90	20	
Trichlorofluoromethane	21.4900	0.50	20.0000		107	60 - 170	6.29	20	
Vinyl chloride	22.4000	0.50	20.0000		112	55 - 148	8.96	20	
Surrogate: 1,2-Dichloroethane-d4	27.13		25.0000		109	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.23		25.0000		109	61 - 123			
Surrogate: Dibromofluoromethane	26.93		25.0000		108	57 - 147			
Surrogate: Toluene-d8	26.14		25.0000		105	61 - 119			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0251 - MSSEMI_W

Blank (B6I0251-BLK1)

Prepared: 9/12/2016 Analyzed: 9/13/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	63.99		100.000		64.0	42 - 106			
Surrogate: 2-Fluorobiphenyl	74.79		100.000		74.8	55 - 117			
Surrogate: 4-Terphenyl-d14	105.0		100.000		105	52 - 142			
Surrogate: Nitrobenzene-d5	71.98		100.000		72.0	43 - 116			

LCS (B6I0251-BS1)

Prepared: 9/12/2016 Analyzed: 9/13/2016

1,4-Dioxane	108.260	2.0	100.000		108	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	67.06		100.000		67.1	42 - 106			
Surrogate: 2-Fluorobiphenyl	82.17		100.000		82.2	55 - 117			
Surrogate: 4-Terphenyl-d14	101.2		100.000		101	52 - 142			
Surrogate: Nitrobenzene-d5	78.18		100.000		78.2	43 - 116			

LCS Dup (B6I0251-BSD1)

Prepared: 9/12/2016 Analyzed: 9/13/2016

1,4-Dioxane	105.790	2.0	100.000		106	62 - 127	2.31	20	
Surrogate: 1,2-Dichlorobenzene-d4	70.27		100.000		70.3	42 - 106			
Surrogate: 2-Fluorobiphenyl	89.82		100.000		89.8	55 - 117			
Surrogate: 4-Terphenyl-d14	105.4		100.000		105	52 - 142			
Surrogate: Nitrobenzene-d5	84.03		100.000		84.0	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

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 B6I0290 - MSSEMI_ISOTOPEDILN_W

Blank (B6I0290-BLK1)

Prepared: 9/13/2016 Analyzed: 9/14/2016

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.7439		1.00000		74.4	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7992		1.00000		79.9	28 - 122			
Surrogate: 4-Terphenyl-d14	0.9499		1.00000		95.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.7307		1.00000		73.1	20 - 119			

LCS (B6I0290-BS1)

Prepared: 9/13/2016 Analyzed: 9/14/2016

1,4-Dioxane	1.06472	0.20	1.00000		106	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.7124		1.00000		71.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7805		1.00000		78.1	28 - 122			
Surrogate: 4-Terphenyl-d14	0.9188		1.00000		91.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.7249		1.00000		72.5	20 - 119			

LCS Dup (B6I0290-BSD1)

Prepared: 9/13/2016 Analyzed: 9/14/2016

1,4-Dioxane	0.908880	0.20	1.00000		90.9	49 - 169	15.8	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6882		1.00000		68.8	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7641		1.00000		76.4	28 - 122			
Surrogate: 4-Terphenyl-d14	0.8410		1.00000		84.1	43 - 131			
Surrogate: Nitrobenzene-d5	0.6904		1.00000		69.0	20 - 119			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/23/2016

Notes and Definitions

L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
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 with Post-Column Derivatization-Visible Absorption

Column: Dionex AS9-HC 250 mm x 4 mm, AG9-HC Guard 50 mm x 4 mm
 Eluent: 10 mM Na₂CO₃
 Flow: 1.2 mL/min
 Injection: 250 µL
 Detection: Post-column derivatization, Visible detection, 450 nm

Sample preparation: The undiluted sample was treated with a Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1603101-04 / POX	ND

Method Blank	ND

Detection Limit	1

Date Analyzed:	09-22-16

Quality Control Summary

Sample ID:	Batch QC						
<u>Analyte</u>	<u>Sample</u>	<u>Spike</u>	<u>Spike</u>	<u>Spike</u>	<u>Spike</u>	<u>Spike</u>	
Bromate	<u>Result</u>	<u>Conc</u>	<u>Result</u>	<u>% Rec</u>	<u>Duplicate</u>	<u>Duplicate</u>	<u>RPD</u>
	ND	1000	990	99	1000	100	1
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1603101

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#: SC10708- STANDARD TAT (R)

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Matrix	Date Sampled
ATL Lab#: 1603101-04 / POX			Groundwater	09/08/16 08:05
317.0 SUB	09/23/16 17:00	09/09/16 08:05		
[Bromate]				
1-Poly Unpres - 125mL				
Comments:				

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Date: 9/8/16
Page 1 of 1

PROJECT: Raytheon Main GETS Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Kevin Fong

Phone 858.455.6500

Fax 858.455.6533

Sampled By:				SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS				ANALYSIS REQUESTED										Expected Concentration Range (ppb) for VOA's				SPECIAL HANDLING				REMARKS					
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Nitric Acid (HNO ₃)	Sodium Hydroxide (NaOH)	Sulfuric Acid (H ₂ SO ₄)	Ice	40-ml VOA	125 mL Poly	250 mL Poly	250 mL Glass	1 L Poly	1 L Amber	VOCs by EPA 8260B	Bromate by EPA 317	Bromide by EPA 300	Alkalinity by SM2320B	Total Organic Carbon by SM5310B	Total Suspended Solids by SM2540D	UV Absorption EPA 415.3 @ 254 nm	1,4-Dioxane by EPA 8270C MOD	1,4-Dioxane by EPA 8270C SIM	0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 hr TAT	5 Day TAT	Level IV Data Validation Requested	MS/MSD Requested			
10701 - 1	TB- 090810	9/8/16	7:00	X	X					X	2						X																				
	CEFF		7:50	X	X					X	3					1	X									X							X				
	CBT		8:00	X	X					X	3					1	X									X	X						X				
	POX		8:05	X	X			X	X	6	1	1			1	X	X		X	X					X	X							X				
	PF		8:10	X				X	X	3		1	1	1					X	X	X	X											X				
	INF		8:15	X	X				X	3	1				1	X	X							X				X					X				
	EW-02	9-8-16	8:58	X	X				X	3	1				1	X	X							X			X						X				
	MW-29	9-8-16	9:30	X	X				X	3	1				1	X	X							X			X						X				

Total number of containers per analysis:				26	4	2	1	1	6	Total No. of Containers: 40			
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time										
Kevin Fong HHA	9/8/16 10:05	ATL	9-8-16 10:05										
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time										
ATL	9-8-16 10:55	ATL	9/8/16 10:55										

- ☒ No. of containers correct
☒ Received in good condition
☒ Custody seals secure
☒ Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive
Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

Instructions: 4.8°C Temperature on receipt

Fill out form completely and sign only after verified for completeness
 Complete in ballpoint pen. Draw one line through error, initial and date correction
 Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✗
 Note applicable preservatives, special instructions, and deviations from typical environmental samples.
 Consult project QA documents for specific instructions.



September 22, 2016

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 : 1603176

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on September 15, 2016 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".

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 GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-091516	1603176-01	Lab prepared water	9/15/16 7:00	9/15/16 9:56
CEFF	1603176-02	Groundwater	9/15/16 7:55	9/15/16 9:56
CBT	1603176-03	Groundwater	9/15/16 8:05	9/15/16 9:56
POX	1603176-04	Groundwater	9/15/16 8:10	9/15/16 9:56
INF	1603176-05	Groundwater	9/15/16 8:15	9/15/16 9:56
EW-02	1603176-06	Groundwater	9/15/16 8:55	9/15/16 9:56
MW-29	1603176-07	Groundwater	9/15/16 9:15	9/15/16 9:56



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID TB-091516

Lab ID: 1603176-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,1,1-Trichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,1,2-Trichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,1-Dichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,1-Dichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,1-Dichloropropene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2,3-Trichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2-Dibromoethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2-Dichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2-Dichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,2-Dichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,3-Dichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,3-Dichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
1,4-Dichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
2,2-Dichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
2-Chlorotoluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
4-Chlorotoluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
4-Isopropyltoluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Benzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Bromobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Bromodichloromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Bromoform	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Bromomethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Carbon tetrachloride	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Chlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Chloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Chloroform	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Chloromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Dibromochloromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID TB-091516

Lab ID: 1603176-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Dichlorodifluoromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Ethylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Hexachlorobutadiene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Isopropylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
m,p-Xylene	ND	1.0	1	B6I0424	09/17/2016	09/17/16 16:00	
Methylene chloride	ND	1.0	1	B6I0424	09/17/2016	09/17/16 16:00	
n-Butylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
n-Propylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Naphthalene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
o-Xylene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
sec-Butylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Styrene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
tert-Butylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Tetrachloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Toluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Trichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Trichlorofluoromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Vinyl chloride	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:00	
Surrogate: 1,2-Dichloroethane-d4	111 %	51 - 157		B6I0424	09/17/2016	09/17/16 16:00	
Surrogate: 4-Bromofluorobenzene	101 %	61 - 123		B6I0424	09/17/2016	09/17/16 16:00	
Surrogate: Dibromofluoromethane	105 %	57 - 147		B6I0424	09/17/2016	09/17/16 16:00	
Surrogate: Toluene-d8	104 %	61 - 119		B6I0424	09/17/2016	09/17/16 16:00	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID CEFF

Lab ID: 1603176-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,1,1-Trichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,1,2-Trichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,1-Dichloroethane	0.52	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,1-Dichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,1-Dichloropropene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2,3-Trichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2-Dibromoethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2-Dichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2-Dichloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,2-Dichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,3-Dichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,3-Dichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
1,4-Dichlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
2,2-Dichloropropane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
2-Chlorotoluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
4-Chlorotoluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
4-Isopropyltoluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Benzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Bromobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Bromodichloromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Bromoform	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Bromomethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Carbon tetrachloride	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Chlorobenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Chloroethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Chloroform	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Chloromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Dibromochloromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID CEFF

Lab ID: 1603176-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Dichlorodifluoromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Ethylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Hexachlorobutadiene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Isopropylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
m,p-Xylene	ND	1.0	1	B6I0424	09/17/2016	09/17/16 16:23	
Methylene chloride	ND	1.0	1	B6I0424	09/17/2016	09/17/16 16:23	
n-Butylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
n-Propylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Naphthalene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
o-Xylene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
sec-Butylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Styrene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
tert-Butylbenzene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Tetrachloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Toluene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Trichloroethene	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Trichlorofluoromethane	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Vinyl chloride	ND	0.50	1	B6I0424	09/17/2016	09/17/16 16:23	
Surrogate: 1,2-Dichloroethane-d4	112 %	51 - 157		B6I0424	09/17/2016	09/17/16 16:23	
Surrogate: 4-Bromofluorobenzene	104 %	61 - 123		B6I0424	09/17/2016	09/17/16 16:23	
Surrogate: Dibromofluoromethane	105 %	57 - 147		B6I0424	09/17/2016	09/17/16 16:23	
Surrogate: Toluene-d8	106 %	61 - 119		B6I0424	09/17/2016	09/17/16 16:23	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID CEFF

Lab ID: 1603176-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6I0525	09/20/2016	09/21/16 17:15	
Surrogate: 1,2-Dichlorobenzene-d4	49.1 %	31 - 106		B6I0525	09/20/2016	09/21/16 17:15	
Surrogate: 2-Fluorobiphenyl	54.2 %	28 - 122		B6I0525	09/20/2016	09/21/16 17:15	
Surrogate: 4-Terphenyl-d14	52.3 %	43 - 131		B6I0525	09/20/2016	09/21/16 17:15	
Surrogate: Nitrobenzene-d5	35.3 %	20 - 119		B6I0525	09/20/2016	09/21/16 17:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID CBT

Lab ID: 1603176-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,1,1-Trichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,1,2-Trichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,1-Dichloroethane	0.58	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,1-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,1-Dichloropropene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2,3-Trichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2-Dibromoethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2-Dichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,2-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,3-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,3-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
1,4-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
2,2-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
2-Chlorotoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
4-Chlorotoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
4-Isopropyltoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Benzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Bromobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Bromodichloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Bromoform	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Bromomethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Carbon tetrachloride	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Chlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Chloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Chloroform	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Chloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Dibromochloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID CBT

Lab ID: 1603176-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Dichlorodifluoromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Ethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Hexachlorobutadiene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Isopropylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
m,p-Xylene	ND	1.0	1	B6I0470	09/19/2016	09/19/16 23:11	
Methylene chloride	ND	1.0	1	B6I0470	09/19/2016	09/19/16 23:11	
n-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
n-Propylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Naphthalene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
o-Xylene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
sec-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Styrene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
tert-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Tetrachloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Toluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Trichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Trichlorofluoromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Vinyl chloride	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:11	
Surrogate: 1,2-Dichloroethane-d4	101 %	51 - 157		B6I0470	09/19/2016	09/19/16 23:11	
Surrogate: 4-Bromofluorobenzene	100 %	61 - 123		B6I0470	09/19/2016	09/19/16 23:11	
Surrogate: Dibromofluoromethane	102 %	57 - 147		B6I0470	09/19/2016	09/19/16 23:11	
Surrogate: Toluene-d8	102 %	61 - 119		B6I0470	09/19/2016	09/19/16 23:11	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID CBT

Lab ID: 1603176-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6I0525	09/20/2016	09/21/16 17:43	
Surrogate: 1,2-Dichlorobenzene-d4	50.1 %	31 - 106		B6I0525	09/20/2016	09/21/16 17:43	
Surrogate: 2-Fluorobiphenyl	55.1 %	28 - 122		B6I0525	09/20/2016	09/21/16 17:43	
Surrogate: 4-Terphenyl-d14	53.2 %	43 - 131		B6I0525	09/20/2016	09/21/16 17:43	
Surrogate: Nitrobenzene-d5	36.6 %	20 - 119		B6I0525	09/20/2016	09/21/16 17:43	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID POX

Lab ID: 1603176-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,1,1-Trichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,1,2-Trichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,1-Dichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,1-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,1-Dichloropropene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2,3-Trichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2-Dibromoethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2-Dichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,2-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,3-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,3-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
1,4-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
2,2-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
2-Chlorotoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
4-Chlorotoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
4-Isopropyltoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Benzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Bromobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Bromodichloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Bromoform	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Bromomethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Carbon tetrachloride	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Chlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Chloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Chloroform	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Chloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Dibromochloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID POX

Lab ID: 1603176-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Dichlorodifluoromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Ethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Hexachlorobutadiene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Isopropylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
m,p-Xylene	ND	1.0	1	B6I0470	09/19/2016	09/19/16 23:35	
Methylene chloride	ND	1.0	1	B6I0470	09/19/2016	09/19/16 23:35	
n-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
n-Propylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Naphthalene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
o-Xylene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
sec-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Styrene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
tert-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Tetrachloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Toluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Trichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Trichlorofluoromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Vinyl chloride	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:35	
Surrogate: 1,2-Dichloroethane-d4	101 %	51 - 157		B6I0470	09/19/2016	09/19/16 23:35	
Surrogate: 4-Bromofluorobenzene	98.1 %	61 - 123		B6I0470	09/19/2016	09/19/16 23:35	
Surrogate: Dibromofluoromethane	104 %	57 - 147		B6I0470	09/19/2016	09/19/16 23:35	
Surrogate: Toluene-d8	103 %	61 - 119		B6I0470	09/19/2016	09/19/16 23:35	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID POX

Lab ID: 1603176-04

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6I0525	09/20/2016	09/21/16 18:11	
Surrogate: 1,2-Dichlorobenzene-d4	45.1 %	31 - 106		B6I0525	09/20/2016	09/21/16 18:11	
Surrogate: 2-Fluorobiphenyl	50.2 %	28 - 122		B6I0525	09/20/2016	09/21/16 18:11	
Surrogate: 4-Terphenyl-d14	46.8 %	43 - 131		B6I0525	09/20/2016	09/21/16 18:11	
Surrogate: Nitrobenzene-d5	33.6 %	20 - 119		B6I0525	09/20/2016	09/21/16 18:11	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID INF

Lab ID: 1603176-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,1,1-Trichloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,1,2-Trichloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,1-Dichloroethane	0.76	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,1-Dichloroethene	70	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,1-Dichloropropene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2,3-Trichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2-Dibromoethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2-Dichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2-Dichloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,2-Dichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,3-Dichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,3-Dichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
1,4-Dichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
2,2-Dichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
2-Chlorotoluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
4-Chlorotoluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
4-Isopropyltoluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Benzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Bromobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Bromodichloromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Bromoform	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Bromomethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Carbon tetrachloride	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Chlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Chloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Chloroform	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Chloromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Dibromochloromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID INF

Lab ID: 1603176-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Dichlorodifluoromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Ethylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Hexachlorobutadiene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Isopropylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
m,p-Xylene	ND	1.0	1	B6I0470	09/20/2016	09/20/16 00:24	
Methylene chloride	ND	1.0	1	B6I0470	09/20/2016	09/20/16 00:24	
n-Butylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
n-Propylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Naphthalene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
o-Xylene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
sec-Butylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Styrene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
tert-Butylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Tetrachloroethene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Toluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Trichloroethene	0.66	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Trichlorofluoromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
Vinyl chloride	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:24	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>51 - 157</i>		B6I0470	09/20/2016	<i>09/20/16 00:24</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.6 %</i>	<i>61 - 123</i>		B6I0470	09/20/2016	<i>09/20/16 00:24</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>57 - 147</i>		B6I0470	09/20/2016	<i>09/20/16 00:24</i>	
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>	<i>61 - 119</i>		B6I0470	09/20/2016	<i>09/20/16 00:24</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID INF

Lab ID: 1603176-05

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	19	2.0	1	B6I0508	09/20/2016	09/20/16 15:38	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>65.9 %</i>	<i>42 - 106</i>		B6I0508	09/20/2016	<i>09/20/16 15:38</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>81.5 %</i>	<i>55 - 117</i>		B6I0508	09/20/2016	<i>09/20/16 15:38</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>111 %</i>	<i>52 - 142</i>		B6I0508	09/20/2016	<i>09/20/16 15:38</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>81.5 %</i>	<i>43 - 116</i>		B6I0508	09/20/2016	<i>09/20/16 15:38</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID EW-02

Lab ID: 1603176-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,1,1-Trichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,1,2-Trichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,1-Dichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,1-Dichloroethene	27	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,1-Dichloropropene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2,3-Trichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2-Dibromoethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2-Dichloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,2-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,3-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,3-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
1,4-Dichlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
2,2-Dichloropropane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
2-Chlorotoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
4-Chlorotoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
4-Isopropyltoluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Benzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Bromobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Bromodichloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Bromoform	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Bromomethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Carbon tetrachloride	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Chlorobenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Chloroethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Chloroform	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Chloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Dibromochloromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID EW-02

Lab ID: 1603176-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Dichlorodifluoromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Ethylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Hexachlorobutadiene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Isopropylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
m,p-Xylene	ND	1.0	1	B6I0470	09/19/2016	09/19/16 23:59	
Methylene chloride	ND	1.0	1	B6I0470	09/19/2016	09/19/16 23:59	
n-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
n-Propylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Naphthalene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
o-Xylene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
sec-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Styrene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
tert-Butylbenzene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Tetrachloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Toluene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Trichloroethene	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Trichlorofluoromethane	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Vinyl chloride	ND	0.50	1	B6I0470	09/19/2016	09/19/16 23:59	
Surrogate: 1,2-Dichloroethane-d4	104 %	51 - 157		B6I0470	09/19/2016	09/19/16 23:59	
Surrogate: 4-Bromofluorobenzene	99.1 %	61 - 123		B6I0470	09/19/2016	09/19/16 23:59	
Surrogate: Dibromofluoromethane	104 %	57 - 147		B6I0470	09/19/2016	09/19/16 23:59	
Surrogate: Toluene-d8	103 %	61 - 119		B6I0470	09/19/2016	09/19/16 23:59	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID EW-02

Lab ID: 1603176-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	7.2	2.0	1	B6I0508	09/20/2016	09/20/16 16:06	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>69.6 %</i>	<i>42 - 106</i>		<i>B6I0508</i>	<i>09/20/2016</i>	<i>09/20/16 16:06</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>87.7 %</i>	<i>55 - 117</i>		<i>B6I0508</i>	<i>09/20/2016</i>	<i>09/20/16 16:06</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>112 %</i>	<i>52 - 142</i>		<i>B6I0508</i>	<i>09/20/2016</i>	<i>09/20/16 16:06</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>88.3 %</i>	<i>43 - 116</i>		<i>B6I0508</i>	<i>09/20/2016</i>	<i>09/20/16 16:06</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID MW-29

Lab ID: 1603176-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,1,1-Trichloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,1,2-Trichloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,1-Dichloroethane	2.4	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,1-Dichloroethene	250	2.5	5	B6I0470	09/20/2016	09/20/16 01:12	
1,1-Dichloropropene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2,3-Trichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2,3-Trichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2,4-Trichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2,4-Trimethylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2-Dibromoethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2-Dichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2-Dichloroethane	0.52	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,2-Dichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,3,5-Trimethylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,3-Dichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,3-Dichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
1,4-Dichlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
2,2-Dichloropropane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
2-Chlorotoluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
4-Chlorotoluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
4-Isopropyltoluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Benzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Bromobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Bromodichloromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Bromoform	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Bromomethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Carbon tetrachloride	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Chlorobenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Chloroethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Chloroform	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Chloromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
cis-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
cis-1,3-Dichloropropene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Dibromochloromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID MW-29

Lab ID: 1603176-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Dichlorodifluoromethane	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Ethylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Hexachlorobutadiene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Isopropylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
m,p-Xylene	ND	1.0	1	B6I0470	09/20/2016	09/20/16 00:48	
Methylene chloride	ND	1.0	1	B6I0470	09/20/2016	09/20/16 00:48	
n-Butylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
n-Propylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Naphthalene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
o-Xylene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
sec-Butylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Styrene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
tert-Butylbenzene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Tetrachloroethene	0.71	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Toluene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
trans-1,2-Dichloroethene	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Trichloroethene	2.5	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Trichlorofluoromethane	0.71	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
Vinyl chloride	ND	0.50	1	B6I0470	09/20/2016	09/20/16 00:48	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>	<i>51 - 157</i>		B6I0470	09/20/2016	<i>09/20/16 01:12</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>51 - 157</i>		B6I0470	09/20/2016	<i>09/20/16 00:48</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.4 %</i>	<i>61 - 123</i>		B6I0470	09/20/2016	<i>09/20/16 01:12</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>	<i>61 - 123</i>		B6I0470	09/20/2016	<i>09/20/16 00:48</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>	<i>57 - 147</i>		B6I0470	09/20/2016	<i>09/20/16 01:12</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>	<i>57 - 147</i>		B6I0470	09/20/2016	<i>09/20/16 00:48</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>61 - 119</i>		B6I0470	09/20/2016	<i>09/20/16 00:48</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 119</i>		B6I0470	09/20/2016	<i>09/20/16 01:12</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Client Sample ID MW-29

Lab ID: 1603176-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	78	2.0	1	B6I0508	09/20/2016	09/20/16 16:34	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>61.2 %</i>	<i>42 - 106</i>		B6I0508	09/20/2016	<i>09/20/16 16:34</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>76.5 %</i>	<i>55 - 117</i>		B6I0508	09/20/2016	<i>09/20/16 16:34</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>106 %</i>	<i>52 - 142</i>		B6I0508	09/20/2016	<i>09/20/16 16:34</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.6 %</i>	<i>43 - 116</i>		B6I0508	09/20/2016	<i>09/20/16 16:34</i>	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 09/22/2016

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 B6I0424 - MSVOA_W

Blank (B6I0424-BLK1)

