



HARGIS + ASSOCIATES, INC.

HYDROGEOLOGY • ENGINEERING

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January 10, 2018

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 2017, 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 2017 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 2017 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 2017 groundwater monitoring and pilot GETS operation from September through November 2017 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 2017 in general accordance with the GMWPSAP and Addendum No.1 (H+A, 2003 and 2011a) (Table 1).

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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, 2017 (Table 2).

Groundwater samples were collected during the period from November 7 through 9, 2017 (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 and a half screen volumes were purged from two of the large-volume monitor wells during this event; these additional samples were collected to compare results between the 1.5-screen-volume purge method to the conventional 3-screen-volume purge method which has been used historically at the Site for the large-volume monitor wells. Groundwater samples were collected after both 1.5- and 3-screen 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 2017 consisted of trip blanks, field duplicates, equipment rinsate blanks, 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, MW-33, and MW-34B in November 2017 (Table 3). Split samples were collected for analysis of VOCs and 1,4-dioxane from wells EW-01, MW-21, and MW-34B in November 2017 (Table 3). The relative percent difference (RPD) was calculated between the results of each field duplicate and each laboratory split sample with its corresponding original sample. This data quality assessment indicated that results for groundwater samples from monitor wells MW-21 and MW-33 are within quality control criteria. 1,1-Dichloroethene and 1,4-dioxane results from samples collected from monitor well MW-34B were qualified as estimated, or "E", due to the RPD between split, duplicate, and original samples exceeding the data quality assessment guidelines.

There were no detections of 1,4-dioxane and VOCs in the rinsate, trip and laboratory method blanks analyzed with groundwater samples collected during the November 2017 groundwater monitoring event (Table 3; Appendix B).

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

GROUNDWATER EXTRACTION AND TREATMENT PILOT STUDY

This section summarizes the pilot GETS operation within the three-month period of monitoring conducted during the fourth quarter of 2017. 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

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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 2017, the pilot GETS was operational approximately 88 percent of the available runtime and approximately 4.7 million gallons of groundwater were treated and discharged to the sanitary sewer (Table 4). Downtime during the fourth quarter of 2017 was associated with unexpected power outages and rain events. The average operational monthly discharge flowrate to the sanitary sewer from September 2017 to November 2017 was approximately 40 gpm. Since startup of the pilot GETS, approximately 151 million gallons of groundwater were treated at an average operational flowrate of 41 gpm through the end of November 2017 (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 the fourth quarter 2017. 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 (Table 6).

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 2017.

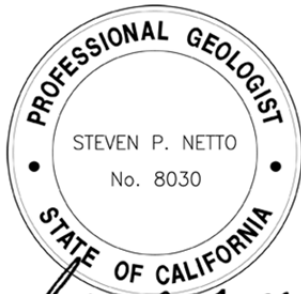
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The pilot GETS continues to remove VOCs and 1,4-dioxane from extracted groundwater. During the fourth quarter of 2017, the pilot GETS removed approximately 1.6 pounds of VOCs and 0.5 pounds of 1,4-dioxane from extracted groundwater. Since startup of the pilot GETS in July 2008, approximately 163 pounds of VOCs and 37 pounds of 1,4-dioxane have been removed from groundwater through November 2017 (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.

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REFERENCES

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



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Appendices

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- Appendix B. Laboratory Analytical Reports (Provided on CD only)



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

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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		
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				VOCs; 1,4-Dioxane	
MW-13	AB				VOCs; 1,4-Dioxane	
MW-15	AB			VOCs		
MW-26A	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-26B	AB		PIEZOMETER - WATER LEVEL MEASUREMENT ONLY			
MW-32A	AB			VOCs; 1,4-Dioxane		
EW-01	B	X	VOCs; 1,4-Dioxane			
EW-02*	B	X	VOCs; 1,4-Dioxane			
MW-16	B			VOCs; 1,4-Dioxane		
MW-26C	B	X	VOCs; 1,4-Dioxane			
MW-27	B				VOCs; 1,4-Dioxane	
MW-28	B	X	VOCs; 1,4-Dioxane			
MW-29*	B	X	VOCs; 1,4-Dioxane			
MW-30A	B	X	VOCs; 1,4-Dioxane			
MW-31	B	X	VOCs; 1,4-Dioxane			
MW-32B	B	X	VOCs; 1,4-Dioxane			
MW-33	B	X	VOCs; 1,4-Dioxane			
MW-34B	B	X	VOCs; 1,4-Dioxane			
MW-35C	B	X	VOCs; 1,4-Dioxane			
MW-36	B	X	VOCs; 1,4-Dioxane			
MW-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		
MW-24	C				VOCs; 1,4-Dioxane	
MW-32C	C			VOCs; 1,4-Dioxane		
MW-06	D				VOCs	
MW-20	D			VOCs; 1,4-Dioxane		
MW-25	D		WATER LEVEL MEASUREMENT ONLY			
MW-37	D				VOCs; 1,4-Dioxane	

FOOTNOTES

Groundwater Monitoring Program 2014/2015 Letter (Hargis + Associates, Inc., 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 2017

Well Identifier	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
<u>Regional Groundwater System Monitor and Extraction Wells</u>					
MW-06	11/06/17	184.70	156.32	28.38	
MW-08	11/06/17	155.91	138.67	17.24	
MW-09	11/06/17	180.10	157.61	22.49	
MW-13	11/06/17	141.84	118.28	23.56	
MW-15	11/06/17	144.95	140.75	4.20	
MW-16	11/06/17	142.40	119.82	22.58	
MW-17	11/06/17	142.70	118.34	24.36	
MW-18	11/06/17	142.32	118.79	23.53	
MW-19	11/06/17	142.06	118.44	23.62	
MW-20	11/06/17	184.19	154.35	29.84	
MW-21	11/06/17	141.18	121.00	20.18	
MW-22	11/06/17	138.65	114.81	23.84	
MW-23	11/06/17	137.33	114.49	22.84	
MW-24	11/06/17	142.83	119.80	23.03	
MW-25	11/06/17	142.64	114.55	28.09	
MW-26A	11/06/17	137.04	126.20	10.84	
MW-26B	11/06/17	137.05	132.05	5.00	
MW-26C	11/06/17	137.22	114.02	23.20	
MW-27	11/06/17	137.16	113.41	23.75	
MW-28	11/06/17	140.77	118.60	22.17	
MW-29	11/06/17	139.81	155.05	-15.24	Pilot GETS
MW-30A	11/06/17	129.44	106.92	22.52	
MW-30B	11/06/17	129.39	105.65	23.74	
MW-31	11/06/17	119.60	94.00	25.60	
MW-32A	11/06/17	92.88	68.04	24.84	
MW-32B	11/06/17	92.89	68.70	24.19	
MW-32C	11/06/17	92.88	67.94	24.94	
MW-33	11/06/17	83.19	59.82	23.37	

TABLE 2
GROUNDWATER LEVELS
FOURTH QUARTER 2017

Well Identifier	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
<u>Regional Groundwater System Monitor and Extraction Wells (continued)</u>					
MW-34A	11/06/17	153.25	135.02	18.23	
MW-34B	11/06/17	153.11	133.16	19.95	
MW-34C	11/06/17	153.29	131.75	21.54	
MW-35A	11/06/17	93.57	65.62	27.95	
MW-35B	11/06/17	93.56	71.52	22.04	
MW-35C	11/06/17	93.55	67.44	26.11	
MW-36	11/06/17	86.65	65.10	21.55	
MW-37	11/06/17	155.60	131.14	24.46	
MW-38	11/06/17	154.90	143.85	11.05	
MW-39	11/06/17	84.25	62.93	21.32	
MW-40	11/06/17	123.40	95.36	28.04	
MW-41	11/06/17	155.60	136.41	19.19	
EW-01	11/06/17	141.07	117.81	23.26	
EW-02	11/06/17	132.97	116.26	16.71	Pilot GETS
<u>Perched Zone Water Levels</u>					
P-07	11/06/17	142.31	111.50	30.81	
P-09	11/06/17	183.86	120.83	63.03	

FOOTNOTES

- (a) Reference point elevations are relative to City of Fullerton datum.
 btoc = Below top of casing
 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 2017

			Concentration (micrograms per liter).....														Semi-VOCs	
			VOLATILE ORGANIC COMPOUNDS (FEDERAL MCL/CALIFORNIA MCL)															
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	11/07/17	ORG	< 0.50	< 0.50	0.54	0.39 J	< 0.50	96	5.9	0.36 J	< 0.50	< 0.50	140	< 0.50	< 0.50	0.16 J		
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	11/06/17	ORG	< 5.0	< 5.0	< 5.0	15	< 5.0	1,500	< 5.0	5.8	< 5.0	5.5	10	< 5.0	< 5.0	120 E		
MW-21	11/06/17	DUP	< 2.5	< 2.5	1.6 J	19	2.2 J	1,300	< 2.5	5.5	< 2.5	5.6	11	< 2.5	< 2.5	130 E		
MW-21 ⁽¹⁾	11/06/17	SPT	< 0.50	0.47 J	1.7	24	3.2	1,900	1.2	5.7	<1.0	7.7	12	< 10	< 1.0	210 E		
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	11/07/17	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	11/08/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20		
MW-28 Historical Range***			< 0.50	< 0.50	< 0.50 - 0.20 J	< 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	09/01/17	ORG	< 0.50	< 0.50	< 0.50	2.0	0.51	200	< 0.50	0.83	< 0.50	0.81	1.9	< 0.50	< 0.50	73		
MW-29	09/14/17	ORG	< 0.50	< 0.50	< 0.50	1.7	< 0.50	160	< 0.50	0.98	< 0.50	0.70	1.9	< 0.50	< 0.50	82		
MW-29	10/06/17	ORG	< 0.50	< 0.50	< 0.50	1.5	< 0.49	140	< 0.50	0.52	< 0.50	0.58	1.2	< 0.50	< 0.50	59		
MW-29	10/19/17	ORG	< 0.50	< 0.50	< 0.50	1.6	< 0.50	130	< 0.50	< 0.50	< 0.50	0.56	1.1	< 0.50	< 0.50	44		
MW-29	11/06/17	ORG	< 0.50	< 0.50	< 0.50	0.77	< 0.50	110	< 0.50	0.57	< 0.50	< 0.50	1.0	< 0.50	< 0.50	31		
MW-29	11/20/17	ORG	< 0.50	< 0.50	< 0.50	1.3	< 0.50	120	< 0.50	0.56	< 0.50	< 0.50	1.0	< 0.50	< 0.50	47		
Historical High/Low						Low												
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	11/07/17	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	11/08/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	18	5.2	< 0.50	< 0.50	< 0.50	86	< 0.50	< 0.50	< 0.20		
MW-30B Historical Range***			< 0.50	< 0.50	< 0.50 - 0.39 J	< 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	11/08/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	45	< 0.50	< 0.50	< 0.50	< 0.50	3.3	< 0.50	< 0.50	1.7		
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_1.5SV	11/07/17	ORG	< 0.50	< 0.50	< 0.50	0.32 J	< 0.50	40	1.1	< 0.50	< 0.50	< 0.50	11	< 0.50	< 0.50	0.30		
MW-32B	11/07/17	ORG	< 0.50	< 0.50	< 0.50	0.64	< 0.50	64	2.3	< 0.50	< 0.50	< 0.50	24	< 0.50	< 0.50	1.60		
MW-32B Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.4	< 0.50	16 - 180	1.9 - 5.9	< 0.50	< 0.50	< 0.50	20 - 75	< 0.50	< 0.50	0.39 - 4.6		
MW-33_1.5SV	11/07/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	9.3	< 0.50	< 0.50	< 0.50	< 0.50	1.4	< 0.50	< 0.50	< 0.20		
MW-33	11/07/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.3	< 0.50	< 0.50	< 0.50	< 0.50	0.72	< 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 - 2.0	< 0.50	< 0.50 - 1.4	< 0.20 - < 2.0		

TABLE 3

PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
FOURTH QUARTER 2017

			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-34B	11/07/17	ORG	< 0.50	< 0.50	0.24 J	2.4	0.44 J	210 E	< 0.50	0.46 J	< 0.50	0.70	0.82	< 0.50	< 0.50	23 E	
MW-34B	11/07/17	DUP	< 0.50	< 0.50	< 0.50	2.4	< 0.50	200 E	< 0.50	0.43 J	< 0.50	0.73	0.81	< 0.50	< 0.50	25 E	
MW-34B	11/07/17	SPT	< 0.50	< 0.50	< 1.0	2.4	0.38 J	380 E	< 1.0	0.40 J	< 1.0	< 1.0	0.90 J	< 10	< 1.0	40 E	
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	< 2.0 E - 196	
MW-35C	11/07/17	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_1.5SV	11/07/17	ORG	< 0.50	< 0.50	< 0.50	0.91	< 0.50	93	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.7	
MW-36	11/07/17	ORG	< 0.50	< 0.50	< 0.50	0.82	< 0.50	87	< 0.50	< 0.50	< 0.50	0.24 J	< 0.50	< 0.50	< 0.50	7.5	
Historical High/Low												High					
MW-36 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.7	< 0.50	2.9 - 150	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 5.9	< 0.20 - 15	
MW-39	11/07/17	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-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 - < 2.0	
MW-40	11/08/17	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 - < 2.0	
MW-41	11/07/17	ORG	< 0.50	< 0.50	0.52	1.2	< 0.50	120	< 0.50	0.20 J	< 0.50	0.39 J	< 0.50	< 0.50	< 0.50	18	
Historical High/Low										High		High				High	
MW-41 Historical Range***			< 0.50	< 0.50	< 0.50 - 0.72	< 0.50 - 1.3	< 0.50	< 0.50 - 130	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 110	< 0.50	< 0.50	< 0.20 - 10	
EW-01	11/06/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.4	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	
Historical High/Low																Low	
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	09/01/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	11	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4.4	
EW-02	09/14/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	8.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	
EW-02	10/19/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	8.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	
EW-02	10/06/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.8	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	
EW-02	11/06/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.8	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	
EW-02	11/20/17	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.7	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	
EW-02 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	4.6 - 160	< 0.50	< 0.50	< 0.50	< 0.50 - 0.59	< 0.50	< 0.50	< 0.50 - 0.85	< 2.0 - 48	

TABLE 3

PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
FOURTH QUARTER 2017

			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-090117	09/01/17	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-091417	09/14/17	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-101917	10/19/17	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-110617	11/06/17	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-110717	11/07/17	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA	
RB-110717	11/07/17	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20	
TB-110817	11/08/17	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-112017	11/20/17	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	

NOTE: Detections are shown in **BOLD** type.
(1) 1,1,2-Trichloro-1,2,2-trifluoroethane was detected at a concentration of 6.8 J ug/l in the split sample for monitor well MW-21 collected on 11/06/17

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

J = Estimated Value; analyte detected at less than the Reporting Limit and greater than or equal to the Method Detection Limit.
- 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
- ug/l = Micrograms per liter

MCL = Maximum Contaminant Level

SPT = Split sample

Semi-VOCs = Semivolatile organic compounds

QA = Quality assurance

RB = Rinsate blank 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%
2016⁽ⁱ⁾	21,977,404	41.8	44.2	8,284	8,736	95%
Dec-16	1,585,505	30.6	40.3	656	864	76%
Jan-17	1,025,291	25.4	40.6	420	672	63%
Feb-17	1,154,081	29.4	37.5	514	655	78%
1Q2017	3,764,877	28.6	39.5	1,590	2,191	73%
Mar-17	1,643,810	32.8	38.9	704	835	84%
Apr-17	1,667,864	41.1	41.8	664	676	98%
May-17	1,475,156	36.7	39.6	621	671	93%
2Q2017	4,786,830	36.6	40.1	1,989	2,182	91%
Jun-17	1,903,747	37.9	40.1	792	838	95%
Jul-17	1,585,263	39.1	41.3	640	676	95%
Aug-17	1,588,525	38.3	38.4	690	692	100%
3Q2017	5,077,535	38.4	39.9	2,122	2,205	96%
Sep-17	2,012,761	39.9	39.9	840	841	100%
Oct-17	1,439,432	32.1	40.3	595	747	80%
Nov-17	1,283,168	32.0	39.0	548	669	82%
4Q2017	4,735,361	35.0	39.8	1,982	2,257	88%
SINCE INCEPTION	150,777,511	30.4	41.3	60,796	82,587	74%

Notes:

(a) Based on Effluent totalizer readings from the Carbon Effluent, 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

(i) 2016 Calendar year is from 12/1/2015 through 11/30/2016

gpm = gallons per minute

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

Treatment of groundwater from extraction well EW-02 initiated in 2010

Treatment of groundwater from monitor well MW-29 initiated in 2014

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. R8-2003-0085																							
Volatile Organic Compounds	EPA 8260B	3 - 40 mL VOA, HCl	QAPP ⁴	X		X	X	X		X		X	X	X		X	X		X	X	X		
1,4-Dioxane	EPA 8270 Modified	1 L Amber	0.002	X						X						X	X						
1,4-Dioxane	EPA 8270 SIM	1L Amber	0.0002			X						X						X	X	X			
Total Suspended Solids	SM2540D	250 mL poly	10																				
Total Dissolved Solids	SM2540C	250 mL poly	10																				
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				
Bicarbonate Alkalinity	SM2320B	250 mL poly	2.0	(a)														X	X				
Carbonate Alkalinity	SM2320B	250 mL poly	2.0	(a)														X	X				
Total Alkalinity	SM2320B	250 mL poly	2.0	(a)														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	
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	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	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	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	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	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	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 2017

Compound	Date	Units	MW-21 ^(a)	MW-29	EW-01 ^(a)	EW-02	INF*	PF	POX	CBT	CEFF
Extraction Rate	09/01/17 - 11/20/17	gpm	0	10	0	40	--	--	--	--	--
1,1,2-Trichloroethane (5 ug/L MCL)	09/01/17	ug/L	--	0.81	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	0.70	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	0.58	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	0.56	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
1,1-Dichloroethane (5 ug/L MCL)	09/01/17	ug/L	--	2.0	--	<0.5	0.56	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	1.7	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	1.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	1.6	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	0.77	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	1.3	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
1,1-Dichloroethene (6 ug/L MCL)	09/01/17	ug/L	--	200	--	11	53	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	160	--	8.5	47	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	140	--	7.8	39	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	130	--	8.2	39	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	110	--	5.8	23	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	120	--	5.7	25	--	<0.5	<0.5	<0.5
1,2-Dichloroethane (0.5 ug/L MCL)	09/01/17	ug/L	--	0.51	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene (6 ug/L MCL)	09/01/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
Tetrachloroethene (5 ug/L MCL)	09/01/17	ug/L	--	0.83	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	0.98	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	0.52	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	0.57	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	0.56	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
Trichloroethene (5 ug/L MCL)	09/01/17	ug/L	--	1.9	--	<0.5	0.55	--	<0.5	<0.5	<0.5
	09/14/17	ug/L	--	1.9	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/06/17	ug/L	--	1.2	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	10/19/17	ug/L	--	1.1	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/06/17	ug/L	--	1.0	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
	11/20/17	ug/L	--	1.0	--	<0.5	<0.5	--	<0.5	<0.5	<0.5
1,4-Dioxane (1 ug/L California Notification Level)	09/01/17	ug/L	--	73	--	4.4	20	--	<0.2	<0.2	<0.2
	09/14/17	ug/L	--	82	--	<2.0	22	--	<0.2	<0.2	<0.2
	10/06/17	ug/L	--	59	--	<2.0	14	--	<0.2	<0.2	<0.2
	10/19/17	ug/L	--	44	--	<2.0	11	--	<0.2	<0.2	<0.2
	11/06/17	ug/L	--	31	--	<2.0	<2.0	--	0.32	0.61	<0.2
	11/20/17	ug/L	--	47	--	<2.0	9.9	--	<0.2	<0.2	<0.2
Bromide	09/01/17	mg/L	--	0.43	--	< 0.25	0.29	--	--	--	--
	10/06/17	mg/L	--	0.30	--	0.18	0.19	--	--	--	--
	11/06/17	mg/L	--	0.32	--	0.21	0.23	--	--	--	--
Bromate (10 ug/L MCL)	09/01/17	ug/L	--	--	--	--	< 0.5	--	< 0.5	--	--
	10/06/17	ug/L	--	--	--	--	< 0.5	--	< 0.5	--	--
	11/06/17	ug/L	--	--	--	--	< 0.5	--	< 0.5	--	--
Total Non-Filterable-Residue	09/01/17	mg/L	--	--	--	--	--	< 1.0	--	--	--
	10/06/17	mg/L	--	--	--	--	--	< 1.0	--	--	--
	11/06/17	mg/L	--	--	--	--	--	< 1.0	--	--	--
Total Filterable Residue (500 mg/L MCL)	09/01/17	mg/L	--	858	--	627	680	--	699	--	660

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)

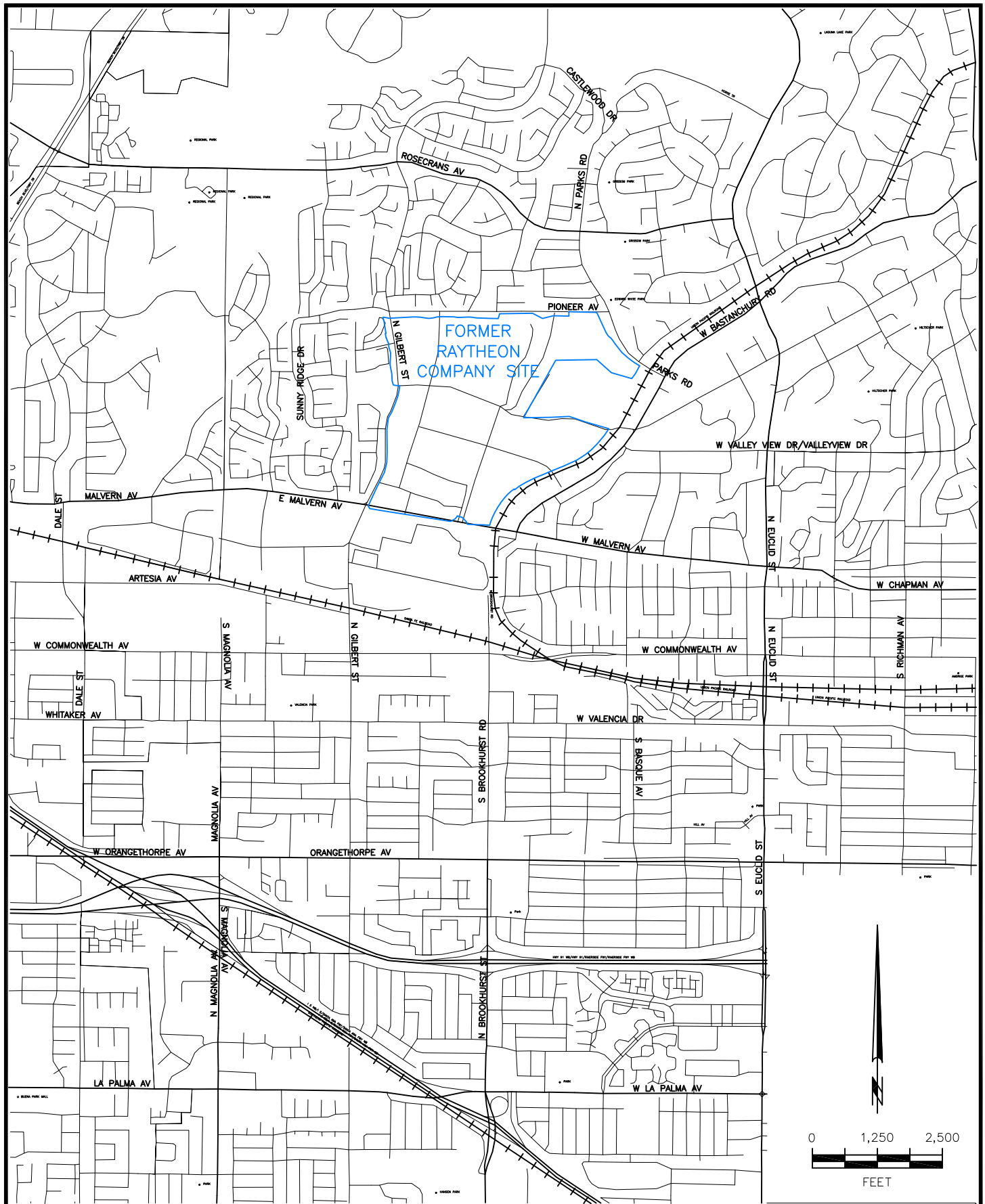
PF = Post Particulate Filter

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

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

FIGURE 1. SITE LOCATION

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

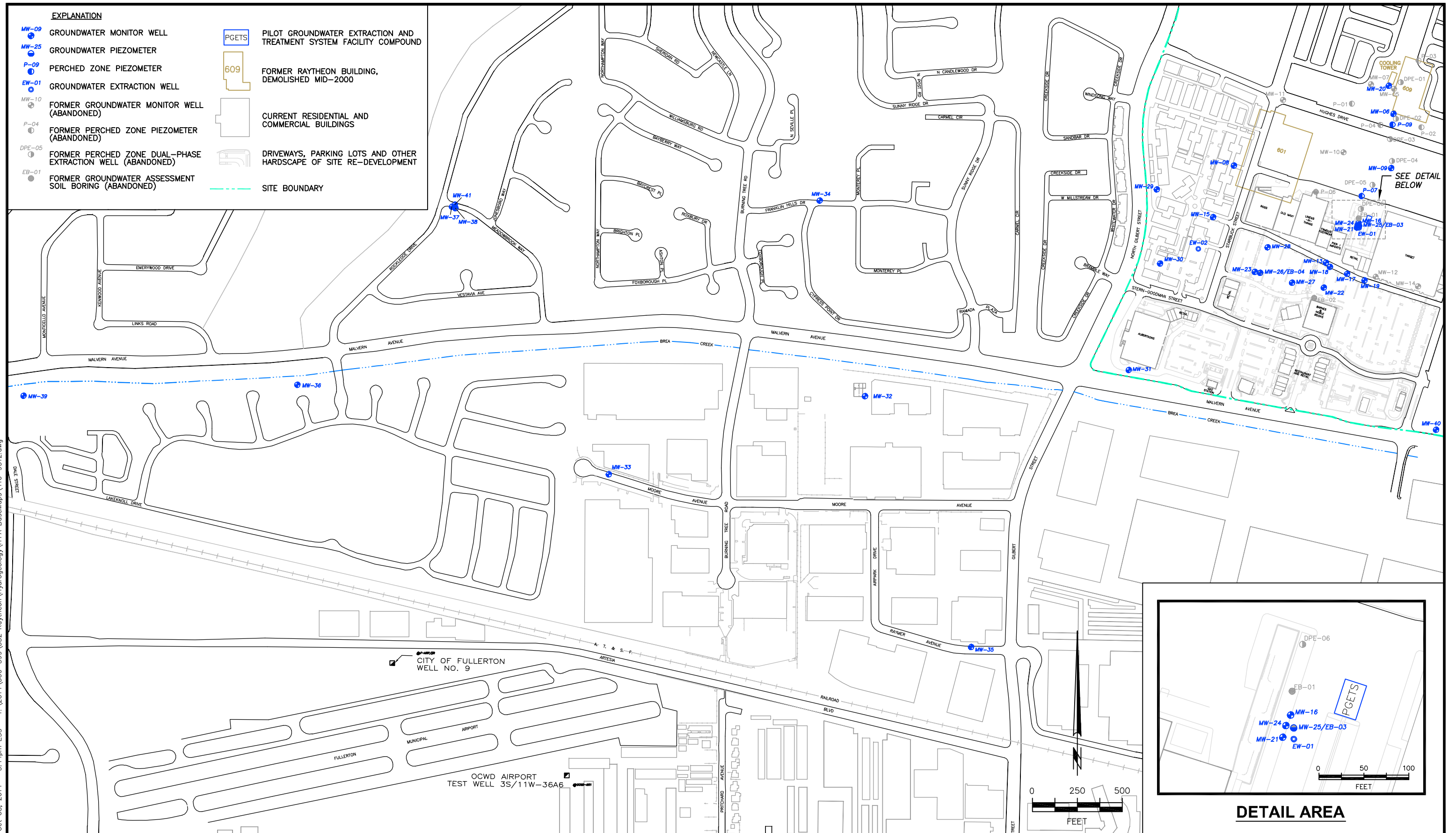


FIGURE 2.
WELL AND PIEZOMETER LOCATIONS

Dec 20, 2017 - 2:28pm ESS - T: \\2017\\500-599\\532 Raytheon\\Hydrogeology\\Water Lvl\\220-2412.dwg

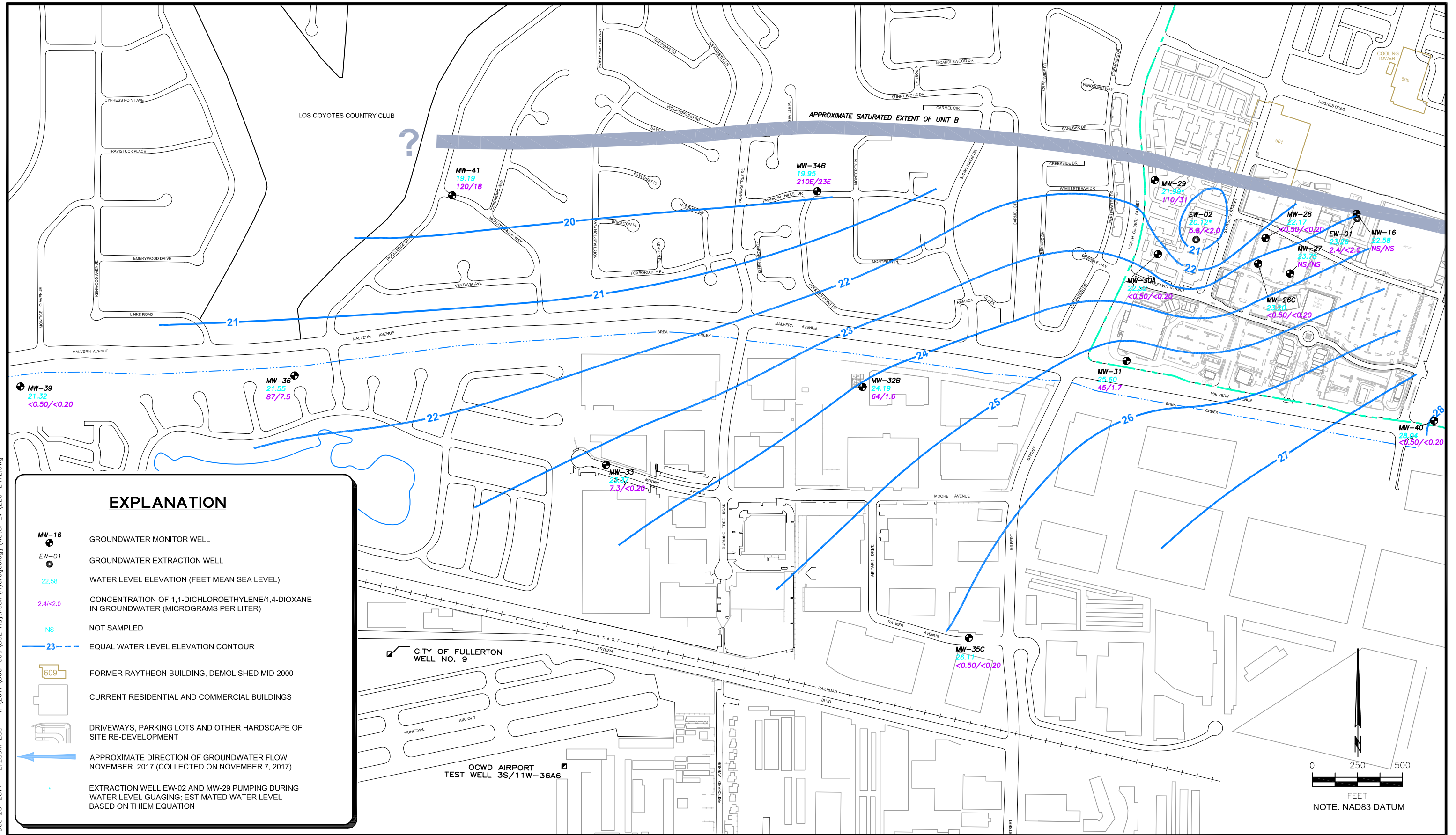


FIGURE 3.
WATER LEVEL AND WATER QUALITY UNIT B
NOVEMBER 2017

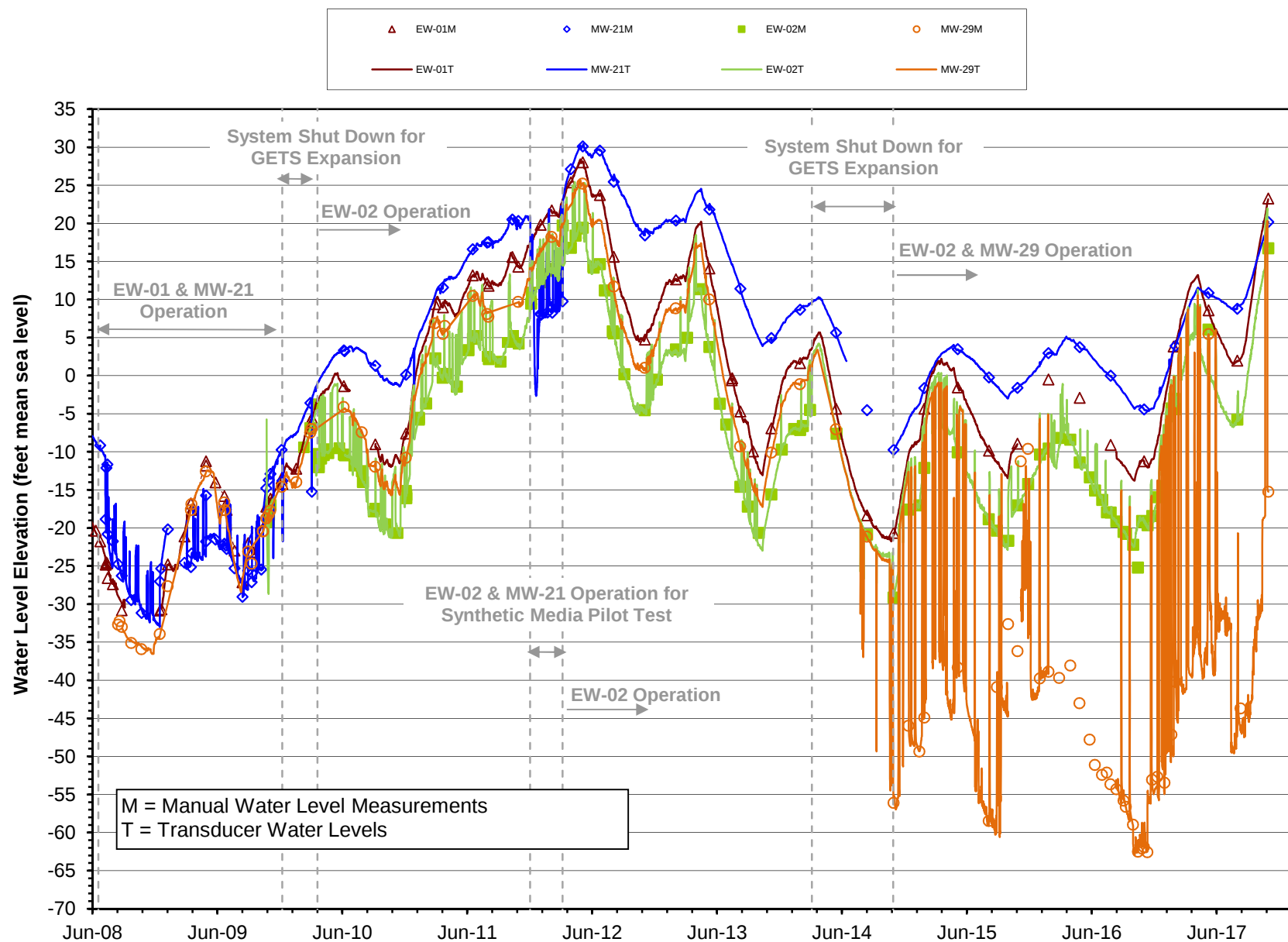


FIGURE 4.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATION
AND EXTRACTION WELL WATER LEVELS

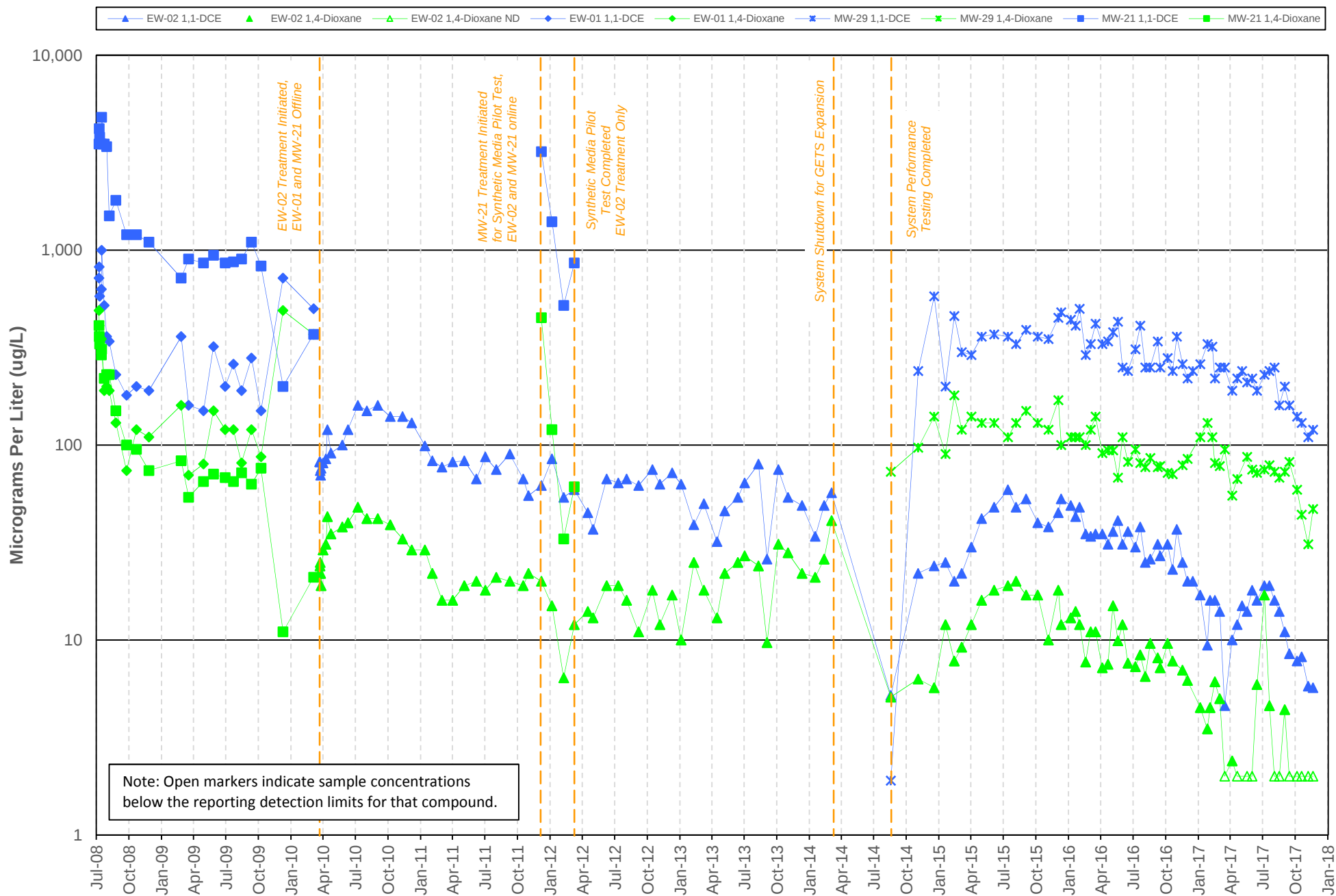


FIGURE 5.
1,1-DICHLOROETHYLENE AND 1,4-DIOXANE CONCENTRATIONS IN EXTRACTION WELLS

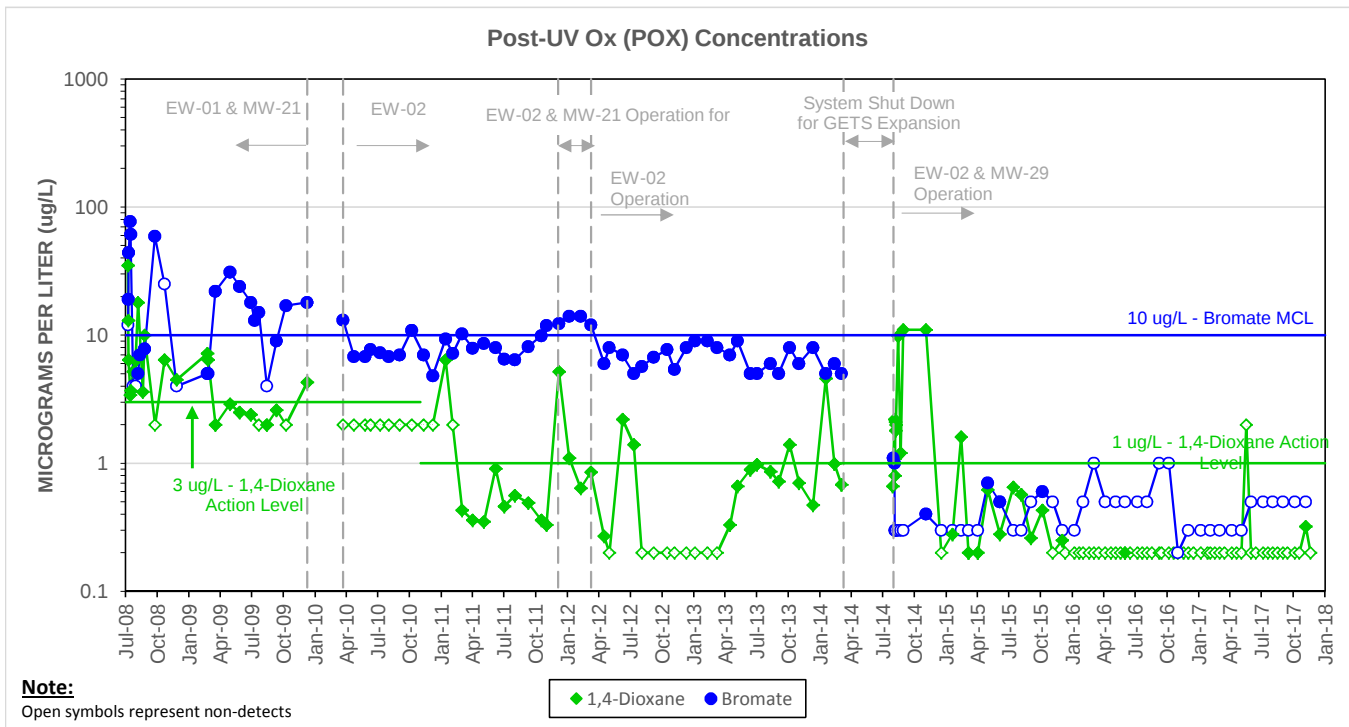
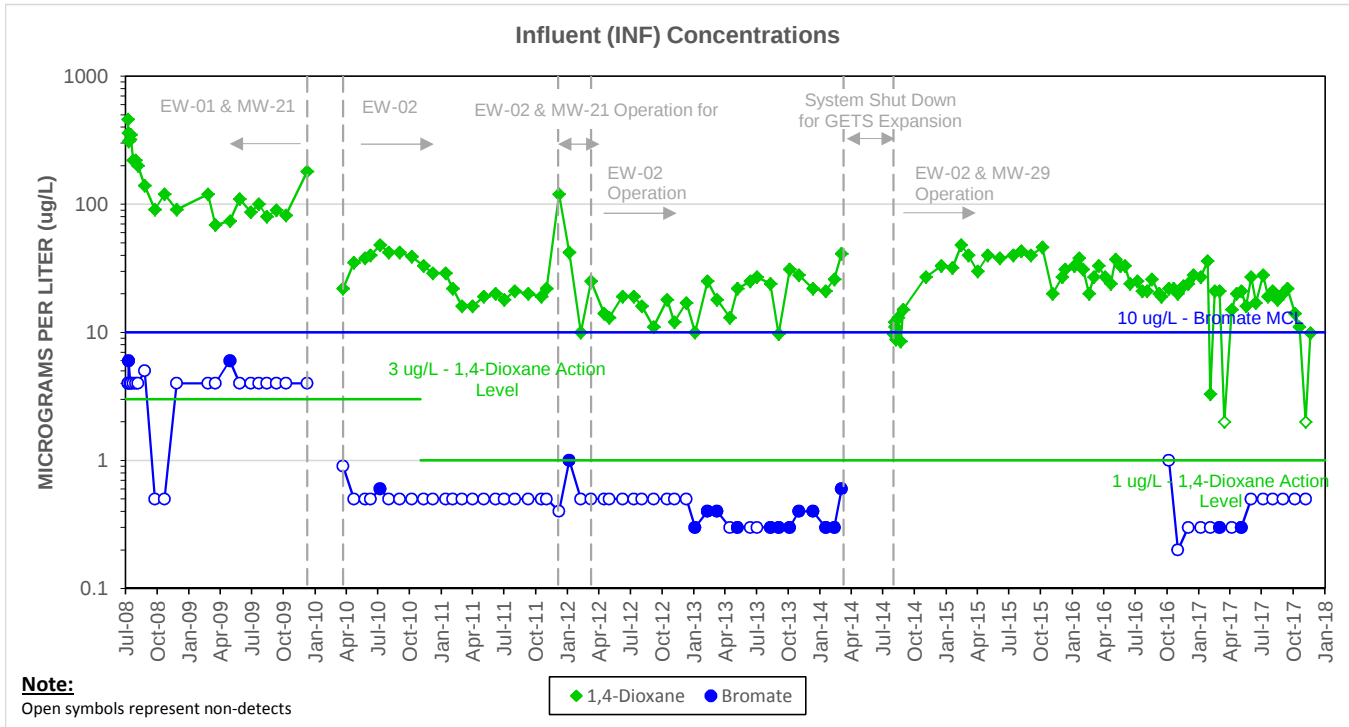


FIGURE 6.
1,4-DIOXANE AND BROMATE IN INFLUENT AND POST-OXIDATION SAMPLES

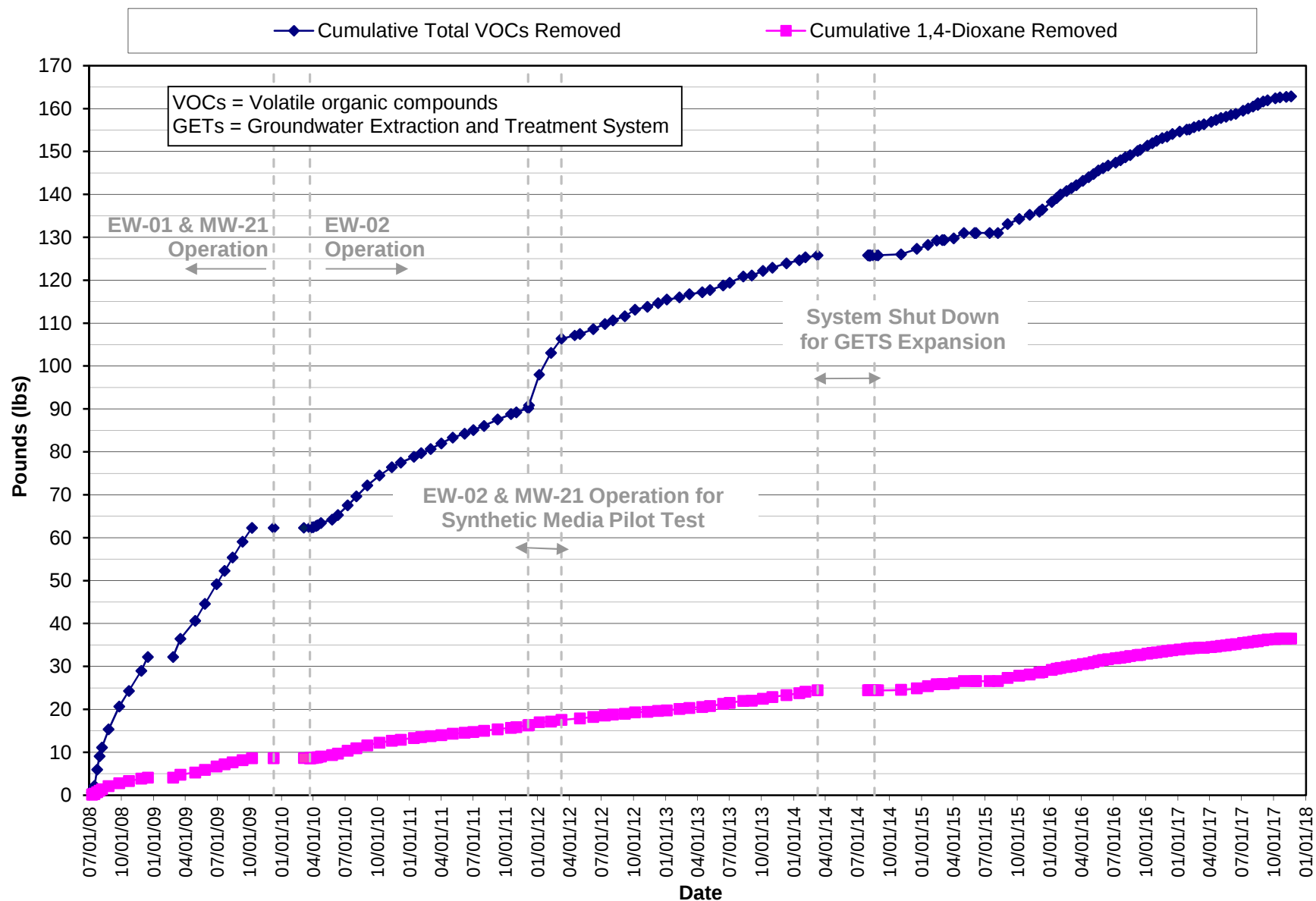


FIGURE 7.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM MASS REMOVAL

APPENDIX A
GROUNDWATER SAMPLING FIELD FORMS

NOVEMBER 2017

**GROUNDWATER MONITORING
FIELD NOTEBOOK
LARGE VOLUME MONITOR WELLS**

RAYTHEON COMPANY

532.30

**1901 MALVERN AVE.
FULLERTON, CALIFORNIA**



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

DAILY FIELD SAFETY BRIEFING ATTENDANCE SHEET

Date: 11/6/17

Location: FULLERTON, CA

Presented by: TJE

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	11/6/17
Andrew Donnelly		H+A	11/6/17
Nadje Scholl		H+A	11/6/17
Ross Horton		H+A	11/6/2017



DAILY FIELD SAFETY BRIEFING ATTENDANCE SHEET

Date: 11/7/17

Location: FULLERTON, CA

Presented by: TJE

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.
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C. ON-SITE ORGANIZATION AND COORDINATION

D. OTHER TOPICS:

ATTENDEE LIST

PRINT NAME	SIGNATURE	COMPANY	DATE
tyler Evans		H+A	11/7/17
Andrew Donnelly		H+A	11/7/17
Nadja Schell		H+A	11/7/17



DAILY FIELD SAFETY BRIEFING ATTENDANCE SHEET

Date: 11/8/17

Location: FULLERTON, CA

Presented by: TSE

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	11/8/17
Andrew Donnelly		H+A	11/8/17
Nedya Schell		H+A	11/8/17
Ph Horton		H+A	11/8/2017

FIELD OBSERVATIONS

PROJECT NAME / LOCATION: RAYTHEON / FULLERTON, CA

PROJECT NO.: 532.30 DATE: 11/7/17 INITIALS: TJE

Whole Volume Performance Monitoring

MW-50 = Blank = 09191701.4 sampled @ 1600 11/7/17
 MW-5000 = Blank dup = 09191701.4 sampled @ 1615 11/7/17
 MW-51 = Blank = 09191701.4 sampled @ 1630 11/7/17
 only to ATL/ECI

MW-60 = 1 μ g/L = 09191701.1 sampled @ 1200 11/7/17
 MW-6000 = 1 μ g/L dup = ~~09191701.1~~ 09191701.1 sampled @ 1215 11/7/17
 only to ATL

MW-70 = 10 μ g/L = 09191701.2 sampled @ 1300 11/7/17
 MW-7000 = 10 μ g/L dup = 09191701.2 sampled @ 1330 11/7/17
 only to ~~ATL~~ Test America

MW-80 = 100 μ g/L = 09191701.3 sampled @ 1400 11/7/17
 MW-8000 = 100 μ g/L dup = 09191701.3 sampled @ 1430 11/7/17
 only to ECI

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

DATE	TIME	pH BUFFER	pH READING	TEMP of Soln (C)	METER TYPE	EC STAN- DARD (mS/cm)	EC READ- ING (mS/cm)	DO READ- ING (mg/l)	ORP READ-ING (mV)	COMMENTS/ TEMP OR ALTITUDE CORRECTION FACTOR	INITIALS
11/6/17	737	10.0	10.0	15.8	Pro Plus #2	—	—	—	—		TJE
		4.0	4.4	16.2	↓	—	—	—	—		↓
		7.0	7.7	16.0	↓	1413	1370	8.81	226.8		↓
11/7/17	721	10.0	10.2	19.3	Pro + #2	—	—	—	—		TJE
		4.0	4.4	19.6	↓	—	—	—	—		↓
		7.0	6.7	19.4	↓	1413	1514	8.50	212.0		↓
	721	10.0	10.1	19.8	Pro Plus #1	—	—	—	—		↓
		4.0	4.2	19.5	↓	—	—	—	—		↓
		7.0	6.7	19.9	↓	1413	1258	9.41	162.6		↓
11/8/17	659	10.0	10.0	14.7	Pro Plus #1	—	—	—	—		TJE
		4.0	4.7	14.7	↓	—	—	—	—		↓
		7.0	6.8	14.4	↓	1413	1781	9.53	180.0		↓
	659	10.0	10.4	18.9	Pro Plus #2	—	—	—	—		↓
		4.0	4.2	18.9	↓	—	—	—	—		↓
		7.0	6.7	18.5	↓	1413	1181	8.42	126.9		↓

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: NOVEMBER 2017

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 2017 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL ($\pm$ ft)	COMMENTS	INITIALS
P-07	11/ 6 /17	1323	TOL	111.50	142.31	30.8	115.32	+3.82		TJE/RHH
P-09	11/ /17				183.86		120.83			
MW-06	11/ /17				181.29		169.72			
MW-08	11/ 6 /17	10:42	TOL	138.67	155.91	17.24	144.20	+5.57		TJE/RHH
MW-09	11/ /17				180.10		168.29			
MW-13	11/ /17				141.84		135.47			
MW-15	11/ 6 /17	10:50	TOL	140.75	144.95	4.20	144.80	+4.05		TJE/RHH
MW-16	11/ 6 /17	10:55	TOL	119.82	142.40	22.58	140.81	+20.99		I
MW-17	11/ /17				142.70		137.68			
MW-18	11/ /17				142.32		138.33			
MW-19	11/ /17				142.06		137.97			
MW-20	11/ /17				184.19		164.41			
MW-21	11/ 6 /17	11:11	TOST	121.00	141.18	20.18	132.40	+11.40	Totalizer: 565082 Pumping? N	TJE/RHH
MW-22	11/ /17				138.65		134.26			
MW-23	11/ /17				137.33		134.55			
MW-24	11/ 6 /17	11:01	TOST	119.80	142.83	23.03	131.00	+11.20		TJE/RHH
MW-25	11/ 6 /17	11:01	TOST	114.55	142.64	28.09	131.00	+16.45		I
MW-26A	11/ /17				137.04		132.07			
MW-26B	11/ /17				137.05		138.38			
MW-26C	11/ /17				137.22		137.19			

msl = Mean sea level
ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: NOVEMBER 2017

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 2017 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-27	11/ /17				137.16		136.40			
MW-28	11/ /17				140.77		140.99			
MW-29	11/ 6 /17	1302	TOST	155.05P	139.81	15.24	183.51	+28.46	Totalizer: 44214.0 Pumping? Y	TSE/RHH
MW-30A	11/ 6 /17	10:25	TOST	106.92	129.44	22.52	130.95	+24.03		TSE/RHH
MW-30B	11/ 6 /17	10:32	TOST	105.65	129.39	23.74	127.85	+22.20		I
MW-31	11/ 6 /17	10:13	TOST	94.00	119.60	25.60	119.61	+25.61		I
MW-32A	11/ 6 /17	8:10	TOST	68.04	92.88	24.84	96.50	+28.46		AMD/NES
MW-32B	11/ 6 /17	8:20	TOST	68.70	92.89	24.19	95.90	+27.20		TSE/RHH
MW-32C	11/ 6 /17	8:30	TOST	67.94	92.88	24.94	83.66	+15.72		I
MW-33	11/ 6 /17	9:39	TOST	59.82	83.19	23.37	90.90	+31.08		I
MW-34A	11/ /17				153.25		155.68			
MW-34B	11/ /17				153.11		155.75			
MW-34C	11/ /17				153.29		155.62			
MW-35A	11/ 6 /17	9:10	TOST	85.62	93.57	27.95	86.90	+21.28		DE/RHH
MW-35B	11/ 6 /17	9:19	TOST	71.52	93.56	22.04	93.70	+22.18		I
MW-35C	11/ 6 /17	9:27	TOST	67.44	93.55	26.11	95.55	+28.11		I
MW-36	11/ /17				86.65		96.88			
MW-37	11/ /17				155.60		148.18			
MW-38	11/ /17				154.90		160.10			
MW-39	11/ /17				84.25		94.90			
MW-40	11/ 6 /17	9:50	TOST	95.36	123.40	28.04	120.00	+24.64		TSE/RHH

msl = Mean sea level
ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: NOVEMBER 2017

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 2017 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-41	11/ /17				155.60		162.35			
EW-01	11/ 6 /17	1100	TOST	117.81	141.07	23.26	139.10	+21.29	SOUNDING TUBE TO 172.65 Totalizer: <i>broken</i> Pumping? <i>N</i>	<i>JIE/RAH</i>
EW-02	11/ 6 /17	1242	TOST	116.26P	132.97	16.74	138.73	+22.47	Totalizer: <i>9815334</i> Pumping? <i>Y</i>	<i>L</i>

msl = Mean sea level
ft = feet

GROUNDWATER SAMPLING INFORMATION

DATE: 11/6/17

TASK: 532-30

WELL ID: EW-01

Time 1329 Static DTW (ft below reference point) 11790	Casing Volume (CV) (gallons) 46 3 CV (gallons) 138	Weather Conditions	Initials: TJE/PHH
Casing Total Depth (ft below reference point) 188	Purging Device dead pump Sampling Device dead sample port	Time 1330 Temp. 75	Begin Purge 1333 End Purge 1400
Water Column (feet) 70.1	Pump: Depth (ft brp) - Type - Voltage - HP	Skies clear	Gallons Purged 189 CVs Purged 4.1
Casing Capacity (Diameter 4" (gallons per foot) 0-66	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 2-5 From S	DTW (ft brp) 11790 Time 1329

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)		
1333	11790	0	0	—	Begin	—	—	—	—	—	Q ≈ 7 gpr
1335	118.29	14	0.3	23.1	7.20	1225	-0.1	4.98	21.1	-	
1339	118.33	42	0.9	23.0	7.18	1161	-5.8	4.68	5.30	-	
1342	118.35	63	1.4	22.7	7.18	1147	-0.5	4.99	1.56	-	
1346	118.40	91	2.0	22.7	7.23	1134	4.0	4.96	5.96	-	
1349	118.51	112	2.4	22.5	7.24	1126	13.7	4.99	2.52	-	
1353	118.57	140	3.0	22.5	7.25	1132	14.0	4.98	1.62	-	
1400	NM	189	4.1	—	—	—	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1354	
ANALYSIS	QUANTITY TYPE
8260B VOCs	9 40 ml VOA
8270 SIM 1,4 dioxane	1 L Amber
8270 MOD 1,4 dioxane	3 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

GROUNDWATER SAMPLING INFORMATION

DATE: 11/6/17TASK: 532-30WELL ID: MW-21

Time <u>1400</u> Static DTW (ft below reference point) <u>121.00</u>	Casing Volume (CV) (gallons) <u>73</u> 3 CV (gallons) <u>219</u>	Weather Conditions	Initials: <u>TJE/RHM</u>
Casing Total Depth (ft below reference point) <u>232</u>	Purging Device <u>ded pump</u> Sampling Device <u>ded pump</u>	Time <u>1410</u> Temp. <u>75</u>	Begin Purge <u>1414</u> End Purge <u>1434</u>
Water Column (feet) <u>111</u>	Pump: Depth (ft brp) <u>-</u> Type <u>-</u> Voltage <u>-</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>437</u> CVs Purged <u>6.0</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.66</u>	Monitor Well Recharge Rate: Slow <u>-</u> Fast <u>X</u>	Wind (mph) <u>25</u> From <u>S</u>	DTW (ft brp) <u>121.00</u> Time <u>1408</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>1414</u>	<u>121.00</u>	<u>0</u>	<u>0</u>	<u>-</u>	<u>Begin</u>	<u>Purge</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>3 CV Purge = 565301</u>
<u>1416</u>	<u>135.09</u>	<u>728</u>	<u>0.3</u>	<u>23.1</u>	<u>7.39</u>	<u>1713</u>	<u>-94.6</u>	<u>2.28</u>	<u>4.64</u>	<u>-</u>	<u>TOT: 565082</u>
<u>1419</u>	<u>135.96</u>	<u>132</u>	<u>1.8</u>	<u>22.0</u>	<u>7.30</u>	<u>1727</u>	<u>-33.0</u>	<u>4.86</u>	<u>9.21</u>	<u>-</u>	<u>TOT: 565214</u>
<u>1422</u>	<u>135.90</u>	<u>176</u>	<u>2.4</u>	<u>22.1</u>	<u>7.26</u>	<u>1712</u>	<u>1.1</u>	<u>5.00</u>	<u>3.27</u>	<u>-</u>	<u>TOT: 565258</u>
<u>1423</u>	<u>135.91</u>	<u>209</u>	<u>2.9</u>	<u>21.8</u>	<u>7.23</u>	<u>1703</u>	<u>15.7</u>	<u>5.01</u>	<u>4.09</u>	<u>-</u>	<u>TOT: 565291</u>
<u>1425</u>	<u>136.10</u>	<u>228</u>	<u>3.1</u>	<u>22.0</u>	<u>7.19</u>	<u>1701</u>	<u>25.0</u>	<u>4.84</u>	<u>3.99</u>	<u>-</u>	<u>TOT: 565310</u>
<u>1426</u>	<u>136.50</u>	<u>252</u>	<u>3.5</u>	<u>22.0</u>	<u>7.18</u>	<u>1698</u>	<u>30.0</u>	<u>4.97</u>	<u>4.77</u>	<u>-</u>	<u>TOT: 565334</u>
<u>1427</u>	<u>136.55</u>	<u>286</u>	<u>3.9</u>	<u>22.0</u>	<u>7.16</u>	<u>1698</u>	<u>25.4</u>	<u>4.85</u>	<u>4.24</u>	<u>-</u>	<u>TOT: 565368</u>
<u>1434</u>	<u>NM</u>	<u>437</u>	<u>6.0</u>	<u>-</u>	<u>pump off</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>TOT: 565519</u>

SAMPLE COLLECTION	SAMPLE TIME	<u>1430</u>
ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>4</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>	<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.)