Prepared: 9/17/2016 Analyzed: 9/17/2016

1,1,1,2-Tetrachloroethane	ND	0.50			NR
1,1,1-Trichloroethane	ND	0.50			NR
1,1,2,2-Tetrachloroethane	ND	0.50			NR
1,1,2-Trichloroethane	ND	0.50			NR
1,1-Dichloroethane	ND	0.50			NR
1,1-Dichloroethene	ND	0.50			NR
1,1-Dichloropropene	ND	0.50			NR
1,2,3-Trichloropropane	ND	0.50			NR
1,2,3-Trichlorobenzene	ND	0.50			NR
1,2,4-Trichlorobenzene	ND	0.50			NR
1,2,4-Trimethylbenzene	ND	0.50			NR
1,2-Dibromo-3-chloropropane	ND	0.50			NR
1,2-Dibromoethane	ND	0.50			NR
1,2-Dichlorobenzene	ND	0.50			NR
1,2-Dichloroethane	ND	0.50			NR
1,2-Dichloropropane	ND	0.50			NR
1,3,5-Trimethylbenzene	ND	0.50			NR
1,3-Dichlorobenzene	ND	0.50			NR
1,3-Dichloropropane	ND	0.50			NR
1,4-Dichlorobenzene	ND	0.50			NR
2,2-Dichloropropane	ND	0.50			NR
2-Chlorotoluene	ND	0.50			NR
4-Chlorotoluene	ND	0.50			NR
4-Isopropyltoluene	ND	0.50			NR
Benzene	ND	0.50			NR
Bromobenzene	ND	0.50			NR
Bromodichloromethane	ND	0.50			NR
Bromoform	ND	0.50			NR
Bromomethane	ND	0.50			NR
Carbon tetrachloride	ND	0.50			NR
Chlorobenzene	ND	0.50			NR
Chloroethane	ND	0.50			NR
Chloroform	ND	0.50			NR
Chloromethane	ND	0.50			NR
cis-1,2-Dichloroethene	ND	0.50			NR
cis-1,3-Dichloropropene	ND	0.50			NR
Dibromochloromethane	ND	0.50			NR
Dibromomethane	ND	0.50			NR
Dichlorodifluoromethane	ND	0.50			NR



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

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

Batch B6I0424 - MSVOA_W (continued)

Blank (B6I0424-BLK1) - Continued

Prepared: 9/17/2016 Analyzed: 9/17/2016

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	26.87		25.0000		107	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.92		25.0000		104	61 - 123			
Surrogate: Dibromofluoromethane	26.09		25.0000		104	57 - 147			
Surrogate: Toluene-d8	26.02		25.0000		104	61 - 119			

LCS (B6I0424-BS1)

Prepared: 9/17/2016 Analyzed: 9/17/2016

1,1,1,2-Tetrachloroethane	18.7500	0.50	20.0000		93.8	76 - 132			
1,1,1-Trichloroethane	17.3800	0.50	20.0000		86.9	72 - 144			
1,1,2,2-Tetrachloroethane	15.4800	0.50	20.0000		77.4	70 - 120			
1,1,2-Trichloroethane	15.8300	0.50	20.0000		79.2	75 - 120			
1,1-Dichloroethane	17.4700	0.50	20.0000		87.4	65 - 127			
1,1-Dichloroethene	20.9700	0.50	20.0000		105	63 - 142			
1,1-Dichloropropene	18.7700	0.50	20.0000		93.8	78 - 137			
1,2,3-Trichloropropane	16.5000	0.50	20.0000		82.5	73 - 118			
1,2,3-Trichlorobenzene	19.6600	0.50	20.0000		98.3	53 - 164			
1,2,4-Trichlorobenzene	18.2500	0.50	20.0000		91.2	58 - 144			
1,2,4-Trimethylbenzene	18.0100	0.50	20.0000		90.0	75 - 140			
1,2-Dibromo-3-chloropropane	16.4600	0.50	20.0000		82.3	61 - 131			
1,2-Dibromoethane	16.7000	0.50	20.0000		83.5	74 - 125			
1,2-Dichlorobenzene	19.3400	0.50	20.0000		96.7	78 - 122			
1,2-Dichloroethane	17.6700	0.50	20.0000		88.4	70 - 126			
1,2-Dichloropropane	15.7800	0.50	20.0000		78.9	69 - 120			
1,3,5-Trimethylbenzene	17.2700	0.50	20.0000		86.4	73 - 145			



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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0424 - MSVOA_W (continued)									
LCS (B6I0424-BS1) - Continued					Prepared: 9/17/2016 Analyzed: 9/17/2016				
1,3-Dichlorobenzene	19.6200	0.50	20.0000		98.1	76 - 126			
1,3-Dichloropropane	17.3000	0.50	20.0000		86.5	76 - 117			
1,4-Dichlorobenzene	19.6400	0.50	20.0000		98.2	77 - 120			
2,2-Dichloropropane	19.6600	0.50	20.0000		98.3	47 - 169			
2-Chlorotoluene	18.7900	0.50	20.0000		94.0	75 - 135			
4-Chlorotoluene	19.1100	0.50	20.0000		95.6	70 - 133			
4-Isopropyltoluene	17.7600	0.50	20.0000		88.8	72 - 153			
Benzene	35.0700	0.50	40.0000		87.7	73 - 123			
Bromobenzene	18.1000	0.50	20.0000		90.5	75 - 121			
Bromodichloromethane	17.1100	0.50	20.0000		85.6	73 - 124			
Bromoform	18.7500	0.50	20.0000		93.8	70 - 135			
Bromomethane	24.8700	0.50	20.0000		124	10 - 166			
Carbon tetrachloride	19.4400	0.50	20.0000		97.2	65 - 171			
Chlorobenzene	19.3800	0.50	20.0000		96.9	80 - 121			
Chloroethane	23.8900	0.50	20.0000		119	55 - 143			
Chloroform	16.8900	0.50	20.0000		84.4	65 - 130			
Chloromethane	17.7100	0.50	20.0000		88.6	21 - 141			
cis-1,2-Dichloroethene	16.7700	0.50	20.0000		83.8	64 - 126			
cis-1,3-Dichloropropene	18.2100	0.50	20.0000		91.0	70 - 131			
Dibromochloromethane	17.1600	0.50	20.0000		85.8	74 - 125			
Dibromomethane	16.8400	0.50	20.0000		84.2	74 - 116			
Dichlorodifluoromethane	17.7100	0.50	20.0000		88.6	40 - 186			
Ethylbenzene	39.6700	0.50	40.0000		99.2	77 - 130			
Hexachlorobutadiene	17.9900	0.50	20.0000		90.0	52 - 176			
Isopropylbenzene	17.7300	0.50	20.0000		88.6	77 - 144			
m,p-Xylene	41.5200	1.0	40.0000		104	84 - 136			
Methylene chloride	16.2300	1.0	20.0000		81.2	72 - 150			
n-Butylbenzene	18.1700	0.50	20.0000		90.8	73 - 154			
n-Propylbenzene	19.3000	0.50	20.0000		96.5	77 - 145			
Naphthalene	18.5500	0.50	20.0000		92.8	55 - 137			
o-Xylene	39.8600	0.50	40.0000		99.6	79 - 135			
sec-Butylbenzene	19.4500	0.50	20.0000		97.2	73 - 157			
Styrene	18.7900	0.50	20.0000		94.0	78 - 125			
tert-Butylbenzene	17.8800	0.50	20.0000		89.4	78 - 149			
Tetrachloroethene	17.8700	0.50	20.0000		89.4	74 - 136			
Toluene	35.3900	0.50	40.0000		88.5	78 - 124			
trans-1,2-Dichloroethene	16.8900	0.50	20.0000		84.4	66 - 131			
Trichloroethene	17.5100	0.50	20.0000		87.6	78 - 128			
Trichlorofluoromethane	19.1900	0.50	20.0000		96.0	60 - 170			
Vinyl chloride	18.8500	0.50	20.0000		94.2	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	25.35		25.0000		101	51 - 157			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0424 - MSVOA_W (continued)

LCS (B6I0424-BS1) - Continued

Prepared: 9/17/2016 Analyzed: 9/17/2016

Surrogate: 4-Bromofluorobenzene	26.49		25.0000		106	61 - 123			
Surrogate: Dibromofluoromethane	25.18		25.0000		101	57 - 147			
Surrogate: Toluene-d8	25.90		25.0000		104	61 - 119			

LCS Dup (B6I0424-BSD1)

Prepared: 9/17/2016 Analyzed: 9/17/2016

1,1,1,2-Tetrachloroethane	19.3200	0.50	20.0000		96.6	76 - 132	2.99	20	
1,1,1-Trichloroethane	18.0100	0.50	20.0000		90.0	72 - 144	3.56	20	
1,1,2,2-Tetrachloroethane	15.6400	0.50	20.0000		78.2	70 - 120	1.03	20	
1,1,2-Trichloroethane	16.6300	0.50	20.0000		83.2	75 - 120	4.93	20	
1,1-Dichloroethane	18.3100	0.50	20.0000		91.6	65 - 127	4.70	20	
1,1-Dichloroethene	21.1200	0.50	20.0000		106	63 - 142	0.713	20	
1,1-Dichloropropene	19.6100	0.50	20.0000		98.0	78 - 137	4.38	20	
1,2,3-Trichloropropane	16.6200	0.50	20.0000		83.1	73 - 118	0.725	20	
1,2,3-Trichlorobenzene	20.5000	0.50	20.0000		102	53 - 164	4.18	20	
1,2,4-Trichlorobenzene	18.6700	0.50	20.0000		93.4	58 - 144	2.28	20	
1,2,4-Trimethylbenzene	18.6000	0.50	20.0000		93.0	75 - 140	3.22	20	
1,2-Dibromo-3-chloropropane	16.7000	0.50	20.0000		83.5	61 - 131	1.45	20	
1,2-Dibromoethane	17.4900	0.50	20.0000		87.4	74 - 125	4.62	20	
1,2-Dichlorobenzene	19.7200	0.50	20.0000		98.6	78 - 122	1.95	20	
1,2-Dichloroethane	18.0000	0.50	20.0000		90.0	70 - 126	1.85	20	
1,2-Dichloropropane	16.6700	0.50	20.0000		83.4	69 - 120	5.49	20	
1,3,5-Trimethylbenzene	17.9000	0.50	20.0000		89.5	73 - 145	3.58	20	
1,3-Dichlorobenzene	20.0300	0.50	20.0000		100	76 - 126	2.07	20	
1,3-Dichloropropane	17.9000	0.50	20.0000		89.5	76 - 117	3.41	20	
1,4-Dichlorobenzene	19.8900	0.50	20.0000		99.4	77 - 120	1.26	20	
2,2-Dichloropropane	19.8600	0.50	20.0000		99.3	47 - 169	1.01	20	
2-Chlorotoluene	19.5800	0.50	20.0000		97.9	75 - 135	4.12	20	
4-Chlorotoluene	19.6600	0.50	20.0000		98.3	70 - 133	2.84	20	
4-Isopropyltoluene	18.3900	0.50	20.0000		92.0	72 - 153	3.49	20	
Benzene	36.3900	0.50	40.0000		91.0	73 - 123	3.69	20	
Bromobenzene	19.0700	0.50	20.0000		95.4	75 - 121	5.22	20	
Bromodichloromethane	17.4800	0.50	20.0000		87.4	73 - 124	2.14	20	
Bromoform	19.1400	0.50	20.0000		95.7	70 - 135	2.06	20	
Bromomethane	23.1000	0.50	20.0000		116	10 - 166	7.38	20	
Carbon tetrachloride	20.0800	0.50	20.0000		100	65 - 171	3.24	20	
Chlorobenzene	20.3400	0.50	20.0000		102	80 - 121	4.83	20	
Chloroethane	25.0700	0.50	20.0000		125	55 - 143	4.82	20	
Chloroform	17.2200	0.50	20.0000		86.1	65 - 130	1.93	20	
Chloromethane	18.7400	0.50	20.0000		93.7	21 - 141	5.65	20	
cis-1,2-Dichloroethene	17.1600	0.50	20.0000		85.8	64 - 126	2.30	20	
cis-1,3-Dichloropropene	19.0500	0.50	20.0000		95.2	70 - 131	4.51	20	
Dibromochloromethane	17.7100	0.50	20.0000		88.6	74 - 125	3.15	20	



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B6I0424 - MSVOA_W (continued)									
LCS Dup (B6I0424-BSD1) - Continued				Prepared: 9/17/2016 Analyzed: 9/17/2016					
Dibromomethane	17.6700	0.50	20.0000		88.4	74 - 116	4.81	20	
Dichlorodifluoromethane	18.2400	0.50	20.0000		91.2	40 - 186	2.95	20	
Ethylbenzene	41.5300	0.50	40.0000		104	77 - 130	4.58	20	
Hexachlorobutadiene	18.8000	0.50	20.0000		94.0	52 - 176	4.40	20	
Isopropylbenzene	18.2400	0.50	20.0000		91.2	77 - 144	2.84	20	
m,p-Xylene	42.9200	1.0	40.0000		107	84 - 136	3.32	20	
Methylene chloride	17.0600	1.0	20.0000		85.3	72 - 150	4.99	20	
n-Butylbenzene	19.0200	0.50	20.0000		95.1	73 - 154	4.57	20	
n-Propylbenzene	20.1600	0.50	20.0000		101	77 - 145	4.36	20	
Naphthalene	19.2400	0.50	20.0000		96.2	55 - 137	3.65	20	
o-Xylene	41.4400	0.50	40.0000		104	79 - 135	3.89	20	
sec-Butylbenzene	20.2500	0.50	20.0000		101	73 - 157	4.03	20	
Styrene	19.5400	0.50	20.0000		97.7	78 - 125	3.91	20	
tert-Butylbenzene	18.4300	0.50	20.0000		92.2	78 - 149	3.03	20	
Tetrachloroethene	18.6700	0.50	20.0000		93.4	74 - 136	4.38	20	
Toluene	36.8800	0.50	40.0000		92.2	78 - 124	4.12	20	
trans-1,2-Dichloroethene	17.4200	0.50	20.0000		87.1	66 - 131	3.09	20	
Trichloroethene	18.3600	0.50	20.0000		91.8	78 - 128	4.74	20	
Trichlorofluoromethane	19.5700	0.50	20.0000		97.8	60 - 170	1.96	20	
Vinyl chloride	19.6800	0.50	20.0000		98.4	55 - 148	4.31	20	
Surrogate: 1,2-Dichloroethane-d4	24.90		25.0000		99.6	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.44		25.0000		106	61 - 123			
Surrogate: Dibromofluoromethane	24.91		25.0000		99.6	57 - 147			
Surrogate: Toluene-d8	26.14		25.0000		105	61 - 119			



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

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Project Number : Raytheon Main GETS Mid Month Sample

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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 B6I0470 - MSVOA_LL_W

Blank (B6I0470-BLK1)

Prepared: 9/19/2016 Analyzed: 9/19/2016

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

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 09/22/2016

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 B6I0470 - MSVOA_LL_W (continued)

Blank (B6I0470-BLK1) - Continued

Prepared: 9/19/2016 Analyzed: 9/19/2016

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	25.01		25.0000		100	51 - 157			
Surrogate: 4-Bromofluorobenzene	24.32		25.0000		97.3	61 - 123			
Surrogate: Dibromofluoromethane	25.15		25.0000		101	57 - 147			
Surrogate: Toluene-d8	24.96		25.0000		99.8	61 - 119			

LCS (B6I0470-BS1)

Prepared: 9/19/2016 Analyzed: 9/19/2016

1,1,1,2-Tetrachloroethane	15.8300	0.50	20.0000		79.2	76 - 132			
1,1,1-Trichloroethane	17.2400	0.50	20.0000		86.2	72 - 144			
1,1,2,2-Tetrachloroethane	18.1300	0.50	20.0000		90.6	70 - 120			
1,1,2-Trichloroethane	17.7000	0.50	20.0000		88.5	75 - 120			
1,1-Dichloroethane	18.4200	0.50	20.0000		92.1	65 - 127			
1,1-Dichloroethene	17.9700	0.50	20.0000		89.8	63 - 142			
1,1-Dichloropropene	18.7000	0.50	20.0000		93.5	78 - 137			
1,2,3-Trichloropropane	17.6200	0.50	20.0000		88.1	73 - 118			
1,2,3-Trichlorobenzene	19.4400	0.50	20.0000		97.2	53 - 164			
1,2,4-Trichlorobenzene	19.9000	0.50	20.0000		99.5	58 - 144			
1,2,4-Trimethylbenzene	20.1900	0.50	20.0000		101	75 - 140			
1,2-Dibromo-3-chloropropane	14.3000	0.50	20.0000		71.5	61 - 131			
1,2-Dibromoethane	16.5200	0.50	20.0000		82.6	74 - 125			
1,2-Dichlorobenzene	19.3800	0.50	20.0000		96.9	78 - 122			
1,2-Dichloroethane	16.8100	0.50	20.0000		84.0	70 - 126			
1,2-Dichloropropane	16.3000	0.50	20.0000		81.5	69 - 120			
1,3,5-Trimethylbenzene	19.7000	0.50	20.0000		98.5	73 - 145			
1,3-Dichlorobenzene	19.7600	0.50	20.0000		98.8	76 - 126			
1,3-Dichloropropane	18.2400	0.50	20.0000		91.2	76 - 117			



Certificate of Analysis

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

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

Batch B6I0470 - MSVOA_LL_W (continued)

LCS (B6I0470-BS1) - Continued

Prepared: 9/19/2016 Analyzed: 9/19/2016

1,4-Dichlorobenzene	18.8800	0.50	20.0000		94.4	77 - 120			
2,2-Dichloropropane	15.8100	0.50	20.0000		79.0	47 - 169			
2-Chlorotoluene	19.3600	0.50	20.0000		96.8	75 - 135			
4-Chlorotoluene	19.6400	0.50	20.0000		98.2	70 - 133			
4-Isopropyltoluene	21.5600	0.50	20.0000		108	72 - 153			
Benzene	35.5100	0.50	40.0000		88.8	73 - 123			
Bromobenzene	18.6500	0.50	20.0000		93.2	75 - 121			
Bromodichloromethane	17.2100	0.50	20.0000		86.0	73 - 124			
Bromoform	15.8400	0.50	20.0000		79.2	70 - 135			
Bromomethane	21.1600	0.50	20.0000		106	10 - 166			
Carbon tetrachloride	17.0900	0.50	20.0000		85.4	65 - 171			
Chlorobenzene	19.0900	0.50	20.0000		95.4	80 - 121			
Chloroethane	17.1600	0.50	20.0000		85.8	55 - 143			
Chloroform	18.5100	0.50	20.0000		92.6	65 - 130			
Chloromethane	21.9800	0.50	20.0000		110	21 - 141			
cis-1,2-Dichloroethene	18.1900	0.50	20.0000		91.0	64 - 126			
cis-1,3-Dichloropropene	15.4200	0.50	20.0000		77.1	70 - 131			
Dibromochloromethane	16.8100	0.50	20.0000		84.0	74 - 125			
Dibromomethane	18.2500	0.50	20.0000		91.2	74 - 116			
Dichlorodifluoromethane	22.2200	0.50	20.0000		111	40 - 186			
Ethylbenzene	38.1500	0.50	40.0000		95.4	77 - 130			
Hexachlorobutadiene	21.2300	0.50	20.0000		106	52 - 176			
Isopropylbenzene	21.6100	0.50	20.0000		108	77 - 144			
m,p-Xylene	40.5700	1.0	40.0000		101	84 - 136			
Methylene chloride	16.5600	1.0	20.0000		82.8	72 - 150			
n-Butylbenzene	22.0100	0.50	20.0000		110	73 - 154			
n-Propylbenzene	20.0200	0.50	20.0000		100	77 - 145			
Naphthalene	19.7100	0.50	20.0000		98.6	55 - 137			
o-Xylene	37.8100	0.50	40.0000		94.5	79 - 135			
sec-Butylbenzene	21.7500	0.50	20.0000		109	73 - 157			
Styrene	18.9900	0.50	20.0000		95.0	78 - 125			
tert-Butylbenzene	20.6900	0.50	20.0000		103	78 - 149			
Tetrachloroethene	18.4100	0.50	20.0000		92.0	74 - 136			
Toluene	32.9700	0.50	40.0000		82.4	78 - 124			
trans-1,2-Dichloroethene	17.5700	0.50	20.0000		87.8	66 - 131			
Trichloroethene	16.6500	0.50	20.0000		83.2	78 - 128			
Trichlorofluoromethane	18.0700	0.50	20.0000		90.4	60 - 170			
Vinyl chloride	18.7400	0.50	20.0000		93.7	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	24.00		25.0000		96.0	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.02		25.0000		100	61 - 123			
Surrogate: Dibromofluoromethane	24.45		25.0000		97.8	57 - 147			



Certificate of Analysis

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

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

Batch B6I0470 - MSVOA_LL_W (continued)

LCS (B6I0470-BS1) - Continued

Prepared: 9/19/2016 Analyzed: 9/19/2016

Surrogate: Toluene-d8

25.01

25.0000

100

61 - 119

LCS Dup (B6I0470-BSD1)

Prepared: 9/19/2016 Analyzed: 9/19/2016

1,1,1,2-Tetrachloroethane	14.3400	0.50	20.0000	71.7	76 - 132	9.88	20	L4
1,1,1-Trichloroethane	15.2000	0.50	20.0000	76.0	72 - 144	12.6	20	
1,1,2,2-Tetrachloroethane	16.7000	0.50	20.0000	83.5	70 - 120	8.21	20	
1,1,2-Trichloroethane	16.4900	0.50	20.0000	82.4	75 - 120	7.08	20	
1,1-Dichloroethane	16.2000	0.50	20.0000	81.0	65 - 127	12.8	20	
1,1-Dichloroethene	15.9600	0.50	20.0000	79.8	63 - 142	11.8	20	
1,1-Dichloropropene	16.9000	0.50	20.0000	84.5	78 - 137	10.1	20	
1,2,3-Trichloropropane	16.6100	0.50	20.0000	83.0	73 - 118	5.90	20	
1,2,3-Trichlorobenzene	17.8100	0.50	20.0000	89.0	53 - 164	8.75	20	
1,2,4-Trichlorobenzene	18.2000	0.50	20.0000	91.0	58 - 144	8.92	20	
1,2,4-Trimethylbenzene	18.0500	0.50	20.0000	90.2	75 - 140	11.2	20	
1,2-Dibromo-3-chloropropane	14.4300	0.50	20.0000	72.2	61 - 131	0.905	20	
1,2-Dibromoethane	15.8800	0.50	20.0000	79.4	74 - 125	3.95	20	
1,2-Dichlorobenzene	17.3400	0.50	20.0000	86.7	78 - 122	11.1	20	
1,2-Dichloroethane	15.4600	0.50	20.0000	77.3	70 - 126	8.37	20	
1,2-Dichloropropane	14.6400	0.50	20.0000	73.2	69 - 120	10.7	20	
1,3,5-Trimethylbenzene	17.6300	0.50	20.0000	88.2	73 - 145	11.1	20	
1,3-Dichlorobenzene	17.5500	0.50	20.0000	87.8	76 - 126	11.8	20	
1,3-Dichloropropane	16.6500	0.50	20.0000	83.2	76 - 117	9.11	20	
1,4-Dichlorobenzene	16.9900	0.50	20.0000	85.0	77 - 120	10.5	20	
2,2-Dichloropropane	14.1200	0.50	20.0000	70.6	47 - 169	11.3	20	
2-Chlorotoluene	17.4600	0.50	20.0000	87.3	75 - 135	10.3	20	
4-Chlorotoluene	17.5000	0.50	20.0000	87.5	70 - 133	11.5	20	
4-Isopropyltoluene	19.5600	0.50	20.0000	97.8	72 - 153	9.73	20	
Benzene	32.0000	0.50	40.0000	80.0	73 - 123	10.4	20	
Bromobenzene	16.5800	0.50	20.0000	82.9	75 - 121	11.8	20	
Bromodichloromethane	15.3800	0.50	20.0000	76.9	73 - 124	11.2	20	
Bromoform	15.2200	0.50	20.0000	76.1	70 - 135	3.99	20	
Bromomethane	17.8700	0.50	20.0000	89.4	10 - 166	16.9	20	
Carbon tetrachloride	15.1500	0.50	20.0000	75.8	65 - 171	12.0	20	
Chlorobenzene	17.1200	0.50	20.0000	85.6	80 - 121	10.9	20	
Chloroethane	15.4300	0.50	20.0000	77.2	55 - 143	10.6	20	
Chloroform	16.2800	0.50	20.0000	81.4	65 - 130	12.8	20	
Chloromethane	18.3800	0.50	20.0000	91.9	21 - 141	17.8	20	
cis-1,2-Dichloroethene	16.1300	0.50	20.0000	80.6	64 - 126	12.0	20	
cis-1,3-Dichloropropene	14.3400	0.50	20.0000	71.7	70 - 131	7.26	20	
Dibromochloromethane	15.4200	0.50	20.0000	77.1	74 - 125	8.63	20	
Dibromomethane	17.2500	0.50	20.0000	86.2	74 - 116	5.63	20	
Dichlorodifluoromethane	19.4700	0.50	20.0000	97.4	40 - 186	13.2	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0470 - MSVOA_LL_W (continued)