Dup @ 1445

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17

TASK: 532-30

WELL ID: MW-32B

Time <u>801</u> Static DTW (ft below reference point) <u>68.41</u>	Screen <u>SU</u> Casing Volume (CV) (gallons) <u>264</u> <u>SU</u> 3 CV (gallons) <u>791</u>	Weather Conditions	Initials: <u>TJE/RHM</u>
Casing Total Depth (ft below reference point) <u>999</u>	Purging Device <u>ded pump</u> Sampling Device <u>>100 pipe stand</u>	Time <u>800</u> Temp. <u>70</u>	Begin Purge <u>810</u> End Purge <u>912</u>
Screen Water Column (feet) <u>436</u>	Pump: Depth (ft brp) <u>560</u> Type <u>Grind for</u> Voltage <u>240</u> HP	Skies <u>cloudy</u>	Gallons Purged <u>819</u> CVs Purged <u>31</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>0-2</u> From <u>NW</u>	DTW (ft brp) <u>68.41</u> Time <u>801</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)		
810	68.41	0	0	- Begin		Purge				-	Q ≈ 14 GPM
819	88.10	126	0.48	20.8	7.86	691	-192.1	0.08	0.20	-	
823	88.35	192	0.7	20.9	7.88	665	-190.4	0.07	0.21	-	
827	88.50	235	0.9	20.9	7.90	614	-187.3	0.07	0.20	-	
836	88.80	346	1.3	21.2	7.96	556	-161.9	0.07	0.20	-	
840	88.90	396	1.5	21.2	7.93	590	-152.9	0.07	0.00	-	1.5SU sample taken
851	89.05	549	2.1	21.2	7.90	623	-150.3	0.07	0.00	-	
859	89.17	656	2.5	21.3	7.88	638	-150.5	0.07	0.00	-	
908	89.21	770	2.9	21.3	7.87	650	-152.7	0.07	0.0	-	
910	89.23	796	3.0	21.3	7.87	652	-152.6	0.07	0.0	-	
912	NM	819	3.1	- pump		off					

SAMPLE COLLECTION SAMPLE TIME <u>910</u>	ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>6</u>	40 ml VOA	
8270 SIM 1,4 dioxane	<u>2</u>	1 L Amber	
8270 MOD 1,4 dioxane		1 L Amber	
DUPLICATES / SPLITS / BLANKS?	Y		<u>N</u>

AIR MONITORING PID/FID ppm: VAULT NA	BKGD NA	BREATHING ZONE NA	DISCHARGE WATER NA
NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
<u>MW-32B-1.5SU @ 840</u>			

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17

TASK: 532.30

WELL ID: MW-36

Time 945	Static DTW (ft below reference point) 65.00	Screen Casing Volume (CV) (gallons) 320	3 CV (gallons) 960	Weather Conditions	Initials: TJE/RHH
Casing Total Depth (ft below reference point) 994	Purging Device: ded pump	Sampling Device: 10-100 ded pipe stand	Time 940	Temp. 75	Begin Purge 950
Screen Water Column (feet) 534	Pump: Depth (ft brp) 460	Type Grundfos	Voltage -	HP -	End Purge 1106
Casing Capacity (Diameter 4") (gallons per foot) 0.66	Monitor Well Recharge Rate: Slow	Fast X	Wind (mph) 02	From Var	Gallons Purged 976
					CVs Purged 30
					DTW (ft brp) 65.00
					Time 945

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)		
950	65.00	0	0	—	Begin	Purge	—	—	—	—	Q ≈ 12 gpm
955	68.35	818	0.25	20.7	7.69	653	-70.1	0.33	1.18	—	
1002	68.39	160	0.5	21.0	7.70	629	-90.2	0.08	2.36	—	
1010	68.50	267	0.8	21.4	7.75	597	-98.3	0.06	0.34	—	
1021	68.55	400	1.25	21.7	7.59	930	-82.1	0.10	6.25	—	
1026	68.57	480	1.5	21.7	7.58	930	-79.7	0.11	6.26	—	1.5-SV sample taken
1039	68.58	658	2.0	21.7	7.57	929	-81.7	0.11	2.46	—	
1052	68.60	816	2.6	21.7	7.57	930	-85.4	0.11	0.75	—	
1104	68.65	960	3.0	21.8	7.58	930	-86.2	0.11	7.10	—	
1106	NM	976	3.0	—	End	Purge	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1105	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 6 40 ml VOA	MW-36-1.5 SV @ 1026			
8270 SIM 1,4 dioxane 3 1 L Amber	Sup			
8270 MOD 1,4 dioxane 1 1 L Amber				
DUPLICATES / SPLITS / BLANKS? ☒ ☒ ☒				
If yes, complete appropriate forms.				

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/12TASK: 53230WELL ID: MW-39

Time <u>1129</u> Static DTW (ft below reference point)	<u>62.81</u>	Screen <u>SV</u> Casing Volume (EV) (gallons) <u>271</u>	<u>SV</u> 3 EV (gallons) <u>814</u>	Weather Conditions	Initials: <u>TJE/RH4</u>
Casing Total Depth (ft below reference point)	<u>1012</u>	Purging Device <u>Ded pump</u>	Sampling Device <u>ND pipel stand</u>	Time <u>1125</u> Temp. <u>75</u>	Begin Purge <u>1135</u> End Purge <u>62.81</u>
<u>screen</u> Water Column (feet)	<u>452</u>	Pump: Depth (ft brp) <u>560</u> Type <u>Grundfos</u>	Voltage <u>—</u> HP <u>—</u>	Skies <u>clear</u>	Gallons Purged <u>863</u> CVs Purged <u>3.2</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot)	<u>0.66</u>	Monitor Well Recharge Rate: Slow <u>—</u> Fast <u>—</u>		Wind (mph) <u>2-5</u> From <u>Var.</u>	DTW (ft brp) <u>62.81</u> Time <u>1129</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)		
1135	62.81	0	0	—	Begin Purge	—	—	—	—	—	Q ≈ 22 gpm
1141	77.62	131.0	0.5	21.5	8.69	313.7	-215.8	0.07	2.43	—	
1147	77.85	271	1.0	22.2	9.02	306.4	-229.8	0.07	1.34	—	
1153	77.94	407	1.5	22.5	8.86	315.6	-209.8	0.06	1.53	—	
1159	77.97	525	1.9	22.5	8.73	318.7	-197.4	0.05	2.28	—	
1206	78.04	677	2.5	22.5	8.69	320.8	-191.6	0.05	2.00	—	
1212	78.10	814	3.0	22.5	8.67	321.8	-189.9	0.05	1.76	—	
1215	NM	863	3.2	—	End purge	—	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1212

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

DUPLICATES / SPLITS / BLANKS? 1
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: 11/7/17

TASK: 532.30

WELL ID: MW-33

Time 1245 Static DTW (ft below reference point)	59.54	Screen SV Casing Volume (CV) (gallons) 291 SV 3 CV (gallons) 873	Weather Conditions	Initials: TJE/PHH
Casing Total Depth (ft below reference point)	1020	Purging Device dal pump Sampling Device 0-10 pipe stand	Time 1240 Temp 75	Begin Purge 1306 End Purge 1354
Screen Water Column (feet)	485	Pump: Depth (ft brp) 535 Type groutfos Voltage - HP	Skies cloudy	Gallons Purged 890 CVs Purged 3.1
Casing Capacity (Diameter 4" (gallons per foot)	0.66	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 0-2 From Var	DTW (ft brp) 59.54 Time 1245

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)		
1306	59.54	0	0	—	Begin	Purge	—	—	—	—	Q ≈ 21 gpm
1313	61.70	118	0.4	20.5	7.63	499.8	-61.0	0.15	0.38	—	
1316	61.95	188	0.6	20.7	7.68	502	-60.9	0.24	0.01	—	
1322	61.97	290	1.0	20.8	7.74	525	-62.1	0.17	0.42	—	
1326	61.99	380	1.3	20.9	7.73	518	-60.7	0.54	0.52	—	
1329	62.10	435	1.5	20.9	7.73	514	-58.5	0.61	1.27	—	sample taken - 1.5 SV
1339	62.10	620	2.1	20.9	7.70	513	-54.8	0.63	4.11	—	
1345	62.11	730	2.5	21.0	7.70	513	-56.9	0.64	0.55	—	
1352	62.09	875	3.0	21.0	7.70	513	-58.0	0.63	0.49	—	
1354	NM	890	3.031	—	pump	off	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1353	
ANALYSIS	QUANTITY TYPE
8260B VOCs	6 40 ml VOA
8270 SIM 1,4 dioxane	2 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.)

MW-33-1.5SV @ 1329

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17TASK: 53230WELL ID: MW-35C

Time <u>1423</u> Static DTW (ft below reference point) <u>67.15</u>	<u>Screen</u> Casing Volume (CV) (gallons) <u>378</u> <u>SV</u> 3 CV (gallons) <u>1134</u>	Weather Conditions	Initials: <u>TJE/RH4</u>
Casing Total Depth (ft below reference point) <u>1040</u>	Purging Device <u>Ded pump</u> Sampling Device <u>ND Pipestand</u>	Time <u>1415</u> Temp. <u>75</u>	Begin Purge <u>1426</u> End Purge <u>1520</u>
<u>Screen</u> Water Column (feet) <u>630</u>	Pump: Depth (ft brp) <u>410</u> Type <u>Grubber</u> Voltage <u>—</u> HP <u>—</u>	Skies <u>P.C</u>	Gallons Purged <u>1190</u> CVs Purged <u>3.1</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.6</u>	Monitor Well Recharge Rate: Slow <u>—</u> Fast <u>X</u>	Wind (mph) <u>570</u> From <u>NW</u>	DTW (ft brp) <u>67.15</u> Time <u>1423</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>1426</u>	<u>67.15</u>	<u>0</u>	<u>0</u>	<u>—</u>	<u>pump on</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>Q ≈ 22 gpm</u>
<u>1434</u>	<u>71.50</u>	<u>174</u>	<u>0.5</u>	<u>20.3</u>	<u>7.46</u>	<u>593</u>	<u>7.0</u>	<u>2.15</u>	<u>2.76</u>	<u>—</u>	
<u>1442</u>	<u>71.51</u>	<u>365</u>	<u>1.0</u>	<u>20.5</u>	<u>7.50</u>	<u>603</u>	<u>-17.5</u>	<u>3.36</u>	<u>1.87</u>	<u>—</u>	
<u>1451</u>	<u>71.53</u>	<u>556</u>	<u>1.5</u>	<u>20.6</u>	<u>7.57</u>	<u>610</u>	<u>-26</u>	<u>3.62</u>	<u>1.18</u>	<u>—</u>	
<u>1500</u>	<u>71.55</u>	<u>756</u>	<u>2.0</u>	<u>20.6</u>	<u>7.58</u>	<u>609</u>	<u>8.9</u>	<u>3.52</u>	<u>0.67</u>	<u>—</u>	
<u>1509</u>	<u>71.57</u>	<u>951</u>	<u>2.5</u>	<u>20.6</u>	<u>7.59</u>	<u>605</u>	<u>13.6</u>	<u>3.48</u>	<u>0.20</u>	<u>—</u>	
<u>1518</u>	<u>71.58</u>	<u>1134</u>	<u>3.0</u>	<u>20.6</u>	<u>7.56</u>	<u>602</u>	<u>17.4</u>	<u>3.47</u>	<u>0.25</u>	<u>—</u>	
<u>1520</u>	<u>NM</u>	<u>1190</u>	<u>3.1</u>	<u>—</u>	<u>pump off</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	

SAMPLE COLLECTION SAMPLE TIME 1520

ANALYSIS QUANTITY TYPE

8260B VOCs ? 40 ml VOA

8270 SIM 1.4 dioxane — 1 L Amber

8270 MOD 1.4 dioxane — 1 L Amber

DUPLICATES / SPLITS / BLANKS? Y (N)

If yes, complete appropriate forms.

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

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

GROUNDWATER SAMPLING INFORMATION

DATE: 11/8/17

TASK: 532.30

WELL ID: MW-31

Time <u>745</u> Static DTW (ft below reference point) <u>93.71</u>	<u>54</u> Casing Volume (CV) (gallons) <u>81</u> 3 CV (gallons) <u>243</u>	Weather Conditions	Initials: <u>TJE/RH</u>
Casing Total Depth (ft below reference point) <u>996</u>	Purging Device <u>ded pump</u> Sampling Device <u>10-100 pipe</u>	Time <u>744</u> Temp. <u>70</u>	Begin Purge <u>747</u> End Purge <u>814</u>
<u>pump + screen</u> Water Column (feet) <u>54</u>	Pump: Depth (ft brp) <u>942</u> Type <u>groutless</u> Voltage <u>240</u> HP	Skies <u>clear</u>	Gallons Purged <u>317</u> CVs Purged <u>3.9</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>93.71</u> Time <u>745</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)		
747	93.71	0	0	—	Begin	purge	—	—	—	—	Q ≈ 12 gpm
749	97.65	28	0.3	21.0	7.31	967	133.0	1.16	1.59	—	
753	97.71	72	0.9	21.1	8.53	1177	23.3	0.12	81.0	—	
757	97.69	121	1.5	21.3	7.43	1081	-49.9	0.43	105.2	—	
802	97.70	171	2.1	21.3	7.46	1011	-22.4	0.86	13.6	—	
805	97.69	212	2.6	21.4	7.47	976	-0.7	1.06	6.99	—	
807	97.70	243	3.0	21.4	7.47	968	8.5	1.13	4.01	—	
810	97.70	270	3.3	21.4	7.47	966	11.1	1.16	4.49	—	
812	97.70	297	3.7	21.4	7.46	960	17.7	1.19	3.99	—	
814	NM	317	3.9	—	End	purge	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 813

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?

If yes, complete appropriate forms.

Y

N

AIR MONITORING PID/FID ppm: VAULT NA

BKGD NA

BREATHING ZONE NA

DISCHARGE WATER NA

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

GROUNDWATER SAMPLING INFORMATION

DATE: 11/8/17

TASK: 53230

WELL ID: MW-30B

Time <u>828</u> Static DTW (ft below reference point)	<u>105.30</u>	Screen <u>SJ</u> Casing Volume <u>40</u> (gallons)	<u>3</u> CV (gallons)	<u>120</u>	Weather Conditions	Initials: <u>TJE/PHH</u>
Casing Total Depth (ft below reference point)	<u>619</u>	Purging Device <u>ded pump</u>	Sampling Device <u>7100 pipe stub</u>		Time <u>827</u> Temp <u>70</u>	Begin Purge <u>829</u> End Purge <u>853</u>
Water Column (feet)	<u>99</u>	Pump: Depth (ft brp) <u>570</u> Type <u>Grundfos</u> Voltage <u>240</u> HP			Skies <u>clear</u>	Gallons Purged <u>131.2</u> CVs Purged <u>3.1</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</u> From <u>-</u>	DTW (ft brp) <u>105.30</u> Time <u>828</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)		
829	105.30	0	0	-	Begin	Purge					Q ≈ 6 GPM
831	122.80	15.8	0.4	21.7	7.37	1132	67.9	0.66	0.94	-	
835	128.40	32.3	0.8	21.3	7.45	971	-44.3	0.14	0.65	-	
840	129.32	60.2	1.5	21.5	7.27	1142	-87.8	0.11	1.44	-	
844	130.15	80.0	2.0	21.5	7.33	1136	-84.3	0.10	4.06	-	
847	130.78	100	2.5	21.5	7.33	1135	-78.2	0.09	3.87	-	
851	131.34	120	3.0	21.5	7.33	1137	77.0	0.09	4.01	-	
853	NM	131.2	3.3	-	end	purge				-	

SAMPLE COLLECTION SAMPLE TIME <u>852</u>		AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA	
ANALYSIS	QUANTITY	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	<u>1</u> 1 L Amber		
DUPLICATES / SPLITS / BLANKS? Y <u>(N)</u>			
If yes, complete appropriate forms.			



A Waters Company

Invoice #	846656
Customer #	H478108
Date	11/6/2017
Page	1 of 1

Packing Slip

Bill To:

Hargis & Associates
9171 Towne Center Dr
San Diego, CA, USA 92122

Accounts Payable

Email Address: tevens@hargis.com

Order Comments:

Ship To:

Holiday Inn Hotel & Suites
2392 Nutwood Ave
Fullerton, CA, USA 92831

Tyler Evans

(858) 410-7461



Cust Svc Rep		Payment Terms	Shipping Method	Purchase Order #		Order #
		NET 30	FEDEX P1	532.30		1-6H1ZSS110617FP
QTY	CAT #	Product		Type	Lot #	Study #
1	093	Custom Organic Standard 4 x 1L AG bottles		CUSTO M	09191701.1 REQUEST	
1	093	Custom Organic Standard 4 x 1L AG bottles		CUSTO M	09191701.2 REQUEST	
1	093	Custom Organic Standard 4 x 1L AG bottles		CUSTO M	09191701.3 REQUEST	
1	093	Custom Organic Standard 8 x 1L AG bottles		CUSTO M	09191701.4 REQUEST	

REPORT ANY PROBLEMS WITHIN 5 DAYS

Please check all items in the shipment against the attached packing list **immediately** upon receipt. ERA will **immediately replace** any broken or incorrect items related to this shipment that are **reported within 5 business days**.

**CALL ERA CUSTOMER SERVICE AT
1-888-372-0122 FOR
PROBLEMS WITH THIS SHIPMENT**

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Unless otherwise specified.**

846656



Ship to: Hargis & Associates Holiday Inn Hotel & Suites 2392 Nutwood Ave Fullerton, CA 92831 Phone: 858 410-7461 Fax: Attention: Tyler Evans	Ship from: ERA 16341 Table Mountain Pkwy Golden, CO 80403 Phone: 800-372-0122 or 303-431-8454 Fax: 303-421-0159 Contact: Chad Lane
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[illegible]

		Condition of Contents
Relinquished by: <i>Dr. Belis</i>	Date/Time: 15:00 6-Nov-2017	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	



A Waters Company

November 6, 2017

Tyler Evans
Hargis & Associates
Holiday Inn Hotel & Suites
2392 Nutwood Ave
Fullerton, CA 92831

Dear Tyler:

Enclosed please find the whole volume performance evaluation sample that you ordered. The certified values for these samples are being sent under separate cover to your attention. The ERA project number corresponding to this sample is 09191701.

Thank you for choosing ERA for this project. If you have any questions or if we may be of any further assistance please do not hesitate to call.

Sincerely,

Brent Polizzi
Assembly Production Technician II

enclosures

bp



NOVEMBER 2017

**GROUNDWATER MONITORING
FIELD NOTEBOOK
LOW VOLUME MONITOR WELLS**

RAYTHEON COMPANY

532.30

**1901 MALVERN AVE.
FULLERTON, CALIFORNIA**



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: NOVEMBER 2017

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 2017 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL ($\pm$ ft)	COMMENTS	INITIALS
P-07	11/ /17				142.31		115.32			
P-09	11/ 6 /17	10:13	TOC	120.83	183.86	63.03	120.83	0.00		AMD/NES
MW-06	11/ 6 /17	10:15	TOC	156.32	181.29	24.97	169.72	+13.40		AMD/NES
MW-08	11/ /17				155.91		144.20			
MW-09	11/ 6 /17	10:05	TOC	157.61	180.10	22.49	168.29	+10.68		AMD/NES
MW-13	11/ 6 /17	9:00	TOC	118.28	141.84	23.56	135.47	+17.19		AMD/NES
MW-15	11/ /17				144.95		144.80			
MW-16	11/ /17				142.40		140.81			
MW-17	11/ 6 /17	9:05	TOC	118.34	142.70	24.36	137.68	+19.34		AMD/NES
MW-18	11/ 6 /17	9:17	TOC	118.79	142.32	23.53	138.33	+19.54		AMD/NES
MW-19	11/ 6 /17	9:08	TOC	118.44	142.06	23.62	137.97	+19.53		AMD/NES
MW-20	11/ 6 /17	10:19	TOC	154.35	184.19	29.84	164.41	+10.06		AMD/NES
MW-21	11/ /17				141.18		132.40		Totalizer: Pumping?	
MW-22	11/ 6 /17	8:34	TOST	114.81	138.65	23.84	134.26	+19.45		AMD/NES
MW-23	11/ 6 /17	9:40	TOST	114.49	137.33	22.84	134.55	+20.06		AMD/NES
MW-24	11/ /17				142.83		131.00			
MW-25	11/ /17				142.64		131.00			
MW-26A	11/ 6 /17	9:27	TOC	126.20	137.04	10.81	132.07	+5.87		AMD/NES
MW-26B	11/ 6 /17	9:28	TOC	132.05	137.05	5.00	138.38	+6.33		↓
MW-26C	11/ 6 /17	9:26	TOC	114.02	137.22	23.20	137.19	+23.17		

msl = Mean sea level
ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: NOVEMBER 2017

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 2017 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL ($\pm$ ft)	COMMENTS	INITIALS
MW-27	11/ 6 /17	8:41	TOST	113.41	137.16	23.75	136.40	+22.99		AMD/NES
MW-28	11/ 6 /17	9:56	TOST	118.60	140.77	22.17	140.99	+22.39		↓
MW-29	11/ /17				139.81		183.51		Totalizer: Pumping?	
MW-30A	11/ /17				129.44		130.95			
MW-30B	11/ /17				129.39		127.85			
MW-31	11/ /17				119.60		119.61			
MW-32A	11/ /17				92.88		96.50			
MW-32B	11/ /17				92.89		95.90			
MW-32C	11/ /17				92.88		83.66			
MW-33	11/ /17				83.19		90.90			
MW-34A	11/ 6 /17	12:15	TOST	135.02	153.25	18.23	155.68	+20.66		AMD/NES
MW-34B	11/ 6 /17	12:22	TOST	133.16	153.11	19.95	155.75	+22.59		↓
MW-34C	11/ 6 /17	12:13	TOST	131.75	153.29	21.54	155.62	+23.87		↓
MW-35A	11/ /17				93.57		86.90			
MW-35B	11/ /17				93.56		93.70			
MW-35C	11/ /17				93.55		95.55			
MW-36	11/ 6 /17	10:36	TOST	65.10	86.65	21.55	96.88	+31.78		AMD/NES
MW-37	11/ 6 /17	13:42	TOST	131.14	155.60	24.46	148.18	+17.04		↓
MW-38	11/ 6 /17	13:20	TOST	143.85	154.90	11.05	160.10	+16.25		↓
MW-39	11/ 6 /17	10:51	TOST	62.93	84.25	21.32	94.90	+31.97		AMD/NES
MW-40	11/ /17				123.40		120.00			

msl = Mean sea level
ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: NOVEMBER 2017

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 2017 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL ($\pm$ ft)	COMMENTS	INITIALS
MW-41	11/ 6 /17	13:45	TOST	136.41	155.60	19.19	162.35	+25.94		AMD/NES
EW-01	11/ /17				141.07		139.10		SOUNDING TUBE TO 172.65 Totalizer: Pumping?	
EW-02	11/ /17				132.97		138.73		Totalizer: Pumping?	

msl = Mean sea level
ft = feet

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17 TASK: 532.30 WELL ID: MW-26C

Time <u>8:20</u> Static DTW (ft below reference point) <u>113.89</u>	Casing Volume (CV) (gallons) <u>63</u> 3 CV (gallons) <u>188</u>	Weather Conditions	Initials: <u>AMD/NEJ</u>
Casing Total Depth (ft below reference point) <u>499</u>	Purging Device <u>grundfos</u> Sampling Device <u>ded. tubing</u>	Time <u>8:20</u> Temp. <u>65</u>	Begin Purge <u>8:40</u> End Purge <u>10:12</u>
Water Column (feet) <u>385.11</u>	Pump: Depth (ft brp) <u>200</u> Type <u>MPI</u> Voltage <u>115</u> HP <u>0.5</u>	Skies <u>clear</u>	Gallons Purged <u>180</u> CVs Purged <u>2.9</u>
Casing Capacity (Diameter <u>2"</u>) (gallons per foot) <u>0.163</u>	Monitor Well Recharge Rate: Slow <u>X</u> Fast	Wind (mph) <u>0</u> From <u>-</u>	DTW (ft brp) <u>114.52</u> Time <u>10:05</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)		
8:40	113.89	0	0				PUMP ON			311	Q ≈ 2 gpm
8:55	114.63	30	0.48	22.3	9.15	5209	-27.1	0.08	1.06	311	
9:10	114.87	60	0.96	22.2	8.06	744	-196.4	0.12	0.40	311	
9:25	114.56	90	1.43	22.3	7.90	776	-16.1	0.19	0.05	311	
9:40	114.36	120	1.90	22.3	7.85	778	-154.7	0.19	0.36	311	
9:55	114.55	150	2.38	22.3	7.87	777	-150.9	0.18	0.39	311	
10:05	114.52	180	2.70	22.4	7.89	775	-157.6	0.15	0.38	311	
10:10	NM	180	2.85				SAMPLE				
10:12	NM	184	2.92				PUMP OFF				

SAMPLE COLLECTION SAMPLE TIME <u>10:10</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	<u>RB-110710 @ 10:45</u>			
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> N						
If yes, complete appropriate forms.						

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17

TASK: 532.30

WELL ID: MW-34B

Time 13:15	Static DTW (ft below reference point) 132.84	Casing Volume (CV) (gallons) 50	3 CV (gallons) 150	Weather Conditions		Initials: AMD/NES
Casing Total Depth (ft below reference point) 536	Purging Device ded. pump	Sampling Device 10-100 pipe stand	Time 13:15	Temp. 70	Begin Purge 13:33	End Purge 13:45
Water Column (feet) 76	Pump: Depth (ft brp) 460	Type groundfor	Voltage 240	HP -	Gallons Purged 155	CVs Purged 3.1
Casing Capacity (Diameter 4") (gallons per foot) 0.66	Monitor Well Recharge Rate: Slow		Fast X	Wind (mph) 0	From -	DTW (ft brp) 135.89
				Skies clear	Time 13:45	

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)		
13:33	132.84	0	0	PUMP ON						-	
13:35	135.25	25	0.5	21.7	7.51	901	14.1	1.88	8.95	-	Q ≈ 12 gpm
13:37	135.96	50	1.0	21.7	7.54	948	47.1	4.51	7.67	-	
13:39	135.87	75	1.5	21.8	7.55	948	51.5	4.48	10.89	-	
13:40	135.89	100	2.0	21.8	7.55	947	53.9	4.48	11.33	-	
13:42	135.88	125	2.5	21.8	7.54	947	57.8	4.50	9.89	-	
13:45	135.89	150	3.0	21.8	7.54	948	54.8	4.39	8.81	-	SAMPLE
13:48	NM	155	3.1	PUMP OFF						-	

SAMPLE COLLECTION SAMPLE TIME 13:45
ANALYSIS QUANTITY TYPE

8260B VOCs 6 40 ml VOA
8270 SIM 1,4 dioxane 3 1 L Amber
8270 MOD 1,4 dioxane 1 L Amber

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

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

Duplicate MW-3400B @ 13:46
Split MW-348 @ 13:45

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17TASK: 532 30WELL ID: MW-41

Time <u>14:19</u> Static DTW (ft below reference point) <u>136.08</u>	Casing Volume ^{SW} (CV) (gallons) <u>39</u> ^{SV} (gallons) <u>118</u>	Weather Conditions Time <u>14:20</u> Temp. <u>70</u>	Initials: <u>AMD/NES</u>
Casing Total Depth (ft below reference point) <u>425</u>	Purging Device <u>ded pump</u> Sampling Device <u>0-10 pipestand</u>	Skies <u>clear</u>	Begin Purge <u>14:33</u> End Purge <u>14:49</u>
<u>pump to screen</u> Water Column (feet) <u>65</u>	Pump: Depth (ft brp) <u>360</u> Type <u>grundfos</u> Voltage <u>240</u> HP	Wind (mph) <u>1</u> From <u>W</u>	Gallons Purged <u>145</u> CVs Purged <u>3.7</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.66</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	DTW (ft brp) <u>145.89</u> Time <u>14:48</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)		
14:33	136.08	0	0	PUMP ON							
14:35	144.72	20	0.5	21.7	7.09	2042	90.6	2.19	4.55	-	Q ≈ 10 gpm
14:37	145.36	40	1.0	22.0	7.13	1742	9.7	2.45	23.7	-	
14:39	145.52	60	1.5	21.9	7.12	1788	17.7	2.85	51.5	-	
14:41	145.70	80	2.0	22.0	7.12	1839	31.3	3.26	47.9	-	
14:44	145.75	100	2.6	22.0	7.12	1843	37.8	3.22	22.8	-	
14:46	145.81	120	3.0	22.0	7.12	1843	40.9	3.06	20.3	-	
14:48	145.89	140	3.5	22.0	7.11	1838	42.8	3.54	19.7	-	SAMPLE
14:49	NM	145	3.7	PUMP OFF							

SAMPLE COLLECTION SAMPLE TIME <u>14:48</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 <u>1</u> 1 L Amber	
DUPLICATES / SPLITS / BLANKS? Y <u>(N)</u>	
If yes, complete appropriate forms.	

GROUNDWATER SAMPLING INFORMATION

DATE: 11/7/17

TASK: 532.30

WELL ID: MW-30A

Time 15:36 Static DTW (ft below reference point)	106.21	Casing Volume (CV) (gallons) 17.6	3 CV (gallons) 52.8	Weather Conditions		Initials: AMD/NES
Casing Total Depth (ft below reference point)	564	Purging Device ded pump	Sampling Device NO pipestand	Time 15:44	Temp 65	Begin Purge 15:49 End Purge 15:58
pump to screen Water Column (feet)	44	Pump: Depth (ft brp) 520	Type grundfos	Voltage 240	HP	Gallons Purged 60 CVs Purged 3.4
Casing Capacity (Diameter *) (gallons per foot)	0.4	Monitor Well Recharge Rate: Slow Fast X		Wind (mph) 0	From -	DTW (ft brp) 108.16 Time 15:58

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	FIELD PARAMETERS						Pump Frequency Hz	COMMENTS
				Temp. (°F)	pH	EC (µS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
15:49	106.21	0	0	PUMP ON						-	
15:50	107.91	6	0.34	22.9	7.75	786	77.0	1.77	1.89	-	Q ≈ 6 gpm
15:52	108.10	18	1.02	21.2	7.76	726	-30.6	0.49	0.91	-	
15:54	108.13	30	1.70	21.4	7.73	725	-8.5	0.45	0.69	-	
15:55	108.14	36	2.05	21.4	7.72	727	-5.7	0.46	0.49	-	
15:57	108.16	48	2.73	21.5	7.70	722	-2.3	0.50	0.22	-	
15:58	108.16	54	3.07	21.5	7.69	724	-0.7	0.50	0.42	-	SAMPLE
16:00	NM	60	3.40	PUMP OFF						-	

SAMPLE COLLECTION SAMPLE TIME 15:58		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 <u>(N)</u> If yes, complete appropriate forms.			

GROUNDWATER SAMPLING INFORMATION

DATE: 11/8/17

TASK: 532 30

WELL ID: MW-28

Time <u>7:55</u> Static DTW (ft below reference point) <u>118.16</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>29.7</u> 3 CV (gallons) <u>89.1</u>	Weather Conditions	Initials: <u>AMP/NES</u>
Casing Total Depth (ft below reference point) <u>375</u>	Purging Device <u>ded pump</u> Sampling Device <u>0.10 pipertand</u>	Time <u>7:42</u> Temp. <u>65</u>	Begin Purge <u>7:58</u> End Purge <u>8:10</u>
<u>pump to screen</u> Water Column (feet) <u>45</u>	Pump: Depth (ft brp) <u>330</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>95</u> CVs Purged <u>3.19</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>	DTW (ft brp) <u>128.49</u> Time <u>8:08</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)		
7:58	118.16	0	0	PUMP ON						-	
8:00	124.52	9	0.30	22.1	7.51	923	134.6	4.34	0.89	-	Q ≈ 9 gpm
8:02	128.15	33	1.11	21.5	7.55	810	122.1	4.60	0.93	-	
8:03	128.45	45	1.52	21.5	7.55	815	122.0	4.66	1.11	-	
8:05	128.46	59	1.97	21.5	7.56	814	121.2	4.73	0.63	-	
8:06	128.48	72	2.42	21.5	7.57	815	120.7	4.74	0.91	-	
8:08	128.49	90	3.03	21.5	7.57	819	120.1	4.83	0.54	-	SAMPLE
8:10	NM	95	3.19	PUMP OFF						-	

SAMPLE COLLECTION SAMPLE TIME <u>8:08</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	<u>1</u> 1 L Amber		
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u> If yes, complete appropriate forms.			

GROUNDWATER SAMPLING INFORMATION

DATE: 11/8/17

TASK: 532.30

WELL ID: MW-40

Time <u>8:46</u> Static DTW (ft below reference point)	<u>95.10</u>	Casing Volume (<u>SV</u>) (gallons) <u>75</u>	3 CV (gallons) <u>225</u>	Weather Conditions		Initials: <u>AMD/NES</u>
Casing Total Depth (ft below reference point)	<u>970</u>	Purging Device <u>ded pump</u>	Sampling Device <u>NO pipestand</u>	Time <u>8:46</u>	Temp <u>70</u>	Begin Purge <u>8:52</u> End Purge <u>9:14</u>
Water Column (feet)	<u>50</u>	Pump: Depth (ft brp) <u>920</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>		Skies <u>clear</u>		Gallons Purged <u>230</u> CVs Purged <u>3.1</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>96.11</u> Time <u>9:14</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)		
8:52	95.10	<u>0</u>	<u>0</u>	<u>PUMP ON</u>						-	
8:54	95.95	20	0.27	21.4	7.86	634	88.5	1.53	0.04	-	<u>Q = 10 gpm</u>
8:56	96.30	40	0.53	21.4	7.78	620	89.7	1.61	1.25	-	
9:02	96.06	100	1.33	21.3	7.83	609	83.2	1.38	0.49	-	
9:06	96.06	140	1.87	21.5	7.81	595	78.0	1.16	1.44	-	
9:11	96.10	190	2.53	21.4	7.81	594	75.4	1.36	0.66	-	
9:14	96.11	225	3.0	21.5	7.78	594	73.2	1.00	0.97	-	SAMPLE
9:16	NM	230	3.1	<u>PUMP OFF</u>						-	

SAMPLE COLLECTION SAMPLE TIME <u>9:14</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.									



HARGIS + ASSOCIATES, INC.

APPENDIX B

LABORATORY ANALYTICAL REPORTS



HARGIS + ASSOCIATES, INC.

GROUNDWATER SAMPLING ANALYTICAL RESULTS



November 14, 2017

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

Re: ATL Work Order Number : 1703949
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on November 06, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", is shown on a light 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 : 11/14/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EW-01	1703949-01	Groundwater	11/06/17 13:54	11/06/17 16:00
MW-21	1703949-02	Groundwater	11/06/17 14:30	11/06/17 16:00
MW-2100	1703949-03	Groundwater	11/06/17 14:45	11/06/17 16:00

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



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 : 11/14/2017

Client Sample ID EW-01

Lab ID: 1703949-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	0.13	1	B7K0220	11/08/2017	11/08/17 17:15	
1,1,1-Trichloroethane	ND	0.50	0.38	1	B7K0220	11/08/2017	11/08/17 17:15	
1,1,2,2-Tetrachloroethane	ND	0.50	0.20	1	B7K0220	11/08/2017	11/08/17 17:15	
1,1,2-Trichloroethane	ND	0.50	0.19	1	B7K0220	11/08/2017	11/08/17 17:15	
1,1-Dichloroethane	ND	0.50	0.20	1	B7K0220	11/08/2017	11/08/17 17:15	
1,1-Dichloroethene	2.4	0.50	0.28	1	B7K0220	11/08/2017	11/08/17 17:15	
1,1-Dichloropropene	ND	0.50	0.36	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2,3-Trichloropropane	ND	0.50	0.16	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2,3-Trichlorobenzene	ND	0.50	0.06	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2,4-Trichlorobenzene	ND	0.50	0.07	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2,4-Trimethylbenzene	ND	0.50	0.09	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2-Dibromo-3-chloropropane	ND	0.50	0.20	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2-Dibromoethane	ND	0.50	0.13	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2-Dichlorobenzene	ND	0.50	0.12	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2-Dichloroethane	ND	0.50	0.39	1	B7K0220	11/08/2017	11/08/17 17:15	
1,2-Dichloropropane	ND	0.50	0.47	1	B7K0220	11/08/2017	11/08/17 17:15	
1,3,5-Trimethylbenzene	ND	0.50	0.08	1	B7K0220	11/08/2017	11/08/17 17:15	
1,3-Dichlorobenzene	ND	0.50	0.13	1	B7K0220	11/08/2017	11/08/17 17:15	
1,3-Dichloropropane	ND	0.50	0.08	1	B7K0220	11/08/2017	11/08/17 17:15	
1,4-Dichlorobenzene	ND	0.50	0.18	1	B7K0220	11/08/2017	11/08/17 17:15	
2,2-Dichloropropane	ND	0.50	0.23	1	B7K0220	11/08/2017	11/08/17 17:15	
2-Chlorotoluene	ND	0.50	0.12	1	B7K0220	11/08/2017	11/08/17 17:15	
4-Chlorotoluene	ND	0.50	0.11	1	B7K0220	11/08/2017	11/08/17 17:15	
4-Isopropyltoluene	ND	0.50	0.12	1	B7K0220	11/08/2017	11/08/17 17:15	
Benzene	ND	0.50	0.21	1	B7K0220	11/08/2017	11/08/17 17:15	
Bromobenzene	ND	0.50	0.12	1	B7K0220	11/08/2017	11/08/17 17:15	
Bromodichloromethane	ND	0.50	0.32	1	B7K0220	11/08/2017	11/08/17 17:15	
Bromoform	ND	0.50	0.14	1	B7K0220	11/08/2017	11/08/17 17:15	
Bromomethane	ND	0.50	0.22	1	B7K0220	11/08/2017	11/08/17 17:15	
Carbon tetrachloride	ND	0.50	0.31	1	B7K0220	11/08/2017	11/08/17 17:15	
Chlorobenzene	ND	0.50	0.16	1	B7K0220	11/08/2017	11/08/17 17:15	
Chloroethane	ND	0.50	0.29	1	B7K0220	11/08/2017	11/08/17 17:15	
Chloroform	ND	0.50	0.16	1	B7K0220	11/08/2017	11/08/17 17:15	
Chloromethane	ND	0.50	0.19	1	B7K0220	11/08/2017	11/08/17 17:15	
cis-1,2-Dichloroethene	ND	0.50	0.39	1	B7K0220	11/08/2017	11/08/17 17:15	
cis-1,3-Dichloropropene	ND	0.50	0.08	1	B7K0220	11/08/2017	11/08/17 17:15	
Dibromochloromethane	ND	0.50	0.11	1	B7K0220	11/08/2017	11/08/17 17:15	



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 : 11/14/2017

Client Sample ID EW-01

Lab ID: 1703949-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.09	1	B7K0220	11/08/2017	11/08/17 17:15	
Dichlorodifluoromethane	ND	0.50	0.31	1	B7K0220	11/08/2017	11/08/17 17:15	
Ethylbenzene	ND	0.50	0.08	1	B7K0220	11/08/2017	11/08/17 17:15	
Hexachlorobutadiene	ND	0.50	0.22	1	B7K0220	11/08/2017	11/08/17 17:15	
Isopropylbenzene	ND	0.50	0.10	1	B7K0220	11/08/2017	11/08/17 17:15	
m,p-Xylene	ND	1.0	0.18	1	B7K0220	11/08/2017	11/08/17 17:15	
Methylene chloride	ND	1.0	0.26	1	B7K0220	11/08/2017	11/08/17 17:15	
n-Butylbenzene	ND	0.50	0.15	1	B7K0220	11/08/2017	11/08/17 17:15	
n-Propylbenzene	ND	0.50	0.14	1	B7K0220	11/08/2017	11/08/17 17:15	
Naphthalene	ND	0.50	0.09	1	B7K0220	11/08/2017	11/08/17 17:15	
o-Xylene	ND	0.50	0.04	1	B7K0220	11/08/2017	11/08/17 17:15	
sec-Butylbenzene	ND	0.50	0.15	1	B7K0220	11/08/2017	11/08/17 17:15	
Styrene	ND	0.50	0.05	1	B7K0220	11/08/2017	11/08/17 17:15	
tert-Butylbenzene	ND	0.50	0.11	1	B7K0220	11/08/2017	11/08/17 17:15	
Tetrachloroethene	ND	0.50	0.18	1	B7K0220	11/08/2017	11/08/17 17:15	
Toluene	ND	0.50	0.14	1	B7K0220	11/08/2017	11/08/17 17:15	
trans-1,2-Dichloroethene	ND	0.50	0.15	1	B7K0220	11/08/2017	11/08/17 17:15	
Trichloroethene	ND	0.50	0.15	1	B7K0220	11/08/2017	11/08/17 17:15	
Trichlorofluoromethane	ND	0.50	0.33	1	B7K0220	11/08/2017	11/08/17 17:15	
Vinyl chloride	ND	0.50	0.25	1	B7K0220	11/08/2017	11/08/17 17:15	
Surrogate: 1,2-Dichloroethane-d4	101 %		70 - 166		B7K0220	11/08/2017	11/08/17 17:15	
Surrogate: 4-Bromofluorobenzene	103 %		88 - 120		B7K0220	11/08/2017	11/08/17 17:15	
Surrogate: Dibromofluoromethane	101 %		80 - 150		B7K0220	11/08/2017	11/08/17 17:15	
Surrogate: Toluene-d8	102 %		87 - 121		B7K0220	11/08/2017	11/08/17 17:15	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/14/2017

Client Sample ID EW-01

Lab ID: 1703949-01

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	0.84	1	B7K0255	11/09/2017	11/09/17 15:34	
Surrogate: 1,2-Dichlorobenzene-d4	53.4 %		17 - 101		B7K0255	11/09/2017	11/09/17 15:34	
Surrogate: 2-Fluorobiphenyl	68.4 %		29 - 109		B7K0255	11/09/2017	11/09/17 15:34	
Surrogate: 4-Terphenyl-d14	101 %		49 - 122		B7K0255	11/09/2017	11/09/17 15:34	
Surrogate: Nitrobenzene-d5	60.0 %		19 - 111		B7K0255	11/09/2017	11/09/17 15:34	



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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 : 11/14/2017

Client Sample ID MW-21

Lab ID: 1703949-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1.3	10	B7K0164	11/07/2017	11/07/17 19:29	
1,1,1-Trichloroethane	ND	5.0	3.8	10	B7K0164	11/07/2017	11/07/17 19:29	
1,1,2,2-Tetrachloroethane	ND	5.0	2.0	10	B7K0164	11/07/2017	11/07/17 19:29	
1,1,2-Trichloroethane	5.5	5.0	1.9	10	B7K0164	11/07/2017	11/07/17 19:29	
1,1-Dichloroethane	15	5.0	2.0	10	B7K0164	11/07/2017	11/07/17 19:29	
1,1-Dichloroethene	1500	50	28	100	B7K0164	11/07/2017	11/07/17 19:53	
1,1-Dichloropropene	ND	5.0	3.6	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2,3-Trichloropropane	ND	5.0	1.6	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2,3-Trichlorobenzene	ND	5.0	0.61	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2,4-Trichlorobenzene	ND	5.0	0.67	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2,4-Trimethylbenzene	ND	5.0	0.86	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2-Dibromo-3-chloropropane	ND	5.0	2.0	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2-Dibromoethane	ND	5.0	1.3	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2-Dichlorobenzene	ND	5.0	1.2	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2-Dichloroethane	ND	5.0	3.9	10	B7K0164	11/07/2017	11/07/17 19:29	
1,2-Dichloropropane	ND	5.0	4.7	10	B7K0164	11/07/2017	11/07/17 19:29	
1,3,5-Trimethylbenzene	ND	5.0	0.79	10	B7K0164	11/07/2017	11/07/17 19:29	
1,3-Dichlorobenzene	ND	5.0	1.3	10	B7K0164	11/07/2017	11/07/17 19:29	
1,3-Dichloropropane	ND	5.0	0.84	10	B7K0164	11/07/2017	11/07/17 19:29	
1,4-Dichlorobenzene	ND	5.0	1.8	10	B7K0164	11/07/2017	11/07/17 19:29	
2,2-Dichloropropane	ND	5.0	2.3	10	B7K0164	11/07/2017	11/07/17 19:29	
2-Chlorotoluene	ND	5.0	1.2	10	B7K0164	11/07/2017	11/07/17 19:29	
4-Chlorotoluene	ND	5.0	1.1	10	B7K0164	11/07/2017	11/07/17 19:29	
4-Isopropyltoluene	ND	5.0	1.2	10	B7K0164	11/07/2017	11/07/17 19:29	
Benzene	ND	5.0	2.1	10	B7K0164	11/07/2017	11/07/17 19:29	
Bromobenzene	ND	5.0	1.2	10	B7K0164	11/07/2017	11/07/17 19:29	
Bromodichloromethane	ND	5.0	3.2	10	B7K0164	11/07/2017	11/07/17 19:29	
Bromoform	ND	5.0	1.4	10	B7K0164	11/07/2017	11/07/17 19:29	
Bromomethane	ND	5.0	2.2	10	B7K0164	11/07/2017	11/07/17 19:29	
Carbon tetrachloride	ND	5.0	3.1	10	B7K0164	11/07/2017	11/07/17 19:29	
Chlorobenzene	ND	5.0	1.6	10	B7K0164	11/07/2017	11/07/17 19:29	
Chloroethane	ND	5.0	2.9	10	B7K0164	11/07/2017	11/07/17 19:29	
Chloroform	ND	5.0	1.6	10	B7K0164	11/07/2017	11/07/17 19:29	
Chloromethane	ND	5.0	1.9	10	B7K0164	11/07/2017	11/07/17 19:29	
cis-1,2-Dichloroethene	ND	5.0	3.9	10	B7K0164	11/07/2017	11/07/17 19:29	
cis-1,3-Dichloropropene	ND	5.0	0.76	10	B7K0164	11/07/2017	11/07/17 19:29	
Dibromochloromethane	ND	5.0	1.1	10	B7K0164	11/07/2017	11/07/17 19:29	