LCS Dup (B6I0470-BSD1) - Continued

Prepared: 9/19/2016 Analyzed: 9/19/2016

Ethylbenzene	34.5500	0.50	40.0000		86.4	77 - 130	9.90	20	
Hexachlorobutadiene	19.5000	0.50	20.0000		97.5	52 - 176	8.49	20	
Isopropylbenzene	19.4400	0.50	20.0000		97.2	77 - 144	10.6	20	
m,p-Xylene	36.7700	1.0	40.0000		91.9	84 - 136	9.83	20	
Methylene chloride	15.2100	1.0	20.0000		76.0	72 - 150	8.50	20	
n-Butylbenzene	19.6700	0.50	20.0000		98.4	73 - 154	11.2	20	
n-Propylbenzene	17.9600	0.50	20.0000		89.8	77 - 145	10.8	20	
Naphthalene	18.2800	0.50	20.0000		91.4	55 - 137	7.53	20	
o-Xylene	34.5700	0.50	40.0000		86.4	79 - 135	8.95	20	
sec-Butylbenzene	19.7000	0.50	20.0000		98.5	73 - 157	9.89	20	
Styrene	17.3400	0.50	20.0000		86.7	78 - 125	9.08	20	
tert-Butylbenzene	18.7300	0.50	20.0000		93.6	78 - 149	9.94	20	
Tetrachloroethene	16.3500	0.50	20.0000		81.8	74 - 136	11.9	20	
Toluene	29.9500	0.50	40.0000		74.9	78 - 124	9.60	20	L4
trans-1,2-Dichloroethene	15.3200	0.50	20.0000		76.6	66 - 131	13.7	20	
Trichloroethene	15.2300	0.50	20.0000		76.2	78 - 128	8.91	20	L4
Trichlorofluoromethane	16.2600	0.50	20.0000		81.3	60 - 170	10.5	20	
Vinyl chloride	16.4700	0.50	20.0000		82.4	55 - 148	12.9	20	
Surrogate: 1,2-Dichloroethane-d4	24.09		25.0000		96.4	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.38		25.0000		102	61 - 123			
Surrogate: Dibromofluoromethane	24.70		25.0000		98.8	57 - 147			
Surrogate: Toluene-d8	25.31		25.0000		101	61 - 119			

Duplicate (B6I0470-DUP1)

Source: 1603163-01RE1

Prepared: 9/20/2016 Analyzed: 9/20/2016

1,1,1,2-Tetrachloroethane	ND	10		ND	NR			20	
1,1,1-Trichloroethane	ND	10		ND	NR			20	
1,1,2,2-Tetrachloroethane	ND	10		ND	NR			20	
1,1,2-Trichloroethane	ND	10		ND	NR			20	
1,1-Dichloroethane	ND	10		ND	NR			20	
1,1-Dichloroethene	ND	10		ND	NR			20	
1,1-Dichloropropene	ND	10		ND	NR			20	
1,2,3-Trichloropropane	ND	10		ND	NR			20	
1,2,3-Trichlorobenzene	ND	10		ND	NR			20	
1,2,4-Trichlorobenzene	ND	10		ND	NR			20	
1,2,4-Trimethylbenzene	ND	10		ND	NR			20	
1,2-Dibromo-3-chloropropane	ND	10		ND	NR			20	
1,2-Dibromoethane	ND	10		ND	NR			20	
1,2-Dichlorobenzene	ND	10		ND	NR			20	
1,2-Dichloroethane	ND	10		ND	NR			20	
1,2-Dichloropropane	ND	10		ND	NR			20	
1,3,5-Trimethylbenzene	ND	10		ND	NR			20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0470 - MSVOA_LL_W (continued)

Duplicate (B6I0470-DUP1) - Continued

Source: 1603163-01RE1

Prepared: 9/20/2016 Analyzed: 9/20/2016

1,3-Dichlorobenzene	ND	10		ND	NR			20	
1,3-Dichloropropane	ND	10		ND	NR			20	
1,4-Dichlorobenzene	ND	10		ND	NR			20	
2,2-Dichloropropane	ND	10		ND	NR			20	
2-Chlorotoluene	ND	10		ND	NR			20	
4-Chlorotoluene	ND	10		ND	NR			20	
4-Isopropyltoluene	ND	10		ND	NR			20	
Benzene	ND	10		ND	NR			20	
Bromobenzene	ND	10		ND	NR			20	
Bromodichloromethane	ND	10		ND	NR			20	
Bromoform	ND	10		ND	NR			20	
Bromomethane	ND	10		ND	NR			20	
Carbon tetrachloride	ND	10		ND	NR			20	
Chlorobenzene	ND	10		ND	NR			20	
Chloroethane	ND	10		ND	NR			20	
Chloroform	ND	10		ND	NR			20	
Chloromethane	ND	10		ND	NR			20	
cis-1,2-Dichloroethene	ND	10		ND	NR			20	
cis-1,3-Dichloropropene	ND	10		ND	NR			20	
Dibromochloromethane	ND	10		ND	NR			20	
Dibromomethane	ND	10		ND	NR			20	
Dichlorodifluoromethane	ND	10		ND	NR			20	
Ethylbenzene	ND	10		ND	NR			20	
Hexachlorobutadiene	ND	10		ND	NR			20	
Isopropylbenzene	ND	10		ND	NR			20	
m,p-Xylene	ND	20		ND	NR			20	
Methylene chloride	ND	20		ND	NR			20	
n-Butylbenzene	ND	10		ND	NR			20	
n-Propylbenzene	ND	10		ND	NR			20	
Naphthalene	ND	10		ND	NR			20	
o-Xylene	ND	10		ND	NR			20	
sec-Butylbenzene	ND	10		ND	NR			20	
Styrene	ND	10		ND	NR			20	
tert-Butylbenzene	ND	10		ND	NR			20	
Tetrachloroethene	ND	10		ND	NR			20	
Toluene	ND	10		ND	NR			20	
trans-1,2-Dichloroethene	ND	10		ND	NR			20	
Trichloroethene	ND	10		ND	NR			20	
Trichlorofluoromethane	ND	10		ND	NR			20	
Vinyl chloride	ND	10		ND	NR			20	

Surrogate: 1,2-Dichloroethane-d4

25.73

25.0000

103

51 - 157



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0470 - MSVOA_LL_W (continued)

Duplicate (B6I0470-DUP1) - Continued

Source: 1603163-01RE1

Prepared: 9/20/2016 Analyzed: 9/20/2016

Surrogate: 4-Bromofluorobenzene	24.39	25.0000	97.6	61 - 123
Surrogate: Dibromofluoromethane	26.11	25.0000	104	57 - 147
Surrogate: Toluene-d8	25.65	25.0000	103	61 - 119



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0508 - MSSEMI_W

Blank (B6I0508-BLK1)

Prepared: 9/20/2016 Analyzed: 9/20/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	55.30		100.000		55.3	42 - 106			
Surrogate: 2-Fluorobiphenyl	68.85		100.000		68.8	55 - 117			
Surrogate: 4-Terphenyl-d14	107.8		100.000		108	52 - 142			
Surrogate: Nitrobenzene-d5	68.42		100.000		68.4	43 - 116			

LCS (B6I0508-BS1)

Prepared: 9/20/2016 Analyzed: 9/20/2016

1,4-Dioxane	104.290	2.0	100.000		104	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	68.65		100.000		68.6	42 - 106			
Surrogate: 2-Fluorobiphenyl	95.99		100.000		96.0	55 - 117			
Surrogate: 4-Terphenyl-d14	111.5		100.000		111	52 - 142			
Surrogate: Nitrobenzene-d5	89.55		100.000		89.6	43 - 116			

LCS Dup (B6I0508-BSD1)

Prepared: 9/20/2016 Analyzed: 9/20/2016

1,4-Dioxane	106.170	2.0	100.000		106	62 - 127	1.79	20	
Surrogate: 1,2-Dichlorobenzene-d4	67.70		100.000		67.7	42 - 106			
Surrogate: 2-Fluorobiphenyl	97.75		100.000		97.8	55 - 117			
Surrogate: 4-Terphenyl-d14	118.1		100.000		118	52 - 142			
Surrogate: Nitrobenzene-d5	91.52		100.000		91.5	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

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 B6I0525 - MSSEMI_ISOTOPEDILN_W

Blank (B6I0525-BLK1)

Prepared: 9/20/2016 Analyzed: 9/21/2016

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.6485		1.00000		64.8	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7604		1.00000		76.0	28 - 122			
Surrogate: 4-Terphenyl-d14	0.8103		1.00000		81.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.4403		1.00000		44.0	20 - 119			

LCS (B6I0525-BS1)

Prepared: 9/20/2016 Analyzed: 9/21/2016

1,4-Dioxane	1.17099	0.20	1.00000		117	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.5323		1.00000		53.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6318		1.00000		63.2	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7402		1.00000		74.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.3749		1.00000		37.5	20 - 119			

LCS Dup (B6I0525-BSD1)

Prepared: 9/20/2016 Analyzed: 9/21/2016

1,4-Dioxane	1.10313	0.20	1.00000		110	49 - 169	5.97	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.5289		1.00000		52.9	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6480		1.00000		64.8	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7386		1.00000		73.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.3909		1.00000		39.1	20 - 119			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2016

Notes and Definitions

L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
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.



PROJECT: Raytheon Main GETS Mid Month Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Kevin Fong

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED		Expected Concentration Range (ppb) for VOA's		SPECIAL HANDLING		REMARKS																					
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Nitric Acid (HNO ₃)	Sodium Hydroxide (NaOH)	Sulfuric Acid (H ₂ SO ₄)	Ice	40-ml VOA	125 mL Poly	250 mL Poly	250 mL Glass	1 L Poly		1 L Amber	VOCs by EPA 8260B	Bromate by EPA 317	Bromide by EPA 300	Alkalinity by SM2320B	Total Organic Carbon by SM5310B	Total Suspended Solids by SM2540D	UV Absorption EPA 415.3 @ 254 nm	1,4-Dioxane by EPA 8270C MOD	1,4-Dioxane by EPA 8270C SIM	0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 hr TAT	5 Day TAT	Level IV Data Validation Requested	MS/MSD Requested		
1603176-1	TB-091516	9/15/2016	7:00		X	X				X	2							X																			
-2	CEFF		7:55	X		X				X	3						1	X								X	X								X		
-3	CBT		8:05	X		X				X	3						1	X								X	X								X		
-4	POX		8:10	X		X				X	3						1	X								X	X								X		
-5	INF		8:15	X		X				X	3						1	X							X										X		
-6	EW-02		8:55	X		X				X	3						1	X							X		X								X		
-7	MW-29		9:45	X		X				X	3						1	X							X		X								X		

Total number of containers per analysis:				20					6	Total No. of Containers: 26											
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																
Kevin Fong HHA		9/15/16 9:56	Cyril ATL		9:36A 9/15/16																
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																
Cyril ATL		9/15/16 11:00am	FPO WWS		9/15/16 11:00																

- ☒ No. of containers correct
- ☒ Received in good condition
- ☐ Custody seals secure
- ☒ Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive

Suite 375

San Diego, CA 92122

Ph: 858.455.5400

snetto@hargis.com

Instructions: Fill out form completely and sign only after verified for completeness. Complete in ballpoint pen. Draw one line through error, initial and date correction. Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✗. Note applicable preservatives, special instructions, and deviations from typical environmental samples. Consult project QA documents for specific instructions.



October 20, 2016

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 : 1603503

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on October 06, 2016 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".

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 GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-100616	1603503-01	Lab prepared water	10/06/16 7:00	10/06/16 10:13
CEFF	1603503-02	Groundwater	10/06/16 8:15	10/06/16 10:13
CBT	1603503-03	Groundwater	10/06/16 8:20	10/06/16 10:13
POX	1603503-04	Groundwater	10/06/16 8:30	10/06/16 10:13
PF	1603503-05	Groundwater	10/06/16 8:39	10/06/16 10:13
INF	1603503-06	Groundwater	10/06/16 8:42	10/06/16 10:13
EW-02	1603503-07	Groundwater	10/06/16 9:19	10/06/16 10:13
MW-29	1603503-08	Groundwater	10/06/16 9:32	10/06/16 10:13

CASE NARRATIVE

The samples for EPA 317 (Bromate) analysis were subcontracted to Exova, Inc. with ELAP Cert.# 2652.

Sample Receiving/General Comments:

The following analytes lists were taken from sample containers: Alkalinity - Hydroxide, Bicarbonate, Carbonate, and Total.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID TB-100616

Lab ID: 1603503-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,1,2-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,1-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,1-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID TB-100616

Lab ID: 1603503-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 15:36	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 15:36	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Tetrachloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Trichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Trichlorofluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 15:36	
Surrogate: 1,2-Dichloroethane-d4	99.8 %	51 - 157		B6J0156	10/06/2016	10/06/16 15:36	
Surrogate: 4-Bromofluorobenzene	111 %	61 - 123		B6J0156	10/06/2016	10/06/16 15:36	
Surrogate: Dibromofluoromethane	107 %	57 - 147		B6J0156	10/06/2016	10/06/16 15:36	
Surrogate: Toluene-d8	103 %	61 - 119		B6J0156	10/06/2016	10/06/16 15:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID CEFF

Lab ID: 1603503-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,1,2-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,1-Dichloroethane	0.73	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,1-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID CEFF

Lab ID: 1603503-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 16:00	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 16:00	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Tetrachloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Trichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Trichlorofluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:00	
Surrogate: 1,2-Dichloroethane-d4	109 %	51 - 157		B6J0156	10/06/2016	10/06/16 16:00	
Surrogate: 4-Bromofluorobenzene	112 %	61 - 123		B6J0156	10/06/2016	10/06/16 16:00	
Surrogate: Dibromofluoromethane	111 %	57 - 147		B6J0156	10/06/2016	10/06/16 16:00	
Surrogate: Toluene-d8	103 %	61 - 119		B6J0156	10/06/2016	10/06/16 16:00	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID CEFF

Lab ID: 1603503-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6J0217	10/07/2016	10/07/16 16:19	
Surrogate: 1,2-Dichlorobenzene-d4	67.0 %	31 - 106		B6J0217	10/07/2016	10/07/16 16:19	
Surrogate: 2-Fluorobiphenyl	70.7 %	28 - 122		B6J0217	10/07/2016	10/07/16 16:19	
Surrogate: 4-Terphenyl-d14	77.2 %	43 - 131		B6J0217	10/07/2016	10/07/16 16:19	
Surrogate: Nitrobenzene-d5	72.2 %	20 - 119		B6J0217	10/07/2016	10/07/16 16:19	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID CBT

Lab ID: 1603503-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,1,2-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,1-Dichloroethane	0.62	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,1-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID CBT

Lab ID: 1603503-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 16:24	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 16:24	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Tetrachloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Trichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Trichlorofluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:24	
Surrogate: 1,2-Dichloroethane-d4	110 %	51 - 157		B6J0156	10/06/2016	10/06/16 16:24	
Surrogate: 4-Bromofluorobenzene	112 %	61 - 123		B6J0156	10/06/2016	10/06/16 16:24	
Surrogate: Dibromofluoromethane	115 %	57 - 147		B6J0156	10/06/2016	10/06/16 16:24	
Surrogate: Toluene-d8	105 %	61 - 119		B6J0156	10/06/2016	10/06/16 16:24	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID CBT

Lab ID: 1603503-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6J0217	10/07/2016	10/07/16 16:46	
Surrogate: 1,2-Dichlorobenzene-d4	69.1 %	31 - 106		B6J0217	10/07/2016	10/07/16 16:46	
Surrogate: 2-Fluorobiphenyl	75.5 %	28 - 122		B6J0217	10/07/2016	10/07/16 16:46	
Surrogate: 4-Terphenyl-d14	82.6 %	43 - 131		B6J0217	10/07/2016	10/07/16 16:46	
Surrogate: Nitrobenzene-d5	75.1 %	20 - 119		B6J0217	10/07/2016	10/07/16 16:46	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID POX

Lab ID: 1603503-04

Alkalinity, Speciated by SM 2320B

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	

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	3.8	3.0	1	B6J0333	10/11/2016	10/11/16 17:09	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,1,2-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,1-Dichloroethane	0.58	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,1-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID POX

Lab ID: 1603503-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 16:49	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 16:49	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Tetrachloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Trichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Trichlorofluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 16:49	

Surrogate: 1,2-Dichloroethane-d4 111 % 51 - 157 B6J0156 10/06/2016 10/06/16 16:49

Surrogate: 4-Bromofluorobenzene 112 % 61 - 123 B6J0156 10/06/2016 10/06/16 16:49



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID POX

Lab ID: 1603503-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Dibromofluoromethane	114 %	57 - 147		B6J0156	10/06/2016	10/06/16 16:49	
Surrogate: Toluene-d8	107 %	61 - 119		B6J0156	10/06/2016	10/06/16 16:49	

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6J0217	10/07/2016	10/07/16 17:14	
Surrogate: 1,2-Dichlorobenzene-d4	67.9 %	31 - 106		B6J0217	10/07/2016	10/07/16 17:14	
Surrogate: 2-Fluorobiphenyl	74.5 %	28 - 122		B6J0217	10/07/2016	10/07/16 17:14	
Surrogate: 4-Terphenyl-d14	84.4 %	43 - 131		B6J0217	10/07/2016	10/07/16 17:14	
Surrogate: Nitrobenzene-d5	74.7 %	20 - 119		B6J0217	10/07/2016	10/07/16 17:14	



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Client Sample ID PF

Lab ID: 1603503-05

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	B6J0396	10/07/2016	10/07/16 12:25	

Alkalinity, Speciated by SM 2320B

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B6J0300	10/11/2016	10/11/16 12:13	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B6J0301	10/11/2016	10/11/16 10:30	

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	B6J0333	10/11/2016	10/11/16 17:28	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID INF

Lab ID: 1603503-06

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.17	0.05	1	B6J0399	10/13/2016	10/13/16 13:10	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,1,2-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,1-Dichloroethane	0.87	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,1-Dichloroethene	79	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	



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Project Number : Raytheon Main GETS Monthly Sample, 5

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Reported : 10/20/2016

Client Sample ID INF

Lab ID: 1603503-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 18:01	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 18:01	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Tetrachloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Trichloroethene	0.71	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Trichlorofluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:01	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>	<i>51 - 157</i>		B6J0156	10/06/2016	<i>10/06/16 18:01</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>111 %</i>	<i>61 - 123</i>		B6J0156	10/06/2016	<i>10/06/16 18:01</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>	<i>57 - 147</i>		B6J0156	10/06/2016	<i>10/06/16 18:01</i>	
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>	<i>61 - 119</i>		B6J0156	10/06/2016	<i>10/06/16 18:01</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID INF

Lab ID: 1603503-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	22	2.0	1	B6J0227	10/07/2016	10/10/16 11:41	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>56.0 %</i>	<i>42 - 106</i>		B6J0227	10/07/2016	<i>10/10/16 11:41</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>64.6 %</i>	<i>55 - 117</i>		B6J0227	10/07/2016	<i>10/10/16 11:41</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>93.3 %</i>	<i>52 - 142</i>		B6J0227	10/07/2016	<i>10/10/16 11:41</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>59.7 %</i>	<i>43 - 116</i>		B6J0227	10/07/2016	<i>10/10/16 11:41</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID EW-02

Lab ID: 1603503-07

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.15	0.05	1	B6J0399	10/13/2016	10/13/16 13:55	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,1,2-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,1-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,1-Dichloroethene	31	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2-Dichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID EW-02

Lab ID: 1603503-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 17:13	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 17:13	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Tetrachloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Trichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Trichlorofluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 17:13	
Surrogate: 1,2-Dichloroethane-d4	111 %	51 - 157		B6J0156	10/06/2016	10/06/16 17:13	
Surrogate: 4-Bromofluorobenzene	109 %	61 - 123		B6J0156	10/06/2016	10/06/16 17:13	
Surrogate: Dibromofluoromethane	113 %	57 - 147		B6J0156	10/06/2016	10/06/16 17:13	
Surrogate: Toluene-d8	105 %	61 - 119		B6J0156	10/06/2016	10/06/16 17:13	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID EW-02

Lab ID: 1603503-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	9.6	2.0	1	B6J0227	10/07/2016	10/10/16 12:09	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>55.5 %</i>	<i>42 - 106</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:09</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>63.0 %</i>	<i>55 - 117</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:09</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>91.7 %</i>	<i>52 - 142</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:09</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>60.2 %</i>	<i>43 - 116</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:09</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID MW-29

Lab ID: 1603503-08

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.26	0.10	2	B6J0399	10/13/2016	10/13/16 14:07	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,1,1-Trichloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,1,2-Trichloroethane	0.87	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,1-Dichloroethane	2.7	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,1-Dichloroethene	280	2.5	5	B6J0156	10/06/2016	10/06/16 18:50	
1,1-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2,3-Trichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2-Dibromoethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2-Dichloroethane	0.51	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,3-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,3-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
1,4-Dichlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
2,2-Dichloropropane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
2-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
4-Chlorotoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
4-Isopropyltoluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Benzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Bromobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Bromodichloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Bromoform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Bromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Carbon tetrachloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Chlorobenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID MW-29

Lab ID: 1603503-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Chloroform	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Chloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Dibromochloromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Dibromomethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Dichlorodifluoromethane	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Ethylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Hexachlorobutadiene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Isopropylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
m,p-Xylene	ND	1.0	1	B6J0156	10/06/2016	10/06/16 18:26	
Methylene chloride	ND	1.0	1	B6J0156	10/06/2016	10/06/16 18:26	
n-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
n-Propylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Naphthalene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
o-Xylene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
sec-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Styrene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
tert-Butylbenzene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Tetrachloroethene	0.82	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Toluene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Trichloroethene	2.7	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Trichlorofluoromethane	1.3	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
Vinyl chloride	ND	0.50	1	B6J0156	10/06/2016	10/06/16 18:26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>	<i>51 - 157</i>		B6J0156	10/06/2016	<i>10/06/16 18:50</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>	<i>51 - 157</i>		B6J0156	10/06/2016	<i>10/06/16 18:26</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>61 - 123</i>		B6J0156	10/06/2016	<i>10/06/16 18:50</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>110 %</i>	<i>61 - 123</i>		B6J0156	10/06/2016	<i>10/06/16 18:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>116 %</i>	<i>57 - 147</i>		B6J0156	10/06/2016	<i>10/06/16 18:26</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>	<i>57 - 147</i>		B6J0156	10/06/2016	<i>10/06/16 18:50</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>61 - 119</i>		B6J0156	10/06/2016	<i>10/06/16 18:26</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 119</i>		B6J0156	10/06/2016	<i>10/06/16 18:50</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Client Sample ID MW-29