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 : 11/14/2017

Client Sample ID MW-21

Lab ID: 1703949-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	5.0	0.90	10	B7K0164	11/07/2017	11/07/17 19:29	
Dichlorodifluoromethane	ND	5.0	3.1	10	B7K0164	11/07/2017	11/07/17 19:29	
Ethylbenzene	ND	5.0	0.80	10	B7K0164	11/07/2017	11/07/17 19:29	
Hexachlorobutadiene	ND	5.0	2.2	10	B7K0164	11/07/2017	11/07/17 19:29	
Isopropylbenzene	ND	5.0	0.97	10	B7K0164	11/07/2017	11/07/17 19:29	
m,p-Xylene	ND	10	1.8	10	B7K0164	11/07/2017	11/07/17 19:29	
Methylene chloride	ND	10	2.6	10	B7K0164	11/07/2017	11/07/17 19:29	
n-Butylbenzene	ND	5.0	1.5	10	B7K0164	11/07/2017	11/07/17 19:29	
n-Propylbenzene	ND	5.0	1.4	10	B7K0164	11/07/2017	11/07/17 19:29	
Naphthalene	ND	5.0	0.88	10	B7K0164	11/07/2017	11/07/17 19:29	
o-Xylene	ND	5.0	0.43	10	B7K0164	11/07/2017	11/07/17 19:29	
sec-Butylbenzene	ND	5.0	1.5	10	B7K0164	11/07/2017	11/07/17 19:29	
Styrene	ND	5.0	0.50	10	B7K0164	11/07/2017	11/07/17 19:29	
tert-Butylbenzene	ND	5.0	1.1	10	B7K0164	11/07/2017	11/07/17 19:29	
Tetrachloroethene	5.8	5.0	1.8	10	B7K0164	11/07/2017	11/07/17 19:29	
Toluene	ND	5.0	1.4	10	B7K0164	11/07/2017	11/07/17 19:29	
trans-1,2-Dichloroethene	ND	5.0	1.5	10	B7K0164	11/07/2017	11/07/17 19:29	
Trichloroethene	10	5.0	1.5	10	B7K0164	11/07/2017	11/07/17 19:29	
Trichlorofluoromethane	ND	5.0	3.3	10	B7K0164	11/07/2017	11/07/17 19:29	
Vinyl chloride	ND	5.0	2.5	10	B7K0164	11/07/2017	11/07/17 19:29	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70 - 166</i>		B7K0164	11/07/2017	<i>11/07/17 19:29</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70 - 166</i>		B7K0164	11/07/2017	<i>11/07/17 19:53</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94.0 %</i>		<i>88 - 120</i>		B7K0164	11/07/2017	<i>11/07/17 19:29</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.2 %</i>		<i>88 - 120</i>		B7K0164	11/07/2017	<i>11/07/17 19:53</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>120 %</i>		<i>80 - 150</i>		B7K0164	11/07/2017	<i>11/07/17 19:53</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>118 %</i>		<i>80 - 150</i>		B7K0164	11/07/2017	<i>11/07/17 19:29</i>	
<i>Surrogate: Toluene-d8</i>	<i>93.9 %</i>		<i>87 - 121</i>		B7K0164	11/07/2017	<i>11/07/17 19:53</i>	
<i>Surrogate: Toluene-d8</i>	<i>94.2 %</i>		<i>87 - 121</i>		B7K0164	11/07/2017	<i>11/07/17 19:29</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 : 11/14/2017

Client Sample ID MW-21

Lab ID: 1703949-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	120	2.0	0.84	1	B7K0255	11/09/2017	11/09/17 17:21	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>54.0 %</i>		<i>17 - 101</i>		B7K0255	11/09/2017	<i>11/09/17 17:21</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>68.6 %</i>		<i>29 - 109</i>		B7K0255	11/09/2017	<i>11/09/17 17:21</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>99.3 %</i>		<i>49 - 122</i>		B7K0255	11/09/2017	<i>11/09/17 17:21</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>61.4 %</i>		<i>19 - 111</i>		B7K0255	11/09/2017	<i>11/09/17 17:21</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 : 11/14/2017

Client Sample ID MW-2100

Lab ID: 1703949-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	2.5	0.66	5	B7K0164	11/07/2017	11/07/17 18:40	
1,1,1-Trichloroethane	ND	2.5	1.9	5	B7K0164	11/07/2017	11/07/17 18:40	
1,1,2,2-Tetrachloroethane	ND	2.5	0.98	5	B7K0164	11/07/2017	11/07/17 18:40	
1,1,2-Trichloroethane	5.6	2.5	0.95	5	B7K0164	11/07/2017	11/07/17 18:40	
1,1-Dichloroethane	19	2.5	0.98	5	B7K0164	11/07/2017	11/07/17 18:40	
1,1-Dichloroethene	1300	10	5.6	20	B7K0164	11/07/2017	11/07/17 19:04	
1,1-Dichloropropene	ND	2.5	1.8	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2,3-Trichloropropane	ND	2.5	0.78	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2,3-Trichlorobenzene	ND	2.5	0.30	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2,4-Trichlorobenzene	ND	2.5	0.34	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2,4-Trimethylbenzene	ND	2.5	0.43	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2-Dibromo-3-chloropropane	ND	2.5	0.98	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2-Dibromoethane	ND	2.5	0.66	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2-Dichlorobenzene	ND	2.5	0.58	5	B7K0164	11/07/2017	11/07/17 18:40	
1,2-Dichloroethane	2.2	2.5	2.0	5	B7K0164	11/07/2017	11/07/17 18:40	J
1,2-Dichloropropane	ND	2.5	2.4	5	B7K0164	11/07/2017	11/07/17 18:40	
1,3,5-Trimethylbenzene	ND	2.5	0.40	5	B7K0164	11/07/2017	11/07/17 18:40	
1,3-Dichlorobenzene	ND	2.5	0.64	5	B7K0164	11/07/2017	11/07/17 18:40	
1,3-Dichloropropane	ND	2.5	0.42	5	B7K0164	11/07/2017	11/07/17 18:40	
1,4-Dichlorobenzene	ND	2.5	0.92	5	B7K0164	11/07/2017	11/07/17 18:40	
2,2-Dichloropropane	ND	2.5	1.2	5	B7K0164	11/07/2017	11/07/17 18:40	
2-Chlorotoluene	ND	2.5	0.60	5	B7K0164	11/07/2017	11/07/17 18:40	
4-Chlorotoluene	ND	2.5	0.53	5	B7K0164	11/07/2017	11/07/17 18:40	
4-Isopropyltoluene	ND	2.5	0.60	5	B7K0164	11/07/2017	11/07/17 18:40	
Benzene	ND	2.5	1.0	5	B7K0164	11/07/2017	11/07/17 18:40	
Bromobenzene	ND	2.5	0.62	5	B7K0164	11/07/2017	11/07/17 18:40	
Bromodichloromethane	ND	2.5	1.6	5	B7K0164	11/07/2017	11/07/17 18:40	
Bromoform	ND	2.5	0.70	5	B7K0164	11/07/2017	11/07/17 18:40	
Bromomethane	ND	2.5	1.1	5	B7K0164	11/07/2017	11/07/17 18:40	
Carbon tetrachloride	ND	2.5	1.6	5	B7K0164	11/07/2017	11/07/17 18:40	
Chlorobenzene	ND	2.5	0.80	5	B7K0164	11/07/2017	11/07/17 18:40	
Chloroethane	ND	2.5	1.4	5	B7K0164	11/07/2017	11/07/17 18:40	
Chloroform	1.6	2.5	0.82	5	B7K0164	11/07/2017	11/07/17 18:40	J
Chloromethane	ND	2.5	0.94	5	B7K0164	11/07/2017	11/07/17 18:40	
cis-1,2-Dichloroethene	ND	2.5	2.0	5	B7K0164	11/07/2017	11/07/17 18:40	
cis-1,3-Dichloropropene	ND	2.5	0.38	5	B7K0164	11/07/2017	11/07/17 18:40	
Dibromochloromethane	ND	2.5	0.53	5	B7K0164	11/07/2017	11/07/17 18:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/14/2017

Client Sample ID MW-2100

Lab ID: 1703949-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	2.5	0.45	5	B7K0164	11/07/2017	11/07/17 18:40	
Dichlorodifluoromethane	ND	2.5	1.6	5	B7K0164	11/07/2017	11/07/17 18:40	
Ethylbenzene	ND	2.5	0.40	5	B7K0164	11/07/2017	11/07/17 18:40	
Hexachlorobutadiene	ND	2.5	1.1	5	B7K0164	11/07/2017	11/07/17 18:40	
Isopropylbenzene	ND	2.5	0.48	5	B7K0164	11/07/2017	11/07/17 18:40	
m,p-Xylene	ND	5.0	0.92	5	B7K0164	11/07/2017	11/07/17 18:40	
Methylene chloride	ND	5.0	1.3	5	B7K0164	11/07/2017	11/07/17 18:40	
n-Butylbenzene	ND	2.5	0.74	5	B7K0164	11/07/2017	11/07/17 18:40	
n-Propylbenzene	ND	2.5	0.69	5	B7K0164	11/07/2017	11/07/17 18:40	
Naphthalene	ND	2.5	0.44	5	B7K0164	11/07/2017	11/07/17 18:40	
o-Xylene	ND	2.5	0.22	5	B7K0164	11/07/2017	11/07/17 18:40	
sec-Butylbenzene	ND	2.5	0.74	5	B7K0164	11/07/2017	11/07/17 18:40	
Styrene	ND	2.5	0.25	5	B7K0164	11/07/2017	11/07/17 18:40	
tert-Butylbenzene	ND	2.5	0.55	5	B7K0164	11/07/2017	11/07/17 18:40	
Tetrachloroethene	5.5	2.5	0.92	5	B7K0164	11/07/2017	11/07/17 18:40	
Toluene	ND	2.5	0.68	5	B7K0164	11/07/2017	11/07/17 18:40	
trans-1,2-Dichloroethene	ND	2.5	0.74	5	B7K0164	11/07/2017	11/07/17 18:40	
Trichloroethene	11	2.5	0.73	5	B7K0164	11/07/2017	11/07/17 18:40	
Trichlorofluoromethane	ND	2.5	1.6	5	B7K0164	11/07/2017	11/07/17 18:40	
Vinyl chloride	ND	2.5	1.3	5	B7K0164	11/07/2017	11/07/17 18:40	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70 - 166</i>		B7K0164	11/07/2017	<i>11/07/17 19:04</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>		<i>70 - 166</i>		B7K0164	11/07/2017	<i>11/07/17 18:40</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.2 %</i>		<i>88 - 120</i>		B7K0164	11/07/2017	<i>11/07/17 19:04</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.1 %</i>		<i>88 - 120</i>		B7K0164	11/07/2017	<i>11/07/17 18:40</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>113 %</i>		<i>80 - 150</i>		B7K0164	11/07/2017	<i>11/07/17 18:40</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>		<i>80 - 150</i>		B7K0164	11/07/2017	<i>11/07/17 19:04</i>	
<i>Surrogate: Toluene-d8</i>	<i>94.7 %</i>		<i>87 - 121</i>		B7K0164	11/07/2017	<i>11/07/17 18:40</i>	
<i>Surrogate: Toluene-d8</i>	<i>92.1 %</i>		<i>87 - 121</i>		B7K0164	11/07/2017	<i>11/07/17 19:04</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 : 11/14/2017

Client Sample ID MW-2100

Lab ID: 1703949-03

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	130	2.0	0.84	1	B7K0255	11/09/2017	11/09/17 18:18	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>47.6 %</i>		<i>17 - 101</i>		B7K0255	11/09/2017	<i>11/09/17 18:18</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>60.2 %</i>		<i>29 - 109</i>		B7K0255	11/09/2017	<i>11/09/17 18:18</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>96.5 %</i>		<i>49 - 122</i>		B7K0255	11/09/2017	<i>11/09/17 18:18</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>53.6 %</i>		<i>19 - 111</i>		B7K0255	11/09/2017	<i>11/09/17 18:18</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/14/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W

Blank (B7K0164-BLK1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W (continued)

Blank (B7K0164-BLK1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	26.62		25.0000	106	70 - 166
Surrogate: 4-Bromofluorobenzene	23.01		25.0000	92.0	88 - 120
Surrogate: Dibromofluoromethane	29.18		25.0000	117	80 - 150
Surrogate: Toluene-d8	23.46		25.0000	93.8	87 - 121

LCS (B7K0164-BS1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,1,1,2-Tetrachloroethane	7.71000	0.50	0.13	10.0000	77.1	73 - 136
1,1,1-Trichloroethane	11.8000	0.50	0.38	10.0000	118	73 - 143
1,1,2,2-Tetrachloroethane	8.21000	0.50	0.20	10.0000	82.1	62 - 127
1,1,2-Trichloroethane	8.80000	0.50	0.19	10.0000	88.0	72 - 122
1,1-Dichloroethane	13.3400	0.50	0.20	10.0000	133	73 - 138
1,1-Dichloroethene	9.37000	0.50	0.28	10.0000	93.7	74 - 132
1,1-Dichloropropene	12.1100	0.50	0.36	10.0000	121	70 - 143
1,2,3-Trichloropropane	8.23000	0.50	0.16	10.0000	82.3	66 - 119
1,2,3-Trichlorobenzene	9.32000	0.50	0.06	10.0000	93.2	70 - 131
1,2,4-Trichlorobenzene	9.59000	0.50	0.07	10.0000	95.9	70 - 128
1,2,4-Trimethylbenzene	9.77000	0.50	0.09	10.0000	97.7	74 - 142
1,2-Dibromo-3-chloropropane	5.10000	0.50	0.20	10.0000	51.0	56 - 118
1,2-Dibromoethane	9.01000	0.50	0.13	10.0000	90.1	73 - 122
1,2-Dichlorobenzene	9.83000	0.50	0.12	10.0000	98.3	75 - 128
1,2-Dichloroethane	9.05000	0.50	0.39	10.0000	90.5	70 - 131
1,2-Dichloropropane	9.55000	0.50	0.47	10.0000	95.5	69 - 124
1,3,5-Trimethylbenzene	9.81000	0.50	0.08	10.0000	98.1	73 - 144

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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 : 11/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W (continued)

LCS (B7K0164-BS1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,3-Dichlorobenzene	10.1000	0.50	0.13	10.0000		101	75 - 131		
1,3-Dichloropropane	9.53000	0.50	0.08	10.0000		95.3	70 - 122		
1,4-Dichlorobenzene	9.91000	0.50	0.18	10.0000		99.1	75 - 127		
2,2-Dichloropropane	10.5000	0.50	0.23	10.0000		105	68 - 151		
2-Chlorotoluene	9.08000	0.50	0.12	10.0000		90.8	72 - 138		
4-Chlorotoluene	8.97000	0.50	0.11	10.0000		89.7	72 - 140		
4-Isopropyltoluene	10.1400	0.50	0.12	10.0000		101	74 - 149		
Benzene	19.8700	0.50	0.21	20.0000		99.4	67 - 138		
Bromobenzene	9.99000	0.50	0.12	10.0000		99.9	73 - 127		
Bromodichloromethane	7.69000	0.50	0.32	10.0000		76.9	74 - 129		
Bromoform	6.39000	0.50	0.14	10.0000		63.9	63 - 131		
Bromomethane	17.6400	0.50	0.22	10.0000		176	57 - 216		
Carbon tetrachloride	8.91000	0.50	0.31	10.0000		89.1	77 - 151		
Chlorobenzene	10.1700	0.50	0.16	10.0000		102	73 - 125		
Chloroethane	11.9600	0.50	0.29	10.0000		120	54 - 154		
Chloroform	11.3400	0.50	0.16	10.0000		113	77 - 132		
Chloromethane	11.7700	0.50	0.19	10.0000		118	57 - 142		
cis-1,2-Dichloroethene	11.1700	0.50	0.39	10.0000		112	73 - 126		
cis-1,3-Dichloropropene	7.60000	0.50	0.08	10.0000		76.0	76 - 120		
Dibromochloromethane	7.48000	0.50	0.11	10.0000		74.8	71 - 126		
Dibromomethane	8.80000	0.50	0.09	10.0000		88.0	73 - 121		
Dichlorodifluoromethane	10.1300	0.50	0.31	10.0000		101	48 - 152		
Ethylbenzene	20.0900	0.50	0.08	20.0000		100	72 - 134		
Hexachlorobutadiene	10.4200	0.50	0.22	10.0000		104	72 - 139		
Isopropylbenzene	9.76000	0.50	0.10	10.0000		97.6	73 - 146		
m,p-Xylene	19.8300	1.0	0.18	20.0000		99.2	75 - 138		
Methylene chloride	10.3100	1.0	0.26	10.0000		103	52 - 154		
n-Butylbenzene	9.73000	0.50	0.15	10.0000		97.3	72 - 151		
n-Propylbenzene	9.45000	0.50	0.14	10.0000		94.5	69 - 149		
Naphthalene	8.61000	0.50	0.09	10.0000		86.1	61 - 122		
o-Xylene	19.4100	0.50	0.04	20.0000		97.0	66 - 147		
sec-Butylbenzene	10.1700	0.50	0.15	10.0000		102	72 - 148		
Styrene	10.0700	0.50	0.05	10.0000		101	72 - 138		
tert-Butylbenzene	9.83000	0.50	0.11	10.0000		98.3	70 - 145		
Tetrachloroethene	11.8800	0.50	0.18	10.0000		119	61 - 145		
Toluene	18.1800	0.50	0.14	20.0000		90.9	70 - 140		
trans-1,2-Dichloroethene	11.4800	0.50	0.15	10.0000		115	73 - 130		
Trichloroethene	10.8400	0.50	0.15	10.0000		108	69 - 126		
Trichlorofluoromethane	13.4600	0.50	0.33	10.0000		135	70 - 159		
Vinyl chloride	10.1100	0.50	0.25	10.0000		101	56 - 151		

Surrogate: 1,2-Dichloroethane-d4	23.70			25.0000		94.8	70 - 166		
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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 : 11/14/2017

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
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Batch B7K0164 - MSVOA_W (continued)

LCS (B7K0164-BS1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

Surrogate: 4-Bromofluorobenzene	23.55		25.0000		94.2	88 - 120			
Surrogate: Dibromofluoromethane	27.44		25.0000		110	80 - 150			
Surrogate: Toluene-d8	23.28		25.0000		93.1	87 - 121			

LCS Dup (B7K0164-BSD1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,1,1,2-Tetrachloroethane	7.39000	0.50	0.13	10.0000	73.9	73 - 136	4.24	20	
1,1,1-Trichloroethane	11.3400	0.50	0.38	10.0000	113	73 - 143	3.98	20	
1,1,2,2-Tetrachloroethane	8.70000	0.50	0.20	10.0000	87.0	62 - 127	5.80	20	
1,1,2-Trichloroethane	9.55000	0.50	0.19	10.0000	95.5	72 - 122	8.17	20	
1,1-Dichloroethane	12.6800	0.50	0.20	10.0000	127	73 - 138	5.07	20	
1,1-Dichloroethene	9.00000	0.50	0.28	10.0000	90.0	74 - 132	4.03	20	
1,1-Dichloropropene	12.2200	0.50	0.36	10.0000	122	70 - 143	0.904	20	
1,2,3-Trichloropropane	8.66000	0.50	0.16	10.0000	86.6	66 - 119	5.09	20	
1,2,3-Trichlorobenzene	9.60000	0.50	0.06	10.0000	96.0	70 - 131	2.96	20	
1,2,4-Trichlorobenzene	9.66000	0.50	0.07	10.0000	96.6	70 - 128	0.727	20	
1,2,4-Trimethylbenzene	9.61000	0.50	0.09	10.0000	96.1	74 - 142	1.65	20	
1,2-Dibromo-3-chloropropane	5.90000	0.50	0.20	10.0000	59.0	56 - 118	14.5	20	
1,2-Dibromoethane	9.75000	0.50	0.13	10.0000	97.5	73 - 122	7.89	20	
1,2-Dichlorobenzene	10.0400	0.50	0.12	10.0000	100	75 - 128	2.11	20	
1,2-Dichloroethane	9.76000	0.50	0.39	10.0000	97.6	70 - 131	7.55	20	
1,2-Dichloropropane	9.86000	0.50	0.47	10.0000	98.6	69 - 124	3.19	20	
1,3,5-Trimethylbenzene	9.67000	0.50	0.08	10.0000	96.7	73 - 144	1.44	20	
1,3-Dichlorobenzene	10.1500	0.50	0.13	10.0000	102	75 - 131	0.494	20	
1,3-Dichloropropane	9.91000	0.50	0.08	10.0000	99.1	70 - 122	3.91	20	
1,4-Dichlorobenzene	9.91000	0.50	0.18	10.0000	99.1	75 - 127	0.00	20	
2,2-Dichloropropane	10.0600	0.50	0.23	10.0000	101	68 - 151	4.28	20	
2-Chlorotoluene	9.08000	0.50	0.12	10.0000	90.8	72 - 138	0.00	20	
4-Chlorotoluene	8.82000	0.50	0.11	10.0000	88.2	72 - 140	1.69	20	
4-Isopropyltoluene	9.95000	0.50	0.12	10.0000	99.5	74 - 149	1.89	20	
Benzene	20.1900	0.50	0.21	20.0000	101	67 - 138	1.60	20	
Bromobenzene	10.1500	0.50	0.12	10.0000	102	73 - 127	1.59	20	
Bromodichloromethane	8.03000	0.50	0.32	10.0000	80.3	74 - 129	4.33	20	
Bromoform	6.69000	0.50	0.14	10.0000	66.9	63 - 131	4.59	20	
Bromomethane	16.3100	0.50	0.22	10.0000	163	57 - 216	7.84	20	
Carbon tetrachloride	8.86000	0.50	0.31	10.0000	88.6	77 - 151	0.563	20	
Chlorobenzene	10.2200	0.50	0.16	10.0000	102	73 - 125	0.490	20	
Chloroethane	12.0700	0.50	0.29	10.0000	121	54 - 154	0.916	20	
Chloroform	11.0500	0.50	0.16	10.0000	110	77 - 132	2.59	20	
Chloromethane	11.7700	0.50	0.19	10.0000	118	57 - 142	0.00	20	
cis-1,2-Dichloroethene	10.9200	0.50	0.39	10.0000	109	73 - 126	2.26	20	
cis-1,3-Dichloropropene	8.02000	0.50	0.08	10.0000	80.2	76 - 120	5.38	20	
Dibromochloromethane	7.67000	0.50	0.11	10.0000	76.7	71 - 126	2.51	20	



Certificate of Analysis

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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 : 11/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W (continued)

LCS Dup (B7K0164-BSD1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

Dibromomethane	9.17000	0.50	0.09	10.0000		91.7	73 - 121	4.12	20
Dichlorodifluoromethane	10.2100	0.50	0.31	10.0000		102	48 - 152	0.787	20
Ethylbenzene	19.9000	0.50	0.08	20.0000		99.5	72 - 134	0.950	20
Hexachlorobutadiene	10.0600	0.50	0.22	10.0000		101	72 - 139	3.52	20
Isopropylbenzene	9.82000	0.50	0.10	10.0000		98.2	73 - 146	0.613	20
m,p-Xylene	19.9700	1.0	0.18	20.0000		99.8	75 - 138	0.704	20
Methylene chloride	10.5500	1.0	0.26	10.0000		106	52 - 154	2.30	20
n-Butylbenzene	9.45000	0.50	0.15	10.0000		94.5	72 - 151	2.92	20
n-Propylbenzene	9.30000	0.50	0.14	10.0000		93.0	69 - 149	1.60	20
Naphthalene	9.10000	0.50	0.09	10.0000		91.0	61 - 122	5.53	20
o-Xylene	19.4700	0.50	0.04	20.0000		97.4	66 - 147	0.309	20
sec-Butylbenzene	10.0700	0.50	0.15	10.0000		101	72 - 148	0.988	20
Styrene	9.98000	0.50	0.05	10.0000		99.8	72 - 138	0.898	20
tert-Butylbenzene	9.71000	0.50	0.11	10.0000		97.1	70 - 145	1.23	20
Tetrachloroethene	11.6300	0.50	0.18	10.0000		116	61 - 145	2.13	20
Toluene	19.5800	0.50	0.14	20.0000		97.9	70 - 140	7.42	20
trans-1,2-Dichloroethene	10.7900	0.50	0.15	10.0000		108	73 - 130	6.20	20
Trichloroethene	11.1800	0.50	0.15	10.0000		112	69 - 126	3.09	20
Trichlorofluoromethane	12.3300	0.50	0.33	10.0000		123	70 - 159	8.76	20
Vinyl chloride	10.4000	0.50	0.25	10.0000		104	56 - 151	2.83	20
Surrogate: 1,2-Dichloroethane-d4	23.64			25.0000		94.6	70 - 166		
Surrogate: 4-Bromofluorobenzene	23.85			25.0000		95.4	88 - 120		
Surrogate: Dibromofluoromethane	26.62			25.0000		106	80 - 150		
Surrogate: Toluene-d8	23.73			25.0000		94.9	87 - 121		



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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0220 - MSVOA_W

Blank (B7K0220-BLK1)

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0220 - MSVOA_W (continued)

Blank (B7K0220-BLK1) - Continued

Prepared: 11/8/2017 Analyzed: 11/8/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.00		25.0000	96.0	70 - 166
Surrogate: 4-Bromofluorobenzene	26.46		25.0000	106	88 - 120
Surrogate: Dibromofluoromethane	24.74		25.0000	99.0	80 - 150
Surrogate: Toluene-d8	24.60		25.0000	98.4	87 - 121

LCS (B7K0220-BS1)

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,1,1,2-Tetrachloroethane	20.6300	0.50	0.13	20.0000	103	73 - 136
1,1,1-Trichloroethane	22.0900	0.50	0.38	20.0000	110	73 - 143
1,1,2,2-Tetrachloroethane	19.6900	0.50	0.20	20.0000	98.4	62 - 127
1,1,2-Trichloroethane	20.5400	0.50	0.19	20.0000	103	72 - 122
1,1-Dichloroethane	21.2800	0.50	0.20	20.0000	106	73 - 138
1,1-Dichloroethene	18.2000	0.50	0.28	20.0000	91.0	74 - 132
1,1-Dichloropropene	21.3000	0.50	0.36	20.0000	106	70 - 143
1,2,3-Trichloropropane	18.7300	0.50	0.16	20.0000	93.6	66 - 119
1,2,3-Trichlorobenzene	20.5200	0.50	0.06	20.0000	103	70 - 131
1,2,4-Trichlorobenzene	21.7000	0.50	0.07	20.0000	108	70 - 128
1,2,4-Trimethylbenzene	21.7900	0.50	0.09	20.0000	109	74 - 142
1,2-Dibromo-3-chloropropane	18.7000	0.50	0.20	20.0000	93.5	56 - 118
1,2-Dibromoethane	19.3600	0.50	0.13	20.0000	96.8	73 - 122
1,2-Dichlorobenzene	20.5600	0.50	0.12	20.0000	103	75 - 128
1,2-Dichloroethane	18.6400	0.50	0.39	20.0000	93.2	70 - 131
1,2-Dichloropropane	21.8200	0.50	0.47	20.0000	109	69 - 124
1,3,5-Trimethylbenzene	22.8000	0.50	0.08	20.0000	114	73 - 144
1,3-Dichlorobenzene	21.0200	0.50	0.13	20.0000	105	75 - 131
1,3-Dichloropropane	19.2800	0.50	0.08	20.0000	96.4	70 - 122



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0220 - MSVOA_W (continued)

LCS (B7K0220-BS1) - Continued

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,4-Dichlorobenzene	20.8000	0.50	0.18	20.0000		104	75 - 127		
2,2-Dichloropropane	25.2500	0.50	0.23	20.0000		126	68 - 151		
2-Chlorotoluene	21.8400	0.50	0.12	20.0000		109	72 - 138		
4-Chlorotoluene	21.4600	0.50	0.11	20.0000		107	72 - 140		
4-Isopropyltoluene	23.1900	0.50	0.12	20.0000		116	74 - 149		
Benzene	42.0500	0.50	0.21	40.0000		105	67 - 138		
Bromobenzene	20.5800	0.50	0.12	20.0000		103	73 - 127		
Bromodichloromethane	20.6500	0.50	0.32	20.0000		103	74 - 129		
Bromoform	18.7600	0.50	0.14	20.0000		93.8	63 - 131		
Bromomethane	25.3900	0.50	0.22	20.0000		127	57 - 216		
Carbon tetrachloride	22.0100	0.50	0.31	20.0000		110	77 - 151		
Chlorobenzene	19.9500	0.50	0.16	20.0000		99.8	73 - 125		
Chloroethane	21.2500	0.50	0.29	20.0000		106	54 - 154		
Chloroform	20.1700	0.50	0.16	20.0000		101	77 - 132		
Chloromethane	20.1500	0.50	0.19	20.0000		101	57 - 142		
cis-1,2-Dichloroethene	20.5400	0.50	0.39	20.0000		103	73 - 126		
cis-1,3-Dichloropropene	21.9400	0.50	0.08	20.0000		110	76 - 120		
Dibromochloromethane	20.7800	0.50	0.11	20.0000		104	71 - 126		
Dibromomethane	19.8400	0.50	0.09	20.0000		99.2	73 - 121		
Dichlorodifluoromethane	19.6800	0.50	0.31	20.0000		98.4	48 - 152		
Ethylbenzene	43.0900	0.50	0.08	40.0000		108	72 - 134		
Hexachlorobutadiene	21.2600	0.50	0.22	20.0000		106	72 - 139		
Isopropylbenzene	22.2600	0.50	0.10	20.0000		111	73 - 146		
m,p-Xylene	42.8500	1.0	0.18	40.0000		107	75 - 138		
Methylene chloride	20.9600	1.0	0.26	20.0000		105	52 - 154		
n-Butylbenzene	23.0900	0.50	0.15	20.0000		115	72 - 151		
n-Propylbenzene	22.4300	0.50	0.14	20.0000		112	69 - 149		
Naphthalene	18.3700	0.50	0.09	20.0000		91.8	61 - 122		
o-Xylene	41.5300	0.50	0.04	40.0000		104	66 - 147		
sec-Butylbenzene	22.0200	0.50	0.15	20.0000		110	72 - 148		
Styrene	22.6400	0.50	0.05	20.0000		113	72 - 138		
tert-Butylbenzene	23.2100	0.50	0.11	20.0000		116	70 - 145		
Tetrachloroethene	21.0600	0.50	0.18	20.0000		105	61 - 145		
Toluene	41.6400	0.50	0.14	40.0000		104	70 - 140		
trans-1,2-Dichloroethene	25.6000	0.50	0.15	20.0000		128	73 - 130		
Trichloroethene	20.6300	0.50	0.15	20.0000		103	69 - 126		
Trichlorofluoromethane	22.1300	0.50	0.33	20.0000		111	70 - 159		
Vinyl chloride	19.4400	0.50	0.25	20.0000		97.2	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	24.71			25.0000		98.8	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.98			25.0000		104	88 - 120		
Surrogate: Dibromofluoromethane	26.12			25.0000		104	80 - 150		



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 : 11/14/2017

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
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Batch B7K0220 - MSVOA_W (continued)

LCS (B7K0220-BS1) - Continued

Prepared: 11/8/2017 Analyzed: 11/8/2017

Surrogate: Toluene-d8 25.62 25.0000 102 87 - 121

LCS Dup (B7K0220-BSD1)

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,1,1,2-Tetrachloroethane	20.1800	0.50	0.13	20.0000	101	73 - 136	2.21	20	
1,1,1-Trichloroethane	20.8800	0.50	0.38	20.0000	104	73 - 143	5.63	20	
1,1,2,2-Tetrachloroethane	19.1900	0.50	0.20	20.0000	96.0	62 - 127	2.57	20	
1,1,2-Trichloroethane	19.0800	0.50	0.19	20.0000	95.4	72 - 122	7.37	20	
1,1-Dichloroethane	20.8900	0.50	0.20	20.0000	104	73 - 138	1.85	20	
1,1-Dichloroethene	19.3200	0.50	0.28	20.0000	96.6	74 - 132	5.97	20	
1,1-Dichloropropene	20.5900	0.50	0.36	20.0000	103	70 - 143	3.39	20	
1,2,3-Trichloropropane	17.6100	0.50	0.16	20.0000	88.0	66 - 119	6.16	20	
1,2,3-Trichlorobenzene	19.0800	0.50	0.06	20.0000	95.4	70 - 131	7.27	20	
1,2,4-Trichlorobenzene	20.0400	0.50	0.07	20.0000	100	70 - 128	7.95	20	
1,2,4-Trimethylbenzene	20.4900	0.50	0.09	20.0000	102	74 - 142	6.15	20	
1,2-Dibromo-3-chloropropane	17.0800	0.50	0.20	20.0000	85.4	56 - 118	9.06	20	
1,2-Dibromoethane	18.9700	0.50	0.13	20.0000	94.8	73 - 122	2.03	20	
1,2-Dichlorobenzene	19.3400	0.50	0.12	20.0000	96.7	75 - 128	6.12	20	
1,2-Dichloroethane	18.0300	0.50	0.39	20.0000	90.2	70 - 131	3.33	20	
1,2-Dichloropropane	21.2600	0.50	0.47	20.0000	106	69 - 124	2.60	20	
1,3,5-Trimethylbenzene	21.3000	0.50	0.08	20.0000	106	73 - 144	6.80	20	
1,3-Dichlorobenzene	19.2400	0.50	0.13	20.0000	96.2	75 - 131	8.84	20	
1,3-Dichloropropane	19.0500	0.50	0.08	20.0000	95.2	70 - 122	1.20	20	
1,4-Dichlorobenzene	19.0000	0.50	0.18	20.0000	95.0	75 - 127	9.05	20	
2,2-Dichloropropane	25.9400	0.50	0.23	20.0000	130	68 - 151	2.70	20	
2-Chlorotoluene	20.1700	0.50	0.12	20.0000	101	72 - 138	7.95	20	
4-Chlorotoluene	19.9000	0.50	0.11	20.0000	99.5	72 - 140	7.54	20	
4-Isopropyltoluene	21.8300	0.50	0.12	20.0000	109	74 - 149	6.04	20	
Benzene	40.1500	0.50	0.21	40.0000	100	67 - 138	4.62	20	
Bromobenzene	20.0700	0.50	0.12	20.0000	100	73 - 127	2.51	20	
Bromodichloromethane	19.4300	0.50	0.32	20.0000	97.2	74 - 129	6.09	20	
Bromoform	17.3800	0.50	0.14	20.0000	86.9	63 - 131	7.64	20	
Bromomethane	26.3300	0.50	0.22	20.0000	132	57 - 216	3.63	20	
Carbon tetrachloride	20.6300	0.50	0.31	20.0000	103	77 - 151	6.47	20	
Chlorobenzene	19.2100	0.50	0.16	20.0000	96.0	73 - 125	3.78	20	
Chloroethane	21.2600	0.50	0.29	20.0000	106	54 - 154	0.0470	20	
Chloroform	19.8800	0.50	0.16	20.0000	99.4	77 - 132	1.45	20	
Chloromethane	19.7400	0.50	0.19	20.0000	98.7	57 - 142	2.06	20	
cis-1,2-Dichloroethene	19.2000	0.50	0.39	20.0000	96.0	73 - 126	6.74	20	
cis-1,3-Dichloropropene	20.7900	0.50	0.08	20.0000	104	76 - 120	5.38	20	
Dibromochloromethane	19.7200	0.50	0.11	20.0000	98.6	71 - 126	5.23	20	
Dibromomethane	18.5400	0.50	0.09	20.0000	92.7	73 - 121	6.77	20	
Dichlorodifluoromethane	18.8700	0.50	0.31	20.0000	94.4	48 - 152	4.20	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)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0220 - MSVOA_W (continued)

LCS Dup (B7K0220-BSD1) - Continued

Prepared: 11/8/2017 Analyzed: 11/8/2017

Ethylbenzene	41.1900	0.50	0.08	40.0000		103	72 - 134	4.51	20
Hexachlorobutadiene	20.2100	0.50	0.22	20.0000		101	72 - 139	5.06	20
Isopropylbenzene	20.9700	0.50	0.10	20.0000		105	73 - 146	5.97	20
m,p-Xylene	41.7700	1.0	0.18	40.0000		104	75 - 138	2.55	20
Methylene chloride	19.2700	1.0	0.26	20.0000		96.4	52 - 154	8.40	20
n-Butylbenzene	21.5900	0.50	0.15	20.0000		108	72 - 151	6.71	20
n-Propylbenzene	21.0300	0.50	0.14	20.0000		105	69 - 149	6.44	20
Naphthalene	16.9800	0.50	0.09	20.0000		84.9	61 - 122	7.86	20
o-Xylene	40.4600	0.50	0.04	40.0000		101	66 - 147	2.61	20
sec-Butylbenzene	21.1600	0.50	0.15	20.0000		106	72 - 148	3.98	20
Styrene	20.4700	0.50	0.05	20.0000		102	72 - 138	10.1	20
tert-Butylbenzene	21.8600	0.50	0.11	20.0000		109	70 - 145	5.99	20
Tetrachloroethene	19.8500	0.50	0.18	20.0000		99.2	61 - 145	5.92	20
Toluene	39.3500	0.50	0.14	40.0000		98.4	70 - 140	5.66	20
trans-1,2-Dichloroethene	23.6300	0.50	0.15	20.0000		118	73 - 130	8.00	20
Trichloroethene	19.7000	0.50	0.15	20.0000		98.5	69 - 126	4.61	20
Trichlorofluoromethane	21.8500	0.50	0.33	20.0000		109	70 - 159	1.27	20
Vinyl chloride	20.5200	0.50	0.25	20.0000		103	56 - 151	5.41	20
Surrogate: 1,2-Dichloroethane-d4	24.50			25.0000		98.0	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.38			25.0000		102	88 - 120		
Surrogate: Dibromofluoromethane	25.12			25.0000		100	80 - 150		
Surrogate: Toluene-d8	24.34			25.0000		97.4	87 - 121		

Matrix Spike (B7K0220-MS1)

Source: 1703949-01

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,1,1,2-Tetrachloroethane	19.3100	0.50	0.13	20.0000	ND	96.6	73 - 136		
1,1,1-Trichloroethane	20.7300	0.50	0.38	20.0000	ND	104	73 - 143		
1,1,2,2-Tetrachloroethane	22.4400	0.50	0.20	20.0000	ND	112	62 - 127		
1,1,2-Trichloroethane	21.4600	0.50	0.19	20.0000	ND	107	72 - 122		
1,1-Dichloroethane	20.7400	0.50	0.20	20.0000	ND	104	73 - 138		
1,1-Dichloroethene	19.5900	0.50	0.28	20.0000	2.41000	85.9	74 - 132		
1,1-Dichloropropene	22.8800	0.50	0.36	20.0000	ND	114	70 - 143		
1,2,3-Trichloropropane	19.5200	0.50	0.16	20.0000	ND	97.6	66 - 119		
1,2,3-Trichlorobenzene	21.0700	0.50	0.06	20.0000	ND	105	70 - 131		
1,2,4-Trichlorobenzene	20.3200	0.50	0.07	20.0000	ND	102	70 - 128		
1,2,4-Trimethylbenzene	20.8600	0.50	0.09	20.0000	ND	104	74 - 142		
1,2-Dibromo-3-chloropropane	19.6500	0.50	0.20	20.0000	ND	98.2	56 - 118		
1,2-Dibromoethane	22.7200	0.50	0.13	20.0000	ND	114	73 - 122		
1,2-Dichlorobenzene	19.5100	0.50	0.12	20.0000	ND	97.6	75 - 128		
1,2-Dichloroethane	20.5300	0.50	0.39	20.0000	ND	103	70 - 131		
1,2-Dichloropropane	21.5700	0.50	0.47	20.0000	ND	108	69 - 124		
1,3,5-Trimethylbenzene	21.4300	0.50	0.08	20.0000	ND	107	73 - 144		



Certificate of Analysis

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Reported : 11/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0220 - MSVOA_W (continued)

Matrix Spike (B7K0220-MS1) - Continued

Source: 1703949-01

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,3-Dichlorobenzene	19.7500	0.50	0.13	20.0000	ND	98.8	75 - 131			
1,3-Dichloropropane	20.0700	0.50	0.08	20.0000	ND	100	70 - 122			
1,4-Dichlorobenzene	19.1900	0.50	0.18	20.0000	ND	96.0	75 - 127			
2,2-Dichloropropane	21.6900	0.50	0.23	20.0000	ND	108	68 - 151			
2-Chlorotoluene	21.0700	0.50	0.12	20.0000	ND	105	72 - 138			
4-Chlorotoluene	20.6300	0.50	0.11	20.0000	ND	103	72 - 140			
4-Isopropyltoluene	21.6600	0.50	0.12	20.0000	ND	108	74 - 149			
Benzene	42.8000	0.50	0.21	40.0000	ND	107	67 - 138			
Bromobenzene	20.8100	0.50	0.12	20.0000	ND	104	73 - 127			
Bromodichloromethane	22.1400	0.50	0.32	20.0000	ND	111	74 - 129			
Bromoform	18.7300	0.50	0.14	20.0000	ND	93.6	63 - 131			
Bromomethane	23.2700	0.50	0.22	20.0000	ND	116	57 - 216			
Carbon tetrachloride	22.0400	0.50	0.31	20.0000	ND	110	77 - 151			
Chlorobenzene	19.5200	0.50	0.16	20.0000	ND	97.6	73 - 125			
Chloroethane	19.5500	0.50	0.29	20.0000	ND	97.8	54 - 154			
Chloroform	21.0400	0.50	0.16	20.0000	ND	105	77 - 132			
Chloromethane	21.6200	0.50	0.19	20.0000	ND	108	57 - 142			
cis-1,2-Dichloroethene	20.0200	0.50	0.39	20.0000	ND	100	73 - 126			
cis-1,3-Dichloropropene	22.0100	0.50	0.08	20.0000	ND	110	76 - 120			
Dibromochloromethane	20.8600	0.50	0.11	20.0000	ND	104	71 - 126			
Dibromomethane	20.5500	0.50	0.09	20.0000	ND	103	73 - 121			
Dichlorodifluoromethane	18.5700	0.50	0.31	20.0000	ND	92.8	48 - 152			
Ethylbenzene	41.3400	0.50	0.08	40.0000	ND	103	72 - 134			
Hexachlorobutadiene	20.1200	0.50	0.22	20.0000	ND	101	72 - 139			
Isopropylbenzene	20.9800	0.50	0.10	20.0000	ND	105	73 - 146			
m,p-Xylene	40.9700	1.0	0.18	40.0000	ND	102	75 - 138			
Methylene chloride	15.9600	1.0	0.26	20.0000	ND	79.8	52 - 154			
n-Butylbenzene	21.1200	0.50	0.15	20.0000	ND	106	72 - 151			
n-Propylbenzene	21.2000	0.50	0.14	20.0000	ND	106	69 - 149			
Naphthalene	19.4500	0.50	0.09	20.0000	ND	97.2	61 - 122			
o-Xylene	39.9600	0.50	0.04	40.0000	ND	99.9	66 - 147			
sec-Butylbenzene	20.8200	0.50	0.15	20.0000	ND	104	72 - 148			
Styrene	20.6400	0.50	0.05	20.0000	ND	103	72 - 138			
tert-Butylbenzene	21.7000	0.50	0.11	20.0000	ND	108	70 - 145			
Tetrachloroethene	18.8000	0.50	0.18	20.0000	ND	94.0	61 - 145			
Toluene	43.1500	0.50	0.14	40.0000	ND	108	70 - 140			
trans-1,2-Dichloroethene	21.0500	0.50	0.15	20.0000	ND	105	73 - 130			
Trichloroethene	20.5400	0.50	0.15	20.0000	ND	103	69 - 126			
Trichlorofluoromethane	21.9800	0.50	0.33	20.0000	ND	110	70 - 159			
Vinyl chloride	27.9000	0.50	0.25	20.0000	ND	140	56 - 151			
Surrogate: 1,2-Dichloroethane-d4	24.56			25.0000		98.2	70 - 166			



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
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Batch B7K0220 - MSVOA_W (continued)

Matrix Spike (B7K0220-MS1) - Continued

Source: 1703949-01

Prepared: 11/8/2017 Analyzed: 11/8/2017

Surrogate: 4-Bromofluorobenzene	24.69		25.0000		98.8	88 - 120			
Surrogate: Dibromofluoromethane	25.60		25.0000		102	80 - 150			
Surrogate: Toluene-d8	25.94		25.0000		104	87 - 121			

Matrix Spike Dup (B7K0220-MSD1)

Source: 1703949-01

Prepared: 11/8/2017 Analyzed: 11/8/2017

1,1,1,2-Tetrachloroethane	21.8700	0.50	0.13	20.0000	ND	109	73 - 136	12.4	20
1,1,1-Trichloroethane	23.2000	0.50	0.38	20.0000	ND	116	73 - 143	11.2	20
1,1,2,2-Tetrachloroethane	22.8200	0.50	0.20	20.0000	ND	114	62 - 127	1.68	20
1,1,2-Trichloroethane	21.5700	0.50	0.19	20.0000	ND	108	72 - 122	0.511	20
1,1-Dichloroethane	22.0600	0.50	0.20	20.0000	ND	110	73 - 138	6.17	20
1,1-Dichloroethene	23.4200	0.50	0.28	20.0000	2.41000	105	74 - 132	17.8	20
1,1-Dichloropropene	21.6700	0.50	0.36	20.0000	ND	108	70 - 143	5.43	20
1,2,3-Trichloropropane	21.5200	0.50	0.16	20.0000	ND	108	66 - 119	9.75	20
1,2,3-Trichlorobenzene	21.0100	0.50	0.06	20.0000	ND	105	70 - 131	0.285	20
1,2,4-Trichlorobenzene	21.0400	0.50	0.07	20.0000	ND	105	70 - 128	3.48	20
1,2,4-Trimethylbenzene	21.4300	0.50	0.09	20.0000	ND	107	74 - 142	2.70	20
1,2-Dibromo-3-chloropropane	20.5200	0.50	0.20	20.0000	ND	103	56 - 118	4.33	20
1,2-Dibromoethane	22.1600	0.50	0.13	20.0000	ND	111	73 - 122	2.50	20
1,2-Dichlorobenzene	19.6300	0.50	0.12	20.0000	ND	98.2	75 - 128	0.613	20
1,2-Dichloroethane	20.4900	0.50	0.39	20.0000	ND	102	70 - 131	0.195	20
1,2-Dichloropropane	22.7700	0.50	0.47	20.0000	ND	114	69 - 124	5.41	20
1,3,5-Trimethylbenzene	20.8200	0.50	0.08	20.0000	ND	104	73 - 144	2.89	20
1,3-Dichlorobenzene	20.5600	0.50	0.13	20.0000	ND	103	75 - 131	4.02	20
1,3-Dichloropropane	21.4700	0.50	0.08	20.0000	ND	107	70 - 122	6.74	20
1,4-Dichlorobenzene	20.1200	0.50	0.18	20.0000	ND	101	75 - 127	4.73	20
2,2-Dichloropropane	22.5800	0.50	0.23	20.0000	ND	113	68 - 151	4.02	20
2-Chlorotoluene	20.3000	0.50	0.12	20.0000	ND	102	72 - 138	3.72	20
4-Chlorotoluene	20.7300	0.50	0.11	20.0000	ND	104	72 - 140	0.484	20
4-Isopropyltoluene	21.6600	0.50	0.12	20.0000	ND	108	74 - 149	0.00	20
Benzene	43.4800	0.50	0.21	40.0000	ND	109	67 - 138	1.58	20
Bromobenzene	20.8100	0.50	0.12	20.0000	ND	104	73 - 127	0.00	20
Bromodichloromethane	22.8200	0.50	0.32	20.0000	ND	114	74 - 129	3.02	20
Bromoform	20.1100	0.50	0.14	20.0000	ND	101	63 - 131	7.11	20
Bromomethane	24.9600	0.50	0.22	20.0000	ND	125	57 - 216	7.01	20
Carbon tetrachloride	22.0500	0.50	0.31	20.0000	ND	110	77 - 151	0.0454	20
Chlorobenzene	21.0000	0.50	0.16	20.0000	ND	105	73 - 125	7.31	20
Chloroethane	20.8000	0.50	0.29	20.0000	ND	104	54 - 154	6.20	20
Chloroform	22.2700	0.50	0.16	20.0000	ND	111	77 - 132	5.68	20
Chloromethane	24.2800	0.50	0.19	20.0000	ND	121	57 - 142	11.6	20
cis-1,2-Dichloroethene	21.0300	0.50	0.39	20.0000	ND	105	73 - 126	4.92	20
cis-1,3-Dichloropropene	21.2900	0.50	0.08	20.0000	ND	106	76 - 120	3.33	20
Dibromochloromethane	23.2400	0.50	0.11	20.0000	ND	116	71 - 126	10.8	20



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0220 - MSVOA_W (continued)

Matrix Spike Dup (B7K0220-MSD1) - Continued

Source: 1703949-01

Prepared: 11/8/2017 Analyzed: 11/8/2017

Dibromomethane	22.2600	0.50	0.09	20.0000	ND	111	73 - 121	7.99	20	
Dichlorodifluoromethane	17.9400	0.50	0.31	20.0000	ND	89.7	48 - 152	3.45	20	
Ethylbenzene	43.7700	0.50	0.08	40.0000	ND	109	72 - 134	5.71	20	
Hexachlorobutadiene	19.9400	0.50	0.22	20.0000	ND	99.7	72 - 139	0.899	20	
Isopropylbenzene	20.9900	0.50	0.10	20.0000	ND	105	73 - 146	0.0477	20	
m,p-Xylene	43.4800	1.0	0.18	40.0000	ND	109	75 - 138	5.94	20	
Methylene chloride	19.4500	1.0	0.26	20.0000	ND	97.2	52 - 154	19.7	20	
n-Butylbenzene	21.8700	0.50	0.15	20.0000	ND	109	72 - 151	3.49	20	
n-Propylbenzene	21.2200	0.50	0.14	20.0000	ND	106	69 - 149	0.0943	20	
Naphthalene	20.1800	0.50	0.09	20.0000	ND	101	61 - 122	3.68	20	
o-Xylene	43.6600	0.50	0.04	40.0000	ND	109	66 - 147	8.85	20	
sec-Butylbenzene	20.9900	0.50	0.15	20.0000	ND	105	72 - 148	0.813	20	
Styrene	22.1400	0.50	0.05	20.0000	ND	111	72 - 138	7.01	20	
tert-Butylbenzene	21.6700	0.50	0.11	20.0000	ND	108	70 - 145	0.138	20	
Tetrachloroethene	19.5900	0.50	0.18	20.0000	ND	98.0	61 - 145	4.12	20	
Toluene	42.6900	0.50	0.14	40.0000	ND	107	70 - 140	1.07	20	
trans-1,2-Dichloroethene	19.0800	0.50	0.15	20.0000	ND	95.4	73 - 130	9.82	20	
Trichloroethene	21.0300	0.50	0.15	20.0000	ND	105	69 - 126	2.36	20	
Trichlorofluoromethane	23.1700	0.50	0.33	20.0000	ND	116	70 - 159	5.27	20	
Vinyl chloride	29.9600	0.50	0.25	20.0000	ND	150	56 - 151	7.12	20	

Surrogate: 1,2-Dichloroethane-d4	25.94			25.0000		104	70 - 166			
Surrogate: 4-Bromofluorobenzene	26.11			25.0000		104	88 - 120			
Surrogate: Dibromofluoromethane	26.83			25.0000		107	80 - 150			
Surrogate: Toluene-d8	25.63			25.0000		103	87 - 121			



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 : 11/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0255 - MSSEMI_W

Blank (B7K0255-BLK1)

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	64.42			100.000		64.4	17 - 101		
Surrogate: 2-Fluorobiphenyl	80.78			100.000		80.8	29 - 109		
Surrogate: 4-Terphenyl-d14	99.68			100.000		99.7	49 - 122		
Surrogate: Nitrobenzene-d5	68.61			100.000		68.6	19 - 111		

LCS (B7K0255-BS1)

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	53.5200	2.0	0.84	50.0000		107	85 - 121		
Surrogate: 1,2-Dichlorobenzene-d	63.95			100.000		64.0	17 - 101		
Surrogate: 2-Fluorobiphenyl	79.99			100.000		80.0	29 - 109		
Surrogate: 4-Terphenyl-d14	92.13			100.000		92.1	49 - 122		
Surrogate: Nitrobenzene-d5	72.27			100.000		72.3	19 - 111		

Matrix Spike (B7K0255-MS1)

Source: 1703949-01

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	48.6500	2.0	0.84	50.0000	ND	97.3	85 - 121		
Surrogate: 1,2-Dichlorobenzene-d	70.41			100.000		70.4	17 - 101		
Surrogate: 2-Fluorobiphenyl	79.17			100.000		79.2	29 - 109		
Surrogate: 4-Terphenyl-d14	88.98			100.000		89.0	49 - 122		
Surrogate: Nitrobenzene-d5	73.54			100.000		73.5	19 - 111		

Matrix Spike Dup (B7K0255-MSD1)

Source: 1703949-01

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	50.9100	2.0	0.84	50.0000	ND	102	85 - 121	4.54	20
Surrogate: 1,2-Dichlorobenzene-d	68.81			100.000		68.8	17 - 101		
Surrogate: 2-Fluorobiphenyl	81.27			100.000		81.3	29 - 109		
Surrogate: 4-Terphenyl-d14	87.80			100.000		87.8	49 - 122		
Surrogate: Nitrobenzene-d5	70.72			100.000		70.7	19 - 111		



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 : 11/14/2017

Notes and Definitions

L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
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)

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		Laboratory							
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)		Ice	40-ml VOA	1 L Amber	VOCs by EPA 821-2	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	Level IV Data Validation Requested	MS/MSD Requested	REMARKS
T. Evans, R. Horton																							Report J Flags
DO3949-01	EW-01	11/6/17	1334	X	X			X			X			X									
	↓		↓	X				X		3			X										
	MW-21	11/6/17	1430	X	X			X	3		X					X							
	↓		↓	X				X		1			X										
	MW-2100	11/6/17	1445	X	X			X	3		X					X							
	↓		↓	X				X		1			X										
Total number of containers per analysis:								49		5													Total No. of Containers: 2
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																		
WJS / H+A		11/6/17 1600	ATL		11/6/17 1600																		
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																		
ATL ATL		11/6/17 1649	ATL		11/6/17 1649																		

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.

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

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

Rachelle Arada

From: Tyler Evans [TEvans@HARGIS.COM]
Sent: Tuesday, November 07, 2017 12:10 PM
To: Rachelle Arada
Cc: Carmen Aguila; customer.relations@atlglobal.com
Subject: Re: Courier
Attachments: 20171107_120835_resized.jpg

Hi rachelle,
I needed to make a change to one of the cocs submitted with samples yesterday. Please see attached.

Thanks,
Tyler Evans

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

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

From: Rachelle Arada <Rachelle@atlglobal.com>
Date: 11/6/17 9:20 AM (GMT-08:00)
To: Tyler Evans <TEvans@HARGIS.COM>
Cc: Carmen Aguila <Carmen@atlglobal.com>, customer.relations@atlglobal.com
Subject: RE: Courier

Good morning Tyler,

Okay, we added this to our schedule for today. If I can further assist, please let me know.
Thanks.

Rachelle

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

From: Tyler Evans [<mailto:TEvans@HARGIS.COM>]
Sent: Monday, November 06, 2017 8:07 AM
To: Rachelle Arada
Subject: Courier

Hi Rachelle,
I was wondering if I could get a courier for today around 4 pm at 1901 west malvern drive in Fullerton. Give me a call if you have any questions.

Thanks,
Tyler Evans

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



PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Date: 11/6/17
Page 1 of 1

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)	Ice	40-ml VOA	1 L Amber	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	Level IV Data Validation Requested	MSMSD Requested	REMARKS
	FW-01	11/6/17	1330	X	X		X	X		X			X									
	FW-01	11/6/17	1354	X	X		X	X		X				X								
	MW-21	11/6/17	1430	X	X		X	X	3	X		X				X						
	MW-2100	11/6/17	1445	X	X		X	X	3	X		X				X						
				X			X		1			X										
Total number of containers per analysis:				14	5																	
Relinquished By: / Company:				Date / Time		Received By: / Company		Date / Time		Total No. of Containers: 20												
WJS / HTA				11/6/17 1600		ATL		11/6/17 1600														
Relinquished By: / Company:				Date / Time		Received By: / Company		Date / Time														

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

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

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.



December 22, 2017

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

Re: ATL Work Order Number : 1703979
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on November 07, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", followed by the letters "Ar" in a smaller, less legible script.

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 : 12/22/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-26C	1703979-01	Groundwater	11/07/17 10:10	11/07/17 16:48
RB-110717	1703979-02	Groundwater	11/07/17 10:45	11/07/17 16:48
MW-08	1703979-03	Groundwater	11/07/17 11:30	11/07/17 16:48
MW-34B	1703979-04	Groundwater	11/07/17 13:45	11/07/17 16:48
MW-3400B	1703979-05	Groundwater	11/07/17 13:46	11/07/17 16:48
MW-41	1703979-06	Groundwater	11/07/17 14:48	11/07/17 16:48
MW-30A	1703979-07	Groundwater	11/07/17 15:58	11/07/17 16:48
TB-110717	1703979-08	Lab Prepared Water	11/07/17 7:30	11/07/17 16:48
MW-32B_1.5SV	1703979-09	Groundwater	11/07/17 8:40	11/07/17 16:48
MW-32B	1703979-10	Groundwater	11/07/17 9:10	11/07/17 16:48
MW-36_1.5SV	1703979-11	Groundwater	11/07/17 10:26	11/07/17 16:48
MW-36	1703979-12	Groundwater	11/07/17 11:05	11/07/17 16:48
MW-39	1703979-13	Groundwater	11/07/17 12:12	11/07/17 16:48
MW-33_1.5SV	1703979-14	Groundwater	11/07/17 13:29	11/07/17 16:48
MW-33	1703979-15	Groundwater	11/07/17 13:53	11/07/17 16:48
MW-35C	1703979-16	Groundwater	11/07/17 15:20	11/07/17 16:48

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



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 : 12/22/2017

Client Sample ID MW-26C

Lab ID: 1703979-01

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	B7K0325	11/11/2017	11/11/17 17:35	
1,1,1-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,1,2-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,1-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,1-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,1-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2,3-Trichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2-Dibromoethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,3-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,3-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
1,4-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
2,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
2-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
4-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
4-Isopropyltoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Benzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Bromobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Bromodichloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Bromoform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Bromomethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Carbon tetrachloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Chlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Chloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Chloroform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Chloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Dibromochloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	



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 : 12/22/2017

Client Sample ID MW-26C

Lab ID: 1703979-01

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	B7K0325	11/11/2017	11/11/17 17:35	
Dichlorodifluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Ethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Hexachlorobutadiene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Isopropylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
m,p-Xylene	ND	1.0	1	B7K0325	11/11/2017	11/11/17 17:35	
Methylene chloride	ND	1.0	1	B7K0325	11/11/2017	11/11/17 17:35	
n-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
n-Propylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Naphthalene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
o-Xylene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
sec-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Styrene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
tert-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Tetrachloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Toluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Trichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Trichlorofluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Vinyl chloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:35	
Surrogate: 1,2-Dichloroethane-d4	98.2 %	70 - 166		B7K0325	11/11/2017	11/11/17 17:35	
Surrogate: 4-Bromofluorobenzene	100 %	88 - 120		B7K0325	11/11/2017	11/11/17 17:35	
Surrogate: Dibromofluoromethane	102 %	80 - 150		B7K0325	11/11/2017	11/11/17 17:35	
Surrogate: Toluene-d8	100 %	87 - 121		B7K0325	11/11/2017	11/11/17 17:35	



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 : 12/22/2017

Client Sample ID MW-26C

Lab ID: 1703979-01

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0287	11/09/2017	11/14/17 13:35	
Surrogate: 1,2-Dichlorobenzene-d4	79.3 %	32 - 99		B7K0287	11/09/2017	11/14/17 13:35	
Surrogate: 2-Fluorobiphenyl	86.5 %	29 - 105		B7K0287	11/09/2017	11/14/17 13:35	
Surrogate: 4-Terphenyl-d14	85.8 %	32 - 119		B7K0287	11/09/2017	11/14/17 13:35	
Surrogate: Nitrobenzene-d5	90.9 %	17 - 123		B7K0287	11/09/2017	11/14/17 13:35	



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 : 12/22/2017

Client Sample ID RB-110717

Lab ID: 1703979-02

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	B7K0325	11/11/2017	11/11/17 17:58	
1,1,1-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,1,2-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,1-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,1-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,1-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2,3-Trichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2-Dibromoethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,3-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,3-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
1,4-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
2,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
2-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
4-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
4-Isopropyltoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Benzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Bromobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Bromodichloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Bromoform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Bromomethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Carbon tetrachloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Chlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Chloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Chloroform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Chloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Dibromochloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	



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 : 12/22/2017

Client Sample ID RB-110717

Lab ID: 1703979-02

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	B7K0325	11/11/2017	11/11/17 17:58	
Dichlorodifluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Ethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Hexachlorobutadiene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Isopropylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
m,p-Xylene	ND	1.0	1	B7K0325	11/11/2017	11/11/17 17:58	
Methylene chloride	ND	1.0	1	B7K0325	11/11/2017	11/11/17 17:58	
n-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
n-Propylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Naphthalene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
o-Xylene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
sec-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Styrene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
tert-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Tetrachloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Toluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Trichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Trichlorofluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Vinyl chloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:58	
Surrogate: 1,2-Dichloroethane-d4	100 %	70 - 166		B7K0325	11/11/2017	11/11/17 17:58	
Surrogate: 4-Bromofluorobenzene	100 %	88 - 120		B7K0325	11/11/2017	11/11/17 17:58	
Surrogate: Dibromofluoromethane	103 %	80 - 150		B7K0325	11/11/2017	11/11/17 17:58	
Surrogate: Toluene-d8	101 %	87 - 121		B7K0325	11/11/2017	11/11/17 17:58	



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 : 12/22/2017

Client Sample ID RB-110717

Lab ID: 1703979-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0287	11/09/2017	11/13/17 21:37	
Surrogate: 1,2-Dichlorobenzene-d4	68.4 %	32 - 99		B7K0287	11/09/2017	11/13/17 21:37	
Surrogate: 2-Fluorobiphenyl	76.4 %	29 - 105		B7K0287	11/09/2017	11/13/17 21:37	
Surrogate: 4-Terphenyl-d14	85.9 %	32 - 119		B7K0287	11/09/2017	11/13/17 21:37	
Surrogate: Nitrobenzene-d5	74.1 %	17 - 123		B7K0287	11/09/2017	11/13/17 21:37	



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 : 12/22/2017

Client Sample ID MW-08

Lab ID: 1703979-03

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	B7K0325	11/11/2017	11/11/17 18:22	
1,1,1-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,1,2-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,1-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,1-Dichloroethene	96	5.0	10	B7K0384	11/15/2017	11/15/17 03:24	
1,1-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2,3-Trichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2-Dibromoethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,3-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,3-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
1,4-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
2,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
2-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
4-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
4-Isopropyltoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Benzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Bromobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Bromodichloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Bromoform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Bromomethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Carbon tetrachloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Chlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Chloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Chloroform	0.54	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Chloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
cis-1,2-Dichloroethene	5.9	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Dibromochloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	



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 : 12/22/2017

Client Sample ID MW-08

Lab ID: 1703979-03

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	B7K0325	11/11/2017	11/11/17 18:22	
Dichlorodifluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Ethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Hexachlorobutadiene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Isopropylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
m,p-Xylene	ND	1.0	1	B7K0325	11/11/2017	11/11/17 18:22	
Methylene chloride	ND	1.0	1	B7K0325	11/11/2017	11/11/17 18:22	
n-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
n-Propylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Naphthalene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
o-Xylene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
sec-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Styrene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
tert-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Tetrachloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Toluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Trichloroethene	140	5.0	10	B7K0384	11/15/2017	11/15/17 03:24	
Trichlorofluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
Vinyl chloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 18:22	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>100 %</i>	<i>70 - 166</i>		B7K0384	11/15/2017	<i>11/15/17 03:24</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>99.9 %</i>	<i>70 - 166</i>		B7K0325	11/11/2017	<i>11/11/17 18:22</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>	<i>88 - 120</i>		B7K0384	11/15/2017	<i>11/15/17 03:24</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.6 %</i>	<i>88 - 120</i>		B7K0325	11/11/2017	<i>11/11/17 18:22</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>80 - 150</i>		B7K0325	11/11/2017	<i>11/11/17 18:22</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>97.1 %</i>	<i>80 - 150</i>		B7K0384	11/15/2017	<i>11/15/17 03:24</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.7 %</i>	<i>87 - 121</i>		B7K0384	11/15/2017	<i>11/15/17 03:24</i>	
<i>Surrogate: Toluene-d8</i>	<i>98.3 %</i>	<i>87 - 121</i>		B7K0325	11/11/2017	<i>11/11/17 18:22</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 : 12/22/2017

Client Sample ID MW-08

Lab ID: 1703979-03

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0287	11/09/2017	11/13/17 22:04	
Surrogate: 1,2-Dichlorobenzene-d4	79.1 %	32 - 99		B7K0287	11/09/2017	11/13/17 22:04	
Surrogate: 2-Fluorobiphenyl	84.4 %	29 - 105		B7K0287	11/09/2017	11/13/17 22:04	
Surrogate: 4-Terphenyl-d14	91.8 %	32 - 119		B7K0287	11/09/2017	11/13/17 22:04	
Surrogate: Nitrobenzene-d5	87.9 %	17 - 123		B7K0287	11/09/2017	11/13/17 22:04	



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 : 12/22/2017

Client Sample ID MW-34B

Lab ID: 1703979-04

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	B7K0437	11/16/2017	11/16/17 03:01	
1,1,1-Trichloroethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,1,2-Trichloroethane	0.70	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,1-Dichloroethane	2.4	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,1-Dichloroethene	210	5.0	10	B7K0384	11/15/2017	11/15/17 03:48	
1,1-Dichloropropene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2,3-Trichloropropane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2-Dibromoethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2-Dichlorobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2-Dichloroethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,2-Dichloropropane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,3-Dichlorobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,3-Dichloropropane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
1,4-Dichlorobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
2,2-Dichloropropane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
2-Chlorotoluene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
4-Chlorotoluene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
4-Isopropyltoluene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Benzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Bromobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Bromodichloromethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Bromoform	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Bromomethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Carbon tetrachloride	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Chlorobenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Chloroethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Chloroform	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Chloromethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Dibromochloromethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	



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 : 12/22/2017

Client Sample ID MW-34B

Lab ID: 1703979-04

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	B7K0437	11/16/2017	11/16/17 03:01	
Dichlorodifluoromethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Ethylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Hexachlorobutadiene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Isopropylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
m,p-Xylene	ND	1.0	1	B7K0437	11/16/2017	11/16/17 03:01	
Methylene chloride	ND	1.0	1	B7K0437	11/16/2017	11/16/17 03:01	
n-Butylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
n-Propylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Naphthalene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
o-Xylene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
sec-Butylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Styrene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
tert-Butylbenzene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Tetrachloroethene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Toluene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Trichloroethene	0.82	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Trichlorofluoromethane	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
Vinyl chloride	ND	0.50	1	B7K0437	11/16/2017	11/16/17 03:01	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>70 - 166</i>		B7K0437	11/16/2017	<i>11/16/17 03:01</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>	<i>70 - 166</i>		B7K0384	11/15/2017	<i>11/15/17 03:48</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.8 %</i>	<i>88 - 120</i>		B7K0437	11/16/2017	<i>11/16/17 03:01</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>	<i>88 - 120</i>		B7K0384	11/15/2017	<i>11/15/17 03:48</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>	<i>80 - 150</i>		B7K0384	11/15/2017	<i>11/15/17 03:48</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>80 - 150</i>		B7K0437	11/16/2017	<i>11/16/17 03:01</i>	
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>	<i>87 - 121</i>		B7K0384	11/15/2017	<i>11/15/17 03:48</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.8 %</i>	<i>87 - 121</i>		B7K0437	11/16/2017	<i>11/16/17 03:01</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 : 12/22/2017

Client Sample ID MW-34B

Lab ID: 1703979-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	23	2.0	1	B7K0255	11/09/2017	11/09/17 18:46	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>60.1 %</i>	<i>17 - 101</i>		B7K0255	11/09/2017	<i>11/09/17 18:46</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>78.1 %</i>	<i>29 - 109</i>		B7K0255	11/09/2017	<i>11/09/17 18:46</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>103 %</i>	<i>49 - 122</i>		B7K0255	11/09/2017	<i>11/09/17 18:46</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>66.1 %</i>	<i>19 - 111</i>		B7K0255	11/09/2017	<i>11/09/17 18:46</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 : 12/22/2017

Client Sample ID MW-3400B

Lab ID: 1703979-05

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	B7K0325	11/11/2017	11/11/17 19:08	
1,1,1-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,1,2-Trichloroethane	0.73	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,1-Dichloroethane	2.4	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,1-Dichloroethene	200	5.0	10	B7K0384	11/15/2017	11/15/17 04:11	
1,1-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2,3-Trichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2-Dibromoethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,3-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,3-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
1,4-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
2,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
2-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
4-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
4-Isopropyltoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Benzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Bromobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Bromodichloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Bromoform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Bromomethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Carbon tetrachloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Chlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Chloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Chloroform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Chloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Dibromochloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	



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 : 12/22/2017

Client Sample ID MW-3400B

Lab ID: 1703979-05

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	B7K0325	11/11/2017	11/11/17 19:08	
Dichlorodifluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Ethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Hexachlorobutadiene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Isopropylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
m,p-Xylene	ND	1.0	1	B7K0325	11/11/2017	11/11/17 19:08	
Methylene chloride	ND	1.0	1	B7K0325	11/11/2017	11/11/17 19:08	
n-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
n-Propylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Naphthalene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
o-Xylene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
sec-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Styrene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
tert-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Tetrachloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Toluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Trichloroethene	0.81	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Trichlorofluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
Vinyl chloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:08	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>98.2 %</i>	<i>70 - 166</i>		B7K0325	11/11/2017	<i>11/11/17 19:08</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>99.6 %</i>	<i>70 - 166</i>		B7K0384	11/15/2017	<i>11/15/17 04:11</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.3 %</i>	<i>88 - 120</i>		B7K0384	11/15/2017	<i>11/15/17 04:11</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.3 %</i>	<i>88 - 120</i>		B7K0325	11/11/2017	<i>11/11/17 19:08</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>98.9 %</i>	<i>80 - 150</i>		B7K0325	11/11/2017	<i>11/11/17 19:08</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>97.8 %</i>	<i>80 - 150</i>		B7K0384	11/15/2017	<i>11/15/17 04:11</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.3 %</i>	<i>87 - 121</i>		B7K0384	11/15/2017	<i>11/15/17 04:11</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>87 - 121</i>		B7K0325	11/11/2017	<i>11/11/17 19:08</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 : 12/22/2017

Client Sample ID MW-3400B

Lab ID: 1703979-05

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	25	2.0	1	B7K0255	11/09/2017	11/09/17 19:13	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>58.0 %</i>	<i>17 - 101</i>		B7K0255	11/09/2017	<i>11/09/17 19:13</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>74.6 %</i>	<i>29 - 109</i>		B7K0255	11/09/2017	<i>11/09/17 19:13</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>99.8 %</i>	<i>49 - 122</i>		B7K0255	11/09/2017	<i>11/09/17 19:13</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>61.8 %</i>	<i>19 - 111</i>		B7K0255	11/09/2017	<i>11/09/17 19:13</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 : 12/22/2017

Client Sample ID MW-41

Lab ID: 1703979-06

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	B7K0360	11/13/2017	11/13/17 19:46	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,1-Dichloroethane	1.2	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,1-Dichloroethene	120	5.0	10	B7K0360	11/13/2017	11/13/17 20:09	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Chloroform	0.52	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 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 : 12/22/2017

Client Sample ID MW-41

Lab ID: 1703979-06

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	B7K0360	11/13/2017	11/13/17 19:46	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 19:46	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 19:46	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:46	
Surrogate: 1,2-Dichloroethane-d4	96.2 %	70 - 166		B7K0360	11/13/2017	11/13/17 20:09	
Surrogate: 4-Bromofluorobenzene	97.5 %	88 - 120		B7K0360	11/13/2017	11/13/17 20:09	
Surrogate: Dibromofluoromethane	97.9 %	80 - 150		B7K0360	11/13/2017	11/13/17 20:09	
Surrogate: Toluene-d8	94.9 %	87 - 121		B7K0360	11/13/2017	11/13/17 20:09	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

Client Sample ID MW-41

Lab ID: 1703979-06

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	18	0.20	1	B7K0287	11/09/2017	11/13/17 22:31	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>89.0 %</i>	<i>32 - 99</i>		B7K0287	11/09/2017	<i>11/13/17 22:31</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>84.9 %</i>	<i>29 - 105</i>		B7K0287	11/09/2017	<i>11/13/17 22:31</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>95.5 %</i>	<i>32 - 119</i>		B7K0287	11/09/2017	<i>11/13/17 22:31</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>105 %</i>	<i>17 - 123</i>		B7K0287	11/09/2017	<i>11/13/17 22:31</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 : 12/22/2017

Client Sample ID MW-30A

Lab ID: 1703979-07

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	B7K0384	11/15/2017	11/15/17 03:01	
1,1,1-Trichloroethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,1,2-Trichloroethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,1-Dichloroethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,1-Dichloroethene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,1-Dichloropropene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2,3-Trichloropropane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2-Dibromoethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2-Dichlorobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2-Dichloroethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,2-Dichloropropane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,3-Dichlorobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,3-Dichloropropane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
1,4-Dichlorobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
2,2-Dichloropropane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
2-Chlorotoluene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
4-Chlorotoluene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
4-Isopropyltoluene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Benzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Bromobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Bromodichloromethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Bromoform	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Bromomethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Carbon tetrachloride	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Chlorobenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Chloroethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Chloroform	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Chloromethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Dibromochloromethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	



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 : 12/22/2017

Client Sample ID MW-30A

Lab ID: 1703979-07

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	B7K0384	11/15/2017	11/15/17 03:01	
Dichlorodifluoromethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Ethylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Hexachlorobutadiene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Isopropylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
m,p-Xylene	ND	1.0	1	B7K0384	11/15/2017	11/15/17 03:01	
Methylene chloride	ND	1.0	1	B7K0384	11/15/2017	11/15/17 03:01	
n-Butylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
n-Propylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Naphthalene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
o-Xylene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
sec-Butylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Styrene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
tert-Butylbenzene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Tetrachloroethene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Toluene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Trichloroethene	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Trichlorofluoromethane	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Vinyl chloride	ND	0.50	1	B7K0384	11/15/2017	11/15/17 03:01	
Surrogate: 1,2-Dichloroethane-d4	101 %	70 - 166		B7K0384	11/15/2017	11/15/17 03:01	
Surrogate: 4-Bromofluorobenzene	97.1 %	88 - 120		B7K0384	11/15/2017	11/15/17 03:01	
Surrogate: Dibromofluoromethane	97.8 %	80 - 150		B7K0384	11/15/2017	11/15/17 03:01	
Surrogate: Toluene-d8	97.1 %	87 - 121		B7K0384	11/15/2017	11/15/17 03:01	



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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 : 12/22/2017

Client Sample ID MW-30A

Lab ID: 1703979-07

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0287	11/09/2017	11/13/17 22:57	
Surrogate: 1,2-Dichlorobenzene-d4	78.5 %	32 - 99		B7K0287	11/09/2017	11/13/17 22:57	
Surrogate: 2-Fluorobiphenyl	85.4 %	29 - 105		B7K0287	11/09/2017	11/13/17 22:57	
Surrogate: 4-Terphenyl-d14	85.6 %	32 - 119		B7K0287	11/09/2017	11/13/17 22:57	
Surrogate: Nitrobenzene-d5	86.3 %	17 - 123		B7K0287	11/09/2017	11/13/17 22:57	



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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 : 12/22/2017

Client Sample ID TB-110717

Lab ID: 1703979-08

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	B7K0325	11/11/2017	11/11/17 17:12	
1,1,1-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,1,2-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,1-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,1-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,1-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2,3-Trichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2-Dibromoethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,3-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,3-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
1,4-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
2,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
2-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
4-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
4-Isopropyltoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Benzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Bromobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Bromodichloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Bromoform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Bromomethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Carbon tetrachloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Chlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Chloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Chloroform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Chloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Dibromochloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	



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 : 12/22/2017

Client Sample ID TB-110717

Lab ID: 1703979-08

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	B7K0325	11/11/2017	11/11/17 17:12	
Dichlorodifluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Ethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Hexachlorobutadiene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Isopropylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
m,p-Xylene	ND	1.0	1	B7K0325	11/11/2017	11/11/17 17:12	
Methylene chloride	ND	1.0	1	B7K0325	11/11/2017	11/11/17 17:12	
n-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
n-Propylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Naphthalene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
o-Xylene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
sec-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Styrene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
tert-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Tetrachloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Toluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Trichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Trichlorofluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Vinyl chloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 17:12	
Surrogate: 1,2-Dichloroethane-d4	93.0 %	70 - 166		B7K0325	11/11/2017	11/11/17 17:12	
Surrogate: 4-Bromofluorobenzene	99.5 %	88 - 120		B7K0325	11/11/2017	11/11/17 17:12	
Surrogate: Dibromofluoromethane	98.9 %	80 - 150		B7K0325	11/11/2017	11/11/17 17:12	
Surrogate: Toluene-d8	100 %	87 - 121		B7K0325	11/11/2017	11/11/17 17:12	



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 : 12/22/2017

Client Sample ID MW-32B_1.5SV

Lab ID: 1703979-09

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	B7K0360	11/13/2017	11/13/17 15:08	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,1-Dichloroethene	40	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
cis-1,2-Dichloroethene	1.1	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	



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 : 12/22/2017

Client Sample ID MW-32B_1.5SV

Lab ID: 1703979-09

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	B7K0360	11/13/2017	11/13/17 15:08	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 15:08	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 15:08	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Trichloroethene	11	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:08	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>70 - 166</i>		B7K0360	11/13/2017	<i>11/13/17 15:08</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>	<i>88 - 120</i>		B7K0360	11/13/2017	<i>11/13/17 15:08</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>80 - 150</i>		B7K0360	11/13/2017	<i>11/13/17 15:08</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>87 - 121</i>		B7K0360	11/13/2017	<i>11/13/17 15:08</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 : 12/22/2017

Client Sample ID MW-32B_1.5SV

Lab ID: 1703979-09

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.30	0.20	1	B7K0287	11/09/2017	11/13/17 23:24	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.0 %</i>	<i>32 - 99</i>		B7K0287	11/09/2017	<i>11/13/17 23:24</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>86.0 %</i>	<i>29 - 105</i>		B7K0287	11/09/2017	<i>11/13/17 23:24</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>87.1 %</i>	<i>32 - 119</i>		B7K0287	11/09/2017	<i>11/13/17 23:24</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>89.6 %</i>	<i>17 - 123</i>		B7K0287	11/09/2017	<i>11/13/17 23:24</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 : 12/22/2017

Client Sample ID MW-32B

Lab ID: 1703979-10

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	B7K0325	11/11/2017	11/11/17 19:54	
1,1,1-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,1,2-Trichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,1-Dichloroethane	0.64	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,1-Dichloroethene	64	5.0	10	B7K0437	11/16/2017	11/16/17 02:14	
1,1-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2,3-Trichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2-Dibromoethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2-Dichloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,3-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,3-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
1,4-Dichlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
2,2-Dichloropropane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
2-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
4-Chlorotoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
4-Isopropyltoluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Benzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Bromobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Bromodichloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Bromoform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Bromomethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Carbon tetrachloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Chlorobenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Chloroethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Chloroform	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Chloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
cis-1,2-Dichloroethene	2.3	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Dibromochloromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	



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 : 12/22/2017

Client Sample ID MW-32B

Lab ID: 1703979-10

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	B7K0325	11/11/2017	11/11/17 19:54	
Dichlorodifluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Ethylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Hexachlorobutadiene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Isopropylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
m,p-Xylene	ND	1.0	1	B7K0325	11/11/2017	11/11/17 19:54	
Methylene chloride	ND	1.0	1	B7K0325	11/11/2017	11/11/17 19:54	
n-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
n-Propylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Naphthalene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
o-Xylene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
sec-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Styrene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
tert-Butylbenzene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Tetrachloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Toluene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Trichloroethene	24	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Trichlorofluoromethane	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
Vinyl chloride	ND	0.50	1	B7K0325	11/11/2017	11/11/17 19:54	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>98.1 %</i>	<i>70 - 166</i>		B7K0437	11/16/2017	<i>11/16/17 02:14</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>100 %</i>	<i>70 - 166</i>		B7K0325	11/11/2017	<i>11/11/17 19:54</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>	<i>88 - 120</i>		B7K0437	11/16/2017	<i>11/16/17 02:14</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.7 %</i>	<i>88 - 120</i>		B7K0325	11/11/2017	<i>11/11/17 19:54</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>80 - 150</i>		B7K0325	11/11/2017	<i>11/11/17 19:54</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>98.8 %</i>	<i>80 - 150</i>		B7K0437	11/16/2017	<i>11/16/17 02:14</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.6 %</i>	<i>87 - 121</i>		B7K0325	11/11/2017	<i>11/11/17 19:54</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>87 - 121</i>		B7K0437	11/16/2017	<i>11/16/17 02:14</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 : 12/22/2017

Client Sample ID MW-32B

Lab ID: 1703979-10

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	1.6	0.20	1	B7K0287	11/09/2017	11/13/17 23:51	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	88.5 %	32 - 99		B7K0287	11/09/2017	11/13/17 23:51	
<i>Surrogate: 2-Fluorobiphenyl</i>	81.6 %	29 - 105		B7K0287	11/09/2017	11/13/17 23:51	
<i>Surrogate: 4-Terphenyl-d14</i>	81.8 %	32 - 119		B7K0287	11/09/2017	11/13/17 23:51	
<i>Surrogate: Nitrobenzene-d5</i>	97.5 %	17 - 123		B7K0287	11/09/2017	11/13/17 23:51	



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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 : 12/22/2017

Client Sample ID MW-36_1.5SV

Lab ID: 1703979-11

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	B7K0360	11/13/2017	11/13/17 21:18	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,1-Dichloroethane	0.91	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,1-Dichloroethene	93	5.0	10	B7K0360	11/13/2017	11/13/17 17:50	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	



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 : 12/22/2017

Client Sample ID MW-36_1.5SV

Lab ID: 1703979-11

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	B7K0360	11/13/2017	11/13/17 21:18	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 21:18	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 21:18	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 21:18	
Surrogate: 1,2-Dichloroethane-d4	93.1 %	70 - 166		B7K0360	11/13/2017	11/13/17 17:50	
Surrogate: 1,2-Dichloroethane-d4	97.6 %	70 - 166		B7K0360	11/13/2017	11/13/17 21:18	
Surrogate: 4-Bromofluorobenzene	98.3 %	88 - 120		B7K0360	11/13/2017	11/13/17 17:50	
Surrogate: 4-Bromofluorobenzene	97.2 %	88 - 120		B7K0360	11/13/2017	11/13/17 21:18	
Surrogate: Dibromofluoromethane	98.4 %	80 - 150		B7K0360	11/13/2017	11/13/17 17:50	
Surrogate: Dibromofluoromethane	101 %	80 - 150		B7K0360	11/13/2017	11/13/17 21:18	
Surrogate: Toluene-d8	98.3 %	87 - 121		B7K0360	11/13/2017	11/13/17 21:18	
Surrogate: Toluene-d8	96.6 %	87 - 121		B7K0360	11/13/2017	11/13/17 17:50	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

Client Sample ID MW-36_1.5SV

Lab ID: 1703979-11

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	7.7	0.20	1	B7K0287	11/09/2017	11/14/17 00:17	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>66.9 %</i>	<i>32 - 99</i>		<i>B7K0287</i>	<i>11/09/2017</i>	<i>11/14/17 00:17</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>77.3 %</i>	<i>29 - 105</i>		<i>B7K0287</i>	<i>11/09/2017</i>	<i>11/14/17 00:17</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>84.1 %</i>	<i>32 - 119</i>		<i>B7K0287</i>	<i>11/09/2017</i>	<i>11/14/17 00:17</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>72.5 %</i>	<i>17 - 123</i>		<i>B7K0287</i>	<i>11/09/2017</i>	<i>11/14/17 00:17</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

Client Sample ID MW-36

Lab ID: 1703979-12

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	B7K0360	11/13/2017	11/13/17 20:32	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,1-Dichloroethane	0.82	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,1-Dichloroethene	87	5.0	10	B7K0360	11/13/2017	11/13/17 20:55	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	



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 : 12/22/2017

Client Sample ID MW-36

Lab ID: 1703979-12

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	B7K0360	11/13/2017	11/13/17 20:32	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 20:32	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 20:32	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 20:32	
Surrogate: 1,2-Dichloroethane-d4	99.2 %	70 - 166		B7K0360	11/13/2017	11/13/17 20:32	
Surrogate: 1,2-Dichloroethane-d4	99.4 %	70 - 166		B7K0360	11/13/2017	11/13/17 20:55	
Surrogate: 4-Bromofluorobenzene	98.8 %	88 - 120		B7K0360	11/13/2017	11/13/17 20:32	
Surrogate: 4-Bromofluorobenzene	95.3 %	88 - 120		B7K0360	11/13/2017	11/13/17 20:55	
Surrogate: Dibromofluoromethane	107 %	80 - 150		B7K0360	11/13/2017	11/13/17 20:55	
Surrogate: Dibromofluoromethane	100 %	80 - 150		B7K0360	11/13/2017	11/13/17 20:32	
Surrogate: Toluene-d8	98.4 %	87 - 121		B7K0360	11/13/2017	11/13/17 20:32	
Surrogate: Toluene-d8	99.9 %	87 - 121		B7K0360	11/13/2017	11/13/17 20:55	



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Client Sample ID MW-36

Lab ID: 1703979-12

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	7.5	0.20	1	B7K0287	11/09/2017	11/14/17 00:44	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	83.4 %	32 - 99		B7K0287	11/09/2017	11/14/17 00:44	
<i>Surrogate: 2-Fluorobiphenyl</i>	80.5 %	29 - 105		B7K0287	11/09/2017	11/14/17 00:44	
<i>Surrogate: 4-Terphenyl-d14</i>	90.3 %	32 - 119		B7K0287	11/09/2017	11/14/17 00:44	
<i>Surrogate: Nitrobenzene-d5</i>	90.1 %	17 - 123		B7K0287	11/09/2017	11/14/17 00:44	



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Project Number : Raytheon Main, 532.30

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Reported : 12/22/2017

Client Sample ID MW-39

Lab ID: 1703979-13

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	B7K0360	11/13/2017	11/13/17 15:31	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,1-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	



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 : 12/22/2017

Client Sample ID MW-39

Lab ID: 1703979-13

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	B7K0360	11/13/2017	11/13/17 15:31	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 15:31	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 15:31	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:31	
Surrogate: 1,2-Dichloroethane-d4	102 %	70 - 166		B7K0360	11/13/2017	11/13/17 15:31	
Surrogate: 4-Bromofluorobenzene	102 %	88 - 120		B7K0360	11/13/2017	11/13/17 15:31	
Surrogate: Dibromofluoromethane	104 %	80 - 150		B7K0360	11/13/2017	11/13/17 15:31	
Surrogate: Toluene-d8	101 %	87 - 121		B7K0360	11/13/2017	11/13/17 15:31	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

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Reported : 12/22/2017

Client Sample ID MW-39

Lab ID: 1703979-13

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 13:08	
Surrogate: 1,2-Dichlorobenzene-d4	77.7 %	32 - 99		B7K0311	11/10/2017	11/14/17 13:08	
Surrogate: 2-Fluorobiphenyl	82.3 %	29 - 105		B7K0311	11/10/2017	11/14/17 13:08	
Surrogate: 4-Terphenyl-d14	81.6 %	32 - 119		B7K0311	11/10/2017	11/14/17 13:08	
Surrogate: Nitrobenzene-d5	90.1 %	17 - 123		B7K0311	11/10/2017	11/14/17 13:08	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

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Reported : 12/22/2017

Client Sample ID MW-33_1.5SV

Lab ID: 1703979-14

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	B7K0360	11/13/2017	11/13/17 15:54	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,1-Dichloroethene	9.3	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	



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Client Sample ID MW-33_1.5SV

Lab ID: 1703979-14

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	B7K0360	11/13/2017	11/13/17 15:54	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 15:54	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 15:54	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Trichloroethene	1.4	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 15:54	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>	<i>70 - 166</i>		B7K0360	11/13/2017	<i>11/13/17 15:54</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>88 - 120</i>		B7K0360	11/13/2017	<i>11/13/17 15:54</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>80 - 150</i>		B7K0360	11/13/2017	<i>11/13/17 15:54</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>87 - 121</i>		B7K0360	11/13/2017	<i>11/13/17 15:54</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 : 12/22/2017

Client Sample ID MW-33_1.5SV

Lab ID: 1703979-14

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 14:02	
Surrogate: 1,2-Dichlorobenzene-d4	83.7 %	32 - 99		B7K0311	11/10/2017	11/14/17 14:02	
Surrogate: 2-Fluorobiphenyl	86.8 %	29 - 105		B7K0311	11/10/2017	11/14/17 14:02	
Surrogate: 4-Terphenyl-d14	81.1 %	32 - 119		B7K0311	11/10/2017	11/14/17 14:02	
Surrogate: Nitrobenzene-d5	95.3 %	17 - 123		B7K0311	11/10/2017	11/14/17 14:02	



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 : 12/22/2017

Client Sample ID MW-33

Lab ID: 1703979-15

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	B7K0360	11/13/2017	11/13/17 16:17	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,1-Dichloroethene	7.3	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	



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 : 12/22/2017

Client Sample ID MW-33

Lab ID: 1703979-15

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	B7K0360	11/13/2017	11/13/17 16:17	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 16:17	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 16:17	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Trichloroethene	0.72	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:17	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>97.6 %</i>	<i>70 - 166</i>		B7K0360	11/13/2017	<i>11/13/17 16:17</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.6 %</i>	<i>88 - 120</i>		B7K0360	11/13/2017	<i>11/13/17 16:17</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>100 %</i>	<i>80 - 150</i>		B7K0360	11/13/2017	<i>11/13/17 16:17</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>87 - 121</i>		B7K0360	11/13/2017	<i>11/13/17 16:17</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 : 12/22/2017

Client Sample ID MW-33

Lab ID: 1703979-15

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 14:29	
Surrogate: 1,2-Dichlorobenzene-d4	84.5 %	32 - 99		B7K0311	11/10/2017	11/14/17 14:29	
Surrogate: 2-Fluorobiphenyl	89.9 %	29 - 105		B7K0311	11/10/2017	11/14/17 14:29	
Surrogate: 4-Terphenyl-d14	85.1 %	32 - 119		B7K0311	11/10/2017	11/14/17 14:29	
Surrogate: Nitrobenzene-d5	95.5 %	17 - 123		B7K0311	11/10/2017	11/14/17 14:29	



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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 : 12/22/2017

Client Sample ID MW-35C

Lab ID: 1703979-16

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	B7K0360	11/13/2017	11/13/17 16:40	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,1-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

Client Sample ID MW-35C

Lab ID: 1703979-16

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	B7K0360	11/13/2017	11/13/17 16:40	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 16:40	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 16:40	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 16:40	
Surrogate: 1,2-Dichloroethane-d4	93.8 %	70 - 166		B7K0360	11/13/2017	11/13/17 16:40	
Surrogate: 4-Bromofluorobenzene	98.0 %	88 - 120		B7K0360	11/13/2017	11/13/17 16:40	
Surrogate: Dibromofluoromethane	102 %	80 - 150		B7K0360	11/13/2017	11/13/17 16:40	
Surrogate: Toluene-d8	99.9 %	87 - 121		B7K0360	11/13/2017	11/13/17 16:40	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

Client Sample ID MW-35C

Lab ID: 1703979-16

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 14:56	
Surrogate: 1,2-Dichlorobenzene-d4	72.1 %	32 - 99		B7K0311	11/10/2017	11/14/17 14:56	
Surrogate: 2-Fluorobiphenyl	79.9 %	29 - 105		B7K0311	11/10/2017	11/14/17 14:56	
Surrogate: 4-Terphenyl-d14	89.0 %	32 - 119		B7K0311	11/10/2017	11/14/17 14:56	
Surrogate: Nitrobenzene-d5	82.7 %	17 - 123		B7K0311	11/10/2017	11/14/17 14:56	



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 : 12/22/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0325 - MSVOA_W

Blank (B7K0325-BLK1)

Prepared: 11/11/2017 Analyzed: 11/11/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31



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 : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0325 - MSVOA_W (continued)

Blank (B7K0325-BLK1) - Continued

Prepared: 11/11/2017 Analyzed: 11/11/2017

Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.12		25.0000	96.5	70 - 166
Surrogate: 4-Bromofluorobenzene	25.31		25.0000	101	88 - 120
Surrogate: Dibromofluoromethane	24.92		25.0000	99.7	80 - 150
Surrogate: Toluene-d8	25.25		25.0000	101	87 - 121

LCS (B7K0325-BS1)

Prepared: 11/11/2017 Analyzed: 11/11/2017

1,1,1,2-Tetrachloroethane	21.6300	0.50	0.13	20.0000	108	73 - 136
1,1,1-Trichloroethane	21.3800	0.50	0.38	20.0000	107	73 - 143
1,1,2,2-Tetrachloroethane	20.3100	0.50	0.20	20.0000	102	62 - 127
1,1,2-Trichloroethane	19.1400	0.50	0.19	20.0000	95.7	72 - 122
1,1-Dichloroethane	20.6900	0.50	0.20	20.0000	103	73 - 138
1,1-Dichloroethene	20.1300	0.50	0.28	20.0000	101	74 - 132
1,1-Dichloropropene	20.8100	0.50	0.36	20.0000	104	70 - 143
1,2,3-Trichloropropane	18.7500	0.50	0.16	20.0000	93.8	66 - 119
1,2,3-Trichlorobenzene	19.3800	0.50	0.06	20.0000	96.9	70 - 131
1,2,4-Trichlorobenzene	20.6400	0.50	0.07	20.0000	103	70 - 128
1,2,4-Trimethylbenzene	21.2900	0.50	0.09	20.0000	106	74 - 142
1,2-Dibromo-3-chloropropane	16.4400	0.50	0.20	20.0000	82.2	56 - 118
1,2-Dibromoethane	19.1800	0.50	0.13	20.0000	95.9	73 - 122
1,2-Dichlorobenzene	20.2600	0.50	0.12	20.0000	101	75 - 128
1,2-Dichloroethane	19.9200	0.50	0.39	20.0000	99.6	70 - 131
1,2-Dichloropropane	20.0500	0.50	0.47	20.0000	100	69 - 124
1,3,5-Trimethylbenzene	21.1600	0.50	0.08	20.0000	106	73 - 144



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B7K0325 - MSVOA_W (continued)									
LCS (B7K0325-BS1) - Continued					Prepared: 11/11/2017 Analyzed: 11/11/2017				
1,3-Dichlorobenzene	19.8800	0.50	0.13	20.0000		99.4	75 - 131		
1,3-Dichloropropane	19.9600	0.50	0.08	20.0000		99.8	70 - 122		
1,4-Dichlorobenzene	20.2700	0.50	0.18	20.0000		101	75 - 127		
2,2-Dichloropropane	22.7700	0.50	0.23	20.0000		114	68 - 151		
2-Chlorotoluene	21.0600	0.50	0.12	20.0000		105	72 - 138		
4-Chlorotoluene	21.0700	0.50	0.11	20.0000		105	72 - 140		
4-Isopropyltoluene	21.8500	0.50	0.12	20.0000		109	74 - 149		
Benzene	41.7800	0.50	0.21	40.0000		104	67 - 138		
Bromobenzene	20.6900	0.50	0.12	20.0000		103	73 - 127		
Bromodichloromethane	20.9000	0.50	0.32	20.0000		104	74 - 129		
Bromoform	18.9100	0.50	0.14	20.0000		94.6	63 - 131		
Bromomethane	30.1000	0.50	0.22	20.0000		150	57 - 216		
Carbon tetrachloride	21.5200	0.50	0.31	20.0000		108	77 - 151		
Chlorobenzene	20.4700	0.50	0.16	20.0000		102	73 - 125		
Chloroethane	25.1400	0.50	0.29	20.0000		126	54 - 154		
Chloroform	20.2900	0.50	0.16	20.0000		101	77 - 132		
Chloromethane	20.5500	0.50	0.19	20.0000		103	57 - 142		
cis-1,2-Dichloroethene	20.6500	0.50	0.39	20.0000		103	73 - 126		
cis-1,3-Dichloropropene	20.0600	0.50	0.08	20.0000		100	76 - 120		
Dibromochloromethane	20.2600	0.50	0.11	20.0000		101	71 - 126		
Dibromomethane	18.9500	0.50	0.09	20.0000		94.8	73 - 121		
Dichlorodifluoromethane	20.5300	0.50	0.31	20.0000		103	48 - 152		
Ethylbenzene	42.0700	0.50	0.08	40.0000		105	72 - 134		
Hexachlorobutadiene	21.9300	0.50	0.22	20.0000		110	72 - 139		
Isopropylbenzene	21.4200	0.50	0.10	20.0000		107	73 - 146		
m,p-Xylene	41.2600	1.0	0.18	40.0000		103	75 - 138		
Methylene chloride	22.4300	1.0	0.26	20.0000		112	52 - 154		
n-Butylbenzene	21.8700	0.50	0.15	20.0000		109	72 - 151		
n-Propylbenzene	21.9500	0.50	0.14	20.0000		110	69 - 149		
Naphthalene	18.9700	0.50	0.09	20.0000		94.8	61 - 122		
o-Xylene	40.5400	0.50	0.04	40.0000		101	66 - 147		
sec-Butylbenzene	21.7800	0.50	0.15	20.0000		109	72 - 148		
Styrene	21.0600	0.50	0.05	20.0000		105	72 - 138		
tert-Butylbenzene	21.7700	0.50	0.11	20.0000		109	70 - 145		
Tetrachloroethene	22.1700	0.50	0.18	20.0000		111	61 - 145		
Toluene	40.6300	0.50	0.14	40.0000		102	70 - 140		
trans-1,2-Dichloroethene	23.2800	0.50	0.15	20.0000		116	73 - 130		
Trichloroethene	20.3900	0.50	0.15	20.0000		102	69 - 126		
Trichlorofluoromethane	24.6300	0.50	0.33	20.0000		123	70 - 159		
Vinyl chloride	21.4200	0.50	0.25	20.0000		107	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	25.34			25.0000		101	70 - 166		



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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
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Batch B7K0325 - MSVOA_W (continued)

LCS (B7K0325-BS1) - Continued

Prepared: 11/11/2017 Analyzed: 11/11/2017

Surrogate: 4-Bromofluorobenzene	25.58		25.0000		102	88 - 120			
Surrogate: Dibromofluoromethane	26.04		25.0000		104	80 - 150			
Surrogate: Toluene-d8	24.75		25.0000		99.0	87 - 121			

LCS Dup (B7K0325-BSD1)

Prepared: 11/11/2017 Analyzed: 11/11/2017

1,1,1,2-Tetrachloroethane	19.0600	0.50	0.13	20.0000	95.3	73 - 136	12.6	20	
1,1,1-Trichloroethane	18.3600	0.50	0.38	20.0000	91.8	73 - 143	15.2	20	
1,1,2,2-Tetrachloroethane	17.5500	0.50	0.20	20.0000	87.8	62 - 127	14.6	20	
1,1,2-Trichloroethane	17.4200	0.50	0.19	20.0000	87.1	72 - 122	9.41	20	
1,1-Dichloroethane	18.1800	0.50	0.20	20.0000	90.9	73 - 138	12.9	20	
1,1-Dichloroethene	18.3200	0.50	0.28	20.0000	91.6	74 - 132	9.41	20	
1,1-Dichloropropene	18.5600	0.50	0.36	20.0000	92.8	70 - 143	11.4	20	
1,2,3-Trichloropropane	16.8200	0.50	0.16	20.0000	84.1	66 - 119	10.9	20	
1,2,3-Trichlorobenzene	17.6200	0.50	0.06	20.0000	88.1	70 - 131	9.51	20	
1,2,4-Trichlorobenzene	18.8800	0.50	0.07	20.0000	94.4	70 - 128	8.91	20	
1,2,4-Trimethylbenzene	18.8000	0.50	0.09	20.0000	94.0	74 - 142	12.4	20	
1,2-Dibromo-3-chloropropane	15.9300	0.50	0.20	20.0000	79.6	56 - 118	3.15	20	
1,2-Dibromoethane	17.0000	0.50	0.13	20.0000	85.0	73 - 122	12.1	20	
1,2-Dichlorobenzene	17.6700	0.50	0.12	20.0000	88.4	75 - 128	13.7	20	
1,2-Dichloroethane	17.7300	0.50	0.39	20.0000	88.6	70 - 131	11.6	20	
1,2-Dichloropropane	17.4700	0.50	0.47	20.0000	87.4	69 - 124	13.8	20	
1,3,5-Trimethylbenzene	19.0300	0.50	0.08	20.0000	95.2	73 - 144	10.6	20	
1,3-Dichlorobenzene	18.2400	0.50	0.13	20.0000	91.2	75 - 131	8.60	20	
1,3-Dichloropropane	18.0000	0.50	0.08	20.0000	90.0	70 - 122	10.3	20	
1,4-Dichlorobenzene	17.7400	0.50	0.18	20.0000	88.7	75 - 127	13.3	20	
2,2-Dichloropropane	19.8600	0.50	0.23	20.0000	99.3	68 - 151	13.7	20	
2-Chlorotoluene	18.8400	0.50	0.12	20.0000	94.2	72 - 138	11.1	20	
4-Chlorotoluene	18.5400	0.50	0.11	20.0000	92.7	72 - 140	12.8	20	
4-Isopropyltoluene	19.7800	0.50	0.12	20.0000	98.9	74 - 149	9.94	20	
Benzene	37.2800	0.50	0.21	40.0000	93.2	67 - 138	11.4	20	
Bromobenzene	18.5900	0.50	0.12	20.0000	93.0	73 - 127	10.7	20	
Bromodichloromethane	18.1300	0.50	0.32	20.0000	90.6	74 - 129	14.2	20	
Bromoform	17.0900	0.50	0.14	20.0000	85.4	63 - 131	10.1	20	
Bromomethane	26.5900	0.50	0.22	20.0000	133	57 - 216	12.4	20	
Carbon tetrachloride	18.9900	0.50	0.31	20.0000	95.0	77 - 151	12.5	20	
Chlorobenzene	18.4700	0.50	0.16	20.0000	92.4	73 - 125	10.3	20	
Chloroethane	21.0100	0.50	0.29	20.0000	105	54 - 154	17.9	20	
Chloroform	17.9200	0.50	0.16	20.0000	89.6	77 - 132	12.4	20	
Chloromethane	19.2300	0.50	0.19	20.0000	96.2	57 - 142	6.64	20	
cis-1,2-Dichloroethene	17.7800	0.50	0.39	20.0000	88.9	73 - 126	14.9	20	
cis-1,3-Dichloropropene	18.0900	0.50	0.08	20.0000	90.4	76 - 120	10.3	20	
Dibromochloromethane	19.0400	0.50	0.11	20.0000	95.2	71 - 126	6.21	20	



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0325 - MSVOA_W (continued)

LCS Dup (B7K0325-BSD1) - Continued

Prepared: 11/11/2017 Analyzed: 11/11/2017

Dibromomethane	16.6200	0.50	0.09	20.0000		83.1	73 - 121	13.1	20
Dichlorodifluoromethane	18.3200	0.50	0.31	20.0000		91.6	48 - 152	11.4	20
Ethylbenzene	38.2400	0.50	0.08	40.0000		95.6	72 - 134	9.54	20
Hexachlorobutadiene	19.3100	0.50	0.22	20.0000		96.6	72 - 139	12.7	20
Isopropylbenzene	19.0400	0.50	0.10	20.0000		95.2	73 - 146	11.8	20
m,p-Xylene	37.9600	1.0	0.18	40.0000		94.9	75 - 138	8.33	20
Methylene chloride	20.3200	1.0	0.26	20.0000		102	52 - 154	9.87	20
n-Butylbenzene	19.4900	0.50	0.15	20.0000		97.4	72 - 151	11.5	20
n-Propylbenzene	19.3700	0.50	0.14	20.0000		96.8	69 - 149	12.5	20
Naphthalene	17.0500	0.50	0.09	20.0000		85.2	61 - 122	10.7	20
o-Xylene	36.6000	0.50	0.04	40.0000		91.5	66 - 147	10.2	20
sec-Butylbenzene	19.4100	0.50	0.15	20.0000		97.0	72 - 148	11.5	20
Styrene	18.9500	0.50	0.05	20.0000		94.8	72 - 138	10.5	20
tert-Butylbenzene	19.7100	0.50	0.11	20.0000		98.6	70 - 145	9.93	20
Tetrachloroethene	19.9700	0.50	0.18	20.0000		99.8	61 - 145	10.4	20
Toluene	35.9000	0.50	0.14	40.0000		89.8	70 - 140	12.4	20
trans-1,2-Dichloroethene	20.5700	0.50	0.15	20.0000		103	73 - 130	12.4	20
Trichloroethene	18.3000	0.50	0.15	20.0000		91.5	69 - 126	10.8	20
Trichlorofluoromethane	21.6900	0.50	0.33	20.0000		108	70 - 159	12.7	20
Vinyl chloride	19.7200	0.50	0.25	20.0000		98.6	56 - 151	8.26	20
Surrogate: 1,2-Dichloroethane-d4	24.40			25.0000		97.6	70 - 166		
Surrogate: 4-Bromofluorobenzene	26.22			25.0000		105	88 - 120		
Surrogate: Dibromofluoromethane	25.72			25.0000		103	80 - 150		
Surrogate: Toluene-d8	24.67			25.0000		98.7	87 - 121		



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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W

Blank (B7K0360-BLK1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

Blank (B7K0360-BLK1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.60		25.0000	98.4	70 - 166
Surrogate: 4-Bromofluorobenzene	24.59		25.0000	98.4	88 - 120
Surrogate: Dibromofluoromethane	26.56		25.0000	106	80 - 150
Surrogate: Toluene-d8	25.36		25.0000	101	87 - 121

LCS (B7K0360-BS1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	18.5900	0.50	0.13	20.0000	93.0	73 - 136
1,1,1-Trichloroethane	19.9100	0.50	0.38	20.0000	99.6	73 - 143
1,1,2,2-Tetrachloroethane	20.1600	0.50	0.20	20.0000	101	62 - 127
1,1,2-Trichloroethane	18.4300	0.50	0.19	20.0000	92.2	72 - 122
1,1-Dichloroethane	19.1200	0.50	0.20	20.0000	95.6	73 - 138
1,1-Dichloroethene	21.7700	0.50	0.28	20.0000	109	74 - 132
1,1-Dichloropropene	22.0400	0.50	0.36	20.0000	110	70 - 143
1,2,3-Trichloropropane	18.7200	0.50	0.16	20.0000	93.6	66 - 119
1,2,3-Trichlorobenzene	20.2300	0.50	0.06	20.0000	101	70 - 131
1,2,4-Trichlorobenzene	20.4600	0.50	0.07	20.0000	102	70 - 128
1,2,4-Trimethylbenzene	21.4400	0.50	0.09	20.0000	107	74 - 142
1,2-Dibromo-3-chloropropane	14.1000	0.50	0.20	20.0000	70.5	56 - 118
1,2-Dibromoethane	18.1600	0.50	0.13	20.0000	90.8	73 - 122
1,2-Dichlorobenzene	20.6000	0.50	0.12	20.0000	103	75 - 128
1,2-Dichloroethane	19.2300	0.50	0.39	20.0000	96.2	70 - 131
1,2-Dichloropropane	18.5600	0.50	0.47	20.0000	92.8	69 - 124
1,3,5-Trimethylbenzene	21.5300	0.50	0.08	20.0000	108	73 - 144
1,3-Dichlorobenzene	20.6000	0.50	0.13	20.0000	103	75 - 131
1,3-Dichloropropane	19.9600	0.50	0.08	20.0000	99.8	70 - 122



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 : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

LCS (B7K0360-BS1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,4-Dichlorobenzene	20.3700	0.50	0.18	20.0000		102	75 - 127		
2,2-Dichloropropane	15.2900	0.50	0.23	20.0000		76.4	68 - 151		
2-Chlorotoluene	21.0600	0.50	0.12	20.0000		105	72 - 138		
4-Chlorotoluene	20.9300	0.50	0.11	20.0000		105	72 - 140		
4-Isopropyltoluene	22.6100	0.50	0.12	20.0000		113	74 - 149		
Benzene	40.7400	0.50	0.21	40.0000		102	67 - 138		
Bromobenzene	20.8100	0.50	0.12	20.0000		104	73 - 127		
Bromodichloromethane	19.5100	0.50	0.32	20.0000		97.6	74 - 129		
Bromoform	15.5400	0.50	0.14	20.0000		77.7	63 - 131		
Bromomethane	28.3100	0.50	0.22	20.0000		142	57 - 216		
Carbon tetrachloride	17.4100	0.50	0.31	20.0000		87.0	77 - 151		
Chlorobenzene	21.3500	0.50	0.16	20.0000		107	73 - 125		
Chloroethane	24.4500	0.50	0.29	20.0000		122	54 - 154		
Chloroform	19.9400	0.50	0.16	20.0000		99.7	77 - 132		
Chloromethane	21.5900	0.50	0.19	20.0000		108	57 - 142		
cis-1,2-Dichloroethene	20.2100	0.50	0.39	20.0000		101	73 - 126		
cis-1,3-Dichloropropene	17.5300	0.50	0.08	20.0000		87.6	76 - 120		
Dibromochloromethane	19.0000	0.50	0.11	20.0000		95.0	71 - 126		
Dibromomethane	18.9900	0.50	0.09	20.0000		95.0	73 - 121		
Dichlorodifluoromethane	21.3900	0.50	0.31	20.0000		107	48 - 152		
Ethylbenzene	43.5800	0.50	0.08	40.0000		109	72 - 134		
Hexachlorobutadiene	21.6300	0.50	0.22	20.0000		108	72 - 139		
Isopropylbenzene	22.0300	0.50	0.10	20.0000		110	73 - 146		
m,p-Xylene	42.6200	1.0	0.18	40.0000		107	75 - 138		
Methylene chloride	23.7200	1.0	0.26	20.0000		119	52 - 154		
n-Butylbenzene	22.6700	0.50	0.15	20.0000		113	72 - 151		
n-Propylbenzene	21.8100	0.50	0.14	20.0000		109	69 - 149		
Naphthalene	19.2000	0.50	0.09	20.0000		96.0	61 - 122		
o-Xylene	40.7800	0.50	0.04	40.0000		102	66 - 147		
sec-Butylbenzene	22.2800	0.50	0.15	20.0000		111	72 - 148		
Styrene	21.4600	0.50	0.05	20.0000		107	72 - 138		
tert-Butylbenzene	22.5300	0.50	0.11	20.0000		113	70 - 145		
Tetrachloroethene	23.2200	0.50	0.18	20.0000		116	61 - 145		
Toluene	39.1200	0.50	0.14	40.0000		97.8	70 - 140		
trans-1,2-Dichloroethene	23.4500	0.50	0.15	20.0000		117	73 - 130		
Trichloroethene	20.7100	0.50	0.15	20.0000		104	69 - 126		
Trichlorofluoromethane	25.0500	0.50	0.33	20.0000		125	70 - 159		
Vinyl chloride	22.4900	0.50	0.25	20.0000		112	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	24.50			25.0000		98.0	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.81			25.0000		103	88 - 120		
Surrogate: Dibromofluoromethane	25.61			25.0000		102	80 - 150		