Lab ID: 1603503-08

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	72	2.0	1	B6J0227	10/07/2016	10/10/16 12:37	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>46.8 %</i>	<i>42 - 106</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:37</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>56.1 %</i>	<i>55 - 117</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:37</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>94.9 %</i>	<i>52 - 142</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:37</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>51.0 %</i>	<i>43 - 116</i>		<i>B6J0227</i>	<i>10/07/2016</i>	<i>10/10/16 12:37</i>	



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QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

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

Batch B6J0300 - No_Prep_WC1_W

Blank (B6J0300-BLK1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Total (as CaCO ₃)	ND	5.0			NR				

LCS (B6J0300-BS1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Alkalinity, Total (as CaCO ₃)	103.910	5.0	99.9580		104	80 - 120			

Duplicate (B6J0300-DUP1)

Source: 1603466-01

Prepared: 10/11/2016 Analyzed: 10/11/2016

Alkalinity, Total (as CaCO ₃)	411.520	5.0		413.580	NR		0.499	20	

Matrix Spike (B6J0300-MS1)

Source: 1603466-01

Prepared: 10/11/2016 Analyzed: 10/11/2016

Alkalinity, Total (as CaCO ₃)	600.820	5.0	99.9580	413.580	187	80 - 120			M1

Matrix Spike Dup (B6J0300-MSD1)

Source: 1603466-01

Prepared: 10/11/2016 Analyzed: 10/11/2016

Alkalinity, Total (as CaCO ₃)	598.770	5.0	99.9580	413.580	185	80 - 120	0.342	20	M1



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D - Quality Control

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

Batch B6J0301 - No_Prep_WC1_W

Blank (B6J0301-BLK1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Residue, Suspended

ND

1.0

NR

LCS (B6J0301-BS1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Residue, Suspended

85.0000

10

92.1000

92.3

80 - 120

Duplicate (B6J0301-DUP1)

Source: 1603518-01

Prepared: 10/11/2016 Analyzed: 10/11/2016

Residue, Suspended

137.000

10

133.000

NR

2.96

10



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0399 - No_Prep_IC1_W

Blank (B6J0399-BLK1)

Prepared: 10/13/2016 Analyzed: 10/13/2016

Bromide ND 0.05 NR

LCS (B6J0399-BS1)

Prepared: 10/13/2016 Analyzed: 10/13/2016

Bromide 1.00040 0.05 1.00000 100 90 - 110

Duplicate (B6J0399-DUP1)

Source: 1603503-06

Prepared: 10/13/2016 Analyzed: 10/13/2016

Bromide 0.158000 0.05 0.166300 NR 5.12 20

Matrix Spike (B6J0399-MS1)

Source: 1603503-06

Prepared: 10/13/2016 Analyzed: 10/13/2016

Bromide 2.36950 0.05 2.50000 0.166300 88.1 80 - 120

Matrix Spike Dup (B6J0399-MSD1)

Source: 1603503-06

Prepared: 10/13/2016 Analyzed: 10/13/2016

Bromide 2.26660 0.05 2.50000 0.166300 84.0 80 - 120 4.44 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0396 - No_Prep_II_W

Blank (B6J0396-BLK1)

Prepared: 10/7/2016 Analyzed: 10/7/2016

UV Absorption

ND

0.01

NR

Duplicate (B6J0396-DUP1)

Source: 1603503-05

Prepared: 10/7/2016 Analyzed: 10/7/2016

UV Absorption

0.014

0.01

0.013

NR

7.41

20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0333 - No_Prep_II_W

Blank (B6J0333-BLK1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Organic Carbon, Total

ND

3.0

NR

LCS (B6J0333-BS1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Organic Carbon, Total

20.4800

3.0

20.0471

102

80 - 120

LCS Dup (B6J0333-BSD1)

Prepared: 10/11/2016 Analyzed: 10/11/2016

Organic Carbon, Total

19.9800

3.0

20.0471

99.7

80 - 120

2.47

20



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0156 - MSVOA_W

Blank (B6J0156-BLK1)

Prepared: 10/6/2016 Analyzed: 10/6/2016

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 GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0156 - MSVOA_W (continued)

Blank (B6J0156-BLK1) - Continued

Prepared: 10/6/2016 Analyzed: 10/6/2016

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	26.15		25.0000		105	51 - 157			
Surrogate: 4-Bromofluorobenzene	28.27		25.0000		113	61 - 123			
Surrogate: Dibromofluoromethane	26.25		25.0000		105	57 - 147			
Surrogate: Toluene-d8	26.56		25.0000		106	61 - 119			

LCS (B6J0156-BS1)

Prepared: 10/6/2016 Analyzed: 10/6/2016

1,1,1,2-Tetrachloroethane	10.7500	0.50	10.0000		108	76 - 132			
1,1,1-Trichloroethane	12.4800	0.50	10.0000		125	72 - 144			
1,1,2,2-Tetrachloroethane	9.38000	0.50	10.0000		93.8	70 - 120			
1,1,2-Trichloroethane	9.43000	0.50	10.0000		94.3	75 - 120			
1,1-Dichloroethane	11.9900	0.50	10.0000		120	65 - 127			
1,1-Dichloroethene	11.9300	0.50	10.0000		119	63 - 142			
1,1-Dichloropropene	11.8900	0.50	10.0000		119	78 - 137			
1,2,3-Trichloropropane	9.96000	0.50	10.0000		99.6	73 - 118			
1,2,3-Trichlorobenzene	10.3700	0.50	10.0000		104	53 - 164			
1,2,4-Trichlorobenzene	10.8500	0.50	10.0000		108	58 - 144			
1,2,4-Trimethylbenzene	11.7200	0.50	10.0000		117	75 - 140			
1,2-Dibromo-3-chloropropane	9.33000	0.50	10.0000		93.3	61 - 131			
1,2-Dibromoethane	9.68000	0.50	10.0000		96.8	74 - 125			
1,2-Dichlorobenzene	11.2800	0.50	10.0000		113	78 - 122			
1,2-Dichloroethane	10.5800	0.50	10.0000		106	70 - 126			
1,2-Dichloropropane	10.3700	0.50	10.0000		104	69 - 120			
1,3,5-Trimethylbenzene	12.2200	0.50	10.0000		122	73 - 145			
1,3-Dichlorobenzene	11.3900	0.50	10.0000		114	76 - 126			
1,3-Dichloropropane	10.1200	0.50	10.0000		101	76 - 117			



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0156 - MSVOA_W (continued)

LCS (B6J0156-BS1) - Continued

Prepared: 10/6/2016 Analyzed: 10/6/2016

1,4-Dichlorobenzene	11.3600	0.50	10.0000		114	77 - 120			
2,2-Dichloropropane	13.0300	0.50	10.0000		130	47 - 169			
2-Chlorotoluene	11.9700	0.50	10.0000		120	75 - 135			
4-Chlorotoluene	12.0500	0.50	10.0000		120	70 - 133			
4-Isopropyltoluene	12.5100	0.50	10.0000		125	72 - 153			
Benzene	22.7200	0.50	20.0000		114	73 - 123			
Bromobenzene	10.6800	0.50	10.0000		107	75 - 121			
Bromodichloromethane	10.6000	0.50	10.0000		106	73 - 124			
Bromoform	9.86000	0.50	10.0000		98.6	70 - 135			
Bromomethane	14.0900	0.50	10.0000		141	10 - 166			
Carbon tetrachloride	13.1000	0.50	10.0000		131	65 - 171			
Chlorobenzene	11.4800	0.50	10.0000		115	80 - 121			
Chloroethane	11.7700	0.50	10.0000		118	55 - 143			
Chloroform	11.3100	0.50	10.0000		113	65 - 130			
Chloromethane	12.3900	0.50	10.0000		124	21 - 141			
cis-1,2-Dichloroethene	10.9400	0.50	10.0000		109	64 - 126			
cis-1,3-Dichloropropene	11.0400	0.50	10.0000		110	70 - 131			
Dibromochloromethane	10.2600	0.50	10.0000		103	74 - 125			
Dibromomethane	9.95000	0.50	10.0000		99.5	74 - 116			
Dichlorodifluoromethane	13.9500	0.50	10.0000		140	40 - 186			
Ethylbenzene	21.6100	0.50	20.0000		108	77 - 130			
Hexachlorobutadiene	11.8100	0.50	10.0000		118	52 - 176			
Isopropylbenzene	13.0200	0.50	10.0000		130	77 - 144			
m,p-Xylene	22.9600	1.0	20.0000		115	84 - 136			
Methylene chloride	9.32000	1.0	10.0000		93.2	72 - 150			
n-Butylbenzene	12.5700	0.50	10.0000		126	73 - 154			
n-Propylbenzene	12.0600	0.50	10.0000		121	77 - 145			
Naphthalene	10.9900	0.50	10.0000		110	55 - 137			
o-Xylene	22.9000	0.50	20.0000		114	79 - 135			
sec-Butylbenzene	12.6100	0.50	10.0000		126	73 - 157			
Styrene	11.7400	0.50	10.0000		117	78 - 125			
tert-Butylbenzene	12.7600	0.50	10.0000		128	78 - 149			
Tetrachloroethene	11.6700	0.50	10.0000		117	74 - 136			
Toluene	22.1000	0.50	20.0000		110	78 - 124			
trans-1,2-Dichloroethene	11.3600	0.50	10.0000		114	66 - 131			
Trichloroethene	10.7600	0.50	10.0000		108	78 - 128			
Trichlorofluoromethane	13.7200	0.50	10.0000		137	60 - 170			
Vinyl chloride	12.2800	0.50	10.0000		123	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	25.35		25.0000		101	51 - 157			
Surrogate: 4-Bromofluorobenzene	28.89		25.0000		116	61 - 123			
Surrogate: Dibromofluoromethane	26.22		25.0000		105	57 - 147			



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0156 - MSVOA_W (continued)

LCS (B6J0156-BS1) - Continued

Prepared: 10/6/2016 Analyzed: 10/6/2016

Surrogate: Toluene-d8

26.23

25.0000

105

61 - 119

LCS Dup (B6J0156-BSD1)

Prepared: 10/6/2016 Analyzed: 10/6/2016

1,1,1,2-Tetrachloroethane	10.8000	0.50	10.0000	108	76 - 132	0.464	20
1,1,1-Trichloroethane	12.2000	0.50	10.0000	122	72 - 144	2.27	20
1,1,2,2-Tetrachloroethane	9.28000	0.50	10.0000	92.8	70 - 120	1.07	20
1,1,2-Trichloroethane	10.0200	0.50	10.0000	100	75 - 120	6.07	20
1,1-Dichloroethane	11.7600	0.50	10.0000	118	65 - 127	1.94	20
1,1-Dichloroethene	12.0300	0.50	10.0000	120	63 - 142	0.835	20
1,1-Dichloropropene	12.4300	0.50	10.0000	124	78 - 137	4.44	20
1,2,3-Trichloropropane	10.0700	0.50	10.0000	101	73 - 118	1.10	20
1,2,3-Trichlorobenzene	10.6500	0.50	10.0000	106	53 - 164	2.66	20
1,2,4-Trichlorobenzene	10.9900	0.50	10.0000	110	58 - 144	1.28	20
1,2,4-Trimethylbenzene	11.8800	0.50	10.0000	119	75 - 140	1.36	20
1,2-Dibromo-3-chloropropane	9.38000	0.50	10.0000	93.8	61 - 131	0.534	20
1,2-Dibromoethane	9.73000	0.50	10.0000	97.3	74 - 125	0.515	20
1,2-Dichlorobenzene	11.2400	0.50	10.0000	112	78 - 122	0.355	20
1,2-Dichloroethane	10.3800	0.50	10.0000	104	70 - 126	1.91	20
1,2-Dichloropropane	10.3900	0.50	10.0000	104	69 - 120	0.193	20
1,3,5-Trimethylbenzene	12.3400	0.50	10.0000	123	73 - 145	0.977	20
1,3-Dichlorobenzene	11.4100	0.50	10.0000	114	76 - 126	0.175	20
1,3-Dichloropropane	10.0700	0.50	10.0000	101	76 - 117	0.495	20
1,4-Dichlorobenzene	11.4900	0.50	10.0000	115	77 - 120	1.14	20
2,2-Dichloropropane	12.4500	0.50	10.0000	124	47 - 169	4.55	20
2-Chlorotoluene	12.0400	0.50	10.0000	120	75 - 135	0.583	20
4-Chlorotoluene	12.0200	0.50	10.0000	120	70 - 133	0.249	20
4-Isopropyltoluene	12.6600	0.50	10.0000	127	72 - 153	1.19	20
Benzene	22.7600	0.50	20.0000	114	73 - 123	0.176	20
Bromobenzene	10.7700	0.50	10.0000	108	75 - 121	0.839	20
Bromodichloromethane	10.6100	0.50	10.0000	106	73 - 124	0.0943	20
Bromoform	9.81000	0.50	10.0000	98.1	70 - 135	0.508	20
Bromomethane	14.8300	0.50	10.0000	148	10 - 166	5.12	20
Carbon tetrachloride	12.9300	0.50	10.0000	129	65 - 171	1.31	20
Chlorobenzene	11.4200	0.50	10.0000	114	80 - 121	0.524	20
Chloroethane	11.8900	0.50	10.0000	119	55 - 143	1.01	20
Chloroform	11.1000	0.50	10.0000	111	65 - 130	1.87	20
Chloromethane	12.2400	0.50	10.0000	122	21 - 141	1.22	20
cis-1,2-Dichloroethene	10.8500	0.50	10.0000	108	64 - 126	0.826	20
cis-1,3-Dichloropropene	10.8600	0.50	10.0000	109	70 - 131	1.64	20
Dibromochloromethane	10.0800	0.50	10.0000	101	74 - 125	1.77	20
Dibromomethane	10.1600	0.50	10.0000	102	74 - 116	2.09	20
Dichlorodifluoromethane	13.9800	0.50	10.0000	140	40 - 186	0.215	20



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0156 - MSVOA_W (continued)

LCS Dup (B6J0156-BSD1) - Continued

Prepared: 10/6/2016 Analyzed: 10/6/2016

Ethylbenzene	21.6500	0.50	20.0000		108	77 - 130	0.185	20	
Hexachlorobutadiene	11.5900	0.50	10.0000		116	52 - 176	1.88	20	
Isopropylbenzene	13.1200	0.50	10.0000		131	77 - 144	0.765	20	
m,p-Xylene	22.9200	1.0	20.0000		115	84 - 136	0.174	20	
Methylene chloride	9.36000	1.0	10.0000		93.6	72 - 150	0.428	20	
n-Butylbenzene	12.6300	0.50	10.0000		126	73 - 154	0.476	20	
n-Propylbenzene	11.9900	0.50	10.0000		120	77 - 145	0.582	20	
Naphthalene	11.1600	0.50	10.0000		112	55 - 137	1.53	20	
o-Xylene	23.1000	0.50	20.0000		116	79 - 135	0.870	20	
sec-Butylbenzene	12.6300	0.50	10.0000		126	73 - 157	0.158	20	
Styrene	11.8300	0.50	10.0000		118	78 - 125	0.764	20	
tert-Butylbenzene	12.7700	0.50	10.0000		128	78 - 149	0.0783	20	
Tetrachloroethene	11.7200	0.50	10.0000		117	74 - 136	0.428	20	
Toluene	22.2700	0.50	20.0000		111	78 - 124	0.766	20	
trans-1,2-Dichloroethene	11.3100	0.50	10.0000		113	66 - 131	0.441	20	
Trichloroethene	11.0800	0.50	10.0000		111	78 - 128	2.93	20	
Trichlorofluoromethane	13.5000	0.50	10.0000		135	60 - 170	1.62	20	
Vinyl chloride	12.1000	0.50	10.0000		121	55 - 148	1.48	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>25.18</i>		<i>25.0000</i>		<i>101</i>	<i>51 - 157</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>28.26</i>		<i>25.0000</i>		<i>113</i>	<i>61 - 123</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>25.68</i>		<i>25.0000</i>		<i>103</i>	<i>57 - 147</i>			
<i>Surrogate: Toluene-d8</i>	<i>26.16</i>		<i>25.0000</i>		<i>105</i>	<i>61 - 119</i>			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0227 - MSSEMI_W

Blank (B6J0227-BLK1)

Prepared: 10/7/2016 Analyzed: 10/10/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	50.49		100.000		50.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	60.91		100.000		60.9	55 - 117			
Surrogate: 4-Terphenyl-d14	92.28		100.000		92.3	52 - 142			
Surrogate: Nitrobenzene-d5	56.06		100.000		56.1	43 - 116			

LCS (B6J0227-BS1)

Prepared: 10/7/2016 Analyzed: 10/10/2016

1,4-Dioxane	105.280	2.0	100.000		105	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	50.31		100.000		50.3	42 - 106			
Surrogate: 2-Fluorobiphenyl	70.56		100.000		70.6	55 - 117			
Surrogate: 4-Terphenyl-d14	85.84		100.000		85.8	52 - 142			
Surrogate: Nitrobenzene-d5	58.59		100.000		58.6	43 - 116			

LCS Dup (B6J0227-BSD1)

Prepared: 10/7/2016 Analyzed: 10/10/2016

1,4-Dioxane	107.950	2.0	100.000		108	62 - 127	2.50	20	
Surrogate: 1,2-Dichlorobenzene-d4	55.01		100.000		55.0	42 - 106			
Surrogate: 2-Fluorobiphenyl	72.03		100.000		72.0	55 - 117			
Surrogate: 4-Terphenyl-d14	87.55		100.000		87.6	52 - 142			
Surrogate: Nitrobenzene-d5	63.70		100.000		63.7	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

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 B6J0217 - MSSEMI_ISOTOPEDILN_W

LCS (B6J0217-BS1)

Prepared: 10/7/2016 Analyzed: 10/7/2016

1,4-Dioxane	0.901000	0.20	1.00000		90.1	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.7199		1.00000		72.0	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7543		1.00000		75.4	28 - 122			
Surrogate: 4-Terphenyl-d14	0.8196		1.00000		82.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.7970		1.00000		79.7	20 - 119			

LCS Dup (B6J0217-BSD1)

Prepared: 10/7/2016 Analyzed: 10/7/2016

1,4-Dioxane	0.998080	0.20	1.00000		99.8	49 - 169	10.2	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6748		1.00000		67.5	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7297		1.00000		73.0	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7696		1.00000		77.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.7481		1.00000		74.8	20 - 119			



Certificate of Analysis

Hargis & Associates, Inc.

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2016

Notes and Definitions

M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
D1	Sample required dilution due to possible matrix interference.
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

October 17, 2016

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Attn: Rachelle Arada

Exova Job No: 207986
Purchase Order: CREDIT CARD
Project Name: 1603503 / Groundwater
Samples Received: 2
Date Received: 10-07-16

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 250 mm x 4 mm, AG9-HC Guard 50 mm x 4 mm
Eluent: 10 mM Na₂CO₃
Flow: 1.2 mL/min
Injection: 250 µL
Detection: Post-column derivatization, Visible detection, 450 nm

Sample preparation: The undiluted samples were treated with a Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1603503-04 / POX	ND
ATL Lab#: 1603503-06 / INF	ND

Method Blank	ND

Detection Limit	1

Date Analyzed: 10-07-16

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	3000	60000	63000	100	64000	102	2
QC Guidelines				75-125		75-125	NMT 10

Sample ID:	Batch QC				
<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	
Bromate	ND	20	18	90	
QC Guidelines				75-125	

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1603503

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)

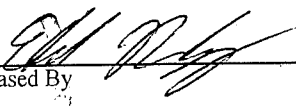
RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC10769- STANDARD TAT

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Matrix	Date Sampled
ATL Lab#: 1603503-04 / POX 317.0_SUB [Bromate] 1-Poly Unpres - 125mL Comments:	10/20/16 17:00	10/07/16 08:30	Groundwater	10/06/16 08:30
ATL Lab#: 1603503-06 / INF 317.0_SUB [Bromate] Comments: 1-Poly Unpres - 125mL	10/20/16 17:00	10/07/16 08:42	Groundwater	10/06/16 08:42

① 10-07-16 LMV: Sample also has: - F

Released By	Date	Received By	Date
	10-7-16		10-07-16
Released By	Date	Received By	Date

207986

10/6/16

Date: 10/6/16
Page 1 of 1

PROJECT: Raytheon Main GETS Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Kevin Fong

Phone 858.455.6500

Fax 858.455.6533

Sampled By:				SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS				ANALYSIS REQUESTED												Expected Concentration Range (ppb) for VOA's				SPECIAL HANDLING				Laboratory											
LAB ID				SAMPLE ID		Date		Time		Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Nitric Acid (HNO ₃)	Sodium Hydroxide (NaOH)	Sulfuric Acid (H ₂ SO ₄)	Ice	40-ml VOA	125 mL Poly	250 mL Poly	250 mL Glass	1 L Poly	1 L Amber	VOCs by EPA 8260B	Bromate by EPA 317	Bromide by EPA 300	Alkalinity by SM2320B	Total Organic Carbon by SM5310B	Total Suspended Solids by SM2540D	UV Absorption EPA 415.3 @254 nm	1,4-Dioxane by EPA 8270C MOD	1,4-Dioxane by EPA 8270C SIM	0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 hr TAT	5 Day TAT	Level IV Data Validation Requested	MS/MSD Requested	REMARKS				
1603503-1				TB-100616		10/6/2016		7:00		X	X	X				X	2						X																						
-2				CEFF		8:15				X	X	X				X	3					1	X									X	X												
-3				CBT		8:20				X	X	X				X	3					1	X									X	X												
-4				POX		8:30				X	X			X	X	6	1	1			1	X	X		X	X					X	X													
-5				PF		8:39				X				X	X	3		1	1	1					X	X	X	X																	
-6				INF		8:42				X	X				X	3	2				1	X	X	X					X				X												
-7				EW-02		9:19				X	X				X	3	1				1	X		X					X			X													
-8				MW-29		9:32				X	X				X	3	1				1	X		X					X			X													
Total number of containers per analysis:																26	5	2	1	1	6	Total No. of Containers: 41																							
Relinquished By: / Company:				Date / Time		Received By: / Company				Date / Time																																			
Kevin Fong HHA				10/6/16 10:13		Ng, Vlyssos				10/6/16 10:13																																			
Relinquished By: / Company:				Date / Time		Received By: / Company				Date / Time																																			
Ng, Vlyssos				10/6/16 11:02		FPO				10/6/16 11:02																																			

- ☐ No. of containers correct
- ☐ Received in good condition
- ☐ Custody seals secure
- ☐ Conforms to COC document

Send Results to:
Steve Netto
9171 Towne Centre Drive
Suite 375
San Diego, CA 92122
Ph: 858.455.5400
snetto@hargis.com

Instructions 2.2 °C Temperature on receipt

Fill out form completely and sign only after verified for completeness
Complete in ballpoint pen. Draw one line through error, initial and date correction
Indicate the number of sample containers in analytical request space; Indicate choice with ✓ or ✗
Note applicable preservatives, special instructions, and deviations from typical environmental samples.
Consult project QA documents for specific instructions.



October 27, 2016

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 : 1603704

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on October 20, 2016 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 above the printed name.