Certificate of Analysis

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Report To : Steve Netto

Reported : 12/22/2017

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
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Batch B7K0360 - MSVOA_W (continued)

LCS (B7K0360-BS1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

Surrogate: Toluene-d8 24.45 25.0000 97.8 87 - 121

LCS Dup (B7K0360-BSD1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	18.5200	0.50	0.13	20.0000	92.6	73 - 136	0.377	20	
1,1,1-Trichloroethane	20.0100	0.50	0.38	20.0000	100	73 - 143	0.501	20	
1,1,2,2-Tetrachloroethane	20.0200	0.50	0.20	20.0000	100	62 - 127	0.697	20	
1,1,2-Trichloroethane	18.1400	0.50	0.19	20.0000	90.7	72 - 122	1.59	20	
1,1-Dichloroethane	18.8300	0.50	0.20	20.0000	94.2	73 - 138	1.53	20	
1,1-Dichloroethene	20.1400	0.50	0.28	20.0000	101	74 - 132	7.78	20	
1,1-Dichloropropene	20.9500	0.50	0.36	20.0000	105	70 - 143	5.07	20	
1,2,3-Trichloropropane	18.4000	0.50	0.16	20.0000	92.0	66 - 119	1.72	20	
1,2,3-Trichlorobenzene	19.4900	0.50	0.06	20.0000	97.4	70 - 131	3.73	20	
1,2,4-Trichlorobenzene	20.8100	0.50	0.07	20.0000	104	70 - 128	1.70	20	
1,2,4-Trimethylbenzene	21.1400	0.50	0.09	20.0000	106	74 - 142	1.41	20	
1,2-Dibromo-3-chloropropane	14.3800	0.50	0.20	20.0000	71.9	56 - 118	1.97	20	
1,2-Dibromoethane	18.0400	0.50	0.13	20.0000	90.2	73 - 122	0.663	20	
1,2-Dichlorobenzene	20.3700	0.50	0.12	20.0000	102	75 - 128	1.12	20	
1,2-Dichloroethane	19.6500	0.50	0.39	20.0000	98.2	70 - 131	2.16	20	
1,2-Dichloropropane	18.1600	0.50	0.47	20.0000	90.8	69 - 124	2.18	20	
1,3,5-Trimethylbenzene	21.0000	0.50	0.08	20.0000	105	73 - 144	2.49	20	
1,3-Dichlorobenzene	20.4200	0.50	0.13	20.0000	102	75 - 131	0.878	20	
1,3-Dichloropropane	19.3100	0.50	0.08	20.0000	96.6	70 - 122	3.31	20	
1,4-Dichlorobenzene	20.2100	0.50	0.18	20.0000	101	75 - 127	0.789	20	
2,2-Dichloropropane	16.2400	0.50	0.23	20.0000	81.2	68 - 151	6.03	20	
2-Chlorotoluene	21.0800	0.50	0.12	20.0000	105	72 - 138	0.0949	20	
4-Chlorotoluene	20.8300	0.50	0.11	20.0000	104	72 - 140	0.479	20	
4-Isopropyltoluene	22.1000	0.50	0.12	20.0000	110	74 - 149	2.28	20	
Benzene	39.6000	0.50	0.21	40.0000	99.0	67 - 138	2.84	20	
Bromobenzene	20.4100	0.50	0.12	20.0000	102	73 - 127	1.94	20	
Bromodichloromethane	19.4600	0.50	0.32	20.0000	97.3	74 - 129	0.257	20	
Bromoform	16.5900	0.50	0.14	20.0000	83.0	63 - 131	6.54	20	
Bromomethane	28.3900	0.50	0.22	20.0000	142	57 - 216	0.282	20	
Carbon tetrachloride	18.1500	0.50	0.31	20.0000	90.8	77 - 151	4.16	20	
Chlorobenzene	20.9800	0.50	0.16	20.0000	105	73 - 125	1.75	20	
Chloroethane	24.5300	0.50	0.29	20.0000	123	54 - 154	0.327	20	
Chloroform	19.1600	0.50	0.16	20.0000	95.8	77 - 132	3.99	20	
Chloromethane	20.9700	0.50	0.19	20.0000	105	57 - 142	2.91	20	
cis-1,2-Dichloroethene	19.4200	0.50	0.39	20.0000	97.1	73 - 126	3.99	20	
cis-1,3-Dichloropropene	17.8600	0.50	0.08	20.0000	89.3	76 - 120	1.86	20	
Dibromochloromethane	18.9200	0.50	0.11	20.0000	94.6	71 - 126	0.422	20	
Dibromomethane	18.9200	0.50	0.09	20.0000	94.6	73 - 121	0.369	20	
Dichlorodifluoromethane	20.0400	0.50	0.31	20.0000	100	48 - 152	6.52	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)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

LCS Dup (B7K0360-BSD1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

Ethylbenzene	41.7500	0.50	0.08	40.0000		104	72 - 134	4.29	20
Hexachlorobutadiene	20.8800	0.50	0.22	20.0000		104	72 - 139	3.53	20
Isopropylbenzene	21.4800	0.50	0.10	20.0000		107	73 - 146	2.53	20
m,p-Xylene	40.9500	1.0	0.18	40.0000		102	75 - 138	4.00	20
Methylene chloride	22.9600	1.0	0.26	20.0000		115	52 - 154	3.26	20
n-Butylbenzene	21.9000	0.50	0.15	20.0000		110	72 - 151	3.46	20
n-Propylbenzene	21.3500	0.50	0.14	20.0000		107	69 - 149	2.13	20
Naphthalene	18.7700	0.50	0.09	20.0000		93.8	61 - 122	2.26	20
o-Xylene	40.0800	0.50	0.04	40.0000		100	66 - 147	1.73	20
sec-Butylbenzene	21.7700	0.50	0.15	20.0000		109	72 - 148	2.32	20
Styrene	20.8200	0.50	0.05	20.0000		104	72 - 138	3.03	20
tert-Butylbenzene	22.0300	0.50	0.11	20.0000		110	70 - 145	2.24	20
Tetrachloroethene	22.5900	0.50	0.18	20.0000		113	61 - 145	2.75	20
Toluene	39.1800	0.50	0.14	40.0000		98.0	70 - 140	0.153	20
trans-1,2-Dichloroethene	22.4100	0.50	0.15	20.0000		112	73 - 130	4.54	20
Trichloroethene	19.9800	0.50	0.15	20.0000		99.9	69 - 126	3.59	20
Trichlorofluoromethane	24.3000	0.50	0.33	20.0000		122	70 - 159	3.04	20
Vinyl chloride	21.4200	0.50	0.25	20.0000		107	56 - 151	4.87	20
Surrogate: 1,2-Dichloroethane-d4	23.97			25.0000		95.9	70 - 166		
Surrogate: 4-Bromofluorobenzene	24.98			25.0000		99.9	88 - 120		
Surrogate: Dibromofluoromethane	25.07			25.0000		100	80 - 150		
Surrogate: Toluene-d8	24.43			25.0000		97.7	87 - 121		

Matrix Spike (B7K0360-MS1)

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	17.6600	0.50	0.13	20.0000	ND	88.3	73 - 136
1,1,1-Trichloroethane	20.2400	0.50	0.38	20.0000	ND	101	73 - 143
1,1,2,2-Tetrachloroethane	20.7700	0.50	0.20	20.0000	ND	104	62 - 127
1,1,2-Trichloroethane	19.2900	0.50	0.19	20.0000	ND	96.4	72 - 122
1,1-Dichloroethane	18.8800	0.50	0.20	20.0000	ND	94.4	73 - 138
1,1-Dichloroethene	20.8400	0.50	0.28	20.0000	ND	104	74 - 132
1,1-Dichloropropene	21.9000	0.50	0.36	20.0000	ND	110	70 - 143
1,2,3-Trichloropropane	19.3300	0.50	0.16	20.0000	ND	96.6	66 - 119
1,2,3-Trichlorobenzene	19.7400	0.50	0.06	20.0000	ND	98.7	70 - 131
1,2,4-Trichlorobenzene	19.8300	0.50	0.07	20.0000	ND	99.2	70 - 128
1,2,4-Trimethylbenzene	20.0900	0.50	0.09	20.0000	ND	100	74 - 142
1,2-Dibromo-3-chloropropane	16.1200	0.50	0.20	20.0000	ND	80.6	56 - 118
1,2-Dibromoethane	20.2300	0.50	0.13	20.0000	ND	101	73 - 122
1,2-Dichlorobenzene	20.0400	0.50	0.12	20.0000	ND	100	75 - 128
1,2-Dichloroethane	20.4000	0.50	0.39	20.0000	ND	102	70 - 131
1,2-Dichloropropane	18.5800	0.50	0.47	20.0000	ND	92.9	69 - 124
1,3,5-Trimethylbenzene	19.8600	0.50	0.08	20.0000	ND	99.3	73 - 144



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

Matrix Spike (B7K0360-MS1) - Continued

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,3-Dichlorobenzene	19.6200	0.50	0.13	20.0000	ND	98.1	75 - 131			
1,3-Dichloropropane	19.3300	0.50	0.08	20.0000	ND	96.6	70 - 122			
1,4-Dichlorobenzene	19.7100	0.50	0.18	20.0000	ND	98.6	75 - 127			
2,2-Dichloropropane	12.5200	0.50	0.23	20.0000	ND	62.6	68 - 151			M2
2-Chlorotoluene	19.5200	0.50	0.12	20.0000	ND	97.6	72 - 138			
4-Chlorotoluene	19.3600	0.50	0.11	20.0000	ND	96.8	72 - 140			
4-Isopropyltoluene	20.9200	0.50	0.12	20.0000	ND	105	74 - 149			
Benzene	40.3300	0.50	0.21	40.0000	ND	101	67 - 138			
Bromobenzene	20.6900	0.50	0.12	20.0000	ND	103	73 - 127			
Bromodichloromethane	19.7700	0.50	0.32	20.0000	ND	98.8	74 - 129			
Bromoform	17.5500	0.50	0.14	20.0000	ND	87.8	63 - 131			
Bromomethane	27.9600	0.50	0.22	20.0000	ND	140	57 - 216			
Carbon tetrachloride	17.7700	0.50	0.31	20.0000	ND	88.8	77 - 151			
Chlorobenzene	20.0800	0.50	0.16	20.0000	ND	100	73 - 125			
Chloroethane	26.3200	0.50	0.29	20.0000	ND	132	54 - 154			
Chloroform	19.7900	0.50	0.16	20.0000	ND	99.0	77 - 132			
Chloromethane	21.2700	0.50	0.19	20.0000	ND	106	57 - 142			
cis-1,2-Dichloroethene	19.8000	0.50	0.39	20.0000	ND	99.0	73 - 126			
cis-1,3-Dichloropropene	17.5600	0.50	0.08	20.0000	ND	87.8	76 - 120			
Dibromochloromethane	19.1600	0.50	0.11	20.0000	ND	95.8	71 - 126			
Dibromomethane	20.5300	0.50	0.09	20.0000	ND	103	73 - 121			
Dichlorodifluoromethane	20.0800	0.50	0.31	20.0000	ND	100	48 - 152			
Ethylbenzene	40.2600	0.50	0.08	40.0000	ND	101	72 - 134			
Hexachlorobutadiene	19.8900	0.50	0.22	20.0000	ND	99.4	72 - 139			
Isopropylbenzene	20.2500	0.50	0.10	20.0000	ND	101	73 - 146			
m,p-Xylene	39.6300	1.0	0.18	40.0000	ND	99.1	75 - 138			
Methylene chloride	21.1800	1.0	0.26	20.0000	ND	106	52 - 154			
n-Butylbenzene	19.9800	0.50	0.15	20.0000	ND	99.9	72 - 151			
n-Propylbenzene	19.8600	0.50	0.14	20.0000	ND	99.3	69 - 149			
Naphthalene	20.2000	0.50	0.09	20.0000	ND	101	61 - 122			
o-Xylene	38.2800	0.50	0.04	40.0000	ND	95.7	66 - 147			
sec-Butylbenzene	20.3400	0.50	0.15	20.0000	ND	102	72 - 148			
Styrene	20.1700	0.50	0.05	20.0000	ND	101	72 - 138			
tert-Butylbenzene	20.8700	0.50	0.11	20.0000	ND	104	70 - 145			
Tetrachloroethene	21.1900	0.50	0.18	20.0000	ND	106	61 - 145			
Toluene	40.2500	0.50	0.14	40.0000	ND	101	70 - 140			
trans-1,2-Dichloroethene	23.6000	0.50	0.15	20.0000	ND	118	73 - 130			
Trichloroethene	20.6600	0.50	0.15	20.0000	ND	103	69 - 126			
Trichlorofluoromethane	23.8900	0.50	0.33	20.0000	ND	119	70 - 159			
Vinyl chloride	21.8200	0.50	0.25	20.0000	ND	109	56 - 151			

Surrogate: 1,2-Dichloroethane-d4	24.72			25.0000		98.9	70 - 166
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Project Number : Raytheon Main, 532.30

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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
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Batch B7K0360 - MSVOA_W (continued)

Matrix Spike (B7K0360-MS1) - Continued

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

Surrogate: 4-Bromofluorobenzene	24.10		25.0000		96.4	88 - 120			
Surrogate: Dibromofluoromethane	26.29		25.0000		105	80 - 150			
Surrogate: Toluene-d8	24.92		25.0000		99.7	87 - 121			

Matrix Spike Dup (B7K0360-MSD1)

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	18.2900	0.50	0.13	20.0000	ND	91.4	73 - 136	3.50	20	
1,1,1-Trichloroethane	20.0600	0.50	0.38	20.0000	ND	100	73 - 143	0.893	20	
1,1,2,2-Tetrachloroethane	20.6700	0.50	0.20	20.0000	ND	103	62 - 127	0.483	20	
1,1,2-Trichloroethane	20.0500	0.50	0.19	20.0000	ND	100	72 - 122	3.86	20	
1,1-Dichloroethane	18.7200	0.50	0.20	20.0000	ND	93.6	73 - 138	0.851	20	
1,1-Dichloroethene	19.3400	0.50	0.28	20.0000	ND	96.7	74 - 132	7.47	20	
1,1-Dichloropropene	21.0500	0.50	0.36	20.0000	ND	105	70 - 143	3.96	20	
1,2,3-Trichloropropane	19.3300	0.50	0.16	20.0000	ND	96.6	66 - 119	0.00	20	
1,2,3-Trichlorobenzene	19.9700	0.50	0.06	20.0000	ND	99.8	70 - 131	1.16	20	
1,2,4-Trichlorobenzene	20.3800	0.50	0.07	20.0000	ND	102	70 - 128	2.74	20	
1,2,4-Trimethylbenzene	19.8700	0.50	0.09	20.0000	ND	99.4	74 - 142	1.10	20	
1,2-Dibromo-3-chloropropane	16.5300	0.50	0.20	20.0000	ND	82.6	56 - 118	2.51	20	
1,2-Dibromoethane	20.4700	0.50	0.13	20.0000	ND	102	73 - 122	1.18	20	
1,2-Dichlorobenzene	20.1100	0.50	0.12	20.0000	ND	101	75 - 128	0.349	20	
1,2-Dichloroethane	20.0700	0.50	0.39	20.0000	ND	100	70 - 131	1.63	20	
1,2-Dichloropropane	18.1700	0.50	0.47	20.0000	ND	90.8	69 - 124	2.23	20	
1,3,5-Trimethylbenzene	19.7200	0.50	0.08	20.0000	ND	98.6	73 - 144	0.707	20	
1,3-Dichlorobenzene	19.6000	0.50	0.13	20.0000	ND	98.0	75 - 131	0.102	20	
1,3-Dichloropropane	19.8500	0.50	0.08	20.0000	ND	99.2	70 - 122	2.65	20	
1,4-Dichlorobenzene	19.6400	0.50	0.18	20.0000	ND	98.2	75 - 127	0.356	20	
2,2-Dichloropropane	13.2900	0.50	0.23	20.0000	ND	66.4	68 - 151	5.97	20	M2
2-Chlorotoluene	19.5400	0.50	0.12	20.0000	ND	97.7	72 - 138	0.102	20	
4-Chlorotoluene	19.4400	0.50	0.11	20.0000	ND	97.2	72 - 140	0.412	20	
4-Isopropyltoluene	20.9100	0.50	0.12	20.0000	ND	105	74 - 149	0.0478	20	
Benzene	39.2800	0.50	0.21	40.0000	ND	98.2	67 - 138	2.64	20	
Bromobenzene	20.6100	0.50	0.12	20.0000	ND	103	73 - 127	0.387	20	
Bromodichloromethane	20.0000	0.50	0.32	20.0000	ND	100	74 - 129	1.16	20	
Bromoform	17.8200	0.50	0.14	20.0000	ND	89.1	63 - 131	1.53	20	
Bromomethane	29.8800	0.50	0.22	20.0000	ND	149	57 - 216	6.64	20	
Carbon tetrachloride	18.9600	0.50	0.31	20.0000	ND	94.8	77 - 151	6.48	20	
Chlorobenzene	20.1200	0.50	0.16	20.0000	ND	101	73 - 125	0.199	20	
Chloroethane	21.3800	0.50	0.29	20.0000	ND	107	54 - 154	20.7	20	R
Chloroform	19.8200	0.50	0.16	20.0000	ND	99.1	77 - 132	0.151	20	
Chloromethane	21.7100	0.50	0.19	20.0000	ND	109	57 - 142	2.05	20	
cis-1,2-Dichloroethene	19.7100	0.50	0.39	20.0000	ND	98.6	73 - 126	0.456	20	
cis-1,3-Dichloropropene	17.3100	0.50	0.08	20.0000	ND	86.6	76 - 120	1.43	20	
Dibromochloromethane	20.2500	0.50	0.11	20.0000	ND	101	71 - 126	5.53	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

Matrix Spike Dup (B7K0360-MSD1) - Continued

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

Dibromomethane	19.1000	0.50	0.09	20.0000	ND	95.5	73 - 121	7.22	20	
Dichlorodifluoromethane	20.2000	0.50	0.31	20.0000	ND	101	48 - 152	0.596	20	
Ethylbenzene	39.9100	0.50	0.08	40.0000	ND	99.8	72 - 134	0.873	20	
Hexachlorobutadiene	19.6900	0.50	0.22	20.0000	ND	98.4	72 - 139	1.01	20	
Isopropylbenzene	19.8900	0.50	0.10	20.0000	ND	99.4	73 - 146	1.79	20	
m,p-Xylene	39.3100	1.0	0.18	40.0000	ND	98.3	75 - 138	0.811	20	
Methylene chloride	18.3500	1.0	0.26	20.0000	ND	91.8	52 - 154	14.3	20	
n-Butylbenzene	19.6700	0.50	0.15	20.0000	ND	98.4	72 - 151	1.56	20	
n-Propylbenzene	19.9100	0.50	0.14	20.0000	ND	99.6	69 - 149	0.251	20	
Naphthalene	20.3900	0.50	0.09	20.0000	ND	102	61 - 122	0.936	20	
o-Xylene	38.5500	0.50	0.04	40.0000	ND	96.4	66 - 147	0.703	20	
sec-Butylbenzene	20.4400	0.50	0.15	20.0000	ND	102	72 - 148	0.490	20	
Styrene	20.1700	0.50	0.05	20.0000	ND	101	72 - 138	0.00	20	
tert-Butylbenzene	20.8500	0.50	0.11	20.0000	ND	104	70 - 145	0.0959	20	
Tetrachloroethene	21.3000	0.50	0.18	20.0000	ND	106	61 - 145	0.518	20	
Toluene	39.6200	0.50	0.14	40.0000	ND	99.0	70 - 140	1.58	20	
trans-1,2-Dichloroethene	36.4000	0.50	0.15	20.0000	ND	182	73 - 130	42.7	20	M2
Trichloroethene	20.1800	0.50	0.15	20.0000	ND	101	69 - 126	2.35	20	
Trichlorofluoromethane	23.8400	0.50	0.33	20.0000	ND	119	70 - 159	0.210	20	
Vinyl chloride	21.7300	0.50	0.25	20.0000	ND	109	56 - 151	0.413	20	
Surrogate: 1,2-Dichloroethane-d4	24.82			25.0000		99.3	70 - 166			
Surrogate: 4-Bromofluorobenzene	24.37			25.0000		97.5	88 - 120			
Surrogate: Dibromofluoromethane	25.99			25.0000		104	80 - 150			
Surrogate: Toluene-d8	24.81			25.0000		99.2	87 - 121			



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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0384 - MSVOA_W

Blank (B7K0384-BLK1)

Prepared: 11/14/2017 Analyzed: 11/14/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0384 - MSVOA_W (continued)

Blank (B7K0384-BLK1) - Continued

Prepared: 11/14/2017 Analyzed: 11/14/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	25.56		25.0000	102	70 - 166
Surrogate: 4-Bromofluorobenzene	25.19		25.0000	101	88 - 120
Surrogate: Dibromofluoromethane	24.62		25.0000	98.5	80 - 150
Surrogate: Toluene-d8	25.13		25.0000	101	87 - 121

LCS (B7K0384-BS1)

Prepared: 11/14/2017 Analyzed: 11/14/2017

1,1,1,2-Tetrachloroethane	20.2100	0.50	0.13	20.0000	101	73 - 136
1,1,1-Trichloroethane	19.5700	0.50	0.38	20.0000	97.8	73 - 143
1,1,2,2-Tetrachloroethane	19.3200	0.50	0.20	20.0000	96.6	62 - 127
1,1,2-Trichloroethane	18.2900	0.50	0.19	20.0000	91.4	72 - 122
1,1-Dichloroethane	19.4600	0.50	0.20	20.0000	97.3	73 - 138
1,1-Dichloroethene	16.5700	0.50	0.28	20.0000	82.8	74 - 132
1,1-Dichloropropene	20.1900	0.50	0.36	20.0000	101	70 - 143
1,2,3-Trichloropropane	18.6000	0.50	0.16	20.0000	93.0	66 - 119
1,2,3-Trichlorobenzene	18.9000	0.50	0.06	20.0000	94.5	70 - 131
1,2,4-Trichlorobenzene	18.7600	0.50	0.07	20.0000	93.8	70 - 128
1,2,4-Trimethylbenzene	19.4800	0.50	0.09	20.0000	97.4	74 - 142
1,2-Dibromo-3-chloropropane	18.4000	0.50	0.20	20.0000	92.0	56 - 118
1,2-Dibromoethane	20.3200	0.50	0.13	20.0000	102	73 - 122
1,2-Dichlorobenzene	18.4900	0.50	0.12	20.0000	92.4	75 - 128
1,2-Dichloroethane	18.8000	0.50	0.39	20.0000	94.0	70 - 131
1,2-Dichloropropane	19.2800	0.50	0.47	20.0000	96.4	69 - 124
1,3,5-Trimethylbenzene	19.6500	0.50	0.08	20.0000	98.2	73 - 144
1,3-Dichlorobenzene	18.4200	0.50	0.13	20.0000	92.1	75 - 131
1,3-Dichloropropane	18.8800	0.50	0.08	20.0000	94.4	70 - 122



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0384 - MSVOA_W (continued)

LCS (B7K0384-BS1) - Continued

Prepared: 11/14/2017 Analyzed: 11/14/2017

1,4-Dichlorobenzene	18.5900	0.50	0.18	20.0000		93.0	75 - 127		
2,2-Dichloropropane	25.6200	0.50	0.23	20.0000		128	68 - 151		
2-Chlorotoluene	19.0700	0.50	0.12	20.0000		95.4	72 - 138		
4-Chlorotoluene	19.3600	0.50	0.11	20.0000		96.8	72 - 140		
4-Isopropyltoluene	19.8200	0.50	0.12	20.0000		99.1	74 - 149		
Benzene	39.5100	0.50	0.21	40.0000		98.8	67 - 138		
Bromobenzene	18.8700	0.50	0.12	20.0000		94.4	73 - 127		
Bromodichloromethane	20.1500	0.50	0.32	20.0000		101	74 - 129		
Bromoform	20.1900	0.50	0.14	20.0000		101	63 - 131		
Bromomethane	22.9900	0.50	0.22	20.0000		115	57 - 216		
Carbon tetrachloride	22.0700	0.50	0.31	20.0000		110	77 - 151		
Chlorobenzene	18.6700	0.50	0.16	20.0000		93.4	73 - 125		
Chloroethane	19.8100	0.50	0.29	20.0000		99.0	54 - 154		
Chloroform	18.5900	0.50	0.16	20.0000		93.0	77 - 132		
Chloromethane	20.1800	0.50	0.19	20.0000		101	57 - 142		
cis-1,2-Dichloroethene	18.9800	0.50	0.39	20.0000		94.9	73 - 126		
cis-1,3-Dichloropropene	21.5000	0.50	0.08	20.0000		108	76 - 120		
Dibromochloromethane	21.1400	0.50	0.11	20.0000		106	71 - 126		
Dibromomethane	18.6800	0.50	0.09	20.0000		93.4	73 - 121		
Dichlorodifluoromethane	19.3600	0.50	0.31	20.0000		96.8	48 - 152		
Ethylbenzene	37.6900	0.50	0.08	40.0000		94.2	72 - 134		
Hexachlorobutadiene	19.6900	0.50	0.22	20.0000		98.4	72 - 139		
Isopropylbenzene	19.1200	0.50	0.10	20.0000		95.6	73 - 146		
m,p-Xylene	37.5800	1.0	0.18	40.0000		94.0	75 - 138		
Methylene chloride	18.6900	1.0	0.26	20.0000		93.4	52 - 154		
n-Butylbenzene	20.2300	0.50	0.15	20.0000		101	72 - 151		
n-Propylbenzene	19.8800	0.50	0.14	20.0000		99.4	69 - 149		
Naphthalene	18.9000	0.50	0.09	20.0000		94.5	61 - 122		
o-Xylene	37.2000	0.50	0.04	40.0000		93.0	66 - 147		
sec-Butylbenzene	19.2800	0.50	0.15	20.0000		96.4	72 - 148		
Styrene	19.1100	0.50	0.05	20.0000		95.6	72 - 138		
tert-Butylbenzene	19.0000	0.50	0.11	20.0000		95.0	70 - 145		
Tetrachloroethene	18.0500	0.50	0.18	20.0000		90.2	61 - 145		
Toluene	38.7200	0.50	0.14	40.0000		96.8	70 - 140		
trans-1,2-Dichloroethene	16.1800	0.50	0.15	20.0000		80.9	73 - 130		
Trichloroethene	18.2400	0.50	0.15	20.0000		91.2	69 - 126		
Trichlorofluoromethane	18.6300	0.50	0.33	20.0000		93.2	70 - 159		
Vinyl chloride	19.1000	0.50	0.25	20.0000		95.5	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	25.83			25.0000		103	70 - 166		
Surrogate: 4-Bromofluorobenzene	24.59			25.0000		98.4	88 - 120		
Surrogate: Dibromofluoromethane	25.42			25.0000		102	80 - 150		



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
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Batch B7K0384 - MSVOA_W (continued)

LCS (B7K0384-BS1) - Continued

Prepared: 11/14/2017 Analyzed: 11/14/2017

Surrogate: Toluene-d8 25.21 25.0000 101 87 - 121

LCS Dup (B7K0384-BS1)

Prepared: 11/14/2017 Analyzed: 11/14/2017

1,1,1,2-Tetrachloroethane	21.2900	0.50	0.13	20.0000	106	73 - 136	5.20	20	
1,1,1-Trichloroethane	20.2500	0.50	0.38	20.0000	101	73 - 143	3.42	20	
1,1,2,2-Tetrachloroethane	20.6900	0.50	0.20	20.0000	103	62 - 127	6.85	20	
1,1,2-Trichloroethane	19.6200	0.50	0.19	20.0000	98.1	72 - 122	7.02	20	
1,1-Dichloroethane	20.0600	0.50	0.20	20.0000	100	73 - 138	3.04	20	
1,1-Dichloroethene	18.6900	0.50	0.28	20.0000	93.4	74 - 132	12.0	20	
1,1-Dichloropropene	20.9500	0.50	0.36	20.0000	105	70 - 143	3.69	20	
1,2,3-Trichloropropane	20.1300	0.50	0.16	20.0000	101	66 - 119	7.90	20	
1,2,3-Trichlorobenzene	19.7400	0.50	0.06	20.0000	98.7	70 - 131	4.35	20	
1,2,4-Trichlorobenzene	19.7600	0.50	0.07	20.0000	98.8	70 - 128	5.19	20	
1,2,4-Trimethylbenzene	19.7300	0.50	0.09	20.0000	98.6	74 - 142	1.28	20	
1,2-Dibromo-3-chloropropane	20.6600	0.50	0.20	20.0000	103	56 - 118	11.6	20	
1,2-Dibromoethane	21.4000	0.50	0.13	20.0000	107	73 - 122	5.18	20	
1,2-Dichlorobenzene	19.1400	0.50	0.12	20.0000	95.7	75 - 128	3.45	20	
1,2-Dichloroethane	19.2100	0.50	0.39	20.0000	96.0	70 - 131	2.16	20	
1,2-Dichloropropane	19.6900	0.50	0.47	20.0000	98.4	69 - 124	2.10	20	
1,3,5-Trimethylbenzene	20.0100	0.50	0.08	20.0000	100	73 - 144	1.82	20	
1,3-Dichlorobenzene	19.1400	0.50	0.13	20.0000	95.7	75 - 131	3.83	20	
1,3-Dichloropropane	20.6100	0.50	0.08	20.0000	103	70 - 122	8.76	20	
1,4-Dichlorobenzene	18.6500	0.50	0.18	20.0000	93.2	75 - 127	0.322	20	
2,2-Dichloropropane	25.7200	0.50	0.23	20.0000	129	68 - 151	0.390	20	
2-Chlorotoluene	19.7400	0.50	0.12	20.0000	98.7	72 - 138	3.45	20	
4-Chlorotoluene	19.6000	0.50	0.11	20.0000	98.0	72 - 140	1.23	20	
4-Isopropyltoluene	20.2200	0.50	0.12	20.0000	101	74 - 149	2.00	20	
Benzene	40.3000	0.50	0.21	40.0000	101	67 - 138	1.98	20	
Bromobenzene	20.5600	0.50	0.12	20.0000	103	73 - 127	8.57	20	
Bromodichloromethane	20.4700	0.50	0.32	20.0000	102	74 - 129	1.58	20	
Bromoform	22.7100	0.50	0.14	20.0000	114	63 - 131	11.7	20	
Bromomethane	25.7800	0.50	0.22	20.0000	129	57 - 216	11.4	20	
Carbon tetrachloride	23.0800	0.50	0.31	20.0000	115	77 - 151	4.47	20	
Chlorobenzene	19.8400	0.50	0.16	20.0000	99.2	73 - 125	6.08	20	
Chloroethane	20.0300	0.50	0.29	20.0000	100	54 - 154	1.10	20	
Chloroform	19.4700	0.50	0.16	20.0000	97.4	77 - 132	4.62	20	
Chloromethane	21.6600	0.50	0.19	20.0000	108	57 - 142	7.07	20	
cis-1,2-Dichloroethene	19.3800	0.50	0.39	20.0000	96.9	73 - 126	2.09	20	
cis-1,3-Dichloropropene	21.5000	0.50	0.08	20.0000	108	76 - 120	0.00	20	
Dibromochloromethane	22.3300	0.50	0.11	20.0000	112	71 - 126	5.48	20	
Dibromomethane	19.5000	0.50	0.09	20.0000	97.5	73 - 121	4.30	20	
Dichlorodifluoromethane	20.2700	0.50	0.31	20.0000	101	48 - 152	4.59	20	



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0384 - MSVOA_W (continued)

LCS Dup (B7K0384-BSD1) - Continued

Prepared: 11/14/2017 Analyzed: 11/14/2017

Ethylbenzene	39.8900	0.50	0.08	40.0000		99.7	72 - 134	5.67	20	
Hexachlorobutadiene	20.5500	0.50	0.22	20.0000		103	72 - 139	4.27	20	
Isopropylbenzene	19.8600	0.50	0.10	20.0000		99.3	73 - 146	3.80	20	
m,p-Xylene	39.4600	1.0	0.18	40.0000		98.6	75 - 138	4.88	20	
Methylene chloride	21.2700	1.0	0.26	20.0000		106	52 - 154	12.9	20	
n-Butylbenzene	20.7700	0.50	0.15	20.0000		104	72 - 151	2.63	20	
n-Propylbenzene	20.1100	0.50	0.14	20.0000		101	69 - 149	1.15	20	
Naphthalene	20.9900	0.50	0.09	20.0000		105	61 - 122	10.5	20	
o-Xylene	39.7900	0.50	0.04	40.0000		99.5	66 - 147	6.73	20	
sec-Butylbenzene	20.1000	0.50	0.15	20.0000		100	72 - 148	4.16	20	
Styrene	19.9400	0.50	0.05	20.0000		99.7	72 - 138	4.25	20	
tert-Butylbenzene	19.6300	0.50	0.11	20.0000		98.2	70 - 145	3.26	20	
Tetrachloroethene	20.0600	0.50	0.18	20.0000		100	61 - 145	10.5	20	
Toluene	39.3100	0.50	0.14	40.0000		98.3	70 - 140	1.51	20	
trans-1,2-Dichloroethene	18.9300	0.50	0.15	20.0000		94.6	73 - 130	15.7	20	
Trichloroethene	19.1100	0.50	0.15	20.0000		95.6	69 - 126	4.66	20	
Trichlorofluoromethane	20.4800	0.50	0.33	20.0000		102	70 - 159	9.46	20	
Vinyl chloride	20.2100	0.50	0.25	20.0000		101	56 - 151	5.65	20	
Surrogate: 1,2-Dichloroethane-d4	26.70			25.0000		107	70 - 166			
Surrogate: 4-Bromofluorobenzene	25.74			25.0000		103	88 - 120			
Surrogate: Dibromofluoromethane	25.34			25.0000		101	80 - 150			
Surrogate: Toluene-d8	24.76			25.0000		99.0	87 - 121			



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 : 12/22/2017

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0437 - MSVOA_W

Blank (B7K0437-BLK1)

Prepared: 11/15/2017 Analyzed: 11/15/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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Reported : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0437 - MSVOA_W (continued)

Blank (B7K0437-BLK1) - Continued

Prepared: 11/15/2017 Analyzed: 11/15/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	25.42		25.0000	102	70 - 166
Surrogate: 4-Bromofluorobenzene	25.08		25.0000	100	88 - 120
Surrogate: Dibromofluoromethane	25.41		25.0000	102	80 - 150
Surrogate: Toluene-d8	25.71		25.0000	103	87 - 121

LCS (B7K0437-BS1)

Prepared: 11/15/2017 Analyzed: 11/15/2017

1,1,1,2-Tetrachloroethane	21.7500	0.50	0.13	20.0000	109	73 - 136
1,1,1-Trichloroethane	20.1200	0.50	0.38	20.0000	101	73 - 143
1,1,2,2-Tetrachloroethane	18.6400	0.50	0.20	20.0000	93.2	62 - 127
1,1,2-Trichloroethane	19.3600	0.50	0.19	20.0000	96.8	72 - 122
1,1-Dichloroethane	20.6500	0.50	0.20	20.0000	103	73 - 138
1,1-Dichloroethene	18.9700	0.50	0.28	20.0000	94.8	74 - 132
1,1-Dichloropropene	19.6300	0.50	0.36	20.0000	98.2	70 - 143
1,2,3-Trichloropropane	18.2000	0.50	0.16	20.0000	91.0	66 - 119
1,2,3-Trichlorobenzene	19.4000	0.50	0.06	20.0000	97.0	70 - 131
1,2,4-Trichlorobenzene	19.6300	0.50	0.07	20.0000	98.2	70 - 128
1,2,4-Trimethylbenzene	20.8400	0.50	0.09	20.0000	104	74 - 142
1,2-Dibromo-3-chloropropane	18.2600	0.50	0.20	20.0000	91.3	56 - 118
1,2-Dibromoethane	19.0000	0.50	0.13	20.0000	95.0	73 - 122
1,2-Dichlorobenzene	19.7000	0.50	0.12	20.0000	98.5	75 - 128
1,2-Dichloroethane	18.9500	0.50	0.39	20.0000	94.8	70 - 131
1,2-Dichloropropane	20.2700	0.50	0.47	20.0000	101	69 - 124
1,3,5-Trimethylbenzene	20.5800	0.50	0.08	20.0000	103	73 - 144
1,3-Dichlorobenzene	19.8800	0.50	0.13	20.0000	99.4	75 - 131
1,3-Dichloropropane	20.2100	0.50	0.08	20.0000	101	70 - 122



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Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0437 - MSVOA_W (continued)

LCS (B7K0437-BS1) - Continued

Prepared: 11/15/2017 Analyzed: 11/15/2017

1,4-Dichlorobenzene	19.3500	0.50	0.18	20.0000		96.8	75 - 127		
2,2-Dichloropropane	23.2000	0.50	0.23	20.0000		116	68 - 151		
2-Chlorotoluene	20.5500	0.50	0.12	20.0000		103	72 - 138		
4-Chlorotoluene	20.2500	0.50	0.11	20.0000		101	72 - 140		
4-Isopropyltoluene	20.9300	0.50	0.12	20.0000		105	74 - 149		
Benzene	40.6700	0.50	0.21	40.0000		102	67 - 138		
Bromobenzene	19.9300	0.50	0.12	20.0000		99.6	73 - 127		
Bromodichloromethane	20.0700	0.50	0.32	20.0000		100	74 - 129		
Bromoform	20.0200	0.50	0.14	20.0000		100	63 - 131		
Bromomethane	25.1300	0.50	0.22	20.0000		126	57 - 216		
Carbon tetrachloride	20.9500	0.50	0.31	20.0000		105	77 - 151		
Chlorobenzene	20.2600	0.50	0.16	20.0000		101	73 - 125		
Chloroethane	27.5100	0.50	0.29	20.0000		138	54 - 154		
Chloroform	20.5000	0.50	0.16	20.0000		102	77 - 132		
Chloromethane	23.4100	0.50	0.19	20.0000		117	57 - 142		
cis-1,2-Dichloroethene	19.7700	0.50	0.39	20.0000		98.8	73 - 126		
cis-1,3-Dichloropropene	21.0000	0.50	0.08	20.0000		105	76 - 120		
Dibromochloromethane	20.7200	0.50	0.11	20.0000		104	71 - 126		
Dibromomethane	19.3200	0.50	0.09	20.0000		96.6	73 - 121		
Dichlorodifluoromethane	19.6200	0.50	0.31	20.0000		98.1	48 - 152		
Ethylbenzene	41.5300	0.50	0.08	40.0000		104	72 - 134		
Hexachlorobutadiene	20.7900	0.50	0.22	20.0000		104	72 - 139		
Isopropylbenzene	19.9700	0.50	0.10	20.0000		99.8	73 - 146		
m,p-Xylene	40.8800	1.0	0.18	40.0000		102	75 - 138		
Methylene chloride	21.7800	1.0	0.26	20.0000		109	52 - 154		
n-Butylbenzene	21.3100	0.50	0.15	20.0000		107	72 - 151		
n-Propylbenzene	20.6000	0.50	0.14	20.0000		103	69 - 149		
Naphthalene	18.7500	0.50	0.09	20.0000		93.8	61 - 122		
o-Xylene	40.9800	0.50	0.04	40.0000		102	66 - 147		
sec-Butylbenzene	20.5400	0.50	0.15	20.0000		103	72 - 148		
Styrene	21.0600	0.50	0.05	20.0000		105	72 - 138		
tert-Butylbenzene	20.9500	0.50	0.11	20.0000		105	70 - 145		
Tetrachloroethene	20.6000	0.50	0.18	20.0000		103	61 - 145		
Toluene	39.6000	0.50	0.14	40.0000		99.0	70 - 140		
trans-1,2-Dichloroethene	18.9100	0.50	0.15	20.0000		94.6	73 - 130		
Trichloroethene	19.7300	0.50	0.15	20.0000		98.6	69 - 126		
Trichlorofluoromethane	21.0800	0.50	0.33	20.0000		105	70 - 159		
Vinyl chloride	20.5100	0.50	0.25	20.0000		103	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	26.20			25.0000		105	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.81			25.0000		103	88 - 120		
Surrogate: Dibromofluoromethane	25.20			25.0000		101	80 - 150		



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

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
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Batch B7K0437 - MSVOA_W (continued)

LCS (B7K0437-BS1) - Continued

Prepared: 11/15/2017 Analyzed: 11/15/2017

Surrogate: Toluene-d8 24.60 25.0000 98.4 87 - 121

LCS Dup (B7K0437-BSD1)

Prepared: 11/15/2017 Analyzed: 11/15/2017

1,1,1,2-Tetrachloroethane	20.8100	0.50	0.13	20.0000	104	73 - 136	4.42	20
1,1,1-Trichloroethane	20.1700	0.50	0.38	20.0000	101	73 - 143	0.248	20
1,1,2,2-Tetrachloroethane	20.5100	0.50	0.20	20.0000	103	62 - 127	9.55	20
1,1,2-Trichloroethane	19.9400	0.50	0.19	20.0000	99.7	72 - 122	2.95	20
1,1-Dichloroethane	20.5900	0.50	0.20	20.0000	103	73 - 138	0.291	20
1,1-Dichloroethene	18.4300	0.50	0.28	20.0000	92.2	74 - 132	2.89	20
1,1-Dichloropropene	19.8000	0.50	0.36	20.0000	99.0	70 - 143	0.862	20
1,2,3-Trichloropropane	19.4500	0.50	0.16	20.0000	97.2	66 - 119	6.64	20
1,2,3-Trichlorobenzene	19.8100	0.50	0.06	20.0000	99.0	70 - 131	2.09	20
1,2,4-Trichlorobenzene	20.0800	0.50	0.07	20.0000	100	70 - 128	2.27	20
1,2,4-Trimethylbenzene	21.3100	0.50	0.09	20.0000	107	74 - 142	2.23	20
1,2-Dibromo-3-chloropropane	20.0200	0.50	0.20	20.0000	100	56 - 118	9.20	20
1,2-Dibromoethane	19.8400	0.50	0.13	20.0000	99.2	73 - 122	4.33	20
1,2-Dichlorobenzene	20.4200	0.50	0.12	20.0000	102	75 - 128	3.59	20
1,2-Dichloroethane	20.0300	0.50	0.39	20.0000	100	70 - 131	5.54	20
1,2-Dichloropropane	20.4300	0.50	0.47	20.0000	102	69 - 124	0.786	20
1,3,5-Trimethylbenzene	20.5800	0.50	0.08	20.0000	103	73 - 144	0.00	20
1,3-Dichlorobenzene	20.3900	0.50	0.13	20.0000	102	75 - 131	2.53	20
1,3-Dichloropropane	20.2700	0.50	0.08	20.0000	101	70 - 122	0.296	20
1,4-Dichlorobenzene	19.7900	0.50	0.18	20.0000	99.0	75 - 127	2.25	20
2,2-Dichloropropane	23.3400	0.50	0.23	20.0000	117	68 - 151	0.602	20
2-Chlorotoluene	20.3200	0.50	0.12	20.0000	102	72 - 138	1.13	20
4-Chlorotoluene	20.3000	0.50	0.11	20.0000	102	72 - 140	0.247	20
4-Isopropyltoluene	20.9700	0.50	0.12	20.0000	105	74 - 149	0.191	20
Benzene	40.2300	0.50	0.21	40.0000	101	67 - 138	1.09	20
Bromobenzene	19.8500	0.50	0.12	20.0000	99.2	73 - 127	0.402	20
Bromodichloromethane	20.5300	0.50	0.32	20.0000	103	74 - 129	2.27	20
Bromoform	21.3200	0.50	0.14	20.0000	107	63 - 131	6.29	20
Bromomethane	26.8900	0.50	0.22	20.0000	134	57 - 216	6.77	20
Carbon tetrachloride	22.1500	0.50	0.31	20.0000	111	77 - 151	5.57	20
Chlorobenzene	20.1400	0.50	0.16	20.0000	101	73 - 125	0.594	20
Chloroethane	26.5600	0.50	0.29	20.0000	133	54 - 154	3.51	20
Chloroform	19.9600	0.50	0.16	20.0000	99.8	77 - 132	2.67	20
Chloromethane	21.6300	0.50	0.19	20.0000	108	57 - 142	7.90	20
cis-1,2-Dichloroethene	19.2400	0.50	0.39	20.0000	96.2	73 - 126	2.72	20
cis-1,3-Dichloropropene	21.7500	0.50	0.08	20.0000	109	76 - 120	3.51	20
Dibromochloromethane	20.5600	0.50	0.11	20.0000	103	71 - 126	0.775	20
Dibromomethane	19.9100	0.50	0.09	20.0000	99.6	73 - 121	3.01	20
Dichlorodifluoromethane	19.0900	0.50	0.31	20.0000	95.4	48 - 152	2.74	20



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0437 - MSVOA_W (continued)

LCS Dup (B7K0437-BSD1) - Continued

Prepared: 11/15/2017 Analyzed: 11/15/2017

Ethylbenzene	41.5500	0.50	0.08	40.0000		104	72 - 134	0.0481	20
Hexachlorobutadiene	20.8900	0.50	0.22	20.0000		104	72 - 139	0.480	20
Isopropylbenzene	20.1400	0.50	0.10	20.0000		101	73 - 146	0.848	20
m,p-Xylene	40.3600	1.0	0.18	40.0000		101	75 - 138	1.28	20
Methylene chloride	20.6800	1.0	0.26	20.0000		103	52 - 154	5.18	20
n-Butylbenzene	21.0300	0.50	0.15	20.0000		105	72 - 151	1.32	20
n-Propylbenzene	20.4000	0.50	0.14	20.0000		102	69 - 149	0.976	20
Naphthalene	20.3700	0.50	0.09	20.0000		102	61 - 122	8.28	20
o-Xylene	40.4500	0.50	0.04	40.0000		101	66 - 147	1.30	20
sec-Butylbenzene	20.2300	0.50	0.15	20.0000		101	72 - 148	1.52	20
Styrene	21.0700	0.50	0.05	20.0000		105	72 - 138	0.0475	20
tert-Butylbenzene	20.9700	0.50	0.11	20.0000		105	70 - 145	0.0954	20
Tetrachloroethene	20.1600	0.50	0.18	20.0000		101	61 - 145	2.16	20
Toluene	40.3600	0.50	0.14	40.0000		101	70 - 140	1.90	20
trans-1,2-Dichloroethene	18.2900	0.50	0.15	20.0000		91.4	73 - 130	3.33	20
Trichloroethene	20.5300	0.50	0.15	20.0000		103	69 - 126	3.97	20
Trichlorofluoromethane	21.1300	0.50	0.33	20.0000		106	70 - 159	0.237	20
Vinyl chloride	20.3900	0.50	0.25	20.0000		102	56 - 151	0.587	20
Surrogate: 1,2-Dichloroethane-d4	25.05			25.0000		100	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.83			25.0000		103	88 - 120		
Surrogate: Dibromofluoromethane	25.46			25.0000		102	80 - 150		
Surrogate: Toluene-d8	25.14			25.0000		101	87 - 121		



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Reported : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0255 - MSSEMI_W

Blank (B7K0255-BLK1)

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	ND	2.0	0.84							
Surrogate: 1,2-Dichlorobenzene-d	64.42			100.000		64.4	17 - 101			
Surrogate: 2-Fluorobiphenyl	80.78			100.000		80.8	29 - 109			
Surrogate: 4-Terphenyl-d14	99.68			100.000		99.7	49 - 122			
Surrogate: Nitrobenzene-d5	68.61			100.000		68.6	19 - 111			

LCS (B7K0255-BS1)

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	53.5200	2.0	0.84	50.0000		107	85 - 121			
Surrogate: 1,2-Dichlorobenzene-d	63.95			100.000		64.0	17 - 101			
Surrogate: 2-Fluorobiphenyl	79.99			100.000		80.0	29 - 109			
Surrogate: 4-Terphenyl-d14	92.13			100.000		92.1	49 - 122			
Surrogate: Nitrobenzene-d5	72.27			100.000		72.3	19 - 111			

Matrix Spike (B7K0255-MS1)

Source: 1703949-01

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	48.6500	2.0	0.84	50.0000	ND	97.3	85 - 121			
Surrogate: 1,2-Dichlorobenzene-d	70.41			100.000		70.4	17 - 101			
Surrogate: 2-Fluorobiphenyl	79.17			100.000		79.2	29 - 109			
Surrogate: 4-Terphenyl-d14	88.98			100.000		89.0	49 - 122			
Surrogate: Nitrobenzene-d5	73.54			100.000		73.5	19 - 111			

Matrix Spike Dup (B7K0255-MSD1)

Source: 1703949-01

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	50.9100	2.0	0.84	50.0000	ND	102	85 - 121	4.54	20	
Surrogate: 1,2-Dichlorobenzene-d	68.81			100.000		68.8	17 - 101			
Surrogate: 2-Fluorobiphenyl	81.27			100.000		81.3	29 - 109			
Surrogate: 4-Terphenyl-d14	87.80			100.000		87.8	49 - 122			
Surrogate: Nitrobenzene-d5	70.72			100.000		70.7	19 - 111			



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 : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0287 - MSSEMI_W

Blank (B7K0287-BLK1)

Prepared: 11/9/2017 Analyzed: 11/13/2017

1,4-Dioxane	ND	0.20	0.11							
Surrogate: 1,2-Dichlorobenzene-d	0.7431			1.00000		74.3	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.7583			1.00000		75.8	29 - 105			
Surrogate: 4-Terphenyl-d14	0.8895			1.00000		88.9	32 - 119			
Surrogate: Nitrobenzene-d5	0.8745			1.00000		87.4	17 - 123			

LCS (B7K0287-BS1)

Prepared: 11/9/2017 Analyzed: 11/13/2017

1,4-Dioxane	0.993600	0.20	0.11	1.00000		99.4	61 - 166			
Surrogate: 1,2-Dichlorobenzene-d	0.7793			1.00000		77.9	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.8451			1.00000		84.5	29 - 105			
Surrogate: 4-Terphenyl-d14	0.9293			1.00000		92.9	32 - 119			
Surrogate: Nitrobenzene-d5	0.8544			1.00000		85.4	17 - 123			

LCS Dup (B7K0287-BSD1)

Prepared: 11/9/2017 Analyzed: 11/13/2017

1,4-Dioxane	0.913320	0.20	0.11	1.00000		91.3	61 - 166	8.42	20	
Surrogate: 1,2-Dichlorobenzene-d	0.7936			1.00000		79.4	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.8568			1.00000		85.7	29 - 105			
Surrogate: 4-Terphenyl-d14	0.8820			1.00000		88.2	32 - 119			
Surrogate: Nitrobenzene-d5	0.8499			1.00000		85.0	17 - 123			



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 12/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0311 - MSSEMI_W

Blank (B7K0311-BLK1)

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	ND	0.20	0.11						
Surrogate: 1,2-Dichlorobenzene-d	0.8374			1.00000		83.7	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8780			1.00000		87.8	29 - 105		
Surrogate: 4-Terphenyl-d14	0.9420			1.00000		94.2	32 - 119		
Surrogate: Nitrobenzene-d5	0.9705			1.00000		97.0	17 - 123		

LCS (B7K0311-BS1)

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	1.06686	0.20	0.11	1.00000		107	61 - 166		
Surrogate: 1,2-Dichlorobenzene-d	0.8996			1.00000		90.0	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.9040			1.00000		90.4	29 - 105		
Surrogate: 4-Terphenyl-d14	0.9733			1.00000		97.3	32 - 119		
Surrogate: Nitrobenzene-d5	1.050			1.00000		105	17 - 123		

Matrix Spike (B7K0311-MS1)

Source: 1703979-13

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	1.18057	0.20	0.11	1.00000	ND	118	61 - 166		
Surrogate: 1,2-Dichlorobenzene-d	0.8693			1.00000		86.9	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8780			1.00000		87.8	29 - 105		
Surrogate: 4-Terphenyl-d14	0.8291			1.00000		82.9	32 - 119		
Surrogate: Nitrobenzene-d5	0.9912			1.00000		99.1	17 - 123		

Matrix Spike Dup (B7K0311-MSD1)

Source: 1703979-13

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	1.09754	0.20	0.11	1.00000	ND	110	61 - 166	7.29	20
Surrogate: 1,2-Dichlorobenzene-d	0.8686			1.00000		86.9	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8657			1.00000		86.6	29 - 105		
Surrogate: 4-Terphenyl-d14	0.8758			1.00000		87.6	32 - 119		
Surrogate: Nitrobenzene-d5	0.9367			1.00000		93.7	17 - 123		



Certificate of Analysis

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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 : 12/22/2017

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.
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)

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		Laboratory							
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)	Ice	40-ml VOA	1 L Amber	VOCs by EPA-524-2	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	Level IV Data Validation Requested	MS/MSD Requested	REMARKS	
1703979-01	MW-26C	11/07/17	10:10	X	X		X	3		X			X							X			Report J Flags
	↓		↓	X			X				X		X							X			
-02	RB-110717		10:45	X	X		X	3		X			X							X			
	↓		↓	X			X				X		X							X			
-03	MW-08		11:30	X	X		X	3		X					X					X			
	↓		↓	X			X				X		X							X			
-04	MW-34B		13:45	X	X		X	3		X				X						X			
	↓		↓	X			X					X	X							X			
-05	MW-2400B		13:46	X	X		X	3		X				X						X			
	↓		↓	X			X					X	X							X			
-06	MW-41		14:48	X	X		X	3		X			X							X			
	↓		↓	X			X				X		X							X			
-07	MW-30A		15:58	X	X		X	3		X			X							X			
	↓		↓	X			X				X		X							X			
Total number of containers per analysis:										Total No. of Containers: _____													
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																		
TJS / H&A		11/7/17 1648	AKW ATL		11/7/17 1648																		
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																		
AKW ATL		11/7/17 1759	FPD/MAK ATL		11/7/17 1759																		

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

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.

0.8°C / 1.2°C 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		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)	Ice	40-ml VOA	1 L Amber	VOCs by EPA 524-2	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	Level IV Data Validation Requested	MS/MSD Requested	REMARKS
1703979-08	TR-110717	11/7/17	730	X	X		X	2		X												Report J Flags
-09	MW-32B-1.5SV		840	X	X		X	3		X					X							
	↓		↓	X			X		1		X											
-10	MW-32B		910	X	X		X	3		X	X				X							
	↓		↓	X			X		1		X											
-4	MW-36-1.5SV		1020	X	X		X	3		X					X							
	↓		↓	X			X		1		X											
-12	MW-36		1105	X	X		X	3		X					X							
	↓		↓	X			X		1		X											
-13	MW-39		1212	X	X		X	9		X					X						X	
	↓		↓	X			X		3		X										X	
-14	MW-33-1.5SV		1329	X	X		X	3		X					X						X	
	↓		↓	X			X		1		X										X	
-15	MW-33		1353	X	X		X	3		X					X						X	
	↓		↓	X			X		1		X										X	
-16	MW-35C		1520	X	X		X	3		X					X						X	
	↓		↓	X			X		1		X										X	

Total number of containers per analysis:

Total No. of Containers: _____

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>T. Evans / HJA</u>	<u>11/7/17 1640</u>	<u>ATL</u>	<u>11/7/17 1648</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>ATL</u>	<u>11/7/17 1759</u>	<u>F. D. W. / ATL</u>	<u>11/7/17 1759</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.

Temperature on receipt



TASK NO.: 532.30

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Date: 11/7/17
Page 2 of 2

[illegible]

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 x
Note applicable preservatives, special instructions, and deviations from typical environmental samples.
Consult project QA documents for specific instructions.

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

snetto@hargis.com



November 15, 2017

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

Re: ATL Work Order Number : 1703990
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on November 08, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Eddie Rodriguez', is shown 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 : 11/15/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-110817	1703990-01	Lab Prepared Water	11/08/17 7:30	11/08/17 12:14
MW-31	1703990-02	Groundwater	11/08/17 8:13	11/08/17 12:14
MW-30B	1703990-03	Groundwater	11/08/17 8:52	11/08/17 12:14
MW-28	1703990-04	Groundwater	11/08/17 8:08	11/08/17 12:14
MW-40	1703990-05	Groundwater	11/08/17 9:14	11/08/17 12:14

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



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 : 11/15/2017

Client Sample ID TB-110817

Lab ID: 1703990-01

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	B7K0360	11/13/2017	11/13/17 17:03	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,1-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/15/2017

Client Sample ID TB-110817

Lab ID: 1703990-01

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	B7K0360	11/13/2017	11/13/17 17:03	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 17:03	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 17:03	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 17:03	
Surrogate: 1,2-Dichloroethane-d4	96.8 %	70 - 166		B7K0360	11/13/2017	11/13/17 17:03	
Surrogate: 4-Bromofluorobenzene	97.2 %	88 - 120		B7K0360	11/13/2017	11/13/17 17:03	
Surrogate: Dibromofluoromethane	105 %	80 - 150		B7K0360	11/13/2017	11/13/17 17:03	
Surrogate: Toluene-d8	100 %	87 - 121		B7K0360	11/13/2017	11/13/17 17:03	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/15/2017

Client Sample ID MW-31

Lab ID: 1703990-02

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	B7K0360	11/13/2017	11/13/17 19:22	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,1-Dichloroethene	45	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	



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 : 11/15/2017

Client Sample ID MW-31

Lab ID: 1703990-02

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	B7K0360	11/13/2017	11/13/17 19:22	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 19:22	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 19:22	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Trichloroethene	3.3	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 19:22	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>96.2 %</i>	<i>70 - 166</i>		B7K0360	11/13/2017	<i>11/13/17 19:22</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.9 %</i>	<i>88 - 120</i>		B7K0360	11/13/2017	<i>11/13/17 19:22</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>	<i>80 - 150</i>		B7K0360	11/13/2017	<i>11/13/17 19:22</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>87 - 121</i>		B7K0360	11/13/2017	<i>11/13/17 19:22</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/15/2017

Client Sample ID MW-31

Lab ID: 1703990-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	1.7	0.20	1	B7K0311	11/10/2017	11/14/17 17:38	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	84.3 %	32 - 99		B7K0311	11/10/2017	11/14/17 17:38	
<i>Surrogate: 2-Fluorobiphenyl</i>	84.8 %	29 - 105		B7K0311	11/10/2017	11/14/17 17:38	
<i>Surrogate: 4-Terphenyl-d14</i>	87.6 %	32 - 119		B7K0311	11/10/2017	11/14/17 17:38	
<i>Surrogate: Nitrobenzene-d5</i>	92.9 %	17 - 123		B7K0311	11/10/2017	11/14/17 17:38	



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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 : 11/15/2017

Client Sample ID MW-30B

Lab ID: 1703990-03

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	B7K0360	11/13/2017	11/13/17 18:36	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,1-Dichloroethene	18	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
cis-1,2-Dichloroethene	5.2	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	



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 : 11/15/2017

Client Sample ID MW-30B

Lab ID: 1703990-03

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	B7K0360	11/13/2017	11/13/17 18:36	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 18:36	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 18:36	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Trichloroethene	86	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:36	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>100 %</i>	<i>70 - 166</i>		B7K0360	11/13/2017	<i>11/13/17 18:36</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.8 %</i>	<i>88 - 120</i>		B7K0360	11/13/2017	<i>11/13/17 18:36</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>80 - 150</i>		B7K0360	11/13/2017	<i>11/13/17 18:36</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>87 - 121</i>		B7K0360	11/13/2017	<i>11/13/17 18:36</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 : 11/15/2017

Client Sample ID MW-30B

Lab ID: 1703990-03

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 18:05	
Surrogate: 1,2-Dichlorobenzene-d4	81.1 %	32 - 99		B7K0311	11/10/2017	11/14/17 18:05	
Surrogate: 2-Fluorobiphenyl	86.6 %	29 - 105		B7K0311	11/10/2017	11/14/17 18:05	
Surrogate: 4-Terphenyl-d14	89.8 %	32 - 119		B7K0311	11/10/2017	11/14/17 18:05	
Surrogate: Nitrobenzene-d5	89.3 %	17 - 123		B7K0311	11/10/2017	11/14/17 18:05	



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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 : 11/15/2017

Client Sample ID MW-28

Lab ID: 1703990-04

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	B7K0360	11/13/2017	11/13/17 18:59	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,1-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	



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 : 11/15/2017

Client Sample ID MW-28

Lab ID: 1703990-04

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	B7K0360	11/13/2017	11/13/17 18:59	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 18:59	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 18:59	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:59	
Surrogate: 1,2-Dichloroethane-d4	98.5 %	70 - 166		B7K0360	11/13/2017	11/13/17 18:59	
Surrogate: 4-Bromofluorobenzene	99.0 %	88 - 120		B7K0360	11/13/2017	11/13/17 18:59	
Surrogate: Dibromofluoromethane	104 %	80 - 150		B7K0360	11/13/2017	11/13/17 18:59	
Surrogate: Toluene-d8	99.2 %	87 - 121		B7K0360	11/13/2017	11/13/17 18:59	



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 : 11/15/2017

Client Sample ID MW-28

Lab ID: 1703990-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 18:32	
Surrogate: 1,2-Dichlorobenzene-d4	83.7 %	32 - 99		B7K0311	11/10/2017	11/14/17 18:32	
Surrogate: 2-Fluorobiphenyl	88.0 %	29 - 105		B7K0311	11/10/2017	11/14/17 18:32	
Surrogate: 4-Terphenyl-d14	87.5 %	32 - 119		B7K0311	11/10/2017	11/14/17 18:32	
Surrogate: Nitrobenzene-d5	91.8 %	17 - 123		B7K0311	11/10/2017	11/14/17 18:32	



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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 : 11/15/2017

Client Sample ID MW-40

Lab ID: 1703990-05

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	B7K0360	11/13/2017	11/13/17 18:13	
1,1,1-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,1,2-Trichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,1-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,1-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,1-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2,3-Trichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2-Dibromoethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2-Dichloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,3-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,3-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
1,4-Dichlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
2,2-Dichloropropane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
2-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
4-Chlorotoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
4-Isopropyltoluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Benzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Bromobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Bromodichloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Bromoform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Bromomethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Carbon tetrachloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Chlorobenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Chloroethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Chloroform	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Chloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Dibromochloromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	



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 : 11/15/2017

Client Sample ID MW-40

Lab ID: 1703990-05

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	B7K0360	11/13/2017	11/13/17 18:13	
Dichlorodifluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Ethylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Hexachlorobutadiene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Isopropylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
m,p-Xylene	ND	1.0	1	B7K0360	11/13/2017	11/13/17 18:13	
Methylene chloride	ND	1.0	1	B7K0360	11/13/2017	11/13/17 18:13	
n-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
n-Propylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Naphthalene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
o-Xylene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
sec-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Styrene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
tert-Butylbenzene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Tetrachloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Toluene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Trichloroethene	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Trichlorofluoromethane	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Vinyl chloride	ND	0.50	1	B7K0360	11/13/2017	11/13/17 18:13	
Surrogate: 1,2-Dichloroethane-d4	98.0 %	70 - 166		B7K0360	11/13/2017	11/13/17 18:13	
Surrogate: 4-Bromofluorobenzene	98.9 %	88 - 120		B7K0360	11/13/2017	11/13/17 18:13	
Surrogate: Dibromofluoromethane	102 %	80 - 150		B7K0360	11/13/2017	11/13/17 18:13	
Surrogate: Toluene-d8	99.8 %	87 - 121		B7K0360	11/13/2017	11/13/17 18:13	



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 : 11/15/2017

Client Sample ID MW-40

Lab ID: 1703990-05

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0311	11/10/2017	11/14/17 19:00	
Surrogate: 1,2-Dichlorobenzene-d4	82.6 %	32 - 99		B7K0311	11/10/2017	11/14/17 19:00	
Surrogate: 2-Fluorobiphenyl	86.8 %	29 - 105		B7K0311	11/10/2017	11/14/17 19:00	
Surrogate: 4-Terphenyl-d14	87.8 %	32 - 119		B7K0311	11/10/2017	11/14/17 19:00	
Surrogate: Nitrobenzene-d5	91.7 %	17 - 123		B7K0311	11/10/2017	11/14/17 19:00	



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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 : 11/15/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W

Blank (B7K0360-BLK1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31



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 : 11/15/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

Blank (B7K0360-BLK1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.60		25.0000	98.4	70 - 166
Surrogate: 4-Bromofluorobenzene	24.59		25.0000	98.4	88 - 120
Surrogate: Dibromofluoromethane	26.56		25.0000	106	80 - 150
Surrogate: Toluene-d8	25.36		25.0000	101	87 - 121

LCS (B7K0360-BS1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	18.5900	0.50	0.13	20.0000	93.0	73 - 136
1,1,1-Trichloroethane	19.9100	0.50	0.38	20.0000	99.6	73 - 143
1,1,2,2-Tetrachloroethane	20.1600	0.50	0.20	20.0000	101	62 - 127
1,1,2-Trichloroethane	18.4300	0.50	0.19	20.0000	92.2	72 - 122
1,1-Dichloroethane	19.1200	0.50	0.20	20.0000	95.6	73 - 138
1,1-Dichloroethene	21.7700	0.50	0.28	20.0000	109	74 - 132
1,1-Dichloropropene	22.0400	0.50	0.36	20.0000	110	70 - 143
1,2,3-Trichloropropane	18.7200	0.50	0.16	20.0000	93.6	66 - 119
1,2,3-Trichlorobenzene	20.2300	0.50	0.06	20.0000	101	70 - 131
1,2,4-Trichlorobenzene	20.4600	0.50	0.07	20.0000	102	70 - 128
1,2,4-Trimethylbenzene	21.4400	0.50	0.09	20.0000	107	74 - 142
1,2-Dibromo-3-chloropropane	14.1000	0.50	0.20	20.0000	70.5	56 - 118
1,2-Dibromoethane	18.1600	0.50	0.13	20.0000	90.8	73 - 122
1,2-Dichlorobenzene	20.6000	0.50	0.12	20.0000	103	75 - 128
1,2-Dichloroethane	19.2300	0.50	0.39	20.0000	96.2	70 - 131
1,2-Dichloropropane	18.5600	0.50	0.47	20.0000	92.8	69 - 124
1,3,5-Trimethylbenzene	21.5300	0.50	0.08	20.0000	108	73 - 144



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/15/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

LCS (B7K0360-BS1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,3-Dichlorobenzene	20.6000	0.50	0.13	20.0000		103	75 - 131		
1,3-Dichloropropane	19.9600	0.50	0.08	20.0000		99.8	70 - 122		
1,4-Dichlorobenzene	20.3700	0.50	0.18	20.0000		102	75 - 127		
2,2-Dichloropropane	15.2900	0.50	0.23	20.0000		76.4	68 - 151		
2-Chlorotoluene	21.0600	0.50	0.12	20.0000		105	72 - 138		
4-Chlorotoluene	20.9300	0.50	0.11	20.0000		105	72 - 140		
4-Isopropyltoluene	22.6100	0.50	0.12	20.0000		113	74 - 149		
Benzene	40.7400	0.50	0.21	40.0000		102	67 - 138		
Bromobenzene	20.8100	0.50	0.12	20.0000		104	73 - 127		
Bromodichloromethane	19.5100	0.50	0.32	20.0000		97.6	74 - 129		
Bromoform	15.5400	0.50	0.14	20.0000		77.7	63 - 131		
Bromomethane	28.3100	0.50	0.22	20.0000		142	57 - 216		
Carbon tetrachloride	17.4100	0.50	0.31	20.0000		87.0	77 - 151		
Chlorobenzene	21.3500	0.50	0.16	20.0000		107	73 - 125		
Chloroethane	24.4500	0.50	0.29	20.0000		122	54 - 154		
Chloroform	19.9400	0.50	0.16	20.0000		99.7	77 - 132		
Chloromethane	21.5900	0.50	0.19	20.0000		108	57 - 142		
cis-1,2-Dichloroethene	20.2100	0.50	0.39	20.0000		101	73 - 126		
cis-1,3-Dichloropropene	17.5300	0.50	0.08	20.0000		87.6	76 - 120		
Dibromochloromethane	19.0000	0.50	0.11	20.0000		95.0	71 - 126		
Dibromomethane	18.9900	0.50	0.09	20.0000		95.0	73 - 121		
Dichlorodifluoromethane	21.3900	0.50	0.31	20.0000		107	48 - 152		
Ethylbenzene	43.5800	0.50	0.08	40.0000		109	72 - 134		
Hexachlorobutadiene	21.6300	0.50	0.22	20.0000		108	72 - 139		
Isopropylbenzene	22.0300	0.50	0.10	20.0000		110	73 - 146		
m,p-Xylene	42.6200	1.0	0.18	40.0000		107	75 - 138		
Methylene chloride	23.7200	1.0	0.26	20.0000		119	52 - 154		
n-Butylbenzene	22.6700	0.50	0.15	20.0000		113	72 - 151		
n-Propylbenzene	21.8100	0.50	0.14	20.0000		109	69 - 149		
Naphthalene	19.2000	0.50	0.09	20.0000		96.0	61 - 122		
o-Xylene	40.7800	0.50	0.04	40.0000		102	66 - 147		
sec-Butylbenzene	22.2800	0.50	0.15	20.0000		111	72 - 148		
Styrene	21.4600	0.50	0.05	20.0000		107	72 - 138		
tert-Butylbenzene	22.5300	0.50	0.11	20.0000		113	70 - 145		
Tetrachloroethene	23.2200	0.50	0.18	20.0000		116	61 - 145		
Toluene	39.1200	0.50	0.14	40.0000		97.8	70 - 140		
trans-1,2-Dichloroethene	23.4500	0.50	0.15	20.0000		117	73 - 130		
Trichloroethene	20.7100	0.50	0.15	20.0000		104	69 - 126		
Trichlorofluoromethane	25.0500	0.50	0.33	20.0000		125	70 - 159		
Vinyl chloride	22.4900	0.50	0.25	20.0000		112	56 - 151		

Surrogate: 1,2-Dichloroethane-d4	24.50			25.0000		98.0	70 - 166		
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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 : 11/15/2017

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
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Batch B7K0360 - MSVOA_W (continued)

LCS (B7K0360-BS1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

Surrogate: 4-Bromofluorobenzene	25.81		25.0000		103	88 - 120			
Surrogate: Dibromofluoromethane	25.61		25.0000		102	80 - 150			
Surrogate: Toluene-d8	24.45		25.0000		97.8	87 - 121			

LCS Dup (B7K0360-BSD1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	18.5200	0.50	0.13	20.0000	92.6	73 - 136	0.377	20	
1,1,1-Trichloroethane	20.0100	0.50	0.38	20.0000	100	73 - 143	0.501	20	
1,1,2,2-Tetrachloroethane	20.0200	0.50	0.20	20.0000	100	62 - 127	0.697	20	
1,1,2-Trichloroethane	18.1400	0.50	0.19	20.0000	90.7	72 - 122	1.59	20	
1,1-Dichloroethane	18.8300	0.50	0.20	20.0000	94.2	73 - 138	1.53	20	
1,1-Dichloroethene	20.1400	0.50	0.28	20.0000	101	74 - 132	7.78	20	
1,1-Dichloropropene	20.9500	0.50	0.36	20.0000	105	70 - 143	5.07	20	
1,2,3-Trichloropropane	18.4000	0.50	0.16	20.0000	92.0	66 - 119	1.72	20	
1,2,3-Trichlorobenzene	19.4900	0.50	0.06	20.0000	97.4	70 - 131	3.73	20	
1,2,4-Trichlorobenzene	20.8100	0.50	0.07	20.0000	104	70 - 128	1.70	20	
1,2,4-Trimethylbenzene	21.1400	0.50	0.09	20.0000	106	74 - 142	1.41	20	
1,2-Dibromo-3-chloropropane	14.3800	0.50	0.20	20.0000	71.9	56 - 118	1.97	20	
1,2-Dibromoethane	18.0400	0.50	0.13	20.0000	90.2	73 - 122	0.663	20	
1,2-Dichlorobenzene	20.3700	0.50	0.12	20.0000	102	75 - 128	1.12	20	
1,2-Dichloroethane	19.6500	0.50	0.39	20.0000	98.2	70 - 131	2.16	20	
1,2-Dichloropropane	18.1600	0.50	0.47	20.0000	90.8	69 - 124	2.18	20	
1,3,5-Trimethylbenzene	21.0000	0.50	0.08	20.0000	105	73 - 144	2.49	20	
1,3-Dichlorobenzene	20.4200	0.50	0.13	20.0000	102	75 - 131	0.878	20	
1,3-Dichloropropane	19.3100	0.50	0.08	20.0000	96.6	70 - 122	3.31	20	
1,4-Dichlorobenzene	20.2100	0.50	0.18	20.0000	101	75 - 127	0.789	20	
2,2-Dichloropropane	16.2400	0.50	0.23	20.0000	81.2	68 - 151	6.03	20	
2-Chlorotoluene	21.0800	0.50	0.12	20.0000	105	72 - 138	0.0949	20	
4-Chlorotoluene	20.8300	0.50	0.11	20.0000	104	72 - 140	0.479	20	
4-Isopropyltoluene	22.1000	0.50	0.12	20.0000	110	74 - 149	2.28	20	
Benzene	39.6000	0.50	0.21	40.0000	99.0	67 - 138	2.84	20	
Bromobenzene	20.4100	0.50	0.12	20.0000	102	73 - 127	1.94	20	
Bromodichloromethane	19.4600	0.50	0.32	20.0000	97.3	74 - 129	0.257	20	
Bromoform	16.5900	0.50	0.14	20.0000	83.0	63 - 131	6.54	20	
Bromomethane	28.3900	0.50	0.22	20.0000	142	57 - 216	0.282	20	
Carbon tetrachloride	18.1500	0.50	0.31	20.0000	90.8	77 - 151	4.16	20	
Chlorobenzene	20.9800	0.50	0.16	20.0000	105	73 - 125	1.75	20	
Chloroethane	24.5300	0.50	0.29	20.0000	123	54 - 154	0.327	20	
Chloroform	19.1600	0.50	0.16	20.0000	95.8	77 - 132	3.99	20	
Chloromethane	20.9700	0.50	0.19	20.0000	105	57 - 142	2.91	20	
cis-1,2-Dichloroethene	19.4200	0.50	0.39	20.0000	97.1	73 - 126	3.99	20	
cis-1,3-Dichloropropene	17.8600	0.50	0.08	20.0000	89.3	76 - 120	1.86	20	
Dibromochloromethane	18.9200	0.50	0.11	20.0000	94.6	71 - 126	0.422	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 11/15/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

LCS Dup (B7K0360-BSD1) - Continued

Prepared: 11/13/2017 Analyzed: 11/13/2017

Dibromomethane	18.9200	0.50	0.09	20.0000		94.6	73 - 121	0.369	20
Dichlorodifluoromethane	20.0400	0.50	0.31	20.0000		100	48 - 152	6.52	20
Ethylbenzene	41.7500	0.50	0.08	40.0000		104	72 - 134	4.29	20
Hexachlorobutadiene	20.8800	0.50	0.22	20.0000		104	72 - 139	3.53	20
Isopropylbenzene	21.4800	0.50	0.10	20.0000		107	73 - 146	2.53	20
m,p-Xylene	40.9500	1.0	0.18	40.0000		102	75 - 138	4.00	20
Methylene chloride	22.9600	1.0	0.26	20.0000		115	52 - 154	3.26	20
n-Butylbenzene	21.9000	0.50	0.15	20.0000		110	72 - 151	3.46	20
n-Propylbenzene	21.3500	0.50	0.14	20.0000		107	69 - 149	2.13	20
Naphthalene	18.7700	0.50	0.09	20.0000		93.8	61 - 122	2.26	20
o-Xylene	40.0800	0.50	0.04	40.0000		100	66 - 147	1.73	20
sec-Butylbenzene	21.7700	0.50	0.15	20.0000		109	72 - 148	2.32	20
Styrene	20.8200	0.50	0.05	20.0000		104	72 - 138	3.03	20
tert-Butylbenzene	22.0300	0.50	0.11	20.0000		110	70 - 145	2.24	20
Tetrachloroethene	22.5900	0.50	0.18	20.0000		113	61 - 145	2.75	20
Toluene	39.1800	0.50	0.14	40.0000		98.0	70 - 140	0.153	20
trans-1,2-Dichloroethene	22.4100	0.50	0.15	20.0000		112	73 - 130	4.54	20
Trichloroethene	19.9800	0.50	0.15	20.0000		99.9	69 - 126	3.59	20
Trichlorofluoromethane	24.3000	0.50	0.33	20.0000		122	70 - 159	3.04	20
Vinyl chloride	21.4200	0.50	0.25	20.0000		107	56 - 151	4.87	20

Surrogate: 1,2-Dichloroethane-d4	23.97			25.0000		95.9	70 - 166		
Surrogate: 4-Bromofluorobenzene	24.98			25.0000		99.9	88 - 120		
Surrogate: Dibromofluoromethane	25.07			25.0000		100	80 - 150		
Surrogate: Toluene-d8	24.43			25.0000		97.7	87 - 121		

Matrix Spike (B7K0360-MS1)

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	17.6600	0.50	0.13	20.0000	ND	88.3	73 - 136		
1,1,1-Trichloroethane	20.2400	0.50	0.38	20.0000	ND	101	73 - 143		
1,1,2,2-Tetrachloroethane	20.7700	0.50	0.20	20.0000	ND	104	62 - 127		
1,1,2-Trichloroethane	19.2900	0.50	0.19	20.0000	ND	96.4	72 - 122		
1,1-Dichloroethane	18.8800	0.50	0.20	20.0000	ND	94.4	73 - 138		
1,1-Dichloroethene	20.8400	0.50	0.28	20.0000	ND	104	74 - 132		
1,1-Dichloropropene	21.9000	0.50	0.36	20.0000	ND	110	70 - 143		
1,2,3-Trichloropropane	19.3300	0.50	0.16	20.0000	ND	96.6	66 - 119		
1,2,3-Trichlorobenzene	19.7400	0.50	0.06	20.0000	ND	98.7	70 - 131		
1,2,4-Trichlorobenzene	19.8300	0.50	0.07	20.0000	ND	99.2	70 - 128		
1,2,4-Trimethylbenzene	20.0900	0.50	0.09	20.0000	ND	100	74 - 142		
1,2-Dibromo-3-chloropropane	16.1200	0.50	0.20	20.0000	ND	80.6	56 - 118		
1,2-Dibromoethane	20.2300	0.50	0.13	20.0000	ND	101	73 - 122		
1,2-Dichlorobenzene	20.0400	0.50	0.12	20.0000	ND	100	75 - 128		
1,2-Dichloroethane	20.4000	0.50	0.39	20.0000	ND	102	70 - 131		



Certificate of Analysis

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Reported : 11/15/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

Matrix Spike (B7K0360-MS1) - Continued

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,2-Dichloropropane	18.5800	0.50	0.47	20.0000	ND	92.9	69 - 124		
1,3,5-Trimethylbenzene	19.8600	0.50	0.08	20.0000	ND	99.3	73 - 144		
1,3-Dichlorobenzene	19.6200	0.50	0.13	20.0000	ND	98.1	75 - 131		
1,3-Dichloropropane	19.3300	0.50	0.08	20.0000	ND	96.6	70 - 122		
1,4-Dichlorobenzene	19.7100	0.50	0.18	20.0000	ND	98.6	75 - 127		
2,2-Dichloropropane	12.5200	0.50	0.23	20.0000	ND	62.6	68 - 151		M2
2-Chlorotoluene	19.5200	0.50	0.12	20.0000	ND	97.6	72 - 138		
4-Chlorotoluene	19.3600	0.50	0.11	20.0000	ND	96.8	72 - 140		
4-Isopropyltoluene	20.9200	0.50	0.12	20.0000	ND	105	74 - 149		
Benzene	40.3300	0.50	0.21	40.0000	ND	101	67 - 138		
Bromobenzene	20.6900	0.50	0.12	20.0000	ND	103	73 - 127		
Bromodichloromethane	19.7700	0.50	0.32	20.0000	ND	98.8	74 - 129		
Bromoform	17.5500	0.50	0.14	20.0000	ND	87.8	63 - 131		
Bromomethane	27.9600	0.50	0.22	20.0000	ND	140	57 - 216		
Carbon tetrachloride	17.7700	0.50	0.31	20.0000	ND	88.8	77 - 151		
Chlorobenzene	20.0800	0.50	0.16	20.0000	ND	100	73 - 125		
Chloroethane	26.3200	0.50	0.29	20.0000	ND	132	54 - 154		
Chloroform	19.7900	0.50	0.16	20.0000	ND	99.0	77 - 132		
Chloromethane	21.2700	0.50	0.19	20.0000	ND	106	57 - 142		
cis-1,2-Dichloroethene	19.8000	0.50	0.39	20.0000	ND	99.0	73 - 126		
cis-1,3-Dichloropropene	17.5600	0.50	0.08	20.0000	ND	87.8	76 - 120		
Dibromochloromethane	19.1600	0.50	0.11	20.0000	ND	95.8	71 - 126		
Dibromomethane	20.5300	0.50	0.09	20.0000	ND	103	73 - 121		
Dichlorodifluoromethane	20.0800	0.50	0.31	20.0000	ND	100	48 - 152		
Ethylbenzene	40.2600	0.50	0.08	40.0000	ND	101	72 - 134		
Hexachlorobutadiene	19.8900	0.50	0.22	20.0000	ND	99.4	72 - 139		
Isopropylbenzene	20.2500	0.50	0.10	20.0000	ND	101	73 - 146		
m,p-Xylene	39.6300	1.0	0.18	40.0000	ND	99.1	75 - 138		
Methylene chloride	21.1800	1.0	0.26	20.0000	ND	106	52 - 154		
n-Butylbenzene	19.9800	0.50	0.15	20.0000	ND	99.9	72 - 151		
n-Propylbenzene	19.8600	0.50	0.14	20.0000	ND	99.3	69 - 149		
Naphthalene	20.2000	0.50	0.09	20.0000	ND	101	61 - 122		
o-Xylene	38.2800	0.50	0.04	40.0000	ND	95.7	66 - 147		
sec-Butylbenzene	20.3400	0.50	0.15	20.0000	ND	102	72 - 148		
Styrene	20.1700	0.50	0.05	20.0000	ND	101	72 - 138		
tert-Butylbenzene	20.8700	0.50	0.11	20.0000	ND	104	70 - 145		
Tetrachloroethene	21.1900	0.50	0.18	20.0000	ND	106	61 - 145		
Toluene	40.2500	0.50	0.14	40.0000	ND	101	70 - 140		
trans-1,2-Dichloroethene	23.6000	0.50	0.15	20.0000	ND	118	73 - 130		
Trichloroethene	20.6600	0.50	0.15	20.0000	ND	103	69 - 126		
Trichlorofluoromethane	23.8900	0.50	0.33	20.0000	ND	119	70 - 159		
Vinyl chloride	21.8200	0.50	0.25	20.0000	ND	109	56 - 151		



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
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Batch B7K0360 - MSVOA_W (continued)

Matrix Spike (B7K0360-MS1) - Continued

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

Surrogate: 1,2-Dichloroethane-d4	24.72		25.0000		98.9	70 - 166			
Surrogate: 4-Bromofluorobenzene	24.10		25.0000		96.4	88 - 120			
Surrogate: Dibromofluoromethane	26.29		25.0000		105	80 - 150			
Surrogate: Toluene-d8	24.92		25.0000		99.7	87 - 121			

Matrix Spike Dup (B7K0360-MSD1)

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

1,1,1,2-Tetrachloroethane	18.2900	0.50	0.13	20.0000	ND	91.4	73 - 136	3.50	20	
1,1,1-Trichloroethane	20.0600	0.50	0.38	20.0000	ND	100	73 - 143	0.893	20	
1,1,2,2-Tetrachloroethane	20.6700	0.50	0.20	20.0000	ND	103	62 - 127	0.483	20	
1,1,2-Trichloroethane	20.0500	0.50	0.19	20.0000	ND	100	72 - 122	3.86	20	
1,1-Dichloroethane	18.7200	0.50	0.20	20.0000	ND	93.6	73 - 138	0.851	20	
1,1-Dichloroethene	19.3400	0.50	0.28	20.0000	ND	96.7	74 - 132	7.47	20	
1,1-Dichloropropene	21.0500	0.50	0.36	20.0000	ND	105	70 - 143	3.96	20	
1,2,3-Trichloropropane	19.3300	0.50	0.16	20.0000	ND	96.6	66 - 119	0.00	20	
1,2,3-Trichlorobenzene	19.9700	0.50	0.06	20.0000	ND	99.8	70 - 131	1.16	20	
1,2,4-Trichlorobenzene	20.3800	0.50	0.07	20.0000	ND	102	70 - 128	2.74	20	
1,2,4-Trimethylbenzene	19.8700	0.50	0.09	20.0000	ND	99.4	74 - 142	1.10	20	
1,2-Dibromo-3-chloropropane	16.5300	0.50	0.20	20.0000	ND	82.6	56 - 118	2.51	20	
1,2-Dibromoethane	20.4700	0.50	0.13	20.0000	ND	102	73 - 122	1.18	20	
1,2-Dichlorobenzene	20.1100	0.50	0.12	20.0000	ND	101	75 - 128	0.349	20	
1,2-Dichloroethane	20.0700	0.50	0.39	20.0000	ND	100	70 - 131	1.63	20	
1,2-Dichloropropane	18.1700	0.50	0.47	20.0000	ND	90.8	69 - 124	2.23	20	
1,3,5-Trimethylbenzene	19.7200	0.50	0.08	20.0000	ND	98.6	73 - 144	0.707	20	
1,3-Dichlorobenzene	19.6000	0.50	0.13	20.0000	ND	98.0	75 - 131	0.102	20	
1,3-Dichloropropane	19.8500	0.50	0.08	20.0000	ND	99.2	70 - 122	2.65	20	
1,4-Dichlorobenzene	19.6400	0.50	0.18	20.0000	ND	98.2	75 - 127	0.356	20	
2,2-Dichloropropane	13.2900	0.50	0.23	20.0000	ND	66.4	68 - 151	5.97	20	M2
2-Chlorotoluene	19.5400	0.50	0.12	20.0000	ND	97.7	72 - 138	0.102	20	
4-Chlorotoluene	19.4400	0.50	0.11	20.0000	ND	97.2	72 - 140	0.412	20	
4-Isopropyltoluene	20.9100	0.50	0.12	20.0000	ND	105	74 - 149	0.0478	20	
Benzene	39.2800	0.50	0.21	40.0000	ND	98.2	67 - 138	2.64	20	
Bromobenzene	20.6100	0.50	0.12	20.0000	ND	103	73 - 127	0.387	20	
Bromodichloromethane	20.0000	0.50	0.32	20.0000	ND	100	74 - 129	1.16	20	
Bromoform	17.8200	0.50	0.14	20.0000	ND	89.1	63 - 131	1.53	20	
Bromomethane	29.8800	0.50	0.22	20.0000	ND	149	57 - 216	6.64	20	
Carbon tetrachloride	18.9600	0.50	0.31	20.0000	ND	94.8	77 - 151	6.48	20	
Chlorobenzene	20.1200	0.50	0.16	20.0000	ND	101	73 - 125	0.199	20	
Chloroethane	21.3800	0.50	0.29	20.0000	ND	107	54 - 154	20.7	20	R
Chloroform	19.8200	0.50	0.16	20.0000	ND	99.1	77 - 132	0.151	20	
Chloromethane	21.7100	0.50	0.19	20.0000	ND	109	57 - 142	2.05	20	
cis-1,2-Dichloroethene	19.7100	0.50	0.39	20.0000	ND	98.6	73 - 126	0.456	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)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0360 - MSVOA_W (continued)

Matrix Spike Dup (B7K0360-MSD1) - Continued

Source: 1703979-13

Prepared: 11/13/2017 Analyzed: 11/13/2017

cis-1,3-Dichloropropene	17.3100	0.50	0.08	20.0000	ND	86.6	76 - 120	1.43	20	
Dibromochloromethane	20.2500	0.50	0.11	20.0000	ND	101	71 - 126	5.53	20	
Dibromomethane	19.1000	0.50	0.09	20.0000	ND	95.5	73 - 121	7.22	20	
Dichlorodifluoromethane	20.2000	0.50	0.31	20.0000	ND	101	48 - 152	0.596	20	
Ethylbenzene	39.9100	0.50	0.08	40.0000	ND	99.8	72 - 134	0.873	20	
Hexachlorobutadiene	19.6900	0.50	0.22	20.0000	ND	98.4	72 - 139	1.01	20	
Isopropylbenzene	19.8900	0.50	0.10	20.0000	ND	99.4	73 - 146	1.79	20	
m,p-Xylene	39.3100	1.0	0.18	40.0000	ND	98.3	75 - 138	0.811	20	
Methylene chloride	18.3500	1.0	0.26	20.0000	ND	91.8	52 - 154	14.3	20	
n-Butylbenzene	19.6700	0.50	0.15	20.0000	ND	98.4	72 - 151	1.56	20	
n-Propylbenzene	19.9100	0.50	0.14	20.0000	ND	99.6	69 - 149	0.251	20	
Naphthalene	20.3900	0.50	0.09	20.0000	ND	102	61 - 122	0.936	20	
o-Xylene	38.5500	0.50	0.04	40.0000	ND	96.4	66 - 147	0.703	20	
sec-Butylbenzene	20.4400	0.50	0.15	20.0000	ND	102	72 - 148	0.490	20	
Styrene	20.1700	0.50	0.05	20.0000	ND	101	72 - 138	0.00	20	
tert-Butylbenzene	20.8500	0.50	0.11	20.0000	ND	104	70 - 145	0.0959	20	
Tetrachloroethene	21.3000	0.50	0.18	20.0000	ND	106	61 - 145	0.518	20	
Toluene	39.6200	0.50	0.14	40.0000	ND	99.0	70 - 140	1.58	20	
trans-1,2-Dichloroethene	36.4000	0.50	0.15	20.0000	ND	182	73 - 130	42.7	20	M2
Trichloroethene	20.1800	0.50	0.15	20.0000	ND	101	69 - 126	2.35	20	
Trichlorofluoromethane	23.8400	0.50	0.33	20.0000	ND	119	70 - 159	0.210	20	
Vinyl chloride	21.7300	0.50	0.25	20.0000	ND	109	56 - 151	0.413	20	
Surrogate: 1,2-Dichloroethane-d4	24.82			25.0000		99.3	70 - 166			
Surrogate: 4-Bromofluorobenzene	24.37			25.0000		97.5	88 - 120			
Surrogate: Dibromofluoromethane	25.99			25.0000		104	80 - 150			
Surrogate: Toluene-d8	24.81			25.0000		99.2	87 - 121			



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 : 11/15/2017

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

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

Batch B7K0311 - MSSEMI_W

Blank (B7K0311-BLK1)

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	ND	0.20	0.11							
Surrogate: 1,2-Dichlorobenzene-d	0.8374			1.00000		83.7	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.8780			1.00000		87.8	29 - 105			
Surrogate: 4-Terphenyl-d14	0.9420			1.00000		94.2	32 - 119			
Surrogate: Nitrobenzene-d5	0.9705			1.00000		97.0	17 - 123			

LCS (B7K0311-BS1)

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	1.06686	0.20	0.11	1.00000		107	61 - 166			
Surrogate: 1,2-Dichlorobenzene-d	0.8996			1.00000		90.0	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.9040			1.00000		90.4	29 - 105			
Surrogate: 4-Terphenyl-d14	0.9733			1.00000		97.3	32 - 119			
Surrogate: Nitrobenzene-d5	1.050			1.00000		105	17 - 123			

Matrix Spike (B7K0311-MS1)

Source: 1703979-13

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	1.18057	0.20	0.11	1.00000	ND	118	61 - 166			
Surrogate: 1,2-Dichlorobenzene-d	0.8693			1.00000		86.9	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.8780			1.00000		87.8	29 - 105			
Surrogate: 4-Terphenyl-d14	0.8291			1.00000		82.9	32 - 119			
Surrogate: Nitrobenzene-d5	0.9912			1.00000		99.1	17 - 123			

Matrix Spike Dup (B7K0311-MSD1)

Source: 1703979-13

Prepared: 11/10/2017 Analyzed: 11/14/2017

1,4-Dioxane	1.09754	0.20	0.11	1.00000	ND	110	61 - 166	7.29	20	
Surrogate: 1,2-Dichlorobenzene-d	0.8686			1.00000		86.9	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.8657			1.00000		86.6	29 - 105			
Surrogate: 4-Terphenyl-d14	0.8758			1.00000		87.6	32 - 119			
Surrogate: Nitrobenzene-d5	0.9367			1.00000		93.7	17 - 123			



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 : 11/15/2017

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.
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)

Notes:

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

Date: 11/8/17
Page 1 of 1

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				Laboratory	
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)		Ice	40-ml VOA	1 L Amber			VOCs by EPA 8210	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	Level IV Data Validation Requested	MS/MSD Requested	REMARKS	
1703990-01	TB-110817	11/8/17	7:30	X	X			X	2				X				X					X					Report J Flags
-02	MW-31		8:13	X	X			X	3				X				X					X					
	↓			X				X		1				X								X					
-03	MW-30B		8:52	X	X			X	3				X						X			X					
	↓			X				X		1				X								X					
-04	MW-2B		9:08	X	X			X	3				X				X					X					
	↓			X				X		1				X								X					
-05	MW-4D		9:14	X	X			X	3				X				X					X					
	↓			X				X		1				X								X					
Total number of containers per analysis:								14				4								Total No. of Containers:							
Relinquished By: / Company:		Date / Time		Received By: / Company		Date / Time																					
WJC / HFA		11/8/17 12:14		AM ATL		11/8/17 12:14																					
Relinquished By: / Company:		Date / Time		Received By: / Company		Date / Time																					
AM ATL		11/8/17 1403		APD / ATL		11/8/17 1403																					

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

Send Results to:
Steve Netto
 9171 Towne Centre D
 Suite 375
 San Diego, CA 9212
 Ph: 858.455.5400
snetto@hargis.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.

20 °C Temperature on receipt



Supplemental Report 1

Additional requested analyses are reported as a stand-alone report.



WORK ORDER NUMBER: 17-11-0541

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Hargis + Associates, Inc.

Client Project Name: Raytheon Main / 532.30

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

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

Approved for release on 12/22/2017 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

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 Work Order Number: 17-11-0541

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Work Order Narrative

Work Order: 17-11-0541

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 11/07/17. They were assigned to Work Order 17-11-0541.

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: 17-11-0541
9171 Towne Centre Drive, Suite 375	Project Name: Raytheon Main / 532.30
San Diego, CA 92122-6215	PO Number:
	Date/Time Received: 11/07/17 17:20
	Number of Containers: 17

Attn: Steve Netto

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TB-110617	17-11-0541-1	11/06/17 07:30	2	Aqueous
MW-21	17-11-0541-2	11/06/17 14:30	4	Aqueous
MW-34B	17-11-0541-10	11/07/17 13:45	4	Aqueous

Detections Summary

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

Work Order: 17-11-0541
 Project Name: Raytheon Main / 532.30
 Received: 11/07/17

Attn: Steve Netto

Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
MW-21 (17-11-0541-2)						
Carbon Tetrachloride	0.47	J	0.23*	ug/L	EPA 8260B	EPA 5030C
Chloroform	1.7		1.0	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethane	24		1.0	ug/L	EPA 8260B	EPA 5030C
1,2-Dichloroethane	3.2		0.50	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	1900		100	ug/L	EPA 8260B	EPA 5030C
c-1,2-Dichloroethene	1.2		1.0	ug/L	EPA 8260B	EPA 5030C
Tetrachloroethene	5.7		1.0	ug/L	EPA 8260B	EPA 5030C
1,1,2-Trichloro-1,2,2-Trifluoroethane	6.8	J	3.9*	ug/L	EPA 8260B	EPA 5030C
1,1,2-Trichloroethane	7.7		1.0	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	12		1.0	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	210		5.0	ug/L	EPA 8270C (M) SIM Isotope Dil	EPA 3510C
MW-34B (17-11-0541-10)						
1,1-Dichloroethane	2.4		1.0	ug/L	EPA 8260B	EPA 5030C
1,2-Dichloroethane	0.38	J	0.24*	ug/L	EPA 8260B	EPA 5030C
1,1-Dichloroethene	380		5.0	ug/L	EPA 8260B	EPA 5030C
Tetrachloroethene	0.40	J	0.39*	ug/L	EPA 8260B	EPA 5030C
Trichloroethene	0.90	J	0.37*	ug/L	EPA 8260B	EPA 5030C
1,4-Dioxane	40		1.0	ug/L	EPA 8270C (M) SIM Isotope Dil	EPA 3510C

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

* MDL is shown

Analytical Report

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 3510C
 Method: EPA 8270C (M) SIM Isotope Dil
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-21	17-11-0541-2-D	11/06/17 14:30	Aqueous	GC/MS DDD	11/09/17	11/10/17 15:04	171109L08

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	210	5.0	1.4	5.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	118	56-123	
1,4-Dioxane-d8(IDS-IS)	46	30-120	

MW-34B	17-11-0541-10-D	11/07/17 13:45	Aqueous	GC/MS DDD	11/09/17	11/10/17 01:51	171109L08
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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	40	1.0	0.28	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Nitrobenzene-d5	100	56-123	
1,4-Dioxane-d8(IDS-IS)	34	30-120	

Method Blank	099-16-216-1191	N/A	Aqueous	GC/MS DDD	11/09/17	11/09/17 19:26	171109L08
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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	108	56-123	
1,4-Dioxane-d8(IDS-IS)	39	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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 1 of 11

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB-110617	17-11-0541-1-A	11/06/17 07:30	Aqueous	GC/MS WW	11/08/17	11/08/17 14:38	171108L011

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	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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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<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	77-120	
Dibromofluoromethane	110	80-128	
1,2-Dichloroethane-d4	114	80-129	
Toluene-d8	100	80-120	

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

Analytical Report

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

Page 3 of 11

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-21	17-11-0541-2-A	11/06/17 14:30	Aqueous	GC/MS WW	11/08/17	11/08/17 20:24	171108L011

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.

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	0.47	0.50	0.23	1.00	J
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	1.7	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	24	1.0	0.28	1.00	
1,2-Dichloroethane	3.2	0.50	0.24	1.00	
c-1,2-Dichloroethene	1.2	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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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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	5.7	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	6.8	10	3.9	1.00	J
1,1,2-Trichloroethane	7.7	1.0	0.38	1.00	
Trichloroethene	12	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	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	89	77-120	
Dibromofluoromethane	113	80-128	
1,2-Dichloroethane-d4	117	80-129	
Toluene-d8	103	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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-21	17-11-0541-2-B	11/06/17 14:30	Aqueous	GC/MS JJ	11/09/17	11/10/17 03:18	171109L050

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	1900	100	43	100	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	98	77-120	
Dibromofluoromethane	106	80-128	
1,2-Dichloroethane-d4	110	80-129	
Toluene-d8	100	80-120	

Analytical Report

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-34B	17-11-0541-10-A	11/07/17 13:45	Aqueous	GC/MS WW	11/08/17	11/08/17 19:55	171108L011

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	2.4	1.0	0.28	1.00	
1,2-Dichloroethane	0.38	0.50	0.24	1.00	J
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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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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	0.40	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	ND	1.0	0.38	1.00	
Trichloroethene	0.90	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	91	77-120	
Dibromofluoromethane	110	80-128	
1,2-Dichloroethane-d4	114	80-129	
Toluene-d8	102	80-120	

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

Analytical Report

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-34B	17-11-0541-10-C	11/07/17 13:45	Aqueous	GC/MS WW	11/10/17	11/10/17 12:40	171110L010

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	380	5.0	2.2	5.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	93	77-120	
Dibromofluoromethane	111	80-128	
1,2-Dichloroethane-d4	113	80-129	
Toluene-d8	100	80-120	

Analytical Report

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-24506	N/A	Aqueous	GC/MS WW	11/08/17	11/08/17 10:42	171108L011

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.

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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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<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	91	77-120	
Dibromofluoromethane	114	80-128	
1,2-Dichloroethane-d4	117	80-129	
Toluene-d8	101	80-120	

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

Analytical Report

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: Raytheon Main / 532.30

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-24531	N/A	Aqueous	GC/MS JJ	11/09/17	11/09/17 23:38	171109L050

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
1,1-Dichloroethene	ND	1.0	0.43	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	77-120	
Dibromofluoromethane	101	80-128	
1,2-Dichloroethane-d4	106	80-129	
Toluene-d8	100	80-120	

Method Blank	099-14-001-24535	N/A	Aqueous	GC/MS WW	11/10/17	11/10/17 10:40	171110L010
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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
1,1-Dichloroethene	ND	1.0	0.43	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	89	77-120	
Dibromofluoromethane	113	80-128	
1,2-Dichloroethane-d4	119	80-129	
Toluene-d8	102	80-120	

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



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 3510C
Method: EPA 8270C (M) SIM Isotope Dil

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
17-11-0532-4	Sample	Aqueous	GC/MS DDD	11/09/17	11/09/17 21:37	171109S08				
17-11-0532-4	Matrix Spike	Aqueous	GC/MS DDD	11/09/17	11/09/17 20:18	171109S08				
17-11-0532-4	Matrix Spike Duplicate	Aqueous	GC/MS DDD	11/09/17	11/09/17 20:33	171109S08				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,4-Dioxane	13.66	20.00	32.01	92	31.64	90	50-130	1	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: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-11-0594-1	Sample	Aqueous	GC/MS JJ	11/09/17	11/10/17 00:10	171109S024
17-11-0594-1	Matrix Spike	Aqueous	GC/MS JJ	11/09/17	11/09/17 21:33	171109S024
17-11-0594-1	Matrix Spike Duplicate	Aqueous	GC/MS JJ	11/09/17	11/09/17 22:04	171109S024

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	54.62	109	59.47	119	34-166	9	0-33	
Benzene	ND	50.00	52.59	105	52.52	105	75-125	0	0-20	
Bromobenzene	ND	50.00	52.84	106	53.08	106	75-125	0	0-20	
Bromochloromethane	ND	50.00	54.49	109	55.02	110	75-125	1	0-20	
Bromodichloromethane	ND	50.00	53.95	108	54.22	108	75-134	0	0-20	
Bromoform	ND	50.00	52.35	105	53.00	106	74-134	1	0-20	
Bromomethane	ND	50.00	49.33	99	48.67	97	20-168	1	0-40	
2-Butanone	ND	50.00	48.86	98	51.18	102	37-157	5	0-20	
n-Butylbenzene	ND	50.00	54.58	109	54.51	109	73-145	0	0-20	
sec-Butylbenzene	ND	50.00	55.49	111	55.60	111	75-135	0	0-20	
tert-Butylbenzene	ND	50.00	56.94	114	57.29	115	75-136	1	0-20	
Carbon Disulfide	ND	50.00	54.37	109	55.41	111	50-152	2	0-27	
Carbon Tetrachloride	ND	50.00	58.03	116	59.24	118	70-154	2	0-20	
Chlorobenzene	ND	50.00	51.82	104	52.51	105	75-125	1	0-20	
Chloroethane	ND	50.00	45.50	91	46.28	93	41-167	2	0-26	
Chloroform	ND	50.00	54.28	109	55.46	111	75-127	2	0-20	
Chloromethane	ND	50.00	41.76	84	38.51	77	41-149	8	0-20	
2-Chlorotoluene	ND	50.00	52.76	106	53.30	107	75-128	1	0-20	
4-Chlorotoluene	ND	50.00	53.10	106	52.95	106	75-125	0	0-20	
Dibromochloromethane	ND	50.00	52.92	106	53.97	108	75-131	2	0-20	
1,2-Dibromo-3-Chloropropane	ND	50.00	50.66	101	51.51	103	64-142	2	0-20	
1,2-Dibromoethane	ND	50.00	52.77	106	53.48	107	75-129	1	0-20	
Dibromomethane	ND	50.00	52.57	105	53.75	107	75-125	2	0-20	
1,2-Dichlorobenzene	ND	50.00	52.72	105	52.64	105	75-125	0	0-20	
1,3-Dichlorobenzene	ND	50.00	52.09	104	52.58	105	75-125	1	0-20	
1,4-Dichlorobenzene	ND	50.00	51.93	104	52.12	104	75-125	0	0-20	
Dichlorodifluoromethane	ND	50.00	26.57	53	24.62	49	25-157	8	0-26	
1,1-Dichloroethane	ND	50.00	54.90	110	56.07	112	73-139	2	0-20	
1,2-Dichloroethane	ND	50.00	53.31	107	54.19	108	75-125	2	0-20	
1,1-Dichloroethene	ND	50.00	57.77	116	58.58	117	61-145	1	0-20	
c-1,2-Dichloroethene	ND	50.00	54.97	110	56.54	113	75-125	3	0-20	
t-1,2-Dichloroethene	ND	50.00	56.96	114	58.95	118	64-142	3	0-20	
1,2-Dichloropropane	ND	50.00	53.71	107	54.75	109	75-127	2	0-20	
1,3-Dichloropropane	ND	50.00	53.16	106	53.29	107	75-125	0	0-20	
2,2-Dichloropropane	ND	50.00	45.97	92	45.73	91	24-180	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

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Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,1-Dichloropropene	ND	50.00	54.16	108	56.02	112	75-135	3	0-20	
c-1,3-Dichloropropene	ND	50.00	50.53	101	50.91	102	75-137	1	0-20	
t-1,3-Dichloropropene	ND	50.00	52.25	104	52.61	105	74-146	1	0-20	
Ethylbenzene	ND	50.00	53.81	108	54.40	109	75-129	1	0-20	
2-Hexanone	ND	50.00	50.26	101	50.99	102	47-161	1	0-20	
Isopropylbenzene	ND	50.00	54.39	109	54.72	109	75-135	1	0-20	
p-Isopropyltoluene	ND	50.00	54.75	109	55.22	110	75-136	1	0-20	
Methylene Chloride	ND	50.00	51.78	104	52.57	105	63-141	2	0-20	
4-Methyl-2-Pentanone	ND	50.00	50.08	100	50.42	101	66-138	1	0-20	
Naphthalene	ND	50.00	53.64	107	54.32	109	59-143	1	0-20	
n-Propylbenzene	ND	50.00	53.30	107	54.08	108	75-133	1	0-20	
Styrene	ND	50.00	51.56	103	51.97	104	70-142	1	0-28	
1,1,1,2-Tetrachloroethane	ND	50.00	55.65	111	56.66	113	75-139	2	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	53.36	107	52.91	106	61-145	1	0-20	
Tetrachloroethene	ND	50.00	49.25	99	48.96	98	47-143	1	0-20	
Toluene	ND	50.00	52.19	104	52.45	105	75-125	0	0-20	
1,2,3-Trichlorobenzene	ND	50.00	54.46	109	55.45	111	73-133	2	0-20	
1,2,4-Trichlorobenzene	ND	50.00	55.46	111	55.98	112	71-137	1	0-20	
1,1,1-Trichloroethane	ND	50.00	54.45	109	54.82	110	75-136	1	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50.00	49.44	99	49.91	100	42-168	1	0-22	
1,1,2-Trichloroethane	ND	50.00	53.13	106	54.12	108	75-125	2	0-20	
Trichloroethene	ND	50.00	55.23	110	54.95	110	67-139	1	0-20	
Trichlorofluoromethane	ND	50.00	51.08	102	49.99	100	59-155	2	0-20	
1,2,3-Trichloropropane	ND	50.00	49.79	100	50.30	101	75-127	1	0-20	
1,2,4-Trimethylbenzene	ND	50.00	53.35	107	53.37	107	75-133	0	0-20	
1,3,5-Trimethylbenzene	ND	50.00	52.18	104	52.88	106	75-135	1	0-20	
Vinyl Acetate	ND	50.00	40.18	80	41.13	82	54-180	2	0-25	
Vinyl Chloride	ND	50.00	47.20	94	45.91	92	51-153	3	0-20	
p/m-Xylene	ND	100.0	104.1	104	105.4	105	75-133	1	0-20	
o-Xylene	ND	50.00	53.84	108	54.13	108	75-134	1	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	51.43	103	52.89	106	64-136	3	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-11-0527-1	Sample	Aqueous	GC/MS WW	11/08/17	11/08/17 11:45	171108S003
17-11-0527-1	Matrix Spike	Aqueous	GC/MS WW	11/08/17	11/08/17 12:14	171108S003
17-11-0527-1	Matrix Spike Duplicate	Aqueous	GC/MS WW	11/08/17	11/08/17 12:42	171108S003

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	50.01	100	56.39	113	34-166	12	0-33	
Benzene	ND	50.00	54.78	110	55.81	112	75-125	2	0-20	
Bromobenzene	ND	50.00	54.78	110	56.50	113	75-125	3	0-20	
Bromochloromethane	ND	50.00	60.83	122	59.77	120	75-125	2	0-20	
Bromodichloromethane	ND	50.00	57.34	115	56.70	113	75-134	1	0-20	
Bromoform	ND	50.00	51.71	103	54.93	110	74-134	6	0-20	
Bromomethane	ND	50.00	62.73	125	61.68	123	20-168	2	0-40	
2-Butanone	ND	50.00	48.87	98	52.99	106	37-157	8	0-20	
n-Butylbenzene	ND	50.00	56.71	113	59.76	120	73-145	5	0-20	
sec-Butylbenzene	ND	50.00	56.38	113	58.69	117	75-135	4	0-20	
tert-Butylbenzene	ND	50.00	57.18	114	58.68	117	75-136	3	0-20	
Carbon Disulfide	ND	50.00	63.14	126	66.39	133	50-152	5	0-27	
Carbon Tetrachloride	ND	50.00	54.80	110	54.93	110	70-154	0	0-20	
Chlorobenzene	ND	50.00	53.41	107	54.40	109	75-125	2	0-20	
Chloroethane	ND	50.00	58.74	117	59.16	118	41-167	1	0-26	
Chloroform	ND	50.00	56.25	112	56.37	113	75-127	0	0-20	
Chloromethane	ND	50.00	48.98	98	50.13	100	41-149	2	0-20	
2-Chlorotoluene	ND	50.00	56.05	112	54.97	110	75-128	2	0-20	
4-Chlorotoluene	ND	50.00	57.72	115	56.09	112	75-125	3	0-20	
Dibromochloromethane	ND	50.00	53.94	108	54.64	109	75-131	1	0-20	
1,2-Dibromo-3-Chloropropane	ND	50.00	55.19	110	58.04	116	64-142	5	0-20	
1,2-Dibromoethane	ND	50.00	54.26	109	56.21	112	75-129	4	0-20	
Dibromomethane	ND	50.00	53.84	108	54.52	109	75-125	1	0-20	
1,2-Dichlorobenzene	ND	50.00	55.73	111	57.40	115	75-125	3	0-20	
1,3-Dichlorobenzene	ND	50.00	52.00	104	54.47	109	75-125	5	0-20	
1,4-Dichlorobenzene	ND	50.00	51.66	103	53.53	107	75-125	4	0-20	
Dichlorodifluoromethane	ND	50.00	59.42	119	60.69	121	25-157	2	0-26	
1,1-Dichloroethane	ND	50.00	57.02	114	58.50	117	73-139	3	0-20	
1,2-Dichloroethane	ND	50.00	58.80	118	58.81	118	75-125	0	0-20	
1,1-Dichloroethene	1.700	50.00	63.03	123	64.88	126	61-145	3	0-20	
c-1,2-Dichloroethene	5.198	50.00	60.85	111	64.03	118	75-125	5	0-20	
t-1,2-Dichloroethene	ND	50.00	57.62	115	59.52	119	64-142	3	0-20	
1,2-Dichloropropane	ND	50.00	56.08	112	55.19	110	75-127	2	0-20	
1,3-Dichloropropane	ND	50.00	52.91	106	55.25	111	75-125	4	0-20	
2,2-Dichloropropane	ND	50.00	55.52	111	55.89	112	24-180	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