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 GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-102016	1603704-01	Lab prepared water	10/20/16 7:00	10/20/16 11:15
CEFF	1603704-02	Groundwater	10/20/16 8:23	10/20/16 11:15
CBT	1603704-03	Groundwater	10/20/16 8:30	10/20/16 11:15
POX	1603704-04	Groundwater	10/20/16 8:35	10/20/16 11:15
INF	1603704-05	Groundwater	10/20/16 8:45	10/20/16 11:15
EW-02	1603704-06	Groundwater	10/20/16 9:28	10/20/16 11:15
MW-29	1603704-07	Groundwater	10/20/16 9:45	10/20/16 11:15



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID TB-102016

Lab ID: 1603704-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,1-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,1-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID TB-102016

Lab ID: 1603704-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 15:19	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 15:19	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Tetrachloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Trichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Trichlorofluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:19	
Surrogate: 1,2-Dichloroethane-d4	107 %	51 - 157		B6J0607	10/21/2016	10/21/16 15:19	
Surrogate: 4-Bromofluorobenzene	107 %	61 - 123		B6J0607	10/21/2016	10/21/16 15:19	
Surrogate: Dibromofluoromethane	104 %	57 - 147		B6J0607	10/21/2016	10/21/16 15:19	
Surrogate: Toluene-d8	104 %	61 - 119		B6J0607	10/21/2016	10/21/16 15:19	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID CEFF

Lab ID: 1603704-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,1-Dichloroethane	0.59	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,1-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID CEFF

Lab ID: 1603704-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 15:44	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 15:44	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Tetrachloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Trichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Trichlorofluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 15:44	
Surrogate: 1,2-Dichloroethane-d4	109 %	51 - 157		B6J0607	10/21/2016	10/21/16 15:44	
Surrogate: 4-Bromofluorobenzene	104 %	61 - 123		B6J0607	10/21/2016	10/21/16 15:44	
Surrogate: Dibromofluoromethane	105 %	57 - 147		B6J0607	10/21/2016	10/21/16 15:44	
Surrogate: Toluene-d8	104 %	61 - 119		B6J0607	10/21/2016	10/21/16 15:44	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID CEFF

Lab ID: 1603704-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.8	0.20	1	B6J0659	10/24/2016	10/25/16 21:28	B
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>80.7 %</i>	<i>31 - 106</i>		B6J0659	10/24/2016	<i>10/25/16 21:28</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>93.4 %</i>	<i>28 - 122</i>		B6J0659	10/24/2016	<i>10/25/16 21:28</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>99.6 %</i>	<i>43 - 131</i>		B6J0659	10/24/2016	<i>10/25/16 21:28</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>86.2 %</i>	<i>20 - 119</i>		B6J0659	10/24/2016	<i>10/25/16 21:28</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID CBT

Lab ID: 1603704-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,1-Dichloroethane	0.54	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,1-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID CBT

Lab ID: 1603704-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 16:08	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 16:08	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Tetrachloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Trichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Trichlorofluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:08	
Surrogate: 1,2-Dichloroethane-d4	107 %	51 - 157		B6J0607	10/21/2016	10/21/16 16:08	
Surrogate: 4-Bromofluorobenzene	106 %	61 - 123		B6J0607	10/21/2016	10/21/16 16:08	
Surrogate: Dibromofluoromethane	104 %	57 - 147		B6J0607	10/21/2016	10/21/16 16:08	
Surrogate: Toluene-d8	104 %	61 - 119		B6J0607	10/21/2016	10/21/16 16:08	



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Client Sample ID CBT

Lab ID: 1603704-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	2.7	0.20	1	B6J0659	10/24/2016	10/25/16 21:54	B
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>84.4 %</i>	<i>31 - 106</i>		B6J0659	10/24/2016	<i>10/25/16 21:54</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>96.3 %</i>	<i>28 - 122</i>		B6J0659	10/24/2016	<i>10/25/16 21:54</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>95.9 %</i>	<i>43 - 131</i>		B6J0659	10/24/2016	<i>10/25/16 21:54</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>93.4 %</i>	<i>20 - 119</i>		B6J0659	10/24/2016	<i>10/25/16 21:54</i>	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID POX

Lab ID: 1603704-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,1-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,1-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID POX

Lab ID: 1603704-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 16:32	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 16:32	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Tetrachloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Trichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Trichlorofluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:32	
Surrogate: 1,2-Dichloroethane-d4	108 %	51 - 157		B6J0607	10/21/2016	10/21/16 16:32	
Surrogate: 4-Bromofluorobenzene	106 %	61 - 123		B6J0607	10/21/2016	10/21/16 16:32	
Surrogate: Dibromofluoromethane	103 %	57 - 147		B6J0607	10/21/2016	10/21/16 16:32	
Surrogate: Toluene-d8	105 %	61 - 119		B6J0607	10/21/2016	10/21/16 16:32	



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San Diego , CA 92122

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Reported : 10/27/2016

Client Sample ID POX

Lab ID: 1603704-04

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6J0659	10/24/2016	10/25/16 22:21	
Surrogate: 1,2-Dichlorobenzene-d4	79.1 %	31 - 106		B6J0659	10/24/2016	10/25/16 22:21	
Surrogate: 2-Fluorobiphenyl	90.5 %	28 - 122		B6J0659	10/24/2016	10/25/16 22:21	
Surrogate: 4-Terphenyl-d14	99.0 %	43 - 131		B6J0659	10/24/2016	10/25/16 22:21	
Surrogate: Nitrobenzene-d5	83.3 %	20 - 119		B6J0659	10/24/2016	10/25/16 22:21	



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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID INF

Lab ID: 1603704-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,1-Dichloroethane	0.73	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,1-Dichloroethene	73	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	



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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID INF

Lab ID: 1603704-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 16:57	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 16:57	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Tetrachloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Trichloroethene	0.57	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Trichlorofluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 16:57	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>	<i>51 - 157</i>		B6J0607	10/21/2016	<i>10/21/16 16:57</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>61 - 123</i>		B6J0607	10/21/2016	<i>10/21/16 16:57</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>109 %</i>	<i>57 - 147</i>		B6J0607	10/21/2016	<i>10/21/16 16:57</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>61 - 119</i>		B6J0607	10/21/2016	<i>10/21/16 16:57</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID INF

Lab ID: 1603704-05

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	22	2.0	1	B6J0681	10/25/2016	10/26/16 16:59	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>50.7 %</i>	<i>42 - 106</i>		B6J0681	10/25/2016	<i>10/26/16 16:59</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>56.6 %</i>	<i>55 - 117</i>		B6J0681	10/25/2016	<i>10/26/16 16:59</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>88.6 %</i>	<i>52 - 142</i>		B6J0681	10/25/2016	<i>10/26/16 16:59</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>55.2 %</i>	<i>43 - 116</i>		B6J0681	10/25/2016	<i>10/26/16 16:59</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID EW-02

Lab ID: 1603704-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,1-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,1-Dichloroethene	23	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID EW-02

Lab ID: 1603704-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 17:23	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 17:23	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Tetrachloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Trichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Trichlorofluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 17:23	
Surrogate: 1,2-Dichloroethane-d4	110 %	51 - 157		B6J0607	10/21/2016	10/21/16 17:23	
Surrogate: 4-Bromofluorobenzene	108 %	61 - 123		B6J0607	10/21/2016	10/21/16 17:23	
Surrogate: Dibromofluoromethane	109 %	57 - 147		B6J0607	10/21/2016	10/21/16 17:23	
Surrogate: Toluene-d8	105 %	61 - 119		B6J0607	10/21/2016	10/21/16 17:23	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID EW-02

Lab ID: 1603704-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	7.8	2.0	1	B6J0681	10/25/2016	10/26/16 17:26	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>60.0 %</i>	<i>42 - 106</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:26</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>72.7 %</i>	<i>55 - 117</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:26</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>96.6 %</i>	<i>52 - 142</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:26</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>67.8 %</i>	<i>43 - 116</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:26</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID MW-29

Lab ID: 1603704-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,1,1-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,1,2-Trichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,1-Dichloroethane	2.2	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,1-Dichloroethene	240	2.5	5	B6J0607	10/21/2016	10/21/16 17:48	
1,1-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2,3-Trichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2,3-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2,4-Trichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2,4-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2-Dibromoethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2-Dichloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,3,5-Trimethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,3-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,3-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
1,4-Dichlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
2,2-Dichloropropane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
2-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
4-Chlorotoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
4-Isopropyltoluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Benzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Bromobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Bromodichloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Bromoform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Bromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Carbon tetrachloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Chlorobenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Chloroethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Chloroform	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Chloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
cis-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
cis-1,3-Dichloropropene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Dibromochloromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID MW-29

Lab ID: 1603704-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Dichlorodifluoromethane	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Ethylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Hexachlorobutadiene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Isopropylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
m,p-Xylene	ND	1.0	1	B6J0607	10/21/2016	10/21/16 18:12	
Methylene chloride	ND	1.0	1	B6J0607	10/21/2016	10/21/16 18:12	
n-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
n-Propylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Naphthalene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
o-Xylene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
sec-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Styrene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
tert-Butylbenzene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Tetrachloroethene	0.81	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Toluene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
trans-1,2-Dichloroethene	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Trichloroethene	2.2	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Trichlorofluoromethane	1.1	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
Vinyl chloride	ND	0.50	1	B6J0607	10/21/2016	10/21/16 18:12	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>	<i>51 - 157</i>		B6J0607	10/21/2016	<i>10/21/16 17:48</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>	<i>51 - 157</i>		B6J0607	10/21/2016	<i>10/21/16 18:12</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>61 - 123</i>		B6J0607	10/21/2016	<i>10/21/16 17:48</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>	<i>61 - 123</i>		B6J0607	10/21/2016	<i>10/21/16 18:12</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>	<i>57 - 147</i>		B6J0607	10/21/2016	<i>10/21/16 17:48</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>	<i>57 - 147</i>		B6J0607	10/21/2016	<i>10/21/16 18:12</i>	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>61 - 119</i>		B6J0607	10/21/2016	<i>10/21/16 18:12</i>	
<i>Surrogate: Toluene-d8</i>	<i>107 %</i>	<i>61 - 119</i>		B6J0607	10/21/2016	<i>10/21/16 17:48</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

Client Sample ID MW-29

Lab ID: 1603704-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	71	2.0	1	B6J0681	10/25/2016	10/26/16 17:53	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>53.3 %</i>	<i>42 - 106</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:53</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>62.8 %</i>	<i>55 - 117</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:53</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>93.8 %</i>	<i>52 - 142</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:53</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>59.0 %</i>	<i>43 - 116</i>		<i>B6J0681</i>	<i>10/25/2016</i>	<i>10/26/16 17:53</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2016

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 B6J0607 - MSVOA_W

Blank (B6J0607-BLK1)

Prepared: 10/21/2016 Analyzed: 10/21/2016

1,1,1,2-Tetrachloroethane	ND	0.50			NR
1,1,1-Trichloroethane	ND	0.50			NR
1,1,2,2-Tetrachloroethane	ND	0.50			NR
1,1,2-Trichloroethane	ND	0.50			NR
1,1-Dichloroethane	ND	0.50			NR
1,1-Dichloroethene	ND	0.50			NR
1,1-Dichloropropene	ND	0.50			NR
1,2,3-Trichloropropane	ND	0.50			NR
1,2,3-Trichlorobenzene	ND	0.50			NR
1,2,4-Trichlorobenzene	ND	0.50			NR
1,2,4-Trimethylbenzene	ND	0.50			NR
1,2-Dibromo-3-chloropropane	ND	0.50			NR
1,2-Dibromoethane	ND	0.50			NR
1,2-Dichlorobenzene	ND	0.50			NR
1,2-Dichloroethane	ND	0.50			NR
1,2-Dichloropropane	ND	0.50			NR
1,3,5-Trimethylbenzene	ND	0.50			NR
1,3-Dichlorobenzene	ND	0.50			NR
1,3-Dichloropropane	ND	0.50			NR
1,4-Dichlorobenzene	ND	0.50			NR
2,2-Dichloropropane	ND	0.50			NR
2-Chlorotoluene	ND	0.50			NR
4-Chlorotoluene	ND	0.50			NR
4-Isopropyltoluene	ND	0.50			NR
Benzene	ND	0.50			NR
Bromobenzene	ND	0.50			NR
Bromodichloromethane	ND	0.50			NR
Bromoform	ND	0.50			NR
Bromomethane	ND	0.50			NR
Carbon tetrachloride	ND	0.50			NR
Chlorobenzene	ND	0.50			NR
Chloroethane	ND	0.50			NR
Chloroform	ND	0.50			NR
Chloromethane	ND	0.50			NR
cis-1,2-Dichloroethene	ND	0.50			NR
cis-1,3-Dichloropropene	ND	0.50			NR
Dibromochloromethane	ND	0.50			NR
Dibromomethane	ND	0.50			NR
Dichlorodifluoromethane	ND	0.50			NR



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

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

Batch B6J0607 - MSVOA_W (continued)

Blank (B6J0607-BLK1) - Continued

Prepared: 10/21/2016 Analyzed: 10/21/2016

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	25.38		25.0000		102	51 - 157			
Surrogate: 4-Bromofluorobenzene	26.64		25.0000		107	61 - 123			
Surrogate: Dibromofluoromethane	24.33		25.0000		97.3	57 - 147			
Surrogate: Toluene-d8	25.74		25.0000		103	61 - 119			

LCS (B6J0607-BS1)

Prepared: 10/21/2016 Analyzed: 10/21/2016

1,1,1,2-Tetrachloroethane	9.71000	0.50	10.0000		97.1	76 - 132			
1,1,1-Trichloroethane	9.52000	0.50	10.0000		95.2	72 - 144			
1,1,2,2-Tetrachloroethane	9.11000	0.50	10.0000		91.1	70 - 120			
1,1,2-Trichloroethane	9.13000	0.50	10.0000		91.3	75 - 120			
1,1-Dichloroethane	9.92000	0.50	10.0000		99.2	65 - 127			
1,1-Dichloroethene	10.4900	0.50	10.0000		105	63 - 142			
1,1-Dichloropropene	10.4200	0.50	10.0000		104	78 - 137			
1,2,3-Trichloropropane	8.66000	0.50	10.0000		86.6	73 - 118			
1,2,3-Trichlorobenzene	9.92000	0.50	10.0000		99.2	53 - 164			
1,2,4-Trichlorobenzene	10.0000	0.50	10.0000		100	58 - 144			
1,2,4-Trimethylbenzene	11.4400	0.50	10.0000		114	75 - 140			
1,2-Dibromo-3-chloropropane	7.90000	0.50	10.0000		79.0	61 - 131			
1,2-Dibromoethane	9.28000	0.50	10.0000		92.8	74 - 125			
1,2-Dichlorobenzene	10.4100	0.50	10.0000		104	78 - 122			
1,2-Dichloroethane	9.19000	0.50	10.0000		91.9	70 - 126			
1,2-Dichloropropane	9.59000	0.50	10.0000		95.9	69 - 120			
1,3,5-Trimethylbenzene	11.6000	0.50	10.0000		116	73 - 145			



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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B6J0607 - MSVOA_W (continued)								
LCS (B6J0607-BS1) - Continued				Prepared: 10/21/2016 Analyzed: 10/21/2016				
1,3-Dichlorobenzene	10.8100	0.50	10.0000		108	76 - 126		
1,3-Dichloropropane	9.20000	0.50	10.0000		92.0	76 - 117		
1,4-Dichlorobenzene	10.3600	0.50	10.0000		104	77 - 120		
2,2-Dichloropropane	10.0800	0.50	10.0000		101	47 - 169		
2-Chlorotoluene	10.9800	0.50	10.0000		110	75 - 135		
4-Chlorotoluene	11.0700	0.50	10.0000		111	70 - 133		
4-Isopropyltoluene	11.7900	0.50	10.0000		118	72 - 153		
Benzene	20.6500	0.50	20.0000		103	73 - 123		
Bromobenzene	10.3400	0.50	10.0000		103	75 - 121		
Bromodichloromethane	8.94000	0.50	10.0000		89.4	73 - 124		
Bromoform	8.40000	0.50	10.0000		84.0	70 - 135		
Bromomethane	9.97000	0.50	10.0000		99.7	10 - 166		
Carbon tetrachloride	9.67000	0.50	10.0000		96.7	65 - 171		
Chlorobenzene	10.5000	0.50	10.0000		105	80 - 121		
Chloroethane	9.82000	0.50	10.0000		98.2	55 - 143		
Chloroform	9.40000	0.50	10.0000		94.0	65 - 130		
Chloromethane	9.51000	0.50	10.0000		95.1	21 - 141		
cis-1,2-Dichloroethene	9.57000	0.50	10.0000		95.7	64 - 126		
cis-1,3-Dichloropropene	9.06000	0.50	10.0000		90.6	70 - 131		
Dibromochloromethane	8.75000	0.50	10.0000		87.5	74 - 125		
Dibromomethane	9.44000	0.50	10.0000		94.4	74 - 116		
Dichlorodifluoromethane	11.9500	0.50	10.0000		120	40 - 186		
Ethylbenzene	21.8700	0.50	20.0000		109	77 - 130		
Hexachlorobutadiene	11.1400	0.50	10.0000		111	52 - 176		
Isopropylbenzene	11.7800	0.50	10.0000		118	77 - 144		
m,p-Xylene	22.7800	1.0	20.0000		114	84 - 136		
Methylene chloride	9.21000	1.0	10.0000		92.1	72 - 150		
n-Butylbenzene	11.7900	0.50	10.0000		118	73 - 154		
n-Propylbenzene	12.0900	0.50	10.0000		121	77 - 145		
Naphthalene	8.53000	0.50	10.0000		85.3	55 - 137		
o-Xylene	22.2000	0.50	20.0000		111	79 - 135		
sec-Butylbenzene	12.0800	0.50	10.0000		121	73 - 157		
Styrene	11.1000	0.50	10.0000		111	78 - 125		
tert-Butylbenzene	11.4300	0.50	10.0000		114	78 - 149		
Tetrachloroethene	11.0400	0.50	10.0000		110	74 - 136		
Toluene	21.6400	0.50	20.0000		108	78 - 124		
trans-1,2-Dichloroethene	9.88000	0.50	10.0000		98.8	66 - 131		
Trichloroethene	9.70000	0.50	10.0000		97.0	78 - 128		
Trichlorofluoromethane	11.1800	0.50	10.0000		112	60 - 170		
Vinyl chloride	10.4400	0.50	10.0000		104	55 - 148		
Surrogate: 1,2-Dichloroethane-d4	23.14		25.0000		92.6	51 - 157		



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Reported : 10/27/2016

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 B6J0607 - MSVOA_W (continued)

LCS (B6J0607-BS1) - Continued

Prepared: 10/21/2016 Analyzed: 10/21/2016

Surrogate: 4-Bromofluorobenzene	27.74		25.0000		111	61 - 123			
Surrogate: Dibromofluoromethane	22.62		25.0000		90.5	57 - 147			
Surrogate: Toluene-d8	25.71		25.0000		103	61 - 119			

LCS Dup (B6J0607-BSD1)

Prepared: 10/21/2016 Analyzed: 10/21/2016

1,1,1,2-Tetrachloroethane	9.55000	0.50	10.0000		95.5	76 - 132	1.66	20	
1,1,1-Trichloroethane	9.09000	0.50	10.0000		90.9	72 - 144	4.62	20	
1,1,2,2-Tetrachloroethane	8.62000	0.50	10.0000		86.2	70 - 120	5.53	20	
1,1,2-Trichloroethane	8.72000	0.50	10.0000		87.2	75 - 120	4.59	20	
1,1-Dichloroethane	9.38000	0.50	10.0000		93.8	65 - 127	5.60	20	
1,1-Dichloroethene	10.1000	0.50	10.0000		101	63 - 142	3.79	20	
1,1-Dichloropropene	10.1300	0.50	10.0000		101	78 - 137	2.82	20	
1,2,3-Trichloropropane	8.43000	0.50	10.0000		84.3	73 - 118	2.69	20	
1,2,3-Trichlorobenzene	9.49000	0.50	10.0000		94.9	53 - 164	4.43	20	
1,2,4-Trichlorobenzene	9.58000	0.50	10.0000		95.8	58 - 144	4.29	20	
1,2,4-Trimethylbenzene	11.0300	0.50	10.0000		110	75 - 140	3.65	20	
1,2-Dibromo-3-chloropropane	7.77000	0.50	10.0000		77.7	61 - 131	1.66	20	
1,2-Dibromoethane	8.80000	0.50	10.0000		88.0	74 - 125	5.31	20	
1,2-Dichlorobenzene	9.84000	0.50	10.0000		98.4	78 - 122	5.63	20	
1,2-Dichloroethane	8.87000	0.50	10.0000		88.7	70 - 126	3.54	20	
1,2-Dichloropropane	9.33000	0.50	10.0000		93.3	69 - 120	2.75	20	
1,3,5-Trimethylbenzene	11.1100	0.50	10.0000		111	73 - 145	4.32	20	
1,3-Dichlorobenzene	9.97000	0.50	10.0000		99.7	76 - 126	8.08	20	
1,3-Dichloropropane	8.88000	0.50	10.0000		88.8	76 - 117	3.54	20	
1,4-Dichlorobenzene	9.78000	0.50	10.0000		97.8	77 - 120	5.76	20	
2,2-Dichloropropane	9.60000	0.50	10.0000		96.0	47 - 169	4.88	20	
2-Chlorotoluene	10.5400	0.50	10.0000		105	75 - 135	4.09	20	
4-Chlorotoluene	10.6700	0.50	10.0000		107	70 - 133	3.68	20	
4-Isopropyltoluene	11.1700	0.50	10.0000		112	72 - 153	5.40	20	
Benzene	19.9000	0.50	20.0000		99.5	73 - 123	3.70	20	
Bromobenzene	9.71000	0.50	10.0000		97.1	75 - 121	6.28	20	
Bromodichloromethane	8.69000	0.50	10.0000		86.9	73 - 124	2.84	20	
Bromoform	7.98000	0.50	10.0000		79.8	70 - 135	5.13	20	
Bromomethane	9.97000	0.50	10.0000		99.7	10 - 166	0.00	20	
Carbon tetrachloride	9.27000	0.50	10.0000		92.7	65 - 171	4.22	20	
Chlorobenzene	10.0400	0.50	10.0000		100	80 - 121	4.48	20	
Chloroethane	9.38000	0.50	10.0000		93.8	55 - 143	4.58	20	
Chloroform	9.03000	0.50	10.0000		90.3	65 - 130	4.02	20	
Chloromethane	9.34000	0.50	10.0000		93.4	21 - 141	1.80	20	
cis-1,2-Dichloroethene	8.95000	0.50	10.0000		89.5	64 - 126	6.70	20	
cis-1,3-Dichloropropene	8.68000	0.50	10.0000		86.8	70 - 131	4.28	20	
Dibromochloromethane	8.64000	0.50	10.0000		86.4	74 - 125	1.27	20	



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

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

Batch B6J0607 - MSVOA_W (continued)

LCS Dup (B6J0607-BSD1) - Continued

Prepared: 10/21/2016 Analyzed: 10/21/2016

Dibromomethane	9.01000	0.50	10.0000		90.1	74 - 116	4.66	20	
Dichlorodifluoromethane	11.4900	0.50	10.0000		115	40 - 186	3.92	20	
Ethylbenzene	21.1600	0.50	20.0000		106	77 - 130	3.30	20	
Hexachlorobutadiene	10.4200	0.50	10.0000		104	52 - 176	6.68	20	
Isopropylbenzene	11.1600	0.50	10.0000		112	77 - 144	5.41	20	
m,p-Xylene	21.9600	1.0	20.0000		110	84 - 136	3.67	20	
Methylene chloride	8.46000	1.0	10.0000		84.6	72 - 150	8.49	20	
n-Butylbenzene	11.2400	0.50	10.0000		112	73 - 154	4.78	20	
n-Propylbenzene	11.4900	0.50	10.0000		115	77 - 145	5.09	20	
Naphthalene	7.96000	0.50	10.0000		79.6	55 - 137	6.91	20	
o-Xylene	21.4100	0.50	20.0000		107	79 - 135	3.62	20	
sec-Butylbenzene	11.3400	0.50	10.0000		113	73 - 157	6.32	20	
Styrene	10.5200	0.50	10.0000		105	78 - 125	5.37	20	
tert-Butylbenzene	10.9200	0.50	10.0000		109	78 - 149	4.56	20	
Tetrachloroethene	10.4700	0.50	10.0000		105	74 - 136	5.30	20	
Toluene	20.7200	0.50	20.0000		104	78 - 124	4.34	20	
trans-1,2-Dichloroethene	9.49000	0.50	10.0000		94.9	66 - 131	4.03	20	
Trichloroethene	9.59000	0.50	10.0000		95.9	78 - 128	1.14	20	
Trichlorofluoromethane	10.3500	0.50	10.0000		104	60 - 170	7.71	20	
Vinyl chloride	10.1100	0.50	10.0000		101	55 - 148	3.21	20	
Surrogate: 1,2-Dichloroethane-d4	23.25		25.0000		93.0	51 - 157			
Surrogate: 4-Bromofluorobenzene	27.82		25.0000		111	61 - 123			
Surrogate: Dibromofluoromethane	22.98		25.0000		91.9	57 - 147			
Surrogate: Toluene-d8	25.66		25.0000		103	61 - 119			