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

Date Received: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

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Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,1-Dichloropropene	ND	50.00	56.40	113	58.78	118	75-135	4	0-20	
c-1,3-Dichloropropene	ND	50.00	53.05	106	54.75	109	75-137	3	0-20	
t-1,3-Dichloropropene	ND	50.00	53.13	106	55.03	110	74-146	4	0-20	
Ethylbenzene	ND	50.00	55.86	112	58.26	117	75-129	4	0-20	
2-Hexanone	ND	50.00	49.58	99	51.75	104	47-161	4	0-20	
Isopropylbenzene	ND	50.00	56.45	113	59.12	118	75-135	5	0-20	
p-Isopropyltoluene	ND	50.00	57.84	116	60.12	120	75-136	4	0-20	
Methylene Chloride	ND	50.00	54.21	108	54.39	109	63-141	0	0-20	
4-Methyl-2-Pentanone	ND	50.00	48.45	97	50.79	102	66-138	5	0-20	
Naphthalene	ND	50.00	46.95	94	53.09	106	59-143	12	0-20	
n-Propylbenzene	ND	50.00	55.88	112	54.52	109	75-133	2	0-20	
Styrene	ND	50.00	56.17	112	57.39	115	70-142	2	0-28	
1,1,1,2-Tetrachloroethane	ND	50.00	56.65	113	57.94	116	75-139	2	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	52.93	106	54.94	110	61-145	4	0-20	
Tetrachloroethene	1.205	50.00	54.05	106	54.11	106	47-143	0	0-20	
Toluene	ND	50.00	56.24	112	56.71	113	75-125	1	0-20	
1,2,3-Trichlorobenzene	ND	50.00	52.94	106	58.51	117	73-133	10	0-20	
1,2,4-Trichlorobenzene	ND	50.00	54.14	108	57.56	115	71-137	6	0-20	
1,1,1-Trichloroethane	ND	50.00	57.05	114	57.65	115	75-136	1	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50.00	65.89	132	67.41	135	42-168	2	0-22	
1,1,2-Trichloroethane	ND	50.00	51.96	104	54.63	109	75-125	5	0-20	
Trichloroethene	169.9	50.00	256.3	173	258.9	178	67-139	1	0-20	3
Trichlorofluoromethane	ND	50.00	65.47	131	63.88	128	59-155	2	0-20	
1,2,3-Trichloropropane	ND	50.00	50.96	102	50.28	101	75-127	1	0-20	
1,2,4-Trimethylbenzene	ND	50.00	57.08	114	58.99	118	75-133	3	0-20	
1,3,5-Trimethylbenzene	ND	50.00	57.49	115	56.99	114	75-135	1	0-20	
Vinyl Acetate	ND	50.00	40.17	80	42.03	84	54-180	5	0-25	
Vinyl Chloride	ND	50.00	59.79	120	61.11	122	51-153	2	0-20	
p/m-Xylene	ND	100.0	114.2	114	117.7	118	75-133	3	0-20	
o-Xylene	ND	50.00	56.40	113	59.50	119	75-134	5	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	53.75	107	56.52	113	64-136	5	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: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-11-0533-1	Sample	Aqueous	GC/MS WW	11/10/17	11/10/17 11:13	171110S003
17-11-0533-1	Matrix Spike	Aqueous	GC/MS WW	11/10/17	11/10/17 11:42	171110S003
17-11-0533-1	Matrix Spike Duplicate	Aqueous	GC/MS WW	11/10/17	11/10/17 12:11	171110S003

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	56.35	113	58.98	118	60-140	5	0-30	
Benzene	ND	50.00	59.92	120	56.18	112	70-130	6	0-30	
Bromobenzene	ND	50.00	59.02	118	59.60	119	70-130	1	0-30	
Bromochloromethane	ND	50.00	63.23	126	59.68	119	70-130	6	0-30	
Bromodichloromethane	ND	50.00	62.93	126	56.76	114	70-130	10	0-30	
Bromoform	ND	50.00	55.71	111	50.85	102	70-130	9	0-30	
Bromomethane	ND	50.00	64.27	129	65.66	131	70-130	2	0-30	3
2-Butanone	ND	50.00	54.00	108	52.51	105	60-140	3	0-30	
n-Butylbenzene	ND	50.00	59.82	120	56.51	113	70-130	6	0-30	
sec-Butylbenzene	ND	50.00	59.47	119	55.13	110	70-130	8	0-30	
tert-Butylbenzene	ND	50.00	60.04	120	55.62	111	70-130	8	0-30	
Carbon Disulfide	ND	50.00	62.54	125	62.26	125	70-130	0	0-30	
Carbon Tetrachloride	ND	50.00	56.46	113	57.80	116	70-130	2	0-30	
Chlorobenzene	ND	50.00	58.37	117	54.42	109	70-130	7	0-30	
Chloroethane	ND	50.00	58.72	117	63.56	127	70-130	8	0-30	
Chloroform	ND	50.00	59.11	118	56.28	113	70-130	5	0-30	
Chloromethane	ND	50.00	46.02	92	49.72	99	70-130	8	0-30	
2-Chlorotoluene	ND	50.00	59.63	119	59.11	118	70-130	1	0-30	
4-Chlorotoluene	ND	50.00	57.66	115	56.11	112	70-130	3	0-30	
Dibromochloromethane	ND	50.00	61.05	122	57.51	115	70-130	6	0-30	
1,2-Dibromo-3-Chloropropane	ND	50.00	59.15	118	54.71	109	70-130	8	0-30	
1,2-Dibromoethane	ND	50.00	59.97	120	56.99	114	70-130	5	0-30	
Dibromomethane	ND	50.00	60.41	121	54.42	109	70-130	10	0-30	
1,2-Dichlorobenzene	ND	50.00	59.51	119	56.34	113	70-130	5	0-30	
1,3-Dichlorobenzene	ND	50.00	56.01	112	52.16	104	70-130	7	0-30	
1,4-Dichlorobenzene	ND	50.00	55.21	110	53.72	107	70-130	3	0-30	
Dichlorodifluoromethane	ND	50.00	60.13	120	61.18	122	70-130	2	0-30	
1,1-Dichloroethane	ND	50.00	59.10	118	58.42	117	70-130	1	0-30	
1,2-Dichloroethane	ND	50.00	64.75	129	60.48	121	70-130	7	0-30	
1,1-Dichloroethene	ND	50.00	62.99	126	61.90	124	70-130	2	0-30	
c-1,2-Dichloroethene	13.06	50.00	75.03	124	74.22	122	70-130	1	0-30	
t-1,2-Dichloroethene	3.002	50.00	62.96	120	63.27	121	70-130	0	0-30	
1,2-Dichloropropane	ND	50.00	60.44	121	55.81	112	70-130	8	0-30	
1,3-Dichloropropane	ND	50.00	60.50	121	56.11	112	70-130	8	0-30	
2,2-Dichloropropane	ND	50.00	58.80	118	56.58	113	70-130	4	0-30	

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: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 5030C
Method: EPA 8260B

Project: Raytheon Main / 532.30

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Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,1-Dichloropropene	ND	50.00	59.07	118	57.23	114	70-130	3	0-30	
c-1,3-Dichloropropene	ND	50.00	58.15	116	54.01	108	70-130	7	0-30	
t-1,3-Dichloropropene	ND	50.00	60.51	121	55.38	111	70-130	9	0-30	
Ethylbenzene	ND	50.00	62.70	125	57.26	115	70-130	9	0-30	
2-Hexanone	ND	50.00	58.26	117	54.27	109	70-130	7	0-30	
Isopropylbenzene	ND	50.00	61.94	124	58.36	117	70-130	6	0-30	
p-Isopropyltoluene	ND	50.00	59.82	120	56.98	114	70-130	5	0-30	
Methylene Chloride	ND	50.00	55.03	110	54.13	108	70-130	2	0-30	
4-Methyl-2-Pentanone	ND	50.00	53.90	108	51.74	103	70-130	4	0-30	
Naphthalene	ND	50.00	50.69	101	44.72	89	70-130	13	0-30	
n-Propylbenzene	ND	50.00	58.27	117	57.74	115	70-130	1	0-30	
Styrene	ND	50.00	60.37	121	55.49	111	70-130	8	0-30	
1,1,1,2-Tetrachloroethane	ND	50.00	63.83	128	59.80	120	70-130	7	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	54.44	109	52.58	105	70-130	3	0-30	
Tetrachloroethene	ND	50.00	57.89	116	53.52	107	70-130	8	0-30	
Toluene	ND	50.00	60.97	122	56.95	114	70-130	7	0-30	
1,2,3-Trichlorobenzene	ND	50.00	59.03	118	51.89	104	70-130	13	0-30	
1,2,4-Trichlorobenzene	ND	50.00	58.28	117	53.38	107	70-130	9	0-30	
1,1,1-Trichloroethane	ND	50.00	61.08	122	58.02	116	70-130	5	0-30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50.00	62.47	125	59.42	119	70-130	5	0-30	
1,1,2-Trichloroethane	ND	50.00	59.43	119	55.70	111	70-130	6	0-30	
Trichloroethene	ND	50.00	60.63	121	57.31	115	70-130	6	0-30	
Trichlorofluoromethane	ND	50.00	66.85	134	68.66	137	70-130	3	0-30	3
1,2,3-Trichloropropane	ND	50.00	53.90	108	54.87	110	70-130	2	0-30	
1,2,4-Trimethylbenzene	ND	50.00	55.58	111	56.10	112	70-130	1	0-30	
1,3,5-Trimethylbenzene	ND	50.00	58.86	118	59.88	120	70-130	2	0-30	
Vinyl Acetate	ND	50.00	41.25	83	39.48	79	60-140	4	0-30	
Vinyl Chloride	5.276	50.00	64.99	119	68.91	127	70-130	6	0-30	
p/m-Xylene	ND	100.0	125.4	125	116.4	116	70-130	7	0-30	
o-Xylene	ND	50.00	62.89	126	58.91	118	70-130	7	0-30	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	56.95	114	55.99	112	70-130	2	0-30	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

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

Date Received: 11/07/17
Work Order: 17-11-0541
Preparation: EPA 3510C
Method: EPA 8270C (M) SIM Isotope Dil

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-216-1191	LCS	Aqueous	GC/MS DDD	11/09/17	11/09/17 20:02	171109L08
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
1,4-Dioxane		20.00	19.20	96	50-130	

Quality Control - LCS

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-24531	LCS	Aqueous	GC/MS JJ	11/09/17	11/09/17 21:02	171109L050
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acetone	50.00	52.79	106	53-137	39-151	
Benzene	50.00	49.72	99	79-121	72-128	
Bromobenzene	50.00	51.51	103	80-120	73-127	
Bromochloromethane	50.00	52.78	106	80-122	73-129	
Bromodichloromethane	50.00	51.41	103	80-124	73-131	
Bromoform	50.00	52.18	104	73-127	64-136	
Bromomethane	50.00	44.56	89	50-150	33-167	
2-Butanone	50.00	49.21	98	60-126	49-137	
n-Butylbenzene	50.00	51.68	103	72-138	61-149	
sec-Butylbenzene	50.00	52.58	105	77-131	68-140	
tert-Butylbenzene	50.00	52.94	106	80-125	72-132	
Carbon Disulfide	50.00	50.06	100	50-150	33-167	
Carbon Tetrachloride	50.00	53.80	108	65-143	52-156	
Chlorobenzene	50.00	49.52	99	80-120	73-127	
Chloroethane	50.00	42.44	85	62-128	51-139	
Chloroform	50.00	49.59	99	80-120	73-127	
Chloromethane	50.00	37.27	75	43-133	28-148	
2-Chlorotoluene	50.00	50.63	101	80-121	73-128	
4-Chlorotoluene	50.00	51.19	102	80-120	73-127	
Dibromochloromethane	50.00	51.61	103	80-123	73-130	
1,2-Dibromo-3-Chloropropane	50.00	50.63	101	66-126	56-136	
1,2-Dibromoethane	50.00	51.35	103	80-120	73-127	
Dibromomethane	50.00	50.64	101	80-120	73-127	
1,2-Dichlorobenzene	50.00	50.90	102	80-120	73-127	
1,3-Dichlorobenzene	50.00	50.73	101	80-120	73-127	
1,4-Dichlorobenzene	50.00	50.05	100	80-120	73-127	
Dichlorodifluoromethane	50.00	28.60	57	50-150	33-167	
1,1-Dichloroethane	50.00	50.63	101	72-126	63-135	
1,2-Dichloroethane	50.00	51.14	102	76-120	69-127	
1,1-Dichloroethene	50.00	52.78	106	66-132	55-143	
c-1,2-Dichloroethene	50.00	50.26	101	78-120	71-127	
t-1,2-Dichloroethene	50.00	51.58	103	66-132	55-143	
1,2-Dichloropropane	50.00	51.76	104	80-120	73-127	
1,3-Dichloropropane	50.00	51.03	102	80-120	73-127	
2,2-Dichloropropane	50.00	42.15	84	50-150	33-167	
1,1-Dichloropropene	50.00	50.51	101	75-123	67-131	
c-1,3-Dichloropropene	50.00	49.26	99	77-131	68-140	
t-1,3-Dichloropropene	50.00	49.82	100	76-136	66-146	

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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

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<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Ethylbenzene	50.00	51.30	103	80-120	73-127	
2-Hexanone	50.00	49.22	98	63-123	53-133	
Isopropylbenzene	50.00	51.50	103	80-128	72-136	
p-Isopropyltoluene	50.00	52.45	105	73-133	63-143	
Methylene Chloride	50.00	49.69	99	61-133	49-145	
4-Methyl-2-Pentanone	50.00	49.62	99	65-125	55-135	
Naphthalene	50.00	50.81	102	69-129	59-139	
n-Propylbenzene	50.00	50.68	101	80-128	72-136	
Styrene	50.00	51.86	104	80-126	72-134	
1,1,1,2-Tetrachloroethane	50.00	53.00	106	80-129	72-137	
1,1,2,2-Tetrachloroethane	50.00	52.05	104	74-122	66-130	
Tetrachloroethene	50.00	56.57	113	55-139	41-153	
Toluene	50.00	49.94	100	80-120	73-127	
1,2,3-Trichlorobenzene	50.00	51.38	103	72-132	62-142	
1,2,4-Trichlorobenzene	50.00	52.26	105	74-134	64-144	
1,1,1-Trichloroethane	50.00	49.93	100	76-124	68-132	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	50.60	101	54-150	38-166	
1,1,2-Trichloroethane	50.00	51.34	103	80-120	73-127	
Trichloroethene	50.00	51.35	103	79-121	72-128	
Trichlorofluoromethane	50.00	48.92	98	72-132	62-142	
1,2,3-Trichloropropane	50.00	50.29	101	75-123	67-131	
1,2,4-Trimethylbenzene	50.00	52.00	104	74-128	65-137	
1,3,5-Trimethylbenzene	50.00	51.40	103	77-131	68-140	
Vinyl Acetate	50.00	44.10	88	50-150	33-167	
Vinyl Chloride	50.00	42.15	84	63-129	52-140	
p/m-Xylene	100.0	99.54	100	80-122	73-129	
o-Xylene	50.00	51.72	103	80-128	72-136	
Methyl-t-Butyl Ether (MTBE)	50.00	49.37	99	69-123	60-132	

Total number of LCS compounds: 66

Total number of ME compounds: 0

Total number of ME compounds allowed: 3

LCS ME CL validation result: Pass

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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-24506	LCS	Aqueous	GC/MS WW	11/08/17	11/08/17 09:13	171108L011
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acetone	50.00	49.56	99	53-137	39-151	
Benzene	50.00	48.73	97	79-121	72-128	
Bromobenzene	50.00	50.88	102	80-120	73-127	
Bromochloromethane	50.00	55.51	111	80-122	73-129	
Bromodichloromethane	50.00	50.15	100	80-124	73-131	
Bromoform	50.00	44.17	88	73-127	64-136	
Bromomethane	50.00	48.22	96	50-150	33-167	
2-Butanone	50.00	49.04	98	60-126	49-137	
n-Butylbenzene	50.00	45.53	91	72-138	61-149	
sec-Butylbenzene	50.00	48.06	96	77-131	68-140	
tert-Butylbenzene	50.00	48.49	97	80-125	72-132	
Carbon Disulfide	50.00	60.00	120	50-150	33-167	
Carbon Tetrachloride	50.00	46.50	93	65-143	52-156	
Chlorobenzene	50.00	46.40	93	80-120	73-127	
Chloroethane	50.00	49.47	99	62-128	51-139	
Chloroform	50.00	50.42	101	80-120	73-127	
Chloromethane	50.00	44.43	89	43-133	28-148	
2-Chlorotoluene	50.00	50.53	101	80-121	73-128	
4-Chlorotoluene	50.00	47.88	96	80-120	73-127	
Dibromochloromethane	50.00	48.98	98	80-123	73-130	
1,2-Dibromo-3-Chloropropane	50.00	47.13	94	66-126	56-136	
1,2-Dibromoethane	50.00	50.12	100	80-120	73-127	
Dibromomethane	50.00	50.53	101	80-120	73-127	
1,2-Dichlorobenzene	50.00	47.88	96	80-120	73-127	
1,3-Dichlorobenzene	50.00	44.77	90	80-120	73-127	
1,4-Dichlorobenzene	50.00	45.65	91	80-120	73-127	
Dichlorodifluoromethane	50.00	58.24	116	50-150	33-167	
1,1-Dichloroethane	50.00	52.64	105	72-126	63-135	
1,2-Dichloroethane	50.00	51.53	103	76-120	69-127	
1,1-Dichloroethene	50.00	57.25	114	66-132	55-143	
c-1,2-Dichloroethene	50.00	50.19	100	78-120	71-127	
t-1,2-Dichloroethene	50.00	52.80	106	66-132	55-143	
1,2-Dichloropropane	50.00	48.70	97	80-120	73-127	
1,3-Dichloropropane	50.00	49.42	99	80-120	73-127	
2,2-Dichloropropane	50.00	51.19	102	50-150	33-167	
1,1-Dichloropropene	50.00	53.03	106	75-123	67-131	
c-1,3-Dichloropropene	50.00	49.37	99	77-131	68-140	
t-1,3-Dichloropropene	50.00	48.87	98	76-136	66-146	

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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

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<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Ethylbenzene	50.00	49.73	99	80-120	73-127	
2-Hexanone	50.00	45.82	92	63-123	53-133	
Isopropylbenzene	50.00	49.85	100	80-128	72-136	
p-Isopropyltoluene	50.00	49.86	100	73-133	63-143	
Methylene Chloride	50.00	50.16	100	61-133	49-145	
4-Methyl-2-Pentanone	50.00	44.19	88	65-125	55-135	
Naphthalene	50.00	40.97	82	69-129	59-139	
n-Propylbenzene	50.00	49.55	99	80-128	72-136	
Styrene	50.00	50.91	102	80-126	72-134	
1,1,1,2-Tetrachloroethane	50.00	50.33	101	80-129	72-137	
1,1,2,2-Tetrachloroethane	50.00	45.26	91	74-122	66-130	
Tetrachloroethene	50.00	47.21	94	55-139	41-153	
Toluene	50.00	49.19	98	80-120	73-127	
1,2,3-Trichlorobenzene	50.00	45.28	91	72-132	62-142	
1,2,4-Trichlorobenzene	50.00	44.78	90	74-134	64-144	
1,1,1-Trichloroethane	50.00	51.30	103	76-124	68-132	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	58.52	117	54-150	38-166	
1,1,2-Trichloroethane	50.00	48.61	97	80-120	73-127	
Trichloroethene	50.00	49.25	98	79-121	72-128	
Trichlorofluoromethane	50.00	56.51	113	72-132	62-142	
1,2,3-Trichloropropane	50.00	49.32	99	75-123	67-131	
1,2,4-Trimethylbenzene	50.00	48.86	98	74-128	65-137	
1,3,5-Trimethylbenzene	50.00	51.56	103	77-131	68-140	
Vinyl Acetate	50.00	39.98	80	50-150	33-167	
Vinyl Chloride	50.00	54.05	108	63-129	52-140	
p/m-Xylene	100.0	101.9	102	80-122	73-129	
o-Xylene	50.00	51.42	103	80-128	72-136	
Methyl-t-Butyl Ether (MTBE)	50.00	52.28	105	69-123	60-132	

Total number of LCS compounds: 66

Total number of ME compounds: 0

Total number of ME compounds allowed: 3

LCS ME CL validation result: Pass

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Quality Control - LCS

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

Date Received: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-001-24535	LCS	Aqueous	GC/MS WW	11/10/17	11/10/17 09:13	171110L010
Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acetone	50.00	51.67	103	53-137	39-151	
Benzene	50.00	48.15	96	79-121	72-128	
Bromobenzene	50.00	49.41	99	80-120	73-127	
Bromochloromethane	50.00	50.21	100	80-122	73-129	
Bromodichloromethane	50.00	51.11	102	80-124	73-131	
Bromoform	50.00	48.34	97	73-127	64-136	
Bromomethane	50.00	53.83	108	50-150	33-167	
2-Butanone	50.00	50.49	101	60-126	49-137	
n-Butylbenzene	50.00	45.85	92	72-138	61-149	
sec-Butylbenzene	50.00	48.97	98	77-131	68-140	
tert-Butylbenzene	50.00	48.74	97	80-125	72-132	
Carbon Disulfide	50.00	51.54	103	50-150	33-167	
Carbon Tetrachloride	50.00	45.36	91	65-143	52-156	
Chlorobenzene	50.00	46.47	93	80-120	73-127	
Chloroethane	50.00	46.91	94	62-128	51-139	
Chloroform	50.00	46.67	93	80-120	73-127	
Chloromethane	50.00	37.67	75	43-133	28-148	
2-Chlorotoluene	50.00	49.02	98	80-121	73-128	
4-Chlorotoluene	50.00	49.43	99	80-120	73-127	
Dibromochloromethane	50.00	48.54	97	80-123	73-130	
1,2-Dibromo-3-Chloropropane	50.00	55.32	111	66-126	56-136	
1,2-Dibromoethane	50.00	50.05	100	80-120	73-127	
Dibromomethane	50.00	48.24	96	80-120	73-127	
1,2-Dichlorobenzene	50.00	48.47	97	80-120	73-127	
1,3-Dichlorobenzene	50.00	44.73	89	80-120	73-127	
1,4-Dichlorobenzene	50.00	45.95	92	80-120	73-127	
Dichlorodifluoromethane	50.00	57.87	116	50-150	33-167	
1,1-Dichloroethane	50.00	48.25	96	72-126	63-135	
1,2-Dichloroethane	50.00	52.25	105	76-120	69-127	
1,1-Dichloroethene	50.00	53.26	107	66-132	55-143	
c-1,2-Dichloroethene	50.00	45.33	91	78-120	71-127	
t-1,2-Dichloroethene	50.00	48.62	97	66-132	55-143	
1,2-Dichloropropane	50.00	47.86	96	80-120	73-127	
1,3-Dichloropropane	50.00	50.26	101	80-120	73-127	
2,2-Dichloropropane	50.00	47.58	95	50-150	33-167	
1,1-Dichloropropene	50.00	48.91	98	75-123	67-131	
c-1,3-Dichloropropene	50.00	48.13	96	77-131	68-140	
t-1,3-Dichloropropene	50.00	48.45	97	76-136	66-146	

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: 11/07/17
 Work Order: 17-11-0541
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: Raytheon Main / 532.30

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<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Ethylbenzene	50.00	49.21	98	80-120	73-127	
2-Hexanone	50.00	50.56	101	63-123	53-133	
Isopropylbenzene	50.00	49.35	99	80-128	72-136	
p-Isopropyltoluene	50.00	49.01	98	73-133	63-143	
Methylene Chloride	50.00	45.24	90	61-133	49-145	
4-Methyl-2-Pentanone	50.00	49.24	98	65-125	55-135	
Naphthalene	50.00	44.88	90	69-129	59-139	
n-Propylbenzene	50.00	49.19	98	80-128	72-136	
Styrene	50.00	49.81	100	80-126	72-134	
1,1,1,2-Tetrachloroethane	50.00	51.59	103	80-129	72-137	
1,1,2,2-Tetrachloroethane	50.00	50.34	101	74-122	66-130	
Tetrachloroethene	50.00	49.21	98	55-139	41-153	
Toluene	50.00	48.99	98	80-120	73-127	
1,2,3-Trichlorobenzene	50.00	47.93	96	72-132	62-142	
1,2,4-Trichlorobenzene	50.00	46.69	93	74-134	64-144	
1,1,1-Trichloroethane	50.00	49.13	98	76-124	68-132	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	56.50	113	54-150	38-166	
1,1,2-Trichloroethane	50.00	48.31	97	80-120	73-127	
Trichloroethene	50.00	49.59	99	79-121	72-128	
Trichlorofluoromethane	50.00	58.76	118	72-132	62-142	
1,2,3-Trichloropropane	50.00	52.14	104	75-123	67-131	
1,2,4-Trimethylbenzene	50.00	47.12	94	74-128	65-137	
1,3,5-Trimethylbenzene	50.00	48.95	98	77-131	68-140	
Vinyl Acetate	50.00	34.94	70	50-150	33-167	
Vinyl Chloride	50.00	52.37	105	63-129	52-140	
p/m-Xylene	100.0	101.5	101	80-122	73-129	
o-Xylene	50.00	50.01	100	80-128	72-136	
Methyl-t-Butyl Ether (MTBE)	50.00	47.70	95	69-123	60-132	

Total number of LCS compounds: 66

Total number of ME compounds: 0

Total number of ME compounds allowed: 3

LCS ME CL validation result: Pass

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Sample Analysis Summary Report

Work Order: 17-11-0541

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8260B	EPA 5030C	996	GC/MS WW	2
EPA 8260B	EPA 5030C	1135	GC/MS JJ	2
EPA 8270C (M) SIM Isotope Dil	EPA 3510C	928	GC/MS DDD	1


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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: 17-11-0541

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<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: Friday, December 22, 2017 12:11 PM
To: Virendra Patel; Erick Ovalle
Subject: supplemental lab data report
Attachments: 17-11-0541.pdf

Hi Virendra,

As per our recent conversation, could you please send a supplemental lab data report (original is attached) with the data from just the following samples:

- TB-110617
- MW-21
- MW-34B

Let me know if you require anything else.

Thanks,

Tyler Evans, P.G.
Hydrogeologist
HARGIS + ASSOCIATES, INC.
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122

Office: 858-410-7461
Cell: 509-954-2493



Notify us [here](#) to report this email as spam.

17-11-0541

Date: 11/6/17
Page: 1 of 1

PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto

QA Manager Tyler Evans

Phone 858.455.6500

Fax 858.455.6533

Laboratory
Eurofins Calscience, Inc.
Attn: Virendra Patel
7440 Lincoln Way
Garden Grove, CA 92891
714-895-5494

Sampled By:				SAMPLE COLLECTION																			REMARKS			
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid		Ice	40-ml VOA	1 L Amber		VOCs by EPA 8260B	1,4 Dioxane 8270	1,4-Dioxane 8270			0 - 10	10 - 100	100 - 1,000	>1,000	24 hr TAT	48 hr TAT		Standard TAT	Level IV Data Valid	MS/MSD Request
1	TR-#0617B 110617	11/6/17	730	X	X			X	2			X						X						X		Report J Flags
2	MW-21	↓	1430	X	X			X	3			X								X				X		
	↓		↓	X				X		1				X										X		
3	MW-50	11/7/17	1600	X				X		1				X										X		
4	MW-5000	↓	1615	X				X		1				X										X		
5	MW-60	↓	1220	X				X		1				X										X		
6	MW-70	↓	1300	X				X		1				X										X		
7	MW-8000	↓	1430	X				X		1				X										X		
8	MW-80	↓	1400	X				X		1				X										X		
9	MW-51	↓	1630	X				X		1				X										X		
10	MW-34B	11/7/17	1345	X				X	3			X						X						X		
	↓	↓	↓	X				X	1					X										X		

Total number of containers per analysis:																		Total No. of Containers:											
Relinquished By: / Company:		Date / Time	Received By: / Company	Date / Time																									
WSS / H+A		11/7/17 1630	Rudy / ECI	11/7/17 1630																									
Relinquished By: / Company:		Date / Time	Received By: / Company	Date / Time																									
Rudy / ECI		11/7/17 1720	[Signature] / [Signature]	11/7/17 1720																									

- ☐ 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 _____ 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 x
- Note applicable preservatives, special instructions, and deviations from typical environmental samples.
- Consult project QA documents for specific instructions.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1CLIENT: HargisDATE: 11/07/2017

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

Thermometer ID: SC6 (CF: -0.4°C); Temperature (w/o CF): 2.6 °C (w/ CF): 2.2 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/AChecked by: 676Sample(s) ☒ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/AChecked by: 728

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☒	☐	☐
COC document(s) received complete	☒	☐	☐
☐ 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	☒	☐	☐
Sample container label(s) consistent with COC	☒	☐	☐
Sample container(s) intact and in good condition	☒	☐	☐
Proper containers for analyses requested	☒	☐	☐
Sufficient volume/mass for analyses requested	☒	☐	☐
Samples received within holding time	☒	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☒
Proper preservation chemical(s) noted on COC and/or sample container	☒	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☒
Container(s) for certain analysis free of headspace	☒	☐	☐
☒ 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	☐	☐	☒

CONTAINER TYPE:

(Trip Blank Lot Number: A/A)Aqueous: ☐ VOA ☒ VOAh ☐ VOAna₂ ☐ 100PJ ☐ 100PJna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 125PB ☐ 125PBz₂na (pH__9)☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH__2) ☐ 250PB ☐ 250PBn (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH__2) ☐ 500PB☒ 1AGB ☐ 1AGBna₂ ☐ 1AGBs (pH__2) ☐ 1AGBs (O&G) ☐ 1PB ☐ 1PBna (pH__12) ☐ _____ ☐ _____ ☐ _____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: 728s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, z₂na = Zn (CH₃CO₂)₂ + NaOHReviewed by: 1053



HARGIS + ASSOCIATES, INC.

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANALYTICAL RESULTS



September 14, 2017

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 : 1703177

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on September 01, 2017 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 'ER', with a small 'E' written below the main signature.

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 : 09/14/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-090117	1703177-01	Lab prepared water	9/01/17 7:00	9/01/17 13:40
CBT	1703177-02	Groundwater	9/01/17 10:10	9/01/17 13:40
POX	1703177-03	Groundwater	9/01/17 10:15	9/01/17 13:40
CEFF	1703177-04	Groundwater	9/01/17 9:55	9/01/17 13:40
PF	1703177-05	Groundwater	9/01/17 10:25	9/01/17 13:40
INF	1703177-06	Groundwater	9/01/17 10:35	9/01/17 13:40
EW-02	1703177-07	Groundwater	9/01/17 11:00	9/01/17 13:40
MW-29	1703177-08	Groundwater	9/01/17 11:15	9/01/17 13:40

CASE NARRATIVE

The samples for Bromate by IC-MS/MS 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 : 09/14/2017

Client Sample ID TB-090117

Lab ID: 1703177-01

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	B7I0015	09/01/2017	09/01/17 17:19	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,1,2-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,1-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,1-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
4-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Chloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	



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 : 09/14/2017

Client Sample ID TB-090117

Lab ID: 1703177-01

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	B7I0015	09/01/2017	09/01/17 17:19	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 17:19	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 17:19	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Tetrachloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Trichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:19	
Surrogate: 1,2-Dichloroethane-d4	98.3 %	70 - 166		B7I0015	09/01/2017	09/01/17 17:19	
Surrogate: 4-Bromofluorobenzene	108 %	88 - 120		B7I0015	09/01/2017	09/01/17 17:19	
Surrogate: Dibromofluoromethane	98.5 %	80 - 150		B7I0015	09/01/2017	09/01/17 17:19	
Surrogate: Toluene-d8	111 %	87 - 121		B7I0015	09/01/2017	09/01/17 17:19	



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 : 09/14/2017

Client Sample ID CBT

Lab ID: 1703177-02

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	B7I0015	09/01/2017	09/01/17 17:44	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,1,2-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,1-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,1-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
4-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Chloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	



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 : 09/14/2017

Client Sample ID CBT

Lab ID: 1703177-02

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	B7I0015	09/01/2017	09/01/17 17:44	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 17:44	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 17:44	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Tetrachloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Trichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 17:44	
Surrogate: 1,2-Dichloroethane-d4	105 %	70 - 166		B7I0015	09/01/2017	09/01/17 17:44	
Surrogate: 4-Bromofluorobenzene	107 %	88 - 120		B7I0015	09/01/2017	09/01/17 17:44	
Surrogate: Dibromofluoromethane	105 %	80 - 150		B7I0015	09/01/2017	09/01/17 17:44	
Surrogate: Toluene-d8	110 %	87 - 121		B7I0015	09/01/2017	09/01/17 17:44	



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 : 09/14/2017

Client Sample ID CBT

Lab ID: 1703177-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7I0116	09/06/2017	09/06/17 19:30	
Surrogate: 1,2-Dichlorobenzene-d4	64.7 %	32 - 99		B7I0116	09/06/2017	09/06/17 19:30	
Surrogate: 2-Fluorobiphenyl	72.4 %	29 - 105		B7I0116	09/06/2017	09/06/17 19:30	
Surrogate: 4-Terphenyl-d14	82.2 %	32 - 119		B7I0116	09/06/2017	09/06/17 19:30	
Surrogate: Nitrobenzene-d5	67.7 %	17 - 123		B7I0116	09/06/2017	09/06/17 19:30	



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 : 09/14/2017

Client Sample ID POX

Lab ID: 1703177-03

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7I0105	09/06/2017	09/07/17 09:45	

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	B7I0015	09/01/2017	09/01/17 18:08	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,1,2-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,1-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,1-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	



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 : 09/14/2017

Client Sample ID POX

Lab ID: 1703177-03

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	B7I0015	09/01/2017	09/01/17 18:08	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Chloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Dibromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 18:08	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 18:08	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Tetrachloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Trichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:08	

Surrogate: 1,2-Dichloroethane-d4 102 % 70 - 166 B7I0015 09/01/2017 09/01/17 18:08

Surrogate: 4-Bromofluorobenzene 109 % 88 - 120 B7I0015 09/01/2017 09/01/17 18:08



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 : 09/14/2017

Client Sample ID POX

Lab ID: 1703177-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Dibromofluoromethane	103 %	80 - 150		B7I0015	09/01/2017	09/01/17 18:08	
Surrogate: Toluene-d8	109 %	87 - 121		B7I0015	09/01/2017	09/01/17 18:08	

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7I0116	09/06/2017	09/06/17 19:57	
Surrogate: 1,2-Dichlorobenzene-d4	74.4 %	32 - 99		B7I0116	09/06/2017	09/06/17 19:57	
Surrogate: 2-Fluorobiphenyl	78.8 %	29 - 105		B7I0116	09/06/2017	09/06/17 19:57	
Surrogate: 4-Terphenyl-d14	90.3 %	32 - 119		B7I0116	09/06/2017	09/06/17 19:57	
Surrogate: Nitrobenzene-d5	78.0 %	17 - 123		B7I0116	09/06/2017	09/06/17 19:57	



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 : 09/14/2017

Client Sample ID CEFF

Lab ID: 1703177-04

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	B7I0015	09/01/2017	09/01/17 18:33	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,1,2-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,1-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,1-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
4-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Chloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	



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 : 09/14/2017

Client Sample ID CEFF

Lab ID: 1703177-04

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	B7I0015	09/01/2017	09/01/17 18:33	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 18:33	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 18:33	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Tetrachloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Trichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:33	
Surrogate: 1,2-Dichloroethane-d4	107 %	70 - 166		B7I0015	09/01/2017	09/01/17 18:33	
Surrogate: 4-Bromofluorobenzene	112 %	88 - 120		B7I0015	09/01/2017	09/01/17 18:33	
Surrogate: Dibromofluoromethane	110 %	80 - 150		B7I0015	09/01/2017	09/01/17 18:33	
Surrogate: Toluene-d8	111 %	87 - 121		B7I0015	09/01/2017	09/01/17 18:33	



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 : 09/14/2017

Client Sample ID CEFF

Lab ID: 1703177-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7I0116	09/06/2017	09/06/17 20:24	
Surrogate: 1,2-Dichlorobenzene-d4	74.6 %	32 - 99		B7I0116	09/06/2017	09/06/17 20:24	
Surrogate: 2-Fluorobiphenyl	77.0 %	29 - 105		B7I0116	09/06/2017	09/06/17 20:24	
Surrogate: 4-Terphenyl-d14	82.8 %	32 - 119		B7I0116	09/06/2017	09/06/17 20:24	
Surrogate: Nitrobenzene-d5	78.3 %	17 - 123		B7I0116	09/06/2017	09/06/17 20:24	



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 : 09/14/2017

Client Sample ID PF

Lab ID: 1703177-05

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7I0031	09/01/2017	09/01/17 18:26	

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	

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

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B7I0068	09/05/2017	09/06/17 08:38	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7I0105	09/06/2017	09/07/17 09:45	



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 : 09/14/2017

Client Sample ID INF

Lab ID: 1703177-06

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.29	0.25	5	B7I0158	09/07/2017	09/07/17 11:33	

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	B7I0015	09/01/2017	09/01/17 19:22	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,1,2-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,1-Dichloroethane	0.56	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,1-Dichloroethene	53	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
4-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	



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 : 09/14/2017

Client Sample ID INF

Lab ID: 1703177-06

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	B7I0015	09/01/2017	09/01/17 19:22	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Dibromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 19:22	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 19:22	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Tetrachloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Trichloroethene	0.55	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:22	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>105 %</i>	<i>70 - 166</i>		B7I0015	09/01/2017	<i>09/01/17 19:22</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>111 %</i>	<i>88 - 120</i>		B7I0015	09/01/2017	<i>09/01/17 19:22</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>	<i>80 - 150</i>		B7I0015	09/01/2017	<i>09/01/17 19:22</i>	
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>	<i>87 - 121</i>		B7I0015	09/01/2017	<i>09/01/17 19:22</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 : 09/14/2017

Client Sample ID INF

Lab ID: 1703177-06

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	20	2.0	1	B7I0100	09/06/2017	09/06/17 17:33	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>41.9 %</i>	<i>17 - 101</i>		B7I0100	09/06/2017	<i>09/06/17 17:33</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>46.2 %</i>	<i>29 - 109</i>		B7I0100	09/06/2017	<i>09/06/17 17:33</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>72.7 %</i>	<i>49 - 122</i>		B7I0100	09/06/2017	<i>09/06/17 17:33</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>44.1 %</i>	<i>19 - 111</i>		B7I0100	09/06/2017	<i>09/06/17 17:33</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 : 09/14/2017

Client Sample ID EW-02

Lab ID: 1703177-07

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	ND	0.25	5	B7I0158	09/07/2017	09/07/17 11:44	D2

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	B7I0015	09/01/2017	09/01/17 18:57	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,1,2-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,1-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,1-Dichloroethene	11	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2-Dichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
4-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	



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 : 09/14/2017

Client Sample ID EW-02

Lab ID: 1703177-07

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	B7I0015	09/01/2017	09/01/17 18:57	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Dibromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 18:57	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 18:57	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Tetrachloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Trichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 18:57	
Surrogate: 1,2-Dichloroethane-d4	107 %	70 - 166		B7I0015	09/01/2017	09/01/17 18:57	
Surrogate: 4-Bromofluorobenzene	110 %	88 - 120		B7I0015	09/01/2017	09/01/17 18:57	
Surrogate: Dibromofluoromethane	108 %	80 - 150		B7I0015	09/01/2017	09/01/17 18:57	
Surrogate: Toluene-d8	111 %	87 - 121		B7I0015	09/01/2017	09/01/17 18:57	



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 : 09/14/2017

Client Sample ID EW-02

Lab ID: 1703177-07

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	4.4	2.0	1	B7I0100	09/06/2017	09/06/17 18:01	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>45.9 %</i>	<i>17 - 101</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:01</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>54.6 %</i>	<i>29 - 109</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:01</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>83.8 %</i>	<i>49 - 122</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:01</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>50.9 %</i>	<i>19 - 111</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:01</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 : 09/14/2017

Client Sample ID MW-29

Lab ID: 1703177-08

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.43	0.25	5	B7I0158	09/07/2017	09/07/17 11:55	

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	B7I0015	09/01/2017	09/01/17 19:47	
1,1,1-Trichloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,1,2-Trichloroethane	0.81	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,1-Dichloroethane	2.0	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,1-Dichloroethene	200	5.0	10	B7I0015	09/01/2017	09/01/17 20:11	
1,1-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2,3-Trichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2-Dibromoethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2-Dichloroethane	0.51	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,3-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,3-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
1,4-Dichlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
2,2-Dichloropropane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
2-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
4-Chlorotoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
4-Isopropyltoluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Benzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Bromobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Bromodichloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Bromoform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Bromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Carbon tetrachloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Chlorobenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	



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 : 09/14/2017

Client Sample ID MW-29

Lab ID: 1703177-08

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	B7I0015	09/01/2017	09/01/17 19:47	
Chloroform	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Chloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Dibromochloromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Dibromomethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Dichlorodifluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Ethylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Hexachlorobutadiene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Isopropylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
m,p-Xylene	ND	1.0	1	B7I0015	09/01/2017	09/01/17 19:47	
Methylene chloride	ND	1.0	1	B7I0015	09/01/2017	09/01/17 19:47	
n-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
n-Propylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Naphthalene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
o-Xylene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
sec-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Styrene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
tert-Butylbenzene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Tetrachloroethene	0.83	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Toluene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Trichloroethene	1.9	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Trichlorofluoromethane	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
Vinyl chloride	ND	0.50	1	B7I0015	09/01/2017	09/01/17 19:47	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>	<i>70 - 166</i>		B7I0015	09/01/2017	<i>09/01/17 20:11</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>70 - 166</i>		B7I0015	09/01/2017	<i>09/01/17 19:47</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107 %</i>	<i>88 - 120</i>		B7I0015	09/01/2017	<i>09/01/17 20:11</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>	<i>88 - 120</i>		B7I0015	09/01/2017	<i>09/01/17 19:47</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>	<i>80 - 150</i>		B7I0015	09/01/2017	<i>09/01/17 20:11</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>80 - 150</i>		B7I0015	09/01/2017	<i>09/01/17 19:47</i>	
<i>Surrogate: Toluene-d8</i>	<i>111 %</i>	<i>87 - 121</i>		B7I0015	09/01/2017	<i>09/01/17 20:11</i>	
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>	<i>87 - 121</i>		B7I0015	09/01/2017	<i>09/01/17 19:47</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 : 09/14/2017

Client Sample ID MW-29

Lab ID: 1703177-08

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	73	2.0	1	B7I0100	09/06/2017	09/06/17 18:28	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>39.9 %</i>	<i>17 - 101</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:28</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>47.4 %</i>	<i>29 - 109</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:28</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>80.4 %</i>	<i>49 - 122</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:28</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>44.1 %</i>	<i>19 - 111</i>		<i>B7I0100</i>	<i>09/06/2017</i>	<i>09/06/17 18:28</i>	



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QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0204 - No_Prep_WC1_W

Blank (B7I0204-BLK1)

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Total (as CaCO ₃)	ND	5.0	1.6

LCS (B7I0204-BS1)

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Total (as CaCO ₃)	100.000	5.0	1.6	99.9580	100	80 - 120
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Matrix Spike (B7I0204-MS1)

Source: 1703177-03

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Total (as CaCO ₃)	412.000	10	3.2	199.916	222.000	95.0	80 - 120
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Matrix Spike Dup (B7I0204-MSD1)

Source: 1703177-03

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Total (as CaCO ₃)	414.000	10	3.2	199.916	222.000	96.0	80 - 120	0.484	20
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Project Number : Raytheon Main GETS Monthly Sample, 5

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

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0068 - No_Prep_WC1_W

Blank (B7I0068-BLK1)

Prepared: 9/5/2017 Analyzed: 9/6/2017

Residue, Suspended ND 1.0 1.0

LCS (B7I0068-BS1)

Prepared: 9/5/2017 Analyzed: 9/6/2017

Residue, Suspended 95.0000 10 10 92.0000 103 80 - 120

Duplicate (B7I0068-DUP1)

Source: 1703162-01

Prepared: 9/5/2017 Analyzed: 9/6/2017

Residue, Suspended 1452.00 40 40 1524.00 4.84 10



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/14/2017

Bromide by Ion Chromatography EPA 300 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0158 - No_Prep_IC1_W

Blank (B7I0158-BLK1)

Prepared: 9/7/2017 Analyzed: 9/7/2017

Bromide ND 0.05 0.02

LCS (B7I0158-BS1)

Prepared: 9/7/2017 Analyzed: 9/7/2017

Bromide 1.00080 0.05 0.02 1.00000 100 90 - 110

Duplicate (B7I0158-DUP1)

Source: 1703228-01

Prepared: 9/7/2017 Analyzed: 9/7/2017

Bromide ND 5.0 1.7 ND 20

Matrix Spike (B7I0158-MS1)

Source: 1703228-01

Prepared: 9/7/2017 Analyzed: 9/7/2017

Bromide 2.80590 2.50000 0.00000 112 80 - 120

Matrix Spike Dup (B7I0158-MSD1)

Source: 1703228-01

Prepared: 9/7/2017 Analyzed: 9/7/2017

Bromide 2.67010 2.50000 0.00000 107 80 - 120 4.96 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/14/2017

UV Absorption by EPA 415.3 - Quality Control

Analyte	Result (1/cm)	PQL (1/cm)	MDL (1/cm)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0031 - No_Prep_II_W

Duplicate (B7I0031-DUP1)					Source: 1703177-05	Prepared: 9/1/2017 Analyzed: 9/1/2017				
UV Absorption	ND	0.01	0.01		ND			NR	20	
Duplicate (B7I0031-DUP2)					Source: 1703179-02	Prepared: 9/1/2017 Analyzed: 9/1/2017				
UV Absorption	ND	0.01	0.01		ND			NR	20	
Duplicate (B7I0031-DUP3)					Source: 1703179-03	Prepared: 9/1/2017 Analyzed: 9/1/2017				
UV Absorption	ND	0.01	0.01		ND			NR	20	
Duplicate (B7I0031-DUP4)					Source: 1703179-04	Prepared: 9/1/2017 Analyzed: 9/1/2017				
UV Absorption	ND	0.01	0.01		ND			NR	20	
Duplicate (B7I0031-DUP5)					Source: 1703179-05	Prepared: 9/1/2017 Analyzed: 9/1/2017				
UV Absorption	ND	0.01	0.01		ND			NR	20	



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Project Number : Raytheon Main GETS Monthly Sample, 5

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Total Organic Carbon by SM 5310B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0105 - No_Prep_II_W

Blank (B7I0105-BLK1)

Prepared: 9/6/2017 Analyzed: 9/7/2017

Organic Carbon, Total ND 3.0 1.8

LCS (B7I0105-BS1)

Prepared: 9/6/2017 Analyzed: 9/7/2017

Organic Carbon, Total 17.7200 3.0 1.8 20.0000 88.6 80 - 120

LCS Dup (B7I0105-BSD1)

Prepared: 9/6/2017 Analyzed: 9/7/2017

Organic Carbon, Total 17.6400 3.0 1.8 20.0000 88.2 80 - 120 0.452 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0015 - MSVOA_LL_W

Blank (B7I0015-BLK1)

Prepared: 9/1/2017 Analyzed: 9/1/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0015 - MSVOA_LL_W (continued)

Blank (B7I0015-BLK1) - Continued

Prepared: 9/1/2017 Analyzed: 9/1/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	25.89		25.0000	104	70 - 166
Surrogate: 4-Bromofluorobenzene	27.21		25.0000	109	88 - 120
Surrogate: Dibromofluoromethane	26.72		25.0000	107	80 - 150
Surrogate: Toluene-d8	27.37		25.0000	109	87 - 121

LCS (B7I0015-BS1)

Prepared: 9/1/2017 Analyzed: 9/1/2017

1,1,1,2-Tetrachloroethane	11.1600	0.50	0.13	10.0000	112	73 - 136
1,1,1-Trichloroethane	10.9000	0.50	0.38	10.0000	109	73 - 143
1,1,2,2-Tetrachloroethane	9.45000	0.50	0.20	10.0000	94.5	62 - 127
1,1,2-Trichloroethane	10.0800	0.50	0.19	10.0000	101	72 - 122
1,1-Dichloroethane	9.55000	0.50	0.20	10.0000	95.5	73 - 138
1,1-Dichloroethene	9.72000	0.50	0.28	10.0000	97.2	74 - 132
1,1-Dichloropropene	11.0700	0.50	0.36	10.0000	111	70 - 143
1,2,3-Trichloropropane	9.23000	0.50	0.16	10.0000	92.3	66 - 119
1,2,3-Trichlorobenzene	10.5200	0.50	0.06	10.0000	105	70 - 131
1,2,4-Trichlorobenzene	10.1700	0.50	0.07	10.0000	102	70 - 128
1,2,4-Trimethylbenzene	12.2200	0.50	0.09	10.0000	122	74 - 142
1,2-Dibromo-3-chloropropane	8.17000	0.50	0.20	10.0000	81.7	56 - 118
1,2-Dibromoethane	9.82000	0.50	0.13	10.0000	98.2	73 - 122
1,2-Dichlorobenzene	10.5000	0.50	0.12	10.0000	105	75 - 128
1,2-Dichloroethane	10.4900	0.50	0.39	10.0000	105	70 - 131
1,2-Dichloropropane	10.0500	0.50	0.47	10.0000	100	69 - 124
1,3,5-Trimethylbenzene	12.4200	0.50	0.08	10.0000	124	73 - 144
1,3-Dichlorobenzene	10.6800	0.50	0.13	10.0000	107	75 - 131
1,3-Dichloropropane	9.73000	0.50	0.08	10.0000	97.3	70 - 122



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0015 - MSVOA_LL_W (continued)

LCS (B7I0015-BS1) - Continued

Prepared: 9/1/2017 Analyzed: 9/1/2017

1,4-Dichlorobenzene	10.3000	0.50	0.18	10.0000		103	75 - 127		
2,2-Dichloropropane	10.6100	0.50	0.23	10.0000		106	68 - 151		
2-Chlorotoluene	11.9600	0.50	0.12	10.0000		120	72 - 138		
4-Chlorotoluene	11.8800	0.50	0.11	10.0000		119	72 - 140		
4-Isopropyltoluene	12.9000	0.50	0.12	10.0000		129	74 - 149		
Benzene	23.5800	0.50	0.21	20.0000		118	67 - 138		
Bromobenzene	10.4700	0.50	0.12	10.0000		105	73 - 127		
Bromodichloromethane	10.5800	0.50	0.32	10.0000		106	74 - 129		
Bromoform	10.0800	0.50	0.14	10.0000		101	63 - 131		
Bromomethane	13.4900	0.50	0.22	10.0000		135	57 - 216		
Carbon tetrachloride	12.2500	0.50	0.31	10.0000		122	77 - 151		
Chlorobenzene	11.0500	0.50	0.16	10.0000		110	73 - 125		
Chloroethane	10.2700	0.50	0.29	10.0000		103	54 - 154		
Chloroform	9.86000	0.50	0.16	10.0000		98.6	77 - 132		
Chloromethane	8.00000	0.50	0.19	10.0000		80.0	57 - 142		
cis-1,2-Dichloroethene	9.48000	0.50	0.39	10.0000		94.8	73 - 126		
cis-1,3-Dichloropropene	10.0400	0.50	0.08	10.0000		100	76 - 120		
Dibromochloromethane	9.57000	0.50	0.11	10.0000		95.7	71 - 126		
Dibromomethane	9.94000	0.50	0.09	10.0000		99.4	73 - 121		
Dichlorodifluoromethane	11.3100	0.50	0.31	10.0000		113	48 - 152		
Ethylbenzene	24.8700	0.50	0.08	20.0000		124	72 - 134		
Hexachlorobutadiene	11.9300	0.50	0.22	10.0000		119	72 - 139		
Isopropylbenzene	12.4100	0.50	0.10	10.0000		124	73 - 146		
m,p-Xylene	25.4300	1.0	0.18	20.0000		127	75 - 138		
Methylene chloride	9.64000	1.0	0.26	10.0000		96.4	52 - 154		
n-Butylbenzene	13.0800	0.50	0.15	10.0000		131	72 - 151		
n-Propylbenzene	12.8900	0.50	0.14	10.0000		129	69 - 149		
Naphthalene	8.52000	0.50	0.09	10.0000		85.2	61 - 122		
o-Xylene	26.1400	0.50	0.04	20.0000		131	66 - 147		
sec-Butylbenzene	12.8100	0.50	0.15	10.0000		128	72 - 148		
Styrene	12.7400	0.50	0.05	10.0000		127	72 - 138		
tert-Butylbenzene	12.4400	0.50	0.11	10.0000		124	70 - 145		
Tetrachloroethene	11.6600	0.50	0.18	10.0000		117	61 - 145		
Toluene	24.9700	0.50	0.14	20.0000		125	70 - 140		
trans-1,2-Dichloroethene	9.72000	0.50	0.15	10.0000		97.2	73 - 130		
Trichloroethene	10.5900	0.50	0.15	10.0000		106	69 - 126		
Trichlorofluoromethane	13.4300	0.50	0.33	10.0000		134	70 - 159		
Vinyl chloride	9.34000	0.50	0.25	10.0000		93.4	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	25.22			25.0000		101	70 - 166		
Surrogate: 4-Bromofluorobenzene	28.58			25.0000		114	88 - 120		
Surrogate: Dibromofluoromethane	26.50			25.0000		106	80 - 150		



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 09/14/2017

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
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Batch B7I0015 - MSVOA_LL_W (continued)

LCS (B7I0015-BS1) - Continued

Prepared: 9/1/2017 Analyzed: 9/1/2017

Surrogate: Toluene-d8 29.01 25.0000 116 87 - 121

LCS Dup (B7I0015-BSD1)