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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 B6J0681 - MSSEMI_W

Blank (B6J0681-BLK1)

Prepared: 10/25/2016 Analyzed: 10/26/2016

1,4-Dioxane	ND	2.0		NR					
Surrogate: 1,2-Dichlorobenzene-d4	58.19		100.000	58.2	42 - 106				
Surrogate: 2-Fluorobiphenyl	68.08		100.000	68.1	55 - 117				
Surrogate: 4-Terphenyl-d14	87.44		100.000	87.4	52 - 142				
Surrogate: Nitrobenzene-d5	66.06		100.000	66.1	43 - 116				

LCS (B6J0681-BS1)

Prepared: 10/25/2016 Analyzed: 10/26/2016

1,4-Dioxane	111.880	2.0	100.000	112	62 - 127				
Surrogate: 1,2-Dichlorobenzene-d4	54.60		100.000	54.6	42 - 106				
Surrogate: 2-Fluorobiphenyl	78.16		100.000	78.2	55 - 117				
Surrogate: 4-Terphenyl-d14	77.11		100.000	77.1	52 - 142				
Surrogate: Nitrobenzene-d5	69.52		100.000	69.5	43 - 116				



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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 B6J0659 - MSSEMI_ISOTOPEDILN_W

Blank (B6J0659-BLK1)

Prepared: 10/24/2016 Analyzed: 10/25/2016

1,4-Dioxane	0.503300	0.20				NR			
Surrogate: 1,2-Dichlorobenzene-d4	0.9236		1.00000		92.4	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.8943		1.00000		89.4	28 - 122			
Surrogate: 4-Terphenyl-d14	0.9421		1.00000		94.2	43 - 131			
Surrogate: Nitrobenzene-d5	0.9273		1.00000		92.7	20 - 119			

LCS (B6J0659-BS1)

Prepared: 10/24/2016 Analyzed: 10/25/2016

1,4-Dioxane	1.23032	0.20	1.00000		123	49 - 169			B
Surrogate: 1,2-Dichlorobenzene-d4	0.9252		1.00000		92.5	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.8932		1.00000		89.3	28 - 122			
Surrogate: 4-Terphenyl-d14	0.9215		1.00000		92.2	43 - 131			
Surrogate: Nitrobenzene-d5	0.9345		1.00000		93.5	20 - 119			

Matrix Spike (B6J0659-MS1)

Source: 1603719-07

Prepared: 10/24/2016 Analyzed: 10/25/2016

1,4-Dioxane	3.04687	0.20	1.00000	2.11619	93.1	49 - 169			B
Surrogate: 1,2-Dichlorobenzene-d4	0.8318		1.00000		83.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.9124		1.00000		91.2	28 - 122			
Surrogate: 4-Terphenyl-d14	0.9074		1.00000		90.7	43 - 131			
Surrogate: Nitrobenzene-d5	0.8822		1.00000		88.2	20 - 119			

Matrix Spike Dup (B6J0659-MSD1)

Source: 1603719-07

Prepared: 10/24/2016 Analyzed: 10/25/2016

1,4-Dioxane	2.34469	0.20	1.00000	2.11619	22.9	49 - 169	26.0	20	M2, R, B
Surrogate: 1,2-Dichlorobenzene-d4	0.8108		1.00000		81.1	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.8732		1.00000		87.3	28 - 122			
Surrogate: 4-Terphenyl-d14	0.8696		1.00000		87.0	43 - 131			
Surrogate: Nitrobenzene-d5	0.8531		1.00000		85.3	20 - 119			



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Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
B	Analyte detected in the associated method blank.
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.



PROJECT: Raytheon Main GETS Mid Month Sample

Fax 858.455.6533

[illegible]

Fill out form completely and sign only after verified for completeness
Complete in ballpoint pen. Draw one line through error, initial and date correction
Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ×
Note applicable preservatives, special instructions, and deviations from typical environmental samples.
Consult project QA documents for specific instructions.

Temperature on receipt

4.2°



November 17, 2016

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 : 1603845
Client Reference : Raytheon Main GETS, 532.15

Enclosed are the results for sample(s) received on November 01, 2016 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 written over a light blue horizontal line.

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 GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-110116	1603845-01	Lab prepared water	11/01/16 7:00	11/01/16 10:25
CEFF	1603845-02	Groundwater	11/01/16 8:15	11/01/16 10:25
CBT	1603845-03	Groundwater	11/01/16 8:30	11/01/16 10:25
POX	1603845-04	Groundwater	11/01/16 8:40	11/01/16 10:25
PF	1603845-05	Groundwater	11/01/16 8:50	11/01/16 10:25
INF	1603845-06	Groundwater	11/01/16 9:00	11/01/16 10:25
EW-02	1603845-07	Groundwater	11/01/16 9:20	11/01/16 10:25
MW-29	1603845-08	Groundwater	11/01/16 9:30	11/01/16 10:25

CASE NARRATIVE

The samples for EPA 317 (Bromate) analysis were subcontracted to Exova, Inc. with ELAP Cert.# 2652.

Sample Receiving/General Comments:

The following analytes lists were taken from sample containers: Alkalinity - Hydroxide, Bicarbonate, Carbonate, and Total.



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID TB-110116

Lab ID: 1603845-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,1,2-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,1-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,1-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID TB-110116

Lab ID: 1603845-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 11:59	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 11:59	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Tetrachloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Trichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Trichlorofluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 11:59	
Surrogate: 1,2-Dichloroethane-d4	121 %	51 - 157		B6K0086	11/02/2016	11/02/16 11:59	
Surrogate: 4-Bromofluorobenzene	119 %	61 - 123		B6K0086	11/02/2016	11/02/16 11:59	
Surrogate: Dibromofluoromethane	120 %	57 - 147		B6K0086	11/02/2016	11/02/16 11:59	
Surrogate: Toluene-d8	119 %	61 - 119		B6K0086	11/02/2016	11/02/16 11:59	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID CEFF

Lab ID: 1603845-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,1,2-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,1-Dichloroethane	0.61	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,1-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID CEFF

Lab ID: 1603845-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 14:20	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 14:20	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Tetrachloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Trichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Trichlorofluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:20	
Surrogate: 1,2-Dichloroethane-d4	130 %	51 - 157		B6K0086	11/02/2016	11/02/16 14:20	
Surrogate: 4-Bromofluorobenzene	119 %	61 - 123		B6K0086	11/02/2016	11/02/16 14:20	
Surrogate: Dibromofluoromethane	124 %	57 - 147		B6K0086	11/02/2016	11/02/16 14:20	
Surrogate: Toluene-d8	117 %	61 - 119		B6K0086	11/02/2016	11/02/16 14:20	



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID CEFF

Lab ID: 1603845-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0090	11/02/2016	11/02/16 14:01	
Surrogate: 1,2-Dichlorobenzene-d4	46.8 %	31 - 106		B6K0090	11/02/2016	11/02/16 14:01	
Surrogate: 2-Fluorobiphenyl	34.5 %	28 - 122		B6K0090	11/02/2016	11/02/16 14:01	
Surrogate: 4-Terphenyl-d14	45.0 %	43 - 131		B6K0090	11/02/2016	11/02/16 14:01	
Surrogate: Nitrobenzene-d5	55.0 %	20 - 119		B6K0090	11/02/2016	11/02/16 14:01	



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San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID CBT

Lab ID: 1603845-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,1,2-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,1-Dichloroethane	0.62	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,1-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID CBT

Lab ID: 1603845-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 14:44	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 14:44	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Tetrachloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Trichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Trichlorofluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 14:44	
Surrogate: 1,2-Dichloroethane-d4	137 %	51 - 157		B6K0086	11/02/2016	11/02/16 14:44	
Surrogate: 4-Bromofluorobenzene	121 %	61 - 123		B6K0086	11/02/2016	11/02/16 14:44	
Surrogate: Dibromofluoromethane	129 %	57 - 147		B6K0086	11/02/2016	11/02/16 14:44	
Surrogate: Toluene-d8	121 %	61 - 119		B6K0086	11/02/2016	11/02/16 14:44	S5



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Reported : 11/17/2016

Client Sample ID CBT

Lab ID: 1603845-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0090	11/02/2016	11/02/16 14:28	
Surrogate: 1,2-Dichlorobenzene-d4	76.5 %	31 - 106		B6K0090	11/02/2016	11/02/16 14:28	
Surrogate: 2-Fluorobiphenyl	69.7 %	28 - 122		B6K0090	11/02/2016	11/02/16 14:28	
Surrogate: 4-Terphenyl-d14	79.1 %	43 - 131		B6K0090	11/02/2016	11/02/16 14:28	
Surrogate: Nitrobenzene-d5	97.5 %	20 - 119		B6K0090	11/02/2016	11/02/16 14:28	



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Client Sample ID POX

Lab ID: 1603845-04

Alkalinity, Speciated by SM 2320B

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	

Total Organic Carbon by SM 5310B

Analyst: BL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B6K0203	11/04/2016	11/04/16 13:44	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,1,2-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,1-Dichloroethane	0.57	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,1-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	



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Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID POX

Lab ID: 1603845-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 15:07	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 15:07	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Tetrachloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Trichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Trichlorofluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:07	

Surrogate: 1,2-Dichloroethane-d4 139 % 51 - 157 B6K0086 11/02/2016 11/02/16 15:07

Surrogate: 4-Bromofluorobenzene 126 % 61 - 123 B6K0086 11/02/2016 11/02/16 15:07 S5



Certificate of Analysis

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Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID POX

Lab ID: 1603845-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Dibromofluoromethane	133 %	57 - 147		B6K0086	11/02/2016	11/02/16 15:07	
Surrogate: Toluene-d8	124 %	61 - 119		B6K0086	11/02/2016	11/02/16 15:07	S5

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0090	11/02/2016	11/02/16 14:56	
Surrogate: 1,2-Dichlorobenzene-d4	85.6 %	31 - 106		B6K0090	11/02/2016	11/02/16 14:56	
Surrogate: 2-Fluorobiphenyl	82.0 %	28 - 122		B6K0090	11/02/2016	11/02/16 14:56	
Surrogate: 4-Terphenyl-d14	82.8 %	43 - 131		B6K0090	11/02/2016	11/02/16 14:56	
Surrogate: Nitrobenzene-d5	109 %	20 - 119		B6K0090	11/02/2016	11/02/16 14:56	



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Lab ID: 1603845-05

UV Absorption by EPA 415.3

Analyst: PT

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B6K0257	11/02/2016	11/02/16 16:50	

Alkalinity, Speciated by SM 2320B

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	230	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	
Alkalinity, Total (as CaCO ₃)	230	5.0	1	B6K0134	11/03/2016	11/03/16 12:16	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.1	1	B6K0193	11/04/2016	11/04/16 12:15	

Total Organic Carbon by SM 5310B

Analyst: BL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B6K0203	11/04/2016	11/04/16 14:05	



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Client Sample ID INF

Lab ID: 1603845-06

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.15	0.05	1	B6K0165	11/02/2016	11/02/16 13:40	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,1,2-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,1-Dichloroethane	0.85	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,1-Dichloroethene	82	2.5	5	B6K0086	11/02/2016	11/02/16 17:49	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	



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Client Sample ID INF

Lab ID: 1603845-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 15:30	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 15:30	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Tetrachloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Trichloroethene	0.69	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Trichlorofluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 15:30	
Surrogate: 1,2-Dichloroethane-d4	105 %	51 - 157		B6K0086	11/02/2016	11/02/16 17:49	
Surrogate: 1,2-Dichloroethane-d4	134 %	51 - 157		B6K0086	11/02/2016	11/02/16 15:30	
Surrogate: 4-Bromofluorobenzene	89.0 %	61 - 123		B6K0086	11/02/2016	11/02/16 17:49	
Surrogate: 4-Bromofluorobenzene	124 %	61 - 123		B6K0086	11/02/2016	11/02/16 15:30	S5
Surrogate: Dibromofluoromethane	131 %	57 - 147		B6K0086	11/02/2016	11/02/16 15:30	
Surrogate: Dibromofluoromethane	100 %	57 - 147		B6K0086	11/02/2016	11/02/16 17:49	
Surrogate: Toluene-d8	94.1 %	61 - 119		B6K0086	11/02/2016	11/02/16 17:49	
Surrogate: Toluene-d8	124 %	61 - 119		B6K0086	11/02/2016	11/02/16 15:30	S5



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID INF

Lab ID: 1603845-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	20	2.0	1	B6K0097	11/02/2016	11/02/16 14:37	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>61.2 %</i>	<i>42 - 106</i>		B6K0097	11/02/2016	<i>11/02/16 14:37</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>72.3 %</i>	<i>55 - 117</i>		B6K0097	11/02/2016	<i>11/02/16 14:37</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>96.4 %</i>	<i>52 - 142</i>		B6K0097	11/02/2016	<i>11/02/16 14:37</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.7 %</i>	<i>43 - 116</i>		B6K0097	11/02/2016	<i>11/02/16 14:37</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID EW-02

Lab ID: 1603845-07

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.12	0.05	1	B6K0165	11/02/2016	11/02/16 13:51	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,1,2-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,1-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,1-Dichloroethene	37	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2-Dichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID EW-02

Lab ID: 1603845-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 18:13	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 18:13	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Tetrachloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Trichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Trichlorofluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:13	
Surrogate: 1,2-Dichloroethane-d4	136 %	51 - 157		B6K0086	11/02/2016	11/02/16 18:13	
Surrogate: 4-Bromofluorobenzene	120 %	61 - 123		B6K0086	11/02/2016	11/02/16 18:13	
Surrogate: Dibromofluoromethane	131 %	57 - 147		B6K0086	11/02/2016	11/02/16 18:13	
Surrogate: Toluene-d8	123 %	61 - 119		B6K0086	11/02/2016	11/02/16 18:13	S5



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID EW-02

Lab ID: 1603845-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	73	2.0	1	B6K0097	11/02/2016	11/02/16 15:04	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>67.3 %</i>	<i>42 - 106</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:04</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>79.8 %</i>	<i>55 - 117</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:04</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>105 %</i>	<i>52 - 142</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:04</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>82.1 %</i>	<i>43 - 116</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:04</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-29

Lab ID: 1603845-08

Bromide by Ion Chromatography EPA 300

Analyst: PT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.26	0.05	1	B6K0165	11/02/2016	11/02/16 14:03	

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,1,1-Trichloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,1,2-Trichloroethane	0.63	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,1-Dichloroethane	2.6	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,1-Dichloroethene	360	2.5	5	B6K0086	11/02/2016	11/02/16 19:45	
1,1-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2,3-Trichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2-Dibromoethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2-Dichloroethane	0.62	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,3-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,3-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
1,4-Dichlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
2,2-Dichloropropane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
2-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
4-Chlorotoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
4-Isopropyltoluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Benzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Bromobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Bromodichloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Bromoform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Bromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Carbon tetrachloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Chlorobenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-29

Lab ID: 1603845-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Chloroform	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Chloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Dibromochloromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Dibromomethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Dichlorodifluoromethane	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Ethylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Hexachlorobutadiene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Isopropylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
m,p-Xylene	ND	1.0	1	B6K0086	11/02/2016	11/02/16 18:36	
Methylene chloride	ND	1.0	1	B6K0086	11/02/2016	11/02/16 18:36	
n-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
n-Propylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Naphthalene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
o-Xylene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
sec-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Styrene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
tert-Butylbenzene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Tetrachloroethene	0.84	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Toluene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Trichloroethene	2.7	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Trichlorofluoromethane	1.6	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
Vinyl chloride	ND	0.50	1	B6K0086	11/02/2016	11/02/16 18:36	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>141 %</i>	<i>51 - 157</i>		B6K0086	11/02/2016	<i>11/02/16 19:45</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>138 %</i>	<i>51 - 157</i>		B6K0086	11/02/2016	<i>11/02/16 18:36</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>122 %</i>	<i>61 - 123</i>		B6K0086	11/02/2016	<i>11/02/16 19:45</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>118 %</i>	<i>61 - 123</i>		B6K0086	11/02/2016	<i>11/02/16 18:36</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>132 %</i>	<i>57 - 147</i>		B6K0086	11/02/2016	<i>11/02/16 18:36</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>135 %</i>	<i>57 - 147</i>		B6K0086	11/02/2016	<i>11/02/16 19:45</i>	
<i>Surrogate: Toluene-d8</i>	<i>122 %</i>	<i>61 - 119</i>		B6K0086	11/02/2016	<i>11/02/16 18:36</i>	S5
<i>Surrogate: Toluene-d8</i>	<i>124 %</i>	<i>61 - 119</i>		B6K0086	11/02/2016	<i>11/02/16 19:45</i>	S5



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Client Sample ID MW-29

Lab ID: 1603845-08

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	6.6	2.0	1	B6K0097	11/02/2016	11/02/16 15:32	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>62.2 %</i>	<i>42 - 106</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:32</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>70.8 %</i>	<i>55 - 117</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:32</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>93.2 %</i>	<i>52 - 142</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:32</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.2 %</i>	<i>43 - 116</i>		<i>B6K0097</i>	<i>11/02/2016</i>	<i>11/02/16 15:32</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

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

Batch B6K0134 - No_Prep_WC1_W

Blank (B6K0134-BLK1)

Prepared: 11/3/2016 Analyzed: 11/3/2016

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0			NR				
Alkalinity, Total (as CaCO ₃)	ND	5.0			NR				

LCS (B6K0134-BS1)

Prepared: 11/3/2016 Analyzed: 11/3/2016

Alkalinity, Total (as CaCO ₃)	100.610	5.0	99.9580		101	80 - 120			

Duplicate (B6K0134-DUP1)

Source: 1603738-01

Prepared: 11/3/2016 Analyzed: 11/3/2016

Alkalinity, Total (as CaCO ₃)	406.500	5.0		406.500	NR		0.00	20	

Matrix Spike (B6K0134-MS1)

Source: 1603738-01

Prepared: 11/3/2016 Analyzed: 11/3/2016

Alkalinity, Total (as CaCO ₃)	611.790	5.0	99.9580	406.500	205	80 - 120			M1

Matrix Spike Dup (B6K0134-MSD1)

Source: 1603738-01

Prepared: 11/3/2016 Analyzed: 11/3/2016

Alkalinity, Total (as CaCO ₃)	611.790	5.0	99.9580	406.500	205	80 - 120	0.00	20	M1



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

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Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D - Quality Control

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

Batch B6K0193 - No_Prep_WC1_W

Blank (B6K0193-BLK1)

Prepared: 11/4/2016 Analyzed: 11/4/2016

Residue, Suspended

ND

1.0

NR

LCS (B6K0193-BS1)

Prepared: 11/4/2016 Analyzed: 11/4/2016

Residue, Suspended

88.0000

10

92.1000

95.5

80 - 120

Duplicate (B6K0193-DUP1)

Source: 1603826-06

Prepared: 11/4/2016 Analyzed: 11/4/2016

Residue, Suspended

49.5000

5.0

45.0000

NR

9.52

10



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

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Bromide by Ion Chromatography EPA 300 - Quality Control

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

Batch B6K0165 - No_Prep_IC1_W

Blank (B6K0165-BLK1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

Bromide ND 0.05 NR

LCS (B6K0165-BS1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

Bromide 0.936500 0.05 1.00000 93.6 90 - 110

Duplicate (B6K0165-DUP1)

Source: 1603850-01

Prepared: 11/2/2016 Analyzed: 11/2/2016

Bromide 1.89400 1.0 1.96400 NR 3.63 20

Matrix Spike (B6K0165-MS1)

Source: 1603850-01

Prepared: 11/2/2016 Analyzed: 11/2/2016

Bromide 2.62900 2.50000 0.0982 101 80 - 120

Matrix Spike Dup (B6K0165-MSD1)

Source: 1603850-01

Prepared: 11/2/2016 Analyzed: 11/2/2016

Bromide 2.63250 2.50000 0.0982 101 80 - 120 0.133 20



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

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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 B6K0257 - No_Prep_II_W

Blank (B6K0257-BLK1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

UV Absorption

ND

0.01

NR

Duplicate (B6K0257-DUP1)

Source: 1603845-05

Prepared: 11/2/2016 Analyzed: 11/2/2016

UV Absorption

ND

0.01

ND

NR

20



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

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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 B6K0203 - No_Prep_II_W

Blank (B6K0203-BLK1)

Prepared: 11/4/2016 Analyzed: 11/4/2016

Organic Carbon, Total

ND

3.0

NR

LCS (B6K0203-BS1)

Prepared: 11/4/2016 Analyzed: 11/4/2016

Organic Carbon, Total

21.4600

3.0

20.0000

107

80 - 120

LCS Dup (B6K0203-BSD1)

Prepared: 11/4/2016 Analyzed: 11/4/2016

Organic Carbon, Total

22.4300

3.0

20.0000

112

80 - 120

4.42

20



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

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Reported : 11/17/2016

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 B6K0086 - MSVOA_W

Blank (B6K0086-BLK1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

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



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

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 B6K0086 - MSVOA_W (continued)

Blank (B6K0086-BLK1) - Continued

Prepared: 11/2/2016 Analyzed: 11/2/2016

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	27.66		25.0000		111	51 - 157
Surrogate: 4-Bromofluorobenzene	29.37		25.0000		117	61 - 123
Surrogate: Dibromofluoromethane	28.07		25.0000		112	57 - 147
Surrogate: Toluene-d8	29.30		25.0000		117	61 - 119

LCS (B6K0086-BS1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,1,1,2-Tetrachloroethane	20.4800	0.50	20.0000		102	76 - 132
1,1,1-Trichloroethane	20.6700	0.50	20.0000		103	72 - 144
1,1,2,2-Tetrachloroethane	17.6500	0.50	20.0000		88.2	70 - 120
1,1,2-Trichloroethane	19.9100	0.50	20.0000		99.6	75 - 120
1,1-Dichloroethane	19.1700	0.50	20.0000		95.8	65 - 127
1,1-Dichloroethene	22.7800	0.50	20.0000		114	63 - 142
1,1-Dichloropropene	22.2200	0.50	20.0000		111	78 - 137
1,2,3-Trichloropropane	18.0000	0.50	20.0000		90.0	73 - 118
1,2,3-Trichlorobenzene	24.2000	0.50	20.0000		121	53 - 164
1,2,4-Trichlorobenzene	22.6800	0.50	20.0000		113	58 - 144
1,2,4-Trimethylbenzene	22.1800	0.50	20.0000		111	75 - 140
1,2-Dibromo-3-chloropropane	18.5100	0.50	20.0000		92.6	61 - 131
1,2-Dibromoethane	19.5400	0.50	20.0000		97.7	74 - 125
1,2-Dichlorobenzene	22.1100	0.50	20.0000		111	78 - 122
1,2-Dichloroethane	20.6300	0.50	20.0000		103	70 - 126
1,2-Dichloropropane	17.7200	0.50	20.0000		88.6	69 - 120
1,3,5-Trimethylbenzene	21.1800	0.50	20.0000		106	73 - 145
1,3-Dichlorobenzene	21.9300	0.50	20.0000		110	76 - 126
1,3-Dichloropropane	18.6700	0.50	20.0000		93.4	76 - 117



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

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 B6K0086 - MSVOA_W (continued)

LCS (B6K0086-BS1) - Continued

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dichlorobenzene	22.5900	0.50	20.0000		113	77 - 120			
2,2-Dichloropropane	18.4100	0.50	20.0000		92.0	47 - 169			
2-Chlorotoluene	22.2100	0.50	20.0000		111	75 - 135			
4-Chlorotoluene	22.6300	0.50	20.0000		113	70 - 133			
4-Isopropyltoluene	21.2900	0.50	20.0000		106	72 - 153			
Benzene	38.9500	0.50	40.0000		97.4	73 - 123			
Bromobenzene	21.0300	0.50	20.0000		105	75 - 121			
Bromodichloromethane	20.1800	0.50	20.0000		101	73 - 124			
Bromoform	20.5400	0.50	20.0000		103	70 - 135			
Bromomethane	32.7600	0.50	20.0000		164	10 - 166			
Carbon tetrachloride	22.2500	0.50	20.0000		111	65 - 171			
Chlorobenzene	20.5300	0.50	20.0000		103	80 - 121			
Chloroethane	23.9400	0.50	20.0000		120	55 - 143			
Chloroform	19.7400	0.50	20.0000		98.7	65 - 130			
Chloromethane	18.9600	0.50	20.0000		94.8	21 - 141			
cis-1,2-Dichloroethene	19.9300	0.50	20.0000		99.6	64 - 126			
cis-1,3-Dichloropropene	19.2400	0.50	20.0000		96.2	70 - 131			
Dibromochloromethane	19.0700	0.50	20.0000		95.4	74 - 125			
Dibromomethane	19.9600	0.50	20.0000		99.8	74 - 116			
Dichlorodifluoromethane	18.5600	0.50	20.0000		92.8	40 - 186			
Ethylbenzene	43.8400	0.50	40.0000		110	77 - 130			
Hexachlorobutadiene	21.9500	0.50	20.0000		110	52 - 176			
Isopropylbenzene	20.4700	0.50	20.0000		102	77 - 144			
m,p-Xylene	47.5300	1.0	40.0000		119	84 - 136			
Methylene chloride	16.9500	1.0	20.0000		84.8	72 - 150			
n-Butylbenzene	21.6000	0.50	20.0000		108	73 - 154			
n-Propylbenzene	22.5500	0.50	20.0000		113	77 - 145			
Naphthalene	24.4200	0.50	20.0000		122	55 - 137			
o-Xylene	44.3600	0.50	40.0000		111	79 - 135			
sec-Butylbenzene	22.8700	0.50	20.0000		114	73 - 157			
Styrene	21.2400	0.50	20.0000		106	78 - 125			
tert-Butylbenzene	20.6600	0.50	20.0000		103	78 - 149			
Tetrachloroethene	20.4400	0.50	20.0000		102	74 - 136			
Toluene	38.9200	0.50	40.0000		97.3	78 - 124			
trans-1,2-Dichloroethene	20.0000	0.50	20.0000		100	66 - 131			
Trichloroethene	20.5100	0.50	20.0000		103	78 - 128			
Trichlorofluoromethane	25.0900	0.50	20.0000		125	60 - 170			
Vinyl chloride	20.7700	0.50	20.0000		104	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	29.15		25.0000		117	51 - 157			
Surrogate: 4-Bromofluorobenzene	29.98		25.0000		120	61 - 123			
Surrogate: Dibromofluoromethane	28.19		25.0000		113	57 - 147			



Certificate of Analysis

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Project Number : Raytheon Main GETS, 532.15

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

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

Batch B6K0086 - MSVOA_W (continued)

LCS (B6K0086-BS1) - Continued

Prepared: 11/2/2016 Analyzed: 11/2/2016

Surrogate: Toluene-d8

29.29

25.0000

117

61 - 119

LCS Dup (B6K0086-BSD1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,1,1,2-Tetrachloroethane	23.3300	0.50	20.0000	117	76 - 132	13.0	20	
1,1,1-Trichloroethane	23.7000	0.50	20.0000	118	72 - 144	13.7	20	
1,1,2,2-Tetrachloroethane	19.2200	0.50	20.0000	96.1	70 - 120	8.52	20	
1,1,2-Trichloroethane	22.4800	0.50	20.0000	112	75 - 120	12.1	20	
1,1-Dichloroethane	21.9800	0.50	20.0000	110	65 - 127	13.7	20	
1,1-Dichloroethene	26.4600	0.50	20.0000	132	63 - 142	14.9	20	
1,1-Dichloropropene	25.3800	0.50	20.0000	127	78 - 137	13.3	20	
1,2,3-Trichloropropane	20.2300	0.50	20.0000	101	73 - 118	11.7	20	
1,2,3-Trichlorobenzene	26.9300	0.50	20.0000	135	53 - 164	10.7	20	
1,2,4-Trichlorobenzene	25.3900	0.50	20.0000	127	58 - 144	11.3	20	
1,2,4-Trimethylbenzene	24.6800	0.50	20.0000	123	75 - 140	10.7	20	
1,2-Dibromo-3-chloropropane	20.6300	0.50	20.0000	103	61 - 131	10.8	20	
1,2-Dibromoethane	21.9900	0.50	20.0000	110	74 - 125	11.8	20	
1,2-Dichlorobenzene	24.9800	0.50	20.0000	125	78 - 122	12.2	20	L4
1,2-Dichloroethane	22.8800	0.50	20.0000	114	70 - 126	10.3	20	
1,2-Dichloropropane	19.6700	0.50	20.0000	98.4	69 - 120	10.4	20	
1,3,5-Trimethylbenzene	23.4100	0.50	20.0000	117	73 - 145	10.0	20	
1,3-Dichlorobenzene	24.7100	0.50	20.0000	124	76 - 126	11.9	20	
1,3-Dichloropropane	20.6400	0.50	20.0000	103	76 - 117	10.0	20	
1,4-Dichlorobenzene	25.1300	0.50	20.0000	126	77 - 120	10.6	20	L4
2,2-Dichloropropane	21.4300	0.50	20.0000	107	47 - 169	15.2	20	
2-Chlorotoluene	24.8800	0.50	20.0000	124	75 - 135	11.3	20	
4-Chlorotoluene	25.5900	0.50	20.0000	128	70 - 133	12.3	20	
4-Isopropyltoluene	23.5800	0.50	20.0000	118	72 - 153	10.2	20	
Benzene	43.7600	0.50	40.0000	109	73 - 123	11.6	20	
Bromobenzene	23.4500	0.50	20.0000	117	75 - 121	10.9	20	
Bromodichloromethane	22.4000	0.50	20.0000	112	73 - 124	10.4	20	
Bromoform	22.4600	0.50	20.0000	112	70 - 135	8.93	20	
Bromomethane	38.6800	0.50	20.0000	193	10 - 166	16.6	20	L5
Carbon tetrachloride	25.1500	0.50	20.0000	126	65 - 171	12.2	20	
Chlorobenzene	23.0200	0.50	20.0000	115	80 - 121	11.4	20	
Chloroethane	28.0500	0.50	20.0000	140	55 - 143	15.8	20	
Chloroform	22.6100	0.50	20.0000	113	65 - 130	13.6	20	
Chloromethane	21.9000	0.50	20.0000	110	21 - 141	14.4	20	
cis-1,2-Dichloroethene	22.5200	0.50	20.0000	113	64 - 126	12.2	20	
cis-1,3-Dichloropropene	21.9300	0.50	20.0000	110	70 - 131	13.1	20	
Dibromochloromethane	21.1600	0.50	20.0000	106	74 - 125	10.4	20	
Dibromomethane	22.1900	0.50	20.0000	111	74 - 116	10.6	20	
Dichlorodifluoromethane	21.3000	0.50	20.0000	106	40 - 186	13.7	20	



Certificate of Analysis

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Project Number : Raytheon Main GETS, 532.15

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

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

Batch B6K0086 - MSVOA_W (continued)

LCS Dup (B6K0086-BSD1) - Continued

Prepared: 11/2/2016 Analyzed: 11/2/2016

Ethylbenzene	49.0100	0.50	40.0000		123	77 - 130	11.1	20	
Hexachlorobutadiene	24.6200	0.50	20.0000		123	52 - 176	11.5	20	
Isopropylbenzene	22.6500	0.50	20.0000		113	77 - 144	10.1	20	
m,p-Xylene	52.9600	1.0	40.0000		132	84 - 136	10.8	20	
Methylene chloride	24.2400	1.0	20.0000		121	72 - 150	35.4	20	R
n-Butylbenzene	24.0600	0.50	20.0000		120	73 - 154	10.8	20	
n-Propylbenzene	25.4500	0.50	20.0000		127	77 - 145	12.1	20	
Naphthalene	27.0800	0.50	20.0000		135	55 - 137	10.3	20	
o-Xylene	49.5600	0.50	40.0000		124	79 - 135	11.1	20	
sec-Butylbenzene	25.5500	0.50	20.0000		128	73 - 157	11.1	20	
Styrene	23.7100	0.50	20.0000		119	78 - 125	11.0	20	
tert-Butylbenzene	23.2100	0.50	20.0000		116	78 - 149	11.6	20	
Tetrachloroethene	22.6900	0.50	20.0000		113	74 - 136	10.4	20	
Toluene	43.5200	0.50	40.0000		109	78 - 124	11.2	20	
trans-1,2-Dichloroethene	22.7400	0.50	20.0000		114	66 - 131	12.8	20	
Trichloroethene	23.1700	0.50	20.0000		116	78 - 128	12.2	20	
Trichlorofluoromethane	29.0400	0.50	20.0000		145	60 - 170	14.6	20	
Vinyl chloride	24.0400	0.50	20.0000		120	55 - 148	14.6	20	
Surrogate: 1,2-Dichloroethane-d4	29.91		25.0000		120	51 - 157			
Surrogate: 4-Bromofluorobenzene	29.85		25.0000		119	61 - 123			
Surrogate: Dibromofluoromethane	29.16		25.0000		117	57 - 147			
Surrogate: Toluene-d8	29.42		25.0000		118	61 - 119			



Certificate of Analysis

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Reported : 11/17/2016

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 B6K0097 - MSSEMI_W

Blank (B6K0097-BLK1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	64.64		100.000		64.6	42 - 106			
Surrogate: 2-Fluorobiphenyl	76.89		100.000		76.9	55 - 117			
Surrogate: 4-Terphenyl-d14	95.59		100.000		95.6	52 - 142			
Surrogate: Nitrobenzene-d5	79.81		100.000		79.8	43 - 116			

LCS (B6K0097-BS1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dioxane	112.250	2.0	100.000		112	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	65.52		100.000		65.5	42 - 106			
Surrogate: 2-Fluorobiphenyl	87.73		100.000		87.7	55 - 117			
Surrogate: 4-Terphenyl-d14	88.67		100.000		88.7	52 - 142			
Surrogate: Nitrobenzene-d5	81.00		100.000		81.0	43 - 116			

LCS Dup (B6K0097-BSD1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dioxane	111.840	2.0	100.000		112	62 - 127	0.366	20	
Surrogate: 1,2-Dichlorobenzene-d4	65.98		100.000		66.0	42 - 106			
Surrogate: 2-Fluorobiphenyl	87.61		100.000		87.6	55 - 117			
Surrogate: 4-Terphenyl-d14	94.69		100.000		94.7	52 - 142			
Surrogate: Nitrobenzene-d5	81.31		100.000		81.3	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

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 B6K0090 - MSSEMI_ISOTOPEDILN_W

Blank (B6K0090-BLK1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.7817		1.00000		78.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7897		1.00000		79.0	28 - 122			
Surrogate: 4-Terphenyl-d14	0.9232		1.00000		92.3	43 - 131			
Surrogate: Nitrobenzene-d5	0.9273		1.00000		92.7	20 - 119			

LCS (B6K0090-BS1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dioxane	1.19596	0.20	1.00000		120	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.9309		1.00000		93.1	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.8476		1.00000		84.8	28 - 122			
Surrogate: 4-Terphenyl-d14	0.8223		1.00000		82.2	43 - 131			
Surrogate: Nitrobenzene-d5	1.078		1.00000		108	20 - 119			

LCS Dup (B6K0090-BS1)

Prepared: 11/2/2016 Analyzed: 11/2/2016

1,4-Dioxane	1.12077	0.20	1.00000		112	49 - 169	6.49	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6985		1.00000		69.9	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6685		1.00000		66.8	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7563		1.00000		75.6	43 - 131			
Surrogate: Nitrobenzene-d5	0.8060		1.00000		80.6	20 - 119			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS, 532.15

Report To : Steve Netto

Reported : 11/17/2016

Notes and Definitions

S5	Surrogate recovery was above laboratory acceptance limit. Sample reanalysis showed the same high recovery.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
L5	Laboratory Control Sample high biased. Sample result/s was non-detect (ND) for the target analyte; therefore reanalysis was not necessary.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
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 with Post-Column Derivatization-Visible Absorption

Column: Dionex AS9-HC 250 mm x 4 mm, AG9-HC Guard 50 mm x 4 mm
 Eluent: 10 mM Na₂CO₃
 Flow: 1.2 mL/min
 Injection: 250 µL
 Detection: Post-column derivatization, Visible detection, 450 nm

Sample preparation: The undiluted sample was treated with a Dionex OnGuard II H cartridge to remove excess basic cations.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1603845-04 / POX	ND
ATL Lab#: 1603845-06 / INF	ND
Method Blank	ND
Detection Limit	0.2
Date Analyzed:	11-14-16

Quality Control Summary

Sample ID: ATL Lab#: 1603845-04 / 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	ND	20.0	17.4	87	17.0	85	2
QC Guidelines				75-125		75-125	NMT 10

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1603845

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#: SC10925- STANDARD TAT

24

IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments

ATL Lab#: 1603845-04 / POX

317.0_SUB

[Bromate]

1-Poly Unpres - 125mL

11/16/16 17:00

Groundwater

11/02/16 08:40

11/01/16 08:40

ATL Lab#: 1603845-06 / INF

317.0_SUB

[Bromate]

1-Poly Unpres - 125mL

11/16/16 17:00

Groundwater

11/02/16 09:00

11/01/16 09:00

Released By

Date

Received By

Date

Released By

Date

Received By

Date

PROJECT: Raytheon Main GETS

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Kevin Fong

Phone 858.455.6500

Fax 858.455.6533

Sampled By:

Anelie Ferber

SAMPLE COLLECTION

MATRIX	PRESERVATION	CONTAINERS	ANALYSIS REQUESTED	Expected Concentration Range (ppb) for VOAs	SPECIAL HANDLING	
Groundwater	Lab prepared water					
	Hydrochloric Acid (HCl)					
	Sulfuric Acid					
	Ice					
	40-ml VOA					
	125 mL Poly					
	250 mL Poly					
	250 mL Glass					
	1 L Poly					
	1L Amber					
	VOCs by EPA 8260B					
	Bromate by EPA 317					
	Bromide by EPA 300					
	Alkalinity by SM2320B					
	Total Organic Carbon by SM5310B					
	SM2540D					
	UV Absorption EPA 415.3 @254 nm					
	1,4-Dioxane by EPA 8270C MOD					
	1,4-Dioxane by EPA 8270 SIM					
	0 - 10					
	10 - 100					
	100 - 1,000					
	>1,000					
	24 hr TAT					
	48 Hour TAT					
	5 Day TAT					
	Level IV Data Validation Requested					
	MS/MSD Requested					

Total number of containers per analysis:

26 5 2 1 1 6

Total No. of Containers: 41

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Kevin Fong HHA	11/1/16 10:25	Edith ATL	11-1-16 10:25
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Edith ATL	11-1-16 10:20	Proton	11/1/16 10:20

- ☒ No. of containers correct
- ☒ Received in good condition
- ☒ Custody seals secure
- ☒ Conforms to COC document

Send Results to:

Steve Netto

9171 Towne Centre Drive

Suite 275

San Diego, CA 92122

Ph: 858.455.6500

snetto@hargis.com

Instructions

- Fill out form completely and sign only after verified for completeness
- Complete in ballpoint pen. Draw one line through error, initial and date correction
- Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✗
- Note applicable preservatives, special instructions, and deviations from typical environmental samples.
- Consult project QA documents for specific instructions.

3.7

Temperature on receipt



November 30, 2016

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 : 1604145

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on November 17, 2016 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 written over a white 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 GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-111716	1604145-01	Lab prepared water	11/17/16 7:00	11/17/16 10:32
CBT	1604145-02	Groundwater	11/17/16 8:20	11/17/16 10:32
CEFF	1604145-03	Groundwater	11/17/16 8:13	11/17/16 10:32
POX	1604145-04	Groundwater	11/17/16 8:25	11/17/16 10:32
INF	1604145-05	Groundwater	11/17/16 8:37	11/17/16 10:32
EW-02	1604145-06	Groundwater	11/17/16 9:25	11/17/16 10:32
MW-29	1604145-07	Groundwater	11/17/16 9:45	11/17/16 10:32



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID TB-111716

Lab ID: 1604145-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,1,2-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,1-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,1-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID TB-111716

Lab ID: 1604145-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 15:45	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 15:45	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Tetrachloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Trichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Trichlorofluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 15:45	
Surrogate: 1,2-Dichloroethane-d4	102 %	51 - 157		B6K0763	11/21/2016	11/21/16 15:45	
Surrogate: 4-Bromofluorobenzene	99.1 %	61 - 123		B6K0763	11/21/2016	11/21/16 15:45	
Surrogate: Dibromofluoromethane	104 %	57 - 147		B6K0763	11/21/2016	11/21/16 15:45	
Surrogate: Toluene-d8	104 %	61 - 119		B6K0763	11/21/2016	11/21/16 15:45	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID CBT

Lab ID: 1604145-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,1,2-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,1-Dichloroethane	0.61	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,1-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID CBT

Lab ID: 1604145-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 16:08	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 16:08	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Tetrachloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Trichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Trichlorofluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:08	
Surrogate: 1,2-Dichloroethane-d4	113 %	51 - 157		B6K0763	11/21/2016	11/21/16 16:08	
Surrogate: 4-Bromofluorobenzene	101 %	61 - 123		B6K0763	11/21/2016	11/21/16 16:08	
Surrogate: Dibromofluoromethane	112 %	57 - 147		B6K0763	11/21/2016	11/21/16 16:08	
Surrogate: Toluene-d8	108 %	61 - 119		B6K0763	11/21/2016	11/21/16 16:08	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID CBT

Lab ID: 1604145-02

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0896	11/23/2016	11/23/16 19:42	
Surrogate: 1,2-Dichlorobenzene-d4	61.2 %	31 - 106		B6K0896	11/23/2016	11/23/16 19:42	
Surrogate: 2-Fluorobiphenyl	62.6 %	28 - 122		B6K0896	11/23/2016	11/23/16 19:42	
Surrogate: 4-Terphenyl-d14	80.9 %	43 - 131		B6K0896	11/23/2016	11/23/16 19:42	
Surrogate: Nitrobenzene-d5	69.9 %	20 - 119		B6K0896	11/23/2016	11/23/16 19:42	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID CEFF

Lab ID: 1604145-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,1,2-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,1-Dichloroethane	0.67	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,1-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID CEFF

Lab ID: 1604145-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 16:32	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 16:32	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Tetrachloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Trichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Trichlorofluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:32	
Surrogate: 1,2-Dichloroethane-d4	114 %	51 - 157		B6K0763	11/21/2016	11/21/16 16:32	
Surrogate: 4-Bromofluorobenzene	101 %	61 - 123		B6K0763	11/21/2016	11/21/16 16:32	
Surrogate: Dibromofluoromethane	113 %	57 - 147		B6K0763	11/21/2016	11/21/16 16:32	
Surrogate: Toluene-d8	108 %	61 - 119		B6K0763	11/21/2016	11/21/16 16:32	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID CEFF

Lab ID: 1604145-03

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0896	11/23/2016	11/23/16 20:08	
Surrogate: 1,2-Dichlorobenzene-d4	70.3 %	31 - 106		B6K0896	11/23/2016	11/23/16 20:08	
Surrogate: 2-Fluorobiphenyl	73.5 %	28 - 122		B6K0896	11/23/2016	11/23/16 20:08	
Surrogate: 4-Terphenyl-d14	72.6 %	43 - 131		B6K0896	11/23/2016	11/23/16 20:08	
Surrogate: Nitrobenzene-d5	83.9 %	20 - 119		B6K0896	11/23/2016	11/23/16 20:08	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID POX

Lab ID: 1604145-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,1,2-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,1-Dichloroethane	0.56	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,1-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID POX

Lab ID: 1604145-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 16:55	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 16:55	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Tetrachloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Trichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Trichlorofluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 16:55	
Surrogate: 1,2-Dichloroethane-d4	114 %	51 - 157		B6K0763	11/21/2016	11/21/16 16:55	
Surrogate: 4-Bromofluorobenzene	101 %	61 - 123		B6K0763	11/21/2016	11/21/16 16:55	
Surrogate: Dibromofluoromethane	112 %	57 - 147		B6K0763	11/21/2016	11/21/16 16:55	
Surrogate: Toluene-d8	109 %	61 - 119		B6K0763	11/21/2016	11/21/16 16:55	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID POX

Lab ID: 1604145-04

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B6K0896	11/23/2016	11/29/16 20:41	
Surrogate: 1,2-Dichlorobenzene-d4	73.5 %	31 - 106		B6K0896	11/23/2016	11/29/16 20:41	
Surrogate: 2-Fluorobiphenyl	74.8 %	28 - 122		B6K0896	11/23/2016	11/29/16 20:41	
Surrogate: 4-Terphenyl-d14	75.5 %	43 - 131		B6K0896	11/23/2016	11/29/16 20:41	
Surrogate: Nitrobenzene-d5	76.4 %	20 - 119		B6K0896	11/23/2016	11/29/16 20:41	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID INF

Lab ID: 1604145-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,1,2-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,1-Dichloroethane	0.83	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,1-Dichloroethene	74	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID INF

Lab ID: 1604145-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 17:18	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 17:18	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Tetrachloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Trichloroethene	0.74	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Trichlorofluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 17:18	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>	<i>51 - 157</i>		B6K0763	11/21/2016	<i>11/21/16 17:18</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.0 %</i>	<i>61 - 123</i>		B6K0763	11/21/2016	<i>11/21/16 17:18</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>109 %</i>	<i>57 - 147</i>		B6K0763	11/21/2016	<i>11/21/16 17:18</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 119</i>		B6K0763	11/21/2016	<i>11/21/16 17:18</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID INF

Lab ID: 1604145-05

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	23	2.0	1	B6K0891	11/23/2016	11/28/16 10:15	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>51.2 %</i>	<i>42 - 106</i>		B6K0891	11/23/2016	<i>11/28/16 10:15</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>60.2 %</i>	<i>55 - 117</i>		B6K0891	11/23/2016	<i>11/28/16 10:15</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>89.9 %</i>	<i>52 - 142</i>		B6K0891	11/23/2016	<i>11/28/16 10:15</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>57.7 %</i>	<i>43 - 116</i>		B6K0891	11/23/2016	<i>11/28/16 10:15</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID EW-02

Lab ID: 1604145-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,1,2-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,1-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,1-Dichloroethene	25	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2-Dichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID EW-02

Lab ID: 1604145-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 18:52	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 18:52	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Tetrachloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Trichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Trichlorofluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 18:52	
Surrogate: 1,2-Dichloroethane-d4	114 %	51 - 157		B6K0763	11/21/2016	11/21/16 18:52	
Surrogate: 4-Bromofluorobenzene	103 %	61 - 123		B6K0763	11/21/2016	11/21/16 18:52	
Surrogate: Dibromofluoromethane	114 %	57 - 147		B6K0763	11/21/2016	11/21/16 18:52	
Surrogate: Toluene-d8	109 %	61 - 119		B6K0763	11/21/2016	11/21/16 18:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID EW-02

Lab ID: 1604145-06

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	7.0	2.0	1	B6K0891	11/23/2016	11/28/16 10:42	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>50.5 %</i>	<i>42 - 106</i>		<i>B6K0891</i>	<i>11/23/2016</i>	<i>11/28/16 10:42</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>58.9 %</i>	<i>55 - 117</i>		<i>B6K0891</i>	<i>11/23/2016</i>	<i>11/28/16 10:42</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>87.3 %</i>	<i>52 - 142</i>		<i>B6K0891</i>	<i>11/23/2016</i>	<i>11/28/16 10:42</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>57.7 %</i>	<i>43 - 116</i>		<i>B6K0891</i>	<i>11/23/2016</i>	<i>11/28/16 10:42</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID MW-29

Lab ID: 1604145-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,1,1-Trichloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,1,2-Trichloroethane	0.92	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,1-Dichloroethane	3.1	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,1-Dichloroethene	260	2.5	5	B6K0763	11/21/2016	11/21/16 20:02	
1,1-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2,3-Trichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2,3-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2,4-Trichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2,4-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2-Dibromoethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2-Dichloroethane	0.53	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,3,5-Trimethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,3-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,3-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
1,4-Dichlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
2,2-Dichloropropane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
2-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
4-Chlorotoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
4-Isopropyltoluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Benzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Bromobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Bromodichloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Bromoform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Bromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Carbon tetrachloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Chlorobenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Chloroethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Chloroform	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Chloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
cis-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
cis-1,3-Dichloropropene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Dibromochloromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID MW-29

Lab ID: 1604145-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Dichlorodifluoromethane	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Ethylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Hexachlorobutadiene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Isopropylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
m,p-Xylene	ND	1.0	1	B6K0763	11/21/2016	11/21/16 19:39	
Methylene chloride	ND	1.0	1	B6K0763	11/21/2016	11/21/16 19:39	
n-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
n-Propylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Naphthalene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
o-Xylene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
sec-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Styrene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
tert-Butylbenzene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Tetrachloroethene	0.65	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Toluene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
trans-1,2-Dichloroethene	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Trichloroethene	2.7	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Trichlorofluoromethane	1.1	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
Vinyl chloride	ND	0.50	1	B6K0763	11/21/2016	11/21/16 19:39	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>	<i>51 - 157</i>		B6K0763	11/21/2016	<i>11/21/16 20:02</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>	<i>51 - 157</i>		B6K0763	11/21/2016	<i>11/21/16 19:39</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>61 - 123</i>		B6K0763	11/21/2016	<i>11/21/16 20:02</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.7 %</i>	<i>61 - 123</i>		B6K0763	11/21/2016	<i>11/21/16 19:39</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>	<i>57 - 147</i>		B6K0763	11/21/2016	<i>11/21/16 20:02</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>111 %</i>	<i>57 - 147</i>		B6K0763	11/21/2016	<i>11/21/16 19:39</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>61 - 119</i>		B6K0763	11/21/2016	<i>11/21/16 19:39</i>	
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>	<i>61 - 119</i>		B6K0763	11/21/2016	<i>11/21/16 20:02</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

Client Sample ID MW-29

Lab ID: 1604145-07

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

Analyst: LT

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	79	2.0	1	B6K0891	11/23/2016	11/28/16 11:09	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>54.0 %</i>	<i>42 - 106</i>		B6K0891	11/23/2016	<i>11/28/16 11:09</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>61.8 %</i>	<i>55 - 117</i>		B6K0891	11/23/2016	<i>11/28/16 11:09</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>93.4 %</i>	<i>52 - 142</i>		B6K0891	11/23/2016	<i>11/28/16 11:09</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>60.6 %</i>	<i>43 - 116</i>		B6K0891	11/23/2016	<i>11/28/16 11:09</i>	



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QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

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

Batch B6K0763 - MSVOA_W

Blank (B6K0763-BLK1)

Prepared: 11/21/2016 Analyzed: 11/21/2016

1,1,1,2-Tetrachloroethane	ND	0.50			NR
1,1,1-Trichloroethane	ND	0.50			NR
1,1,2,2-Tetrachloroethane	ND	0.50			NR
1,1,2-Trichloroethane	ND	0.50			NR
1,1-Dichloroethane	ND	0.50			NR
1,1-Dichloroethene	ND	0.50			NR
1,1-Dichloropropene	ND	0.50			NR
1,2,3-Trichloropropane	ND	0.50			NR
1,2,3-Trichlorobenzene	ND	0.50			NR
1,2,4-Trichlorobenzene	ND	0.50			NR
1,2,4-Trimethylbenzene	ND	0.50			NR
1,2-Dibromo-3-chloropropane	ND	0.50			NR
1,2-Dibromoethane	ND	0.50			NR
1,2-Dichlorobenzene	ND	0.50			NR
1,2-Dichloroethane	ND	0.50			NR
1,2-Dichloropropane	ND	0.50			NR
1,3,5-Trimethylbenzene	ND	0.50			NR
1,3-Dichlorobenzene	ND	0.50			NR
1,3-Dichloropropane	ND	0.50			NR
1,4-Dichlorobenzene	ND	0.50			NR
2,2-Dichloropropane	ND	0.50			NR
2-Chlorotoluene	ND	0.50			NR
4-Chlorotoluene	ND	0.50			NR
4-Isopropyltoluene	ND	0.50			NR
Benzene	ND	0.50			NR
Bromobenzene	ND	0.50			NR
Bromodichloromethane	ND	0.50			NR
Bromoform	ND	0.50			NR
Bromomethane	ND	0.50			NR
Carbon tetrachloride	ND	0.50			NR
Chlorobenzene	ND	0.50			NR
Chloroethane	ND	0.50			NR
Chloroform	ND	0.50			NR
Chloromethane	ND	0.50			NR
cis-1,2-Dichloroethene	ND	0.50			NR
cis-1,3-Dichloropropene	ND	0.50			NR
Dibromochloromethane	ND	0.50			NR
Dibromomethane	ND	0.50			NR
Dichlorodifluoromethane	ND	0.50			NR



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

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 B6K0763 - MSVOA_W (continued)

Blank (B6K0763-BLK1) - Continued

Prepared: 11/21/2016 Analyzed: 11/21/2016

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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>26.33</i>		<i>25.0000</i>		<i>105</i>	<i>51 - 157</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>25.97</i>		<i>25.0000</i>		<i>104</i>	<i>61 - 123</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>26.48</i>		<i>25.0000</i>		<i>106</i>	<i>57 - 147</i>			
<i>Surrogate: Toluene-d8</i>	<i>26.68</i>		<i>25.0000</i>		<i>107</i>	<i>61 - 119</i>			

LCS (B6K0763-BS1)

Prepared: 11/21/2016 Analyzed: 11/21/2016

1,1,1,2-Tetrachloroethane	18.9800	0.50	20.0000		94.9	76 - 132			
1,1,1-Trichloroethane	19.9200	0.50	20.0000		99.6	72 - 144			
1,1,2,2-Tetrachloroethane	19.0900	0.50	20.0000		95.4	70 - 120			
1,1,2-Trichloroethane	19.6500	0.50	20.0000		98.2	75 - 120			
1,1-Dichloroethane	21.5700	0.50	20.0000		108	65 - 127			
1,1-Dichloroethene	19.6100	0.50	20.0000		98.0	63 - 142			
1,1-Dichloropropene	20.6100	0.50	20.0000		103	78 - 137			
1,2,3-Trichloropropane	18.4800	0.50	20.0000		92.4	73 - 118			
1,2,3-Trichlorobenzene	18.2500	0.50	20.0000		91.2	53 - 164			
1,2,4-Trichlorobenzene	19.5000	0.50	20.0000		97.5	58 - 144			
1,2,4-Trimethylbenzene	22.4500	0.50	20.0000		112	75 - 140			
1,2-Dibromo-3-chloropropane	16.4500	0.50	20.0000		82.2	61 - 131			
1,2-Dibromoethane	18.4400	0.50	20.0000		92.2	74 - 125			
1,2-Dichlorobenzene	19.4300	0.50	20.0000		97.2	78 - 122			
1,2-Dichloroethane	18.5900	0.50	20.0000		93.0	70 - 126			
1,2-Dichloropropane	21.5300	0.50	20.0000		108	69 - 120			
1,3,5-Trimethylbenzene	22.6100	0.50	20.0000		113	73 - 145			



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

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 B6K0763 - MSVOA_W (continued)

LCS (B6K0763-BS1) - Continued

Prepared: 11/21/2016 Analyzed: 11/21/2016

1,3-Dichlorobenzene	19.7100	0.50	20.0000		98.6	76 - 126			
1,3-Dichloropropane	19.5000	0.50	20.0000		97.5	76 - 117			
1,4-Dichlorobenzene	19.7800	0.50	20.0000		98.9	77 - 120			
2,2-Dichloropropane	26.3300	0.50	20.0000		132	47 - 169			
2-Chlorotoluene	21.6000	0.50	20.0000		108	75 - 135			
4-Chlorotoluene	21.8600	0.50	20.0000		109	70 - 133			
4-Isopropyltoluene	22.2400	0.50	20.0000		111	72 - 153			
Benzene	42.0000	0.50	40.0000		105	73 - 123			
Bromobenzene	18.9100	0.50	20.0000		94.6	75 - 121			
Bromodichloromethane	18.6900	0.50	20.0000		93.4	73 - 124			
Bromoform	16.9600	0.50	20.0000		84.8	70 - 135			
Bromomethane	32.2900	0.50	20.0000		161	10 - 166			
Carbon tetrachloride	18.7600	0.50	20.0000		93.8	65 - 171			
Chlorobenzene	19.4900	0.50	20.0000		97.4	80 - 121			
Chloroethane	25.9700	0.50	20.0000		130	55 - 143			
Chloroform	19.6700	0.50	20.0000		98.4	65 - 130			
Chloromethane	25.3100	0.50	20.0000		127	21 - 141			
cis-1,2-Dichloroethene	20.4900	0.50	20.0000		102	64 - 126			
cis-1,3-Dichloropropene	21.5800	0.50	20.0000		108	70 - 131			
Dibromochloromethane	17.9300	0.50	20.0000		89.6	74 - 125			
Dibromomethane	18.6100	0.50	20.0000		93.0	74 - 116			
Dichlorodifluoromethane	24.5200	0.50	20.0000		123	40 - 186			
Ethylbenzene	41.6800	0.50	40.0000		104	77 - 130			
Hexachlorobutadiene	17.8400	0.50	20.0000		89.2	52 - 176			
Isopropylbenzene	22.3400	0.50	20.0000		112	77 - 144			
m,p-Xylene	45.2600	1.0	40.0000		113	84 - 136			
Methylene chloride	24.0000	1.0	20.0000		120	72 - 150			
n-Butylbenzene	23.6200	0.50	20.0000		118	73 - 154			
n-Propylbenzene	22.9600	0.50	20.0000		115	77 - 145			
Naphthalene	20.5300	0.50	20.0000		103	55 - 137			
o-Xylene	44.0700	0.50	40.0000		110	79 - 135			
sec-Butylbenzene	22.3400	0.50	20.0000		112	73 - 157			
Styrene	22.4200	0.50	20.0000		112	78 - 125			
tert-Butylbenzene	21.3300	0.50	20.0000		107	78 - 149			
Tetrachloroethene	17.8000	0.50	20.0000		89.0	74 - 136			
Toluene	40.7600	0.50	40.0000		102	78 - 124			
trans-1,2-Dichloroethene	20.2100	0.50	20.0000		101	66 - 131			
Trichloroethene	19.1500	0.50	20.0000		95.8	78 - 128			
Trichlorofluoromethane	17.7600	0.50	20.0000		88.8	60 - 170			
Vinyl chloride	23.4300	0.50	20.0000		117	55 - 148			
Surrogate: 1,2-Dichloroethane-d4	24.99		25.0000		100	51 - 157			



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

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 B6K0763 - MSVOA_W (continued)

LCS (B6K0763-BS1) - Continued

Prepared: 11/21/2016 Analyzed: 11/21/2016

Surrogate: 4-Bromofluorobenzene	26.76		25.0000		107	61 - 123			
Surrogate: Dibromofluoromethane	24.33		25.0000		97.3	57 - 147			
Surrogate: Toluene-d8	25.53		25.0000		102	61 - 119			

LCS Dup (B6K0763-BSD1)

Prepared: 11/21/2016 Analyzed: 11/21/2016

1,1,1,2-Tetrachloroethane	18.3900	0.50	20.0000		92.0	76 - 132	3.16	20	
1,1,1-Trichloroethane	19.8400	0.50	20.0000		99.2	72 - 144	0.402	20	
1,1,2,2-Tetrachloroethane	19.5900	0.50	20.0000		98.0	70 - 120	2.59	20	
1,1,2-Trichloroethane	19.4400	0.50	20.0000		97.2	75 - 120	1.07	20	
1,1-Dichloroethane	21.9900	0.50	20.0000		110	65 - 127	1.93	20	
1,1-Dichloroethene	19.2900	0.50	20.0000		96.4	63 - 142	1.65	20	
1,1-Dichloropropene	19.6800	0.50	20.0000		98.4	78 - 137	4.62	20	
1,2,3-Trichloropropane	19.0100	0.50	20.0000		95.0	73 - 118	2.83	20	
1,2,3-Trichlorobenzene	17.9400	0.50	20.0000		89.7	53 - 164	1.71	20	
1,2,4-Trichlorobenzene	19.0300	0.50	20.0000		95.2	58 - 144	2.44	20	
1,2,4-Trimethylbenzene	21.8700	0.50	20.0000		109	75 - 140	2.62	20	
1,2-Dibromo-3-chloropropane	17.1300	0.50	20.0000		85.6	61 - 131	4.05	20	
1,2-Dibromoethane	18.6100	0.50	20.0000		93.0	74 - 125	0.918	20	
1,2-Dichlorobenzene	19.2500	0.50	20.0000		96.2	78 - 122	0.931	20	
1,2-Dichloroethane	17.9500	0.50	20.0000		89.8	70 - 126	3.50	20	
1,2-Dichloropropane	21.0800	0.50	20.0000		105	69 - 120	2.11	20	
1,3,5-Trimethylbenzene	21.9400	0.50	20.0000		110	73 - 145	3.01	20	
1,3-Dichlorobenzene	19.6200	0.50	20.0000		98.1	76 - 126	0.458	20	
1,3-Dichloropropane	19.6200	0.50	20.0000		98.1	76 - 117	0.614	20	
1,4-Dichlorobenzene	19.6400	0.50	20.0000		98.2	77 - 120	0.710	20	
2,2-Dichloropropane	25.6400	0.50	20.0000		128	47 - 169	2.66	20	
2-Chlorotoluene	21.4000	0.50	20.0000		107	75 - 135	0.930	20	
4-Chlorotoluene	21.5700	0.50	20.0000		108	70 - 133	1.34	20	
4-Isopropyltoluene	21.9300	0.50	20.0000		110	72 - 153	1.40	20	
Benzene	41.0800	0.50	40.0000		103	73 - 123	2.21	20	
Bromobenzene	18.7200	0.50	20.0000		93.6	75 - 121	1.01	20	
Bromodichloromethane	18.2400	0.50	20.0000		91.2	73 - 124	2.44	20	
Bromoform	16.5900	0.50	20.0000		83.0	70 - 135	2.21	20	
Bromomethane	30.3700	0.50	20.0000		152	10 - 166	6.13	20	
Carbon tetrachloride	17.5700	0.50	20.0000		87.8	65 - 171	6.55	20	
Chlorobenzene	19.2900	0.50	20.0000		96.4	80 - 121	1.03	20	
Chloroethane	25.2300	0.50	20.0000		126	55 - 143	2.89	20	
Chloroform	19.7900	0.50	20.0000		99.0	65 - 130	0.608	20	
Chloromethane	25.5200	0.50	20.0000		128	21 - 141	0.826	20	
cis-1,2-Dichloroethene	20.7600	0.50	20.0000		104	64 - 126	1.31	20	
cis-1,3-Dichloropropene	21.3200	0.50	20.0000		107	70 - 131	1.21	20	
Dibromochloromethane	17.4600	0.50	20.0000		87.3	74 - 125	2.66	20	



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Reported : 11/30/2016

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 B6K0763 - MSVOA_W (continued)

LCS Dup (B6K0763-BSD1) - Continued

Prepared: 11/21/2016 Analyzed: 11/21/2016

Dibromomethane	18.2100	0.50	20.0000		91.0	74 - 116	2.17	20	
Dichlorodifluoromethane	23.9100	0.50	20.0000		120	40 - 186	2.52	20	
Ethylbenzene	40.4400	0.50	40.0000		101	77 - 130	3.02	20	
Hexachlorobutadiene	16.8300	0.50	20.0000		84.2	52 - 176	5.83	20	
Isopropylbenzene	21.8800	0.50	20.0000		109	77 - 144	2.08	20	
m,p-Xylene	43.6200	1.0	40.0000		109	84 - 136	3.69	20	
Methylene chloride	16.7600	1.0	20.0000		83.8	72 - 150	35.5	20	R
n-Butylbenzene	23.0500	0.50	20.0000		115	73 - 154	2.44	20	
n-Propylbenzene	22.6300	0.50	20.0000		113	77 - 145	1.45	20	
Naphthalene	20.6400	0.50	20.0000		103	55 - 137	0.534	20	
o-Xylene	42.7400	0.50	40.0000		107	79 - 135	3.06	20	
sec-Butylbenzene	21.8900	0.50	20.0000		109	73 - 157	2.03	20	
Styrene	21.8800	0.50	20.0000		109	78 - 125	2.44	20	
tert-Butylbenzene	20.8400	0.50	20.0000		104	78 - 149	2.32	20	
Tetrachloroethene	16.7500	0.50	20.0000		83.8	74 - 136	6.08	20	
Toluene	40.0400	0.50	40.0000		100	78 - 124	1.78	20	
trans-1,2-Dichloroethene	20.5200	0.50	20.0000		103	66 - 131	1.52	20	
Trichloroethene	18.5900	0.50	20.0000		93.0	78 - 128	2.97	20	
Trichlorofluoromethane	16.9500	0.50	20.0000		84.8	60 - 170	4.67	20	
Vinyl chloride	23.1700	0.50	20.0000		116	55 - 148	1.12	20	
Surrogate: 1,2-Dichloroethane-d4	25.11		25.0000		100	51 - 157			
Surrogate: 4-Bromofluorobenzene	25.68		25.0000		103	61 - 123			
Surrogate: Dibromofluoromethane	24.53		25.0000		98.1	57 - 147			
Surrogate: Toluene-d8	25.31		25.0000		101	61 - 119			



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Reported : 11/30/2016

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 B6K0891 - MSSEMI_W

Blank (B6K0891-BLK1)

Prepared: 11/23/2016 Analyzed: 11/23/2016

1,4-Dioxane	ND	2.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	42.94		100.000		42.9	42 - 106			
Surrogate: 2-Fluorobiphenyl	46.00		100.000		46.0	55 - 117			S3
Surrogate: 4-Terphenyl-d14	93.82		100.000		93.8	52 - 142			
Surrogate: Nitrobenzene-d5	45.88		100.000		45.9	43 - 116			

LCS (B6K0891-BS1)

Prepared: 11/23/2016 Analyzed: 11/23/2016

1,4-Dioxane	101.790	2.0	100.000		102	62 - 127			
Surrogate: 1,2-Dichlorobenzene-d4	62.04		100.000		62.0	42 - 106			
Surrogate: 2-Fluorobiphenyl	82.93		100.000		82.9	55 - 117			
Surrogate: 4-Terphenyl-d14	89.18		100.000		89.2	52 - 142			
Surrogate: Nitrobenzene-d5	71.79		100.000		71.8	43 - 116			

LCS Dup (B6K0891-BS1)

Prepared: 11/23/2016 Analyzed: 11/23/2016

1,4-Dioxane	102.540	2.0	100.000		103	62 - 127	0.734	20	
Surrogate: 1,2-Dichlorobenzene-d4	57.69		100.000		57.7	42 - 106			
Surrogate: 2-Fluorobiphenyl	78.31		100.000		78.3	55 - 117			
Surrogate: 4-Terphenyl-d14	90.27		100.000		90.3	52 - 142			
Surrogate: Nitrobenzene-d5	67.89		100.000		67.9	43 - 116			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/30/2016

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 B6K0896 - MSSEMI_W

Blank (B6K0896-BLK1)

Prepared: 11/23/2016 Analyzed: 11/23/2016

1,4-Dioxane	ND	0.20			NR				
Surrogate: 1,2-Dichlorobenzene-d4	0.6359		1.00000		63.6	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7135		1.00000		71.3	28 - 122			
Surrogate: 4-Terphenyl-d14	0.8392		1.00000		83.9	43 - 131			
Surrogate: Nitrobenzene-d5	0.7236		1.00000		72.4	20 - 119			

LCS (B6K0896-BS1)

Prepared: 11/23/2016 Analyzed: 11/23/2016

1,4-Dioxane	1.20997	0.20	1.00000		121	49 - 169			
Surrogate: 1,2-Dichlorobenzene-d4	0.6521		1.00000		65.2	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.6843		1.00000		68.4	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7015		1.00000		70.1	43 - 131			
Surrogate: Nitrobenzene-d5	0.7442		1.00000		74.4	20 - 119			

LCS Dup (B6K0896-BS1)

Prepared: 11/23/2016 Analyzed: 11/23/2016

1,4-Dioxane	1.09864	0.20	1.00000		110	49 - 169	9.64	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.6715		1.00000		67.1	31 - 106			
Surrogate: 2-Fluorobiphenyl	0.7243		1.00000		72.4	28 - 122			
Surrogate: 4-Terphenyl-d14	0.7824		1.00000		78.2	43 - 131			
Surrogate: Nitrobenzene-d5	0.7806		1.00000		78.1	20 - 119			



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Notes and Definitions

S3	Surrogate recovery outside of laboratory acceptance limit. Unable to confirm matrix effects.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
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.



PROJECT: Raytheon Main GETS Mid Month Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Kevin Fong

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED										Expected Concentration Range (ppb) for		SPECIAL HANDLING		Laboratory												
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Nitric Acid (HNO ₃)	Sulfuric Acid (H ₂ SO ₄)	Ice	40-ml VOA	125 mL Poly	250 mL Poly	250 mL Glass	1 L Poly	1L Amber	VOCs by EPA 8260B	Bromate by EPA 317	Bromide by EPA 300	Alkalinity by SM2320B	Total Organic Carbon by SM5310B	SM2540D	UV Absorption EPA 415.3 @254 nm	1,4-Dioxane by EPA 8270C MOD	1,4-Dioxane by EPA 8270 SIM	0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 Hour TAT	5 Day TAT	Level IV Data Validation Requested	MS/MSD Requested	REMARKS		
1004145-1	TB-111716	11/17/2016	7:00		X	X			X	2						X									X											
2	CBT		8:20	X	X				X	3					1	X								X	X											
3	CEFF		8:13	X	X				X	3					1	X								X	X											
4	POX		8:25	X	X				X	3					1	X								X	X											
5	INF		8:37	X	X				X	3					1	X							X				X									
6	EW-02		9:25	X	X				X	3					1	X							X			X										
7	MW-29		9:45	X	X				X	3					1	X							X			X										
Total number of containers per analysis:										20					6	Total No. of Containers: 26																				

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>Kevin Fong</i> HHA	11/17/16 10:32	<i>Steve Netto</i>	11/17/16 10:22
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>Steve Netto</i>	11/17/16 11:22	<i>Kevin Fong</i>	11/17/16 11:22

- No. of containers correct
Received in good condition
Custody seals secure
Conforms to COC document

Instructions

1. Fill out form completely and sign only after verified for completeness
2. Complete in ballpoint pen. Draw one line through error, initial and date correction
3. Indicate the number of sample containers in analytical request space; indicate choice with ✓ or ✗
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples. Consult project QA documents for specific instructions.

4.9 Temperature on receipt

Send Results to:

Steve Netto

9171 Towne Centre Drive

Suite 275

San Diego, CA 92122

Ph: 858.455.6500

snetto@hargis.com