Prepared: 9/1/2017 Analyzed: 9/1/2017

1,1,1,2-Tetrachloroethane	10.6500	0.50	0.13	10.0000	106	73 - 136	4.68	20	
1,1,1-Trichloroethane	10.5700	0.50	0.38	10.0000	106	73 - 143	3.07	20	
1,1,2,2-Tetrachloroethane	10.0500	0.50	0.20	10.0000	100	62 - 127	6.15	20	
1,1,2-Trichloroethane	10.1600	0.50	0.19	10.0000	102	72 - 122	0.791	20	
1,1-Dichloroethane	9.09000	0.50	0.20	10.0000	90.9	73 - 138	4.94	20	
1,1-Dichloroethene	9.26000	0.50	0.28	10.0000	92.6	74 - 132	4.85	20	
1,1-Dichloropropene	10.7600	0.50	0.36	10.0000	108	70 - 143	2.84	20	
1,2,3-Trichloropropane	9.33000	0.50	0.16	10.0000	93.3	66 - 119	1.08	20	
1,2,3-Trichlorobenzene	10.4900	0.50	0.06	10.0000	105	70 - 131	0.286	20	
1,2,4-Trichlorobenzene	10.0700	0.50	0.07	10.0000	101	70 - 128	0.988	20	
1,2,4-Trimethylbenzene	12.0700	0.50	0.09	10.0000	121	74 - 142	1.24	20	
1,2-Dibromo-3-chloropropane	8.33000	0.50	0.20	10.0000	83.3	56 - 118	1.94	20	
1,2-Dibromoethane	9.61000	0.50	0.13	10.0000	96.1	73 - 122	2.16	20	
1,2-Dichlorobenzene	10.4100	0.50	0.12	10.0000	104	75 - 128	0.861	20	
1,2-Dichloroethane	10.2300	0.50	0.39	10.0000	102	70 - 131	2.51	20	
1,2-Dichloropropane	10.0600	0.50	0.47	10.0000	101	69 - 124	0.0995	20	
1,3,5-Trimethylbenzene	12.2200	0.50	0.08	10.0000	122	73 - 144	1.62	20	
1,3-Dichlorobenzene	10.6000	0.50	0.13	10.0000	106	75 - 131	0.752	20	
1,3-Dichloropropane	9.87000	0.50	0.08	10.0000	98.7	70 - 122	1.43	20	
1,4-Dichlorobenzene	10.0500	0.50	0.18	10.0000	100	75 - 127	2.46	20	
2,2-Dichloropropane	10.2600	0.50	0.23	10.0000	103	68 - 151	3.35	20	
2-Chlorotoluene	11.7700	0.50	0.12	10.0000	118	72 - 138	1.60	20	
4-Chlorotoluene	11.7300	0.50	0.11	10.0000	117	72 - 140	1.27	20	
4-Isopropyltoluene	12.5600	0.50	0.12	10.0000	126	74 - 149	2.67	20	
Benzene	23.0900	0.50	0.21	20.0000	115	67 - 138	2.10	20	
Bromobenzene	10.3700	0.50	0.12	10.0000	104	73 - 127	0.960	20	
Bromodichloromethane	10.4500	0.50	0.32	10.0000	104	74 - 129	1.24	20	
Bromoform	9.86000	0.50	0.14	10.0000	98.6	63 - 131	2.21	20	
Bromomethane	12.7600	0.50	0.22	10.0000	128	57 - 216	5.56	20	
Carbon tetrachloride	12.0700	0.50	0.31	10.0000	121	77 - 151	1.48	20	
Chlorobenzene	10.7900	0.50	0.16	10.0000	108	73 - 125	2.38	20	
Chloroethane	10.0100	0.50	0.29	10.0000	100	54 - 154	2.56	20	
Chloroform	9.46000	0.50	0.16	10.0000	94.6	77 - 132	4.14	20	
Chloromethane	7.59000	0.50	0.19	10.0000	75.9	57 - 142	5.26	20	
cis-1,2-Dichloroethene	9.24000	0.50	0.39	10.0000	92.4	73 - 126	2.56	20	
cis-1,3-Dichloropropene	10.0000	0.50	0.08	10.0000	100	76 - 120	0.399	20	
Dibromochloromethane	9.75000	0.50	0.11	10.0000	97.5	71 - 126	1.86	20	
Dibromomethane	9.99000	0.50	0.09	10.0000	99.9	73 - 121	0.502	20	
Dichlorodifluoromethane	10.6800	0.50	0.31	10.0000	107	48 - 152	5.73	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 : 09/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0015 - MSVOA_LL_W (continued)

LCS Dup (B7I0015-BSD1) - Continued

Prepared: 9/1/2017 Analyzed: 9/1/2017

Ethylbenzene	24.3800	0.50	0.08	20.0000		122	72 - 134	1.99	20
Hexachlorobutadiene	11.3500	0.50	0.22	10.0000		114	72 - 139	4.98	20
Isopropylbenzene	12.2000	0.50	0.10	10.0000		122	73 - 146	1.71	20
m,p-Xylene	24.6800	1.0	0.18	20.0000		123	75 - 138	2.99	20
Methylene chloride	9.38000	1.0	0.26	10.0000		93.8	52 - 154	2.73	20
n-Butylbenzene	12.8000	0.50	0.15	10.0000		128	72 - 151	2.16	20
n-Propylbenzene	12.6800	0.50	0.14	10.0000		127	69 - 149	1.64	20
Naphthalene	8.61000	0.50	0.09	10.0000		86.1	61 - 122	1.05	20
o-Xylene	25.5700	0.50	0.04	20.0000		128	66 - 147	2.20	20
sec-Butylbenzene	12.5100	0.50	0.15	10.0000		125	72 - 148	2.37	20
Styrene	12.4200	0.50	0.05	10.0000		124	72 - 138	2.54	20
tert-Butylbenzene	12.2700	0.50	0.11	10.0000		123	70 - 145	1.38	20
Tetrachloroethene	12.1400	0.50	0.18	10.0000		121	61 - 145	4.03	20
Toluene	24.8600	0.50	0.14	20.0000		124	70 - 140	0.441	20
trans-1,2-Dichloroethene	9.26000	0.50	0.15	10.0000		92.6	73 - 130	4.85	20
Trichloroethene	10.9100	0.50	0.15	10.0000		109	69 - 126	2.98	20
Trichlorofluoromethane	12.9600	0.50	0.33	10.0000		130	70 - 159	3.56	20
Vinyl chloride	9.23000	0.50	0.25	10.0000		92.3	56 - 151	1.18	20
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>24.58</i>			<i>25.0000</i>		<i>98.3</i>	<i>70 - 166</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>28.70</i>			<i>25.0000</i>		<i>115</i>	<i>88 - 120</i>		
<i>Surrogate: Dibromofluoromethane</i>	<i>25.73</i>			<i>25.0000</i>		<i>103</i>	<i>80 - 150</i>		
<i>Surrogate: Toluene-d8</i>	<i>28.44</i>			<i>25.0000</i>		<i>114</i>	<i>87 - 121</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 : 09/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0100 - MSSEMI_W

Blank (B7I0100-BLK1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	ND	2.0	0.84							
Surrogate: 1,2-Dichlorobenzene-d	49.80			100.000		49.8	17 - 101			
Surrogate: 2-Fluorobiphenyl	59.29			100.000		59.3	29 - 109			
Surrogate: 4-Terphenyl-d14	85.77			100.000		85.8	49 - 122			
Surrogate: Nitrobenzene-d5	54.19			100.000		54.2	19 - 111			

LCS (B7I0100-BS1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	92.6400	2.0	0.84	100.000		92.6	85 - 121			
Surrogate: 1,2-Dichlorobenzene-d	47.20			100.000		47.2	17 - 101			
Surrogate: 2-Fluorobiphenyl	64.61			100.000		64.6	29 - 109			
Surrogate: 4-Terphenyl-d14	87.41			100.000		87.4	49 - 122			
Surrogate: Nitrobenzene-d5	55.75			100.000		55.8	19 - 111			

LCS Dup (B7I0100-BSD1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	96.0100	2.0	0.84	100.000		96.0	85 - 121	3.57	20	
Surrogate: 1,2-Dichlorobenzene-d	54.05			100.000		54.0	17 - 101			
Surrogate: 2-Fluorobiphenyl	71.29			100.000		71.3	29 - 109			
Surrogate: 4-Terphenyl-d14	84.48			100.000		84.5	49 - 122			
Surrogate: Nitrobenzene-d5	65.58			100.000		65.6	19 - 111			



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 : 09/14/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0116 - MSSEMI_W

Blank (B7I0116-BLK1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	ND	0.20	0.11						
Surrogate: 1,2-Dichlorobenzene-d	0.4964			1.00000		49.6	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.5357			1.00000		53.6	29 - 105		
Surrogate: 4-Terphenyl-d14	0.7661			1.00000		76.6	32 - 119		
Surrogate: Nitrobenzene-d5	0.5581			1.00000		55.8	17 - 123		

LCS (B7I0116-BS1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	1.00114	0.20	0.11	1.00000		100	61 - 166		
Surrogate: 1,2-Dichlorobenzene-d	0.5814			1.00000		58.1	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.6212			1.00000		62.1	29 - 105		
Surrogate: 4-Terphenyl-d14	0.6683			1.00000		66.8	32 - 119		
Surrogate: Nitrobenzene-d5	0.6269			1.00000		62.7	17 - 123		

LCS Dup (B7I0116-BSD1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	1.07597	0.20	0.11	1.00000		108	61 - 166	7.21	20
Surrogate: 1,2-Dichlorobenzene-d	0.7809			1.00000		78.1	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8424			1.00000		84.2	29 - 105		
Surrogate: 4-Terphenyl-d14	0.8749			1.00000		87.5	32 - 119		
Surrogate: Nitrobenzene-d5	0.8212			1.00000		82.1	17 - 123		



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 : 09/14/2017

Notes and Definitions

D2	Sample required dilution due to high concentration of non-target analyte.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

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

Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com



Testing, calibrating, advising

Certificate of Analysis

September 12, 2017

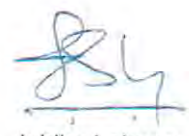
Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Attn: Rachelle Arada

Exova Job No: 216049
Purchase Order: CREDIT CARD
Project Name: 1703177 / Groundwater
Samples Received: 2
Date Received: 09-05-17

Analysis	Page
Bromate by SOP 5600, Rev 3	2


Michael Shelton
Technical Director


Ishika Lokuge
Senior Chemist

Bromate by SOP 5600, Rev 3
Ion Chromatography-Tandem Mass Spectrometry

Sample preparation: An aliquot of each sample was pipetted into a Nalgene bottle, spiked with internal standard (bromate- $^{18}\text{O}_3$), and diluted with water. The sample solutions were passed through a Dionex OnGuard II H cartridge and analyzed using IC-MS/MS.

Parts Per Billion ($\mu\text{g/L}$)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1703177-03 / POX	ND
ATL Lab#: 1703177-06 / INF	ND
Method Blank	ND
Detection Limit	0.5
Date Analyzed: 09-06-17	

Quality Control Summary

Sample ID: ATL Lab#: 1703177-06 / INF

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Dup Spike Result</u>	<u>Dup Spike % Rec</u>	<u>Spike RPD</u>
Bromate	ND	10.0	9.71	97	9.74	97	0
QC Guidelines				80-120		80-120	NMT 15

Sample ID: Blank

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>
Bromate	ND	10.0	10.4	104
QC Guidelines				80-120

ADVANCED TECHNOLOGY
LABORATORIES
SUBCONTRACT ORDER

Work Order: 1703177

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arad (Rachelle@atlglobal.com)
Sampler: Steve Stewart (Signed)

RECEIVING LABORATORY:

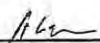
Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone: (562) 948-2225
Fax: (562) 948-5850
PO#: SC11874- STANDARD TAT

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

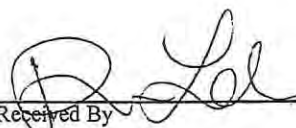
Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1703177-03 ^① / POX Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	09/19/17 17:00	Groundwater 09/29/17 10:15	09/01/17 10:15	
ATL Lab#: 1703177-06 ^② / INF Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] Poly Unpres - 125mL	09/19/17 17:00	Groundwater 09/29/17 10:35	09/01/17 10:35	

09-05-17 ROL also has:

- ① H
- ② F

Released By 

9/5/17 1457
Date

Received By 

Date

09-05-17 2:55 pm

Released By

Date

Received By

Date

216049

Page 1 of 1

Page 39 of 40

PROJECT: Raytheon Main GETS Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Steve Stewart

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED		Expected Concentration Range (ppb) for VOAs		SPECIAL HANDLING		REMARKS																				
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	Total Suspended Solids by 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		
1703177-01	TB-090117	9/1/2017	7:00	X	X					2						X										X										
-02	CBT	9/1/2017	10:10	X	X					3	5				1	X										X	X									
-03	POX	9/1/2017	10:15	X	X					6	1	1			1	X	X		X	X					X	X										
-04	CEFF	9/1/2017	9:55	X	X					3	5				1	X								X	X											
-05	PF	9/1/2017	10:25	X	X					3	2	1	1	1					X	X	X	X														
-06	INF	9/1/2017	10:35	X	X					3	2				1	X	X	X					X				X									
-07	EW-02	9/1/2017	11:00	X	X					3	1				1	X	X						X			X										
-08	MW-29	9/1/2017	11:15	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
Steve Netto H+A	09/01/17 11:30	Steve Netto	09/01/17 11:30
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Steve Netto H+A	09/01/17 11:40	Steve Netto	09/01/17 11:40

- ☒ 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.

0.8°C Temperature on receipt



September 11, 2017

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 : 1703179

Client Reference : Raytheon Main GETS Quarterly Sample, 532.15

Enclosed are the results for sample(s) received on September 01, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Eddie Rodriguez', is written over a light blue 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.

3275 Walnut Avenue, Signal Hill, CA 90755 • Tel: 562-989-4045 • Fax: 562-989-4040
www.atlglobal.com



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CEFF	1703179-01	Groundwater	9/01/17 9:55	9/01/17 13:40
POX	1703179-02	Groundwater	9/01/17 10:15	9/01/17 13:40
INF	1703179-03	Groundwater	9/01/17 10:35	9/01/17 13:40
EW-02	1703179-04	Groundwater	9/01/17 11:00	9/01/17 13:40
MW-29	1703179-05	Groundwater	9/01/17 11:15	9/01/17 13:40

CASE NARRATIVE

The samples for SM 2540C (Total Dissolved Solids) analysis was subcontracted to AETL with ELAP Cert.# 1541.

Sample Receiving/General Comments:

The following analytes lists were taken from sample containers:

Alkalinity - Hydroxide, Bicarbonate, Carbonate, and Total

Dissolved metals - Se, Fe, Mn, Ca, Na, Mg

Anions - Cl, SO4, NO3, NO2, PO4



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID POX

Lab ID: 1703179-02

Anions Scan by Ion Chromatography EPA 300.0

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	120	5.0	10	B7I0117	09/02/2017	09/02/17 14:22	
Nitrate, as N	4.7	0.10	1	B7I0117	09/02/2017	09/02/17 13:28	
Nitrite, as N	ND	0.10	1	B7I0117	09/02/2017	09/02/17 13:28	
ortho-Phosphate, as P	ND	0.05	1	B7I0117	09/02/2017	09/02/17 13:28	
Sulfate	160	10	10	B7I0117	09/02/2017	09/02/17 14:22	

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7I0031	09/01/2017	09/01/17 18:26	

Chemical Oxygen Demand by EPA 410.4

Analyst: SOL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B7I0093	09/06/2017	09/06/17 12:30	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID INF

Lab ID: 1703179-03

Anions Scan by Ion Chromatography EPA 300.0

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	120	5.0	10	B7I0117	09/02/2017	09/02/17 14:33	
Nitrate, as N	5.3	0.50	5	B7I0117	09/02/2017	09/02/17 13:48	
Nitrite, as N	ND	0.50	5	B7I0117	09/02/2017	09/02/17 13:48	D6
ortho-Phosphate, as P	ND	0.25	5	B7I0117	09/02/2017	09/02/17 13:48	D6
Sulfate	150	10	10	B7I0117	09/02/2017	09/02/17 14:33	

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7I0031	09/01/2017	09/01/17 18:26	

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO₃)	220	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Total (as CaCO₃)	220	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7I0105	09/06/2017	09/07/17 09:45	

Chemical Oxygen Demand by EPA 410.4

Analyst: SOL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B7I0093	09/06/2017	09/06/17 12:30	



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID INF

Lab ID: 1703179-03

Total Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Selenium	ND	0.010	1	B7I0057	09/05/2017	09/05/17 16:22	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	99	0.50	1	B7I0056	09/05/2017	09/05/17 16:35	
Iron	ND	0.50	1	B7I0056	09/05/2017	09/05/17 16:35	
Magnesium	29	0.10	1	B7I0056	09/05/2017	09/05/17 16:35	
Manganese	0.54	0.50	1	B7I0056	09/05/2017	09/05/17 16:35	
Selenium	ND	0.010	1	B7I0056	09/05/2017	09/05/17 16:35	
Sodium	80	1.5	1	B7I0056	09/05/2017	09/05/17 16:35	



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID EW-02

Lab ID: 1703179-04

Anions Scan by Ion Chromatography EPA 300.0

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	95	5.0	10	B7I0117	09/02/2017	09/02/17 15:19	
Nitrate, as N	4.6	0.50	5	B7I0117	09/02/2017	09/02/17 13:59	
Nitrite, as N	ND	0.50	5	B7I0117	09/02/2017	09/02/17 13:59	D6
ortho-Phosphate, as P	1.1	0.50	10	B7I0117	09/02/2017	09/02/17 15:19	
Sulfate	160	10	10	B7I0117	09/02/2017	09/02/17 15:19	

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7I0031	09/01/2017	09/01/17 18:26	

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO₃)	200	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Carbonate (as CaCO₃)	12	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Total (as CaCO₃)	210	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7I0105	09/06/2017	09/07/17 09:45	

Chemical Oxygen Demand by EPA 410.4

Analyst: SOL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B7I0093	09/06/2017	09/06/17 12:30	



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID EW-02

Lab ID: 1703179-04

Total Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Selenium	ND	0.010	1	B7I0057	09/05/2017	09/05/17 16:26	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	96	0.50	1	B7I0056	09/05/2017	09/05/17 16:37	
Iron	ND	0.50	1	B7I0056	09/05/2017	09/05/17 16:37	
Magnesium	29	0.10	1	B7I0056	09/05/2017	09/05/17 16:37	
Manganese	ND	0.50	1	B7I0056	09/05/2017	09/05/17 16:37	
Selenium	ND	0.010	1	B7I0056	09/05/2017	09/05/17 16:37	
Sodium	76	1.5	1	B7I0056	09/05/2017	09/05/17 16:37	



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID MW-29

Lab ID: 1703179-05

Anions Scan by Ion Chromatography EPA 300.0

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	190	10	20	B7I0117	09/02/2017	09/02/17 15:30	
Nitrate, as N	8.1	0.50	5	B7I0117	09/02/2017	09/02/17 14:11	
Nitrite, as N	ND	0.50	5	B7I0117	09/02/2017	09/02/17 14:11	D6
ortho-Phosphate, as P	ND	1.0	20	B7I0117	09/02/2017	09/02/17 15:30	D6
Sulfate	140	20	20	B7I0117	09/02/2017	09/02/17 15:30	

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7I0031	09/01/2017	09/01/17 18:26	

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO₃)	250	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	
Alkalinity, Total (as CaCO₃)	260	5.0	1	B7I0204	09/08/2017	09/08/17 13:23	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7I0105	09/06/2017	09/07/17 09:45	

Chemical Oxygen Demand by EPA 410.4

Analyst: SOL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B7I0093	09/06/2017	09/06/17 12:30	



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID MW-29

Lab ID: 1703179-05

Total Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Selenium	ND	0.010	1	B7I0057	09/05/2017	09/05/17 16:27	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	120	0.50	1	B7I0056	09/05/2017	09/05/17 16:38	
Iron	ND	0.50	1	B7I0056	09/05/2017	09/05/17 16:38	
Magnesium	36	0.10	1	B7I0056	09/05/2017	09/05/17 16:38	
Manganese	ND	0.50	1	B7I0056	09/05/2017	09/05/17 16:38	
Selenium	ND	0.010	1	B7I0056	09/05/2017	09/05/17 16:38	
Sodium	100	1.5	1	B7I0056	09/05/2017	09/05/17 16:38	



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QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0204 - No_Prep_WC1_W

Blank (B7I0204-BLK1)

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Total (as CaCO ₃)	ND	5.0	1.6

LCS (B7I0204-BS1)

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Total (as CaCO ₃)	100.000	5.0	1.6	99.9580	100	80 - 120
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Matrix Spike (B7I0204-MS1)

Source: 1703177-03

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Total (as CaCO ₃)	412.000	10	3.2	199.916	222.000	95.0	80 - 120
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Matrix Spike Dup (B7I0204-MSD1)

Source: 1703177-03

Prepared: 9/8/2017 Analyzed: 9/8/2017

Alkalinity, Total (as CaCO ₃)	414.000	10	3.2	199.916	222.000	96.0	80 - 120	0.484	20
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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Anions Scan by Ion Chromatography EPA 300.0 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0117 - No_Prep_IC1_W

Blank (B7I0117-BLK1)

Prepared: 9/2/2017 Analyzed: 9/2/2017

Chloride	ND	0.50	0.06							
Nitrate, as N	ND	0.10	0.02							
Nitrite, as N	ND	0.10	0.03							
ortho-Phosphate, as P	ND	0.05	0.02							
Sulfate	ND	1.0	0.05							

LCS (B7I0117-BS1)

Prepared: 9/2/2017 Analyzed: 9/2/2017

Chloride	1.00720	0.50	0.06	1.00000		101	90 - 110			
Nitrate, as N	0.975300	0.10	0.02	1.00000		97.5	90 - 110			
Nitrite, as N	0.962400	0.10	0.03	1.00000		96.2	90 - 110			
ortho-Phosphate, as P	0.977500	0.05	0.02	1.00000		97.8	90 - 110			
Sulfate	1.90510	1.0	0.05	2.00000		95.3	90 - 110			

Duplicate (B7I0117-DUP1)

Source: 1703179-03RE1

Prepared: 9/2/2017 Analyzed: 9/2/2017

Chloride	118.688	5.0	0.58		118.474			0.180	20	
Nitrate, as N	5.33400	1.0	0.24		5.33700			0.0562	20	
Nitrite, as N	ND	1.0	0.26		ND				20	
ortho-Phosphate, as P	ND	0.50	0.18		ND				20	
Sulfate	153.649	10	0.53		153.309			0.222	20	

Matrix Spike (B7I0117-MS1)

Source: 1703179-03RE1

Prepared: 9/2/2017 Analyzed: 9/2/2017

Chloride	14.1810			2.50000	11.8474	93.3	80 - 120			
Nitrate, as N	3.03650			2.50000	0.533700	100	80 - 120			
Nitrite, as N	2.65660			2.50000	0.00000	106	80 - 120			
ortho-Phosphate, as P	2.89600			2.50000	0.00000	116	80 - 120			
Sulfate	20.2802			5.00000	15.3309	99.0	80 - 120			

Matrix Spike Dup (B7I0117-MSD1)

Source: 1703179-03RE1

Prepared: 9/2/2017 Analyzed: 9/2/2017

Chloride	14.4592			2.50000	11.8474	104	80 - 120	1.94	20	
Nitrate, as N	3.10180			2.50000	0.533700	103	80 - 120	2.13	20	
Nitrite, as N	2.72370			2.50000	0.00000	109	80 - 120	2.49	20	
ortho-Phosphate, as P	3.01270			2.50000	0.00000	121	80 - 120	3.95	20	M1
Sulfate	20.7072			5.00000	15.3309	108	80 - 120	2.08	20	



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

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UV Absorption by EPA 415.3 - Quality Control

Analyte	Result (1/cm)	PQL (1/cm)	MDL (1/cm)	Spike Level	Source Result	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B7I0031 - No_Prep_II_W

Duplicate (B7I0031-DUP1)		Source: 1703177-05		Prepared: 9/1/2017 Analyzed: 9/1/2017					
UV Absorption	ND	0.01	0.01		ND		NR	20	
Duplicate (B7I0031-DUP2)		Source: 1703179-02		Prepared: 9/1/2017 Analyzed: 9/1/2017					
UV Absorption	ND	0.01	0.01		ND		NR	20	
Duplicate (B7I0031-DUP3)		Source: 1703179-03		Prepared: 9/1/2017 Analyzed: 9/1/2017					
UV Absorption	ND	0.01	0.01		ND		NR	20	
Duplicate (B7I0031-DUP4)		Source: 1703179-04		Prepared: 9/1/2017 Analyzed: 9/1/2017					
UV Absorption	ND	0.01	0.01		ND		NR	20	
Duplicate (B7I0031-DUP5)		Source: 1703179-05		Prepared: 9/1/2017 Analyzed: 9/1/2017					
UV Absorption	ND	0.01	0.01		ND		NR	20	



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Project Number : Raytheon Main GETS Quarterly Sample,

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Reported : 09/11/2017

Total Organic Carbon by SM 5310B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0105 - No_Prep_II_W

Blank (B7I0105-BLK1)

Prepared: 9/6/2017 Analyzed: 9/7/2017

Organic Carbon, Total

ND

3.0

1.8

LCS (B7I0105-BS1)

Prepared: 9/6/2017 Analyzed: 9/7/2017

Organic Carbon, Total

17.7200

3.0

1.8

20.0000

88.6

80 - 120

LCS Dup (B7I0105-BSD1)

Prepared: 9/6/2017 Analyzed: 9/7/2017

Organic Carbon, Total

17.6400

3.0

1.8

20.0000

88.2

80 - 120

0.452

20



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Chemical Oxygen Demand by EPA 410.4 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0093 - Prep_WC1_W

Blank (B7I0093-BLK1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

Chemical Oxygen Demand ND 5.0 3.7

LCS (B7I0093-BS1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

Chemical Oxygen Demand 511.747 5.0 3.7 501.500 102 80 - 120

Matrix Spike (B7I0093-MS1)

Source: 1703179-02

Prepared: 9/6/2017 Analyzed: 9/6/2017

Chemical Oxygen Demand 538.123 5.0 3.7 501.500 ND 107 80 - 120

Matrix Spike Dup (B7I0093-MSD1)

Source: 1703179-02

Prepared: 9/6/2017 Analyzed: 9/6/2017

Chemical Oxygen Demand 536.906 5.0 3.7 501.500 ND 107 80 - 120 0.226 20



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Total Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0057 - EPA 3010A_W

Blank (B7I0057-BLK1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

Selenium ND 0.010 0.0093

LCS (B7I0057-BS1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

Selenium 0.965200 0.010 0.0093 1.00000 96.5 80 - 120

Matrix Spike (B7I0057-MS1)

Source: 1703179-03

Prepared: 9/5/2017 Analyzed: 9/5/2017

Selenium 2.51835 0.010 0.0093 2.50000 ND 101 66 - 120

Matrix Spike Dup (B7I0057-MSD1)

Source: 1703179-03

Prepared: 9/5/2017 Analyzed: 9/5/2017

Selenium 2.47316 0.010 0.0093 2.50000 ND 98.9 66 - 120 1.81 20



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Dissolved Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0056 - EPA 3010A_W

Blank (B7I0056-BLK1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

Calcium	ND	0.50	0.12
Iron	ND	0.50	0.011
Magnesium	ND	0.10	0.021
Manganese	ND	0.50	0.0046
Selenium	ND	0.010	0.0093
Sodium	ND	1.5	0.12

LCS (B7I0056-BS1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

Calcium	21.3597	0.50	0.12	20.0000	107	80 - 120
Iron	20.7724	0.50	0.011	20.0000	104	80 - 120
Magnesium	20.0031	0.10	0.021	20.0000	100	80 - 120
Manganese	10.3679	0.50	0.0046	10.0000	104	80 - 120
Selenium	0.949475	0.010	0.0093	1.00000	94.9	80 - 120
Sodium	21.4172	1.5	0.12	20.0000	107	80 - 120

LCS Dup (B7I0056-BSD1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

Calcium	21.7010	0.50	0.12	20.0000	109	80 - 120	1.59	20
Iron	21.0997	0.50	0.011	20.0000	105	80 - 120	1.56	20
Magnesium	20.1635	0.10	0.021	20.0000	101	80 - 120	0.799	20
Manganese	10.4052	0.50	0.0046	10.0000	104	80 - 120	0.359	20
Selenium	0.958952	0.010	0.0093	1.00000	95.9	80 - 120	0.993	20
Sodium	21.5144	1.5	0.12	20.0000	108	80 - 120	0.453	20



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Project Number : Raytheon Main GETS Quarterly Sample,

Report To : Steve Netto

Reported : 09/11/2017

Notes and Definitions

M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
D6	Sample required dilution due to high concentration of target analyte.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

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



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Ordered By

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755-5225

Number of Pages 4

Date Received 09/05/2017

Date Reported 09/11/2017

Telephone: (562)989-4045
Attention: Rachelle Arada

Job Number	Order Date	Client
89216	09/05/2017	ATL

Project ID: 1703179
Project Name: P0# SC11873

Enclosed please find results of analyses of 5 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____

Approved By: _____

Cyrus Razmara, Ph.D.
Laboratory Director



American Environmental Testing Laboratory Inc.

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Page: 1 A

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Advanced Technology Laboratories
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Signal Hill, CA 90755-5225

Project ID: 1703179

Date Received 09/05/2017

Date Reported 09/11/2017

Telephone: (562)989-4045

Attention: Rachelle Arada

Job Number	Order Date	Client
89216	09/05/2017	ATL

CERTIFICATE OF ANALYSIS CASE NARRATIVE

AETL received 5 samples with the following specification on 09/05/2017.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
89216.01	1703179-01	09/01/2017	Aqueous	1
89216.02	1703179-02	09/01/2017	Aqueous	1
89216.03	1703179-03	09/01/2017	Aqueous	1
89216.04	1703179-04	09/01/2017	Aqueous	1
89216.05	1703179-05	09/01/2017	Aqueous	1
Method ^ Submethod	Req Date	Priority	TAT	Units
SM-2540C	09/12/2017	2	Normal	mg/L

The samples were analyzed as specified on the enclosed chain of custody.
No analytical non-conformances were encountered.

Checked By: 

Approved By: 

Cyrus Razmara, Ph.D.

Laboratory Director

Page 19 of 28



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ANALYTICAL RESULTS

Ordered By

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755-5225

Telephone: (562)989-4045

Attn: Rachelle Arada

Page: **2**

Project ID: 1703179

Project Name: PO# SC11873

AETL Job Number	Submitted	Client
89216	09/05/2017	ATL

Method: SM-2540C, Total Dissolved Solids, Gravimetric, Dried at 180 C

QC Batch No: TD090617-1

Our Lab I.D.		Method Blank	89216.01	89216.02	89216.03	89216.04
Client Sample I.D.			1703179-01	1703179-02	1703179-03	1703179-04
Date Sampled			09/01/2017	09/01/2017	09/01/2017	09/01/2017
Date Prepared		09/06/2017	09/06/2017	09/06/2017	09/06/2017	09/06/2017
Preparation Method		SM2540C	SM2540C	SM2540C	SM2540C	SM2540C
Date Analyzed		09/07/2017	09/07/2017	09/07/2017	09/07/2017	09/07/2017
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units		mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor		1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results
Total dissolved solids	5.0	10.0	ND	660	699	680
						627



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ANALYTICAL RESULTS

Ordered By

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755-5225

Telephone: (562)989-4045

Attn: Rachelle Arada

Page: **3**

Project ID: 1703179

Project Name: PO# SC11873

AETL Job Number	Submitted	Client
89216	09/05/2017	ATL

Method: SM-2540C, Total Dissolved Solids, Gravimetric, Dried at 180 C

QC Batch No: TD090617-1

Our Lab I.D.		89216.05				
Client Sample I.D.		1703179-05				
Date Sampled		09/01/2017				
Date Prepared		09/06/2017				
Preparation Method		SM2540C				
Date Analyzed		09/07/2017				
Matrix		Aqueous				
Units		mg/L				
Dilution Factor		1				
Analytes	MDL	PQL	Results			
Total dissolved solids	5.0	10.0	858			



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QUALITY CONTROL RESULTS

Ordered By

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755-5225

Telephone: (562)989-4045

Attn: Rachelle Arada

Page: **4**

Project ID: 1703179

Project Name: PO# SC11873

AETL Job Number	Submitted	Client
89216	09/05/2017	ATL

Method: SM-2540C, Total Dissolved Solids, Gravimetric, Dried at 180 C

QC Batch No: TD090617-1; Dup or Spiked Sample: 89216.01; LCS: Clean Water; LCS Prepared: 09/06/2017; LCS Analyzed: 09/07/2017;
Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
Total dissolved solids	660	666	<1	<15	100	101	101	80-120		



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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.



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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

 ADVANCED TECHNOLOGY
 LABORATORIES

SUBCONTRACT ORDER

Work Order: 1703179

89216

SENDING LABORATORY:

Advanced Technology Laboratories
 3275 Walnut Avenue
 Signal Hill, CA 90755
 Phone: 562.989.4045
 Fax: 562.989.6348
 Project Manager: Rachelle Arad (Rachelle@atlglobal.com)
 Sampler: Steve Stewart

RECEIVING LABORATORY:

AETL
 2834 North Naomi Street
 Burbank, CA 91504
 Phone: (818) 845-8200
 Fax: (818) 845-8840
 PO#: SC11873- STANDARD TAT

[Handwritten Signature]

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

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1703179-01 / CEFF 160.1_2540C [Total Dissolved Solids (Residue, Filtrable)] 1-Poly Unpres - 250mL	<i>89216.01</i> 09/12/17 17:00	Groundwater 09/08/17 09:55	09/01/17 09:55	
ATL Lab#: 1703179-02 / POX 160.1_2540C [Total Dissolved Solids (Residue, Filtrable)] Poly Unpres - 250mL	<i>89216.02</i> 09/12/17 17:00	Groundwater 09/08/17 10:15	09/01/17 10:15	
ATL Lab#: 1703179-03 / INF 160.1_2540C [Total Dissolved Solids (Residue, Filtrable)] Poly Unpres - 250mL	<i>89216.03</i> 09/12/17 17:00	Groundwater 09/08/17 10:35	09/01/17 10:35	
ATL Lab#: 1703179-04 / EW-02 160.1_2540C [Total Dissolved Solids (Residue, Filtrable)] Poly Unpres - 250mL	<i>89216.04</i> 09/12/17 17:00	Groundwater 09/08/17 11:00	09/01/17 11:00	

<i>[Signature]</i> Released By _____ Date <i>9/5/17 1034</i>	<i>[Signature]</i> Received By _____ Date <i>9/5/17 1034</i>
<i>[Signature]</i> Released By _____ Date <i>9/5/17 1221</i>	<i>[Signature]</i> Received By _____ Date <i>9/5/17 1221</i>

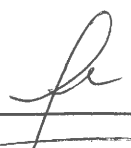
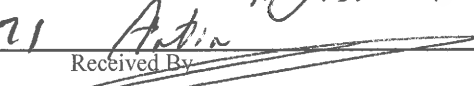
ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1703179

89216

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1703179-05 / MW-29 160.1_2540C [Total Dissolved Solids (Residue, Filtrable)] Poly Unpres - 250mL	89216.05 09/12/17 17:00	Groundwater 09/08/17 11:15	09/01/17 11:15	

Released By  Date 9/5/17 1034
Received By  Date 9/5/17 1034
Released By  Date 9/5/17 1221
Received By  Date 09/05/17 1221
 



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COOLER RECEIPT FORM

Client Name: <u>ATL</u>			
Project Name:			
AETL Job Number: <u>89215, 89216</u>			
Date Received: <u>09/05/17</u>		Received by: <u>Antin</u>	
Carrier: ☒ AETL Courier ☐ Client ☐ GSO ☐ FedEx ☐ UPS			
☐ Others:			
Samples were received in: ☒ Cooler (<u>1</u>) ☐ Other (Specify):			
Inside temperature of shipping container No 1: <u>3.4</u> , No 2: , No 3:			
Type of sample containers: ☐ VOA, ☐ Glass bottles, ☒ Wide mouth jars, ☒ HDPE bottles, ☐ Metal sleeves, ☐ Others (Specify):			
How are samples preserved: ☐ None, ☐ Ice, ☒ Blue Ice, ☐ Dry Ice			
☒ None, <u>HNO₃</u> , <u>NaOH</u> , <u>ZnOAc</u> , <u>HCl</u> , <u>Na₂S₂O₃</u> , <u>MeOH</u>			
Other (Specify):			
	Yes	No, explain below	Name, if client was notified.
1. Are the COCs Correct?	<u>X</u>		
2. Are the Sample labels legible?	<u>X</u>		
3. Do samples match the COC?	<u>X</u>		
4. Are the required analyses clear?	<u>X</u>		
5. Is there enough samples for required analysis?	<u>X</u>		
6. Are samples sealed with evidence tape?		<u>X</u>	
7. Are sample containers in good condition?	<u>X</u>		
8. Are samples preserved?	<u>X</u>		
9. Are samples preserved properly for the intended analysis?	<u>X</u>		
10. Are the VOAs free of headspace?	<u>N/A</u>		
11. Are the jars free of headspace?	<u>J</u>		

Explain all "No" answers for above questions:



PROJECT: Raytheon Main GETS Quarterly Sample

TASK NO.: 532.15

Project Manager	Steve Netto
QA Manager	Steve Stewart
Phone	858.455.6500
Fax	858.455.6533

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Stephan H + A	09/01/17 11:30	Stephan	09/01/17 11:30
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
Stephan Wp	09/01/17 15:40	FPOW / JTL	9/1/17 13:40

- Send Results to:
Steve Netto
 9171 Towne Centre Drive
 Suite 275
 San Diego, CA 92122
 Ph: 858.455.6500
snetto@hargis.com

Instructions

1.3 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 x
Note applicable preservatives, special instructions, and deviations from typical environmental samples.
Consult project QA documents for specific instructions.



September 11, 2017

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 : 1703187

Client Reference : Raytheon Main GETS OCSD Quarterly Sample, 532.15

Enclosed are the results for sample(s) received on September 01, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

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

Eddie Rodriguez
Laboratory Director

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

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www.atlglobal.com



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-090117	1703187-01	Lab prepared water	9/01/17 7:00	9/01/17 13:40
CEFF	1703187-02	Groundwater	9/01/17 9:55	9/01/17 13:40



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID TB-090117

Lab ID: 1703187-01

Volatile Organic Compounds by EPA 624

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1-Trichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,1,2-Trichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,1-Dichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,1-Dichloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,2-Dichlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,2-Dichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,2-Dichloropropane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,3-Dichlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
1,4-Dichlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
2-Chloroethyl vinyl ether	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Acrolein	ND	10	1	B7I0050	09/05/2017	09/05/17 15:29	
Acrylonitrile	ND	10	1	B7I0050	09/05/2017	09/05/17 15:29	
Benzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Bromodichloromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Bromoform	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Bromomethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Carbon tetrachloride	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Chlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Chloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Chloroform	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Chloromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Dibromochloromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Ethylbenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
m,p-Xylene	ND	1.0	1	B7I0050	09/05/2017	09/05/17 15:29	
Methylene chloride	ND	1.0	1	B7I0050	09/05/2017	09/05/17 15:29	
o-Xylene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Tetrachloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Toluene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
trans-1,3-Dichloropropene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Trichloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Trichlorofluoromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Vinyl chloride	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:29	
Surrogate: 1,2-Dichloroethane-d4	99.8 %	70 - 166		B7I0050	09/05/2017	09/05/17 15:29	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID TB-090117

Lab ID: 1703187-01

Volatile Organic Compounds by EPA 624

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>88 - 120</i>		B7I0050	09/05/2017	09/05/17 15:29	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>80 - 150</i>		B7I0050	09/05/2017	09/05/17 15:29	
<i>Surrogate: Toluene-d8</i>	<i>107 %</i>	<i>87 - 121</i>		B7I0050	09/05/2017	09/05/17 15:29	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego, CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID CEFF

Lab ID: 1703187-02

Volatile Organic Compounds by EPA 624

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1-Trichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,1,2-Trichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,1-Dichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,1-Dichloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,2-Dichlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,2-Dichloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,2-Dichloropropane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,3-Dichlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
1,4-Dichlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
2-Chloroethyl vinyl ether	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Acrolein	ND	10	1	B7I0050	09/05/2017	09/05/17 15:54	
Acrylonitrile	ND	10	1	B7I0050	09/05/2017	09/05/17 15:54	
Benzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Bromodichloromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Bromoform	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Bromomethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Carbon tetrachloride	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Chlorobenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Chloroethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Chloroform	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Chloromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Dibromochloromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Ethylbenzene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
m,p-Xylene	ND	1.0	1	B7I0050	09/05/2017	09/05/17 15:54	
Methylene chloride	ND	1.0	1	B7I0050	09/05/2017	09/05/17 15:54	
o-Xylene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Tetrachloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Toluene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
trans-1,3-Dichloropropene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Trichloroethene	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Trichlorofluoromethane	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Vinyl chloride	ND	0.50	1	B7I0050	09/05/2017	09/05/17 15:54	
Surrogate: 1,2-Dichloroethane-d4	102 %	70 - 166		B7I0050	09/05/2017	09/05/17 15:54	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Client Sample ID CEFF

Lab ID: 1703187-02

Volatile Organic Compounds by EPA 624

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>	<i>88 - 120</i>		B7I0050	09/05/2017	09/05/17 15:54	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>80 - 150</i>		B7I0050	09/05/2017	09/05/17 15:54	
<i>Surrogate: Toluene-d8</i>	<i>111 %</i>	<i>87 - 121</i>		B7I0050	09/05/2017	09/05/17 15:54	

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

Analyst: MFR

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7I0100	09/06/2017	09/06/17 19:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>45.2 %</i>	<i>17 - 101</i>		B7I0100	09/06/2017	09/06/17 19:23	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>53.1 %</i>	<i>29 - 109</i>		B7I0100	09/06/2017	09/06/17 19:23	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>85.6 %</i>	<i>49 - 122</i>		B7I0100	09/06/2017	09/06/17 19:23	
<i>Surrogate: Nitrobenzene-d5</i>	<i>49.2 %</i>	<i>19 - 111</i>		B7I0100	09/06/2017	09/06/17 19:23	



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San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 624 - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B710050 - MSVOA_LL_W

Blank (B710050-BLK1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3-Dichlorobenzene	ND	0.50	0.13
1,4-Dichlorobenzene	ND	0.50	0.18
2-Chloroethyl vinyl ether	ND	0.50	0.12
Acrolein	ND	10	1.9
Acrylonitrile	ND	10	1.3
Benzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Ethylbenzene	ND	0.50	0.08
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
o-Xylene	ND	0.50	0.04
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
trans-1,3-Dichloropropene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	25.22	25.0000	101	70 - 166
Surrogate: 4-Bromofluorobenzene	27.35	25.0000	109	88 - 120
Surrogate: Dibromofluoromethane	25.40	25.0000	102	80 - 150



Certificate of Analysis

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Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Volatile Organic Compounds by EPA 624 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0050 - MSVOA_LL_W (continued)

Blank (B7I0050-BLK1) - Continued

Prepared: 9/5/2017 Analyzed: 9/5/2017

Surrogate: Toluene-d8 27.28 25.0000 109 87 - 121

LCS (B7I0050-BS1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

1,1,1-Trichloroethane	10.3200	0.50	0.38	10.0000	103	73 - 143
1,1,2,2-Tetrachloroethane	9.91000	0.50	0.20	10.0000	99.1	62 - 127
1,1,2-Trichloroethane	9.73000	0.50	0.19	10.0000	97.3	72 - 122
1,1-Dichloroethane	8.85000	0.50	0.20	10.0000	88.5	73 - 138
1,1-Dichloroethene	8.92000	0.50	0.28	10.0000	89.2	74 - 132
1,2-Dichlorobenzene	10.6900	0.50	0.12	10.0000	107	75 - 128
1,2-Dichloroethane	10.1300	0.50	0.39	10.0000	101	70 - 131
1,2-Dichloropropane	9.83000	0.50	0.47	10.0000	98.3	69 - 124
1,3-Dichlorobenzene	10.7500	0.50	0.13	10.0000	108	75 - 131
1,4-Dichlorobenzene	10.3700	0.50	0.18	10.0000	104	75 - 127
2-Chloroethyl vinyl ether	4.83000	0.50	0.12	20.0000	24.2	5 - 107
Acrolein	76.2200	10	1.9	100.000	76.2	0 - 163
Acrylonitrile	77.2100	10	1.3	100.000	77.2	47 - 137
Benzene	23.6000	0.50	0.21	20.0000	118	67 - 138
Bromodichloromethane	10.5100	0.50	0.32	10.0000	105	74 - 129
Bromoform	10.2800	0.50	0.14	10.0000	103	63 - 131
Bromomethane	11.7300	0.50	0.22	10.0000	117	57 - 216
Carbon tetrachloride	11.8600	0.50	0.31	10.0000	119	77 - 151
Chlorobenzene	10.9400	0.50	0.16	10.0000	109	73 - 125
Chloroethane	9.10000	0.50	0.29	10.0000	91.0	54 - 154
Chloroform	9.07000	0.50	0.16	10.0000	90.7	77 - 132
Chloromethane	7.47000	0.50	0.19	10.0000	74.7	57 - 142
cis-1,3-Dichloropropene	10.1700	0.50	0.08	10.0000	102	76 - 120
Dibromochloromethane	9.82000	0.50	0.11	10.0000	98.2	71 - 126
Ethylbenzene	24.2300	0.50	0.08	20.0000	121	72 - 134
m,p-Xylene	24.8700	1.0	0.18	20.0000	124	75 - 138
Methylene chloride	8.86000	1.0	0.26	10.0000	88.6	52 - 154
o-Xylene	25.2900	0.50	0.04	20.0000	126	66 - 147
Tetrachloroethene	11.7500	0.50	0.18	10.0000	118	61 - 145
Toluene	24.3300	0.50	0.14	20.0000	122	70 - 140
trans-1,2-Dichloroethene	8.84000	0.50	0.15	10.0000	88.4	73 - 130
trans-1,3-Dichloropropene	10.5900	0.50	0.09	10.0000	106	72 - 129
Trichloroethene	10.6800	0.50	0.15	10.0000	107	69 - 126
Trichlorofluoromethane	12.2400	0.50	0.33	10.0000	122	70 - 159
Vinyl chloride	8.74000	0.50	0.25	10.0000	87.4	56 - 151

Surrogate: 1,2-Dichloroethane-d4 24.16 25.0000 96.6 70 - 166

Surrogate: 4-Bromofluorobenzene 28.20 25.0000 113 88 - 120



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Volatile Organic Compounds by EPA 624 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B7I0050 - MSVOA_LL_W (continued)

LCS (B7I0050-BS1) - Continued

Prepared: 9/5/2017 Analyzed: 9/5/2017

Surrogate: Dibromofluoromethane	24.74		25.0000		99.0	80 - 150			
Surrogate: Toluene-d8	27.58		25.0000		110	87 - 121			

LCS Dup (B7I0050-BS1)

Prepared: 9/5/2017 Analyzed: 9/5/2017

1,1,1-Trichloroethane	10.5800	0.50	0.38	10.0000	106	73 - 143	2.49	20	
1,1,2,2-Tetrachloroethane	9.90000	0.50	0.20	10.0000	99.0	62 - 127	0.101	20	
1,1,2-Trichloroethane	10.1900	0.50	0.19	10.0000	102	72 - 122	4.62	20	
1,1-Dichloroethane	9.04000	0.50	0.20	10.0000	90.4	73 - 138	2.12	20	
1,1-Dichloroethene	8.81000	0.50	0.28	10.0000	88.1	74 - 132	1.24	20	
1,2-Dichlorobenzene	10.6000	0.50	0.12	10.0000	106	75 - 128	0.845	20	
1,2-Dichloroethane	10.4500	0.50	0.39	10.0000	104	70 - 131	3.11	20	
1,2-Dichloropropane	10.0800	0.50	0.47	10.0000	101	69 - 124	2.51	20	
1,3-Dichlorobenzene	10.8200	0.50	0.13	10.0000	108	75 - 131	0.649	20	
1,4-Dichlorobenzene	10.4600	0.50	0.18	10.0000	105	75 - 127	0.864	20	
2-Chloroethyl vinyl ether	5.16000	0.50	0.12	20.0000	25.8	5 - 107	6.61	20	
Acrolein	79.3600	10	1.9	100.000	79.4	0 - 163	4.04	20	
Acrylonitrile	77.6100	10	1.3	100.000	77.6	47 - 137	0.517	20	
Benzene	25.0100	0.50	0.21	20.0000	125	67 - 138	5.80	20	
Bromodichloromethane	10.4800	0.50	0.32	10.0000	105	74 - 129	0.286	20	
Bromoform	10.7200	0.50	0.14	10.0000	107	63 - 131	4.19	20	
Bromomethane	12.4500	0.50	0.22	10.0000	124	57 - 216	5.96	20	
Carbon tetrachloride	12.3000	0.50	0.31	10.0000	123	77 - 151	3.64	20	
Chlorobenzene	11.2300	0.50	0.16	10.0000	112	73 - 125	2.62	20	
Chloroethane	9.92000	0.50	0.29	10.0000	99.2	54 - 154	8.62	20	
Chloroform	9.25000	0.50	0.16	10.0000	92.5	77 - 132	1.97	20	
Chloromethane	7.74000	0.50	0.19	10.0000	77.4	57 - 142	3.55	20	
cis-1,3-Dichloropropene	10.4300	0.50	0.08	10.0000	104	76 - 120	2.52	20	
Dibromochloromethane	9.94000	0.50	0.11	10.0000	99.4	71 - 126	1.21	20	
Ethylbenzene	25.0900	0.50	0.08	20.0000	125	72 - 134	3.49	20	
m,p-Xylene	25.5900	1.0	0.18	20.0000	128	75 - 138	2.85	20	
Methylene chloride	9.18000	1.0	0.26	10.0000	91.8	52 - 154	3.55	20	
o-Xylene	26.2600	0.50	0.04	20.0000	131	66 - 147	3.76	20	
Tetrachloroethene	11.9200	0.50	0.18	10.0000	119	61 - 145	1.44	20	
Toluene	25.2200	0.50	0.14	20.0000	126	70 - 140	3.59	20	
trans-1,2-Dichloroethene	9.21000	0.50	0.15	10.0000	92.1	73 - 130	4.10	20	
trans-1,3-Dichloropropene	11.1800	0.50	0.09	10.0000	112	72 - 129	5.42	20	
Trichloroethene	10.7200	0.50	0.15	10.0000	107	69 - 126	0.374	20	
Trichlorofluoromethane	12.3100	0.50	0.33	10.0000	123	70 - 159	0.570	20	
Vinyl chloride	9.10000	0.50	0.25	10.0000	91.0	56 - 151	4.04	20	
Surrogate: 1,2-Dichloroethane-d4	24.29		25.0000		97.2	70 - 166			



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Volatile Organic Compounds by EPA 624 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0050 - MSVOA_LL_W (continued)

LCS Dup (B7I0050-BSD1) - Continued

Prepared: 9/5/2017 Analyzed: 9/5/2017

Surrogate: 4-Bromofluorobenzene	28.87	25.0000	115	88 - 120
Surrogate: Dibromofluoromethan	24.85	25.0000	99.4	80 - 150
Surrogate: Toluene-d8	28.22	25.0000	113	87 - 121



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San Diego, CA 92122

Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0100 - MSSEMI_W

Blank (B7I0100-BLK1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	49.80			100.000	49.8	17 - 101			
Surrogate: 2-Fluorobiphenyl	59.29			100.000	59.3	29 - 109			
Surrogate: 4-Terphenyl-d14	85.77			100.000	85.8	49 - 122			
Surrogate: Nitrobenzene-d5	54.19			100.000	54.2	19 - 111			

LCS (B7I0100-BS1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	92.6400	2.0	0.84	100.000	92.6	85 - 121			
Surrogate: 1,2-Dichlorobenzene-d	47.20			100.000	47.2	17 - 101			
Surrogate: 2-Fluorobiphenyl	64.61			100.000	64.6	29 - 109			
Surrogate: 4-Terphenyl-d14	87.41			100.000	87.4	49 - 122			
Surrogate: Nitrobenzene-d5	55.75			100.000	55.8	19 - 111			

LCS Dup (B7I0100-BSD1)

Prepared: 9/6/2017 Analyzed: 9/6/2017

1,4-Dioxane	96.0100	2.0	0.84	100.000	96.0	85 - 121	3.57	20	
Surrogate: 1,2-Dichlorobenzene-d	54.05			100.000	54.0	17 - 101			
Surrogate: 2-Fluorobiphenyl	71.29			100.000	71.3	29 - 109			
Surrogate: 4-Terphenyl-d14	84.48			100.000	84.5	49 - 122			
Surrogate: Nitrobenzene-d5	65.58			100.000	65.6	19 - 111			



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Project Number : Raytheon Main GETS OCSD Quarterly S

Report To : Steve Netto

Reported : 09/11/2017

Notes and Definitions

ND Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)

PQL Practical Quantitation Limit

MDL Method Detection Limit

NR Not Reported

RPD Relative Percent Difference

CA2 CA-ELAP (CDPH)

OR1 OR-NELAP (OSPHL)

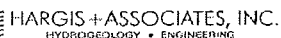
TX1 TX-NELAP (TCEQ)

Notes:

(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.

(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.

(3) Results are wet unless otherwise specified.



Date: 9/1/17
Page 1 of 1

TASK NO.: 532.15

QA Manager Steve Stewart

Fax 858.455.6533

[illegible]

5

1

Total No. of Containers: 6

Date / Time

Date // Time

09/01/17	11:30
----------	-------

9/01/14
1130

Date / Time	
-------------	--

Date / Time

09/01/17
13:40

9/1/17 134-

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

Steve Netto

Suite 275

Ph: 858.455.6500

1.3 Temperature on receipt

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.



September 22, 2017

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

Re: ATL Work Order Number : 1703355

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on September 14, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", with a small "ER" monogram to the left.

Eddie Rodriguez
Laboratory Director

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-091417	1703355-01	Lab prepared water	9/14/17 7:00	9/14/17 16:33
CBT	1703355-02	Groundwater	9/14/17 13:20	9/14/17 16:33
POX	1703355-03	Groundwater	9/14/17 13:25	9/14/17 16:33
CEFF	1703355-04	Groundwater	9/14/17 13:15	9/14/17 16:33
INF	1703355-05	Groundwater	9/14/17 13:30	9/14/17 16:33
EW-02	1703355-06	Groundwater	9/14/17 14:00	9/14/17 16:33
MW-29	1703355-07	Groundwater	9/14/17 14:15	9/14/17 16:33



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

Report To : Steve Netto

Reported : 09/22/2017

Client Sample ID TB-091417

Lab ID: 1703355-01

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	B7I0385	09/15/2017	09/15/17 18:32	
1,1,1-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,1,2-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,1-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,1-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,1-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2,3-Trichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2-Dibromoethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,3-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,3-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
1,4-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
2,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
2-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
4-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
4-Isopropyltoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Benzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Bromobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Bromodichloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Bromoform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Bromomethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Carbon tetrachloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Chlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Chloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Chloroform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Chloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Dibromochloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	



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 : 09/22/2017

Client Sample ID TB-091417

Lab ID: 1703355-01

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	B7I0385	09/15/2017	09/15/17 18:32	
Dichlorodifluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Ethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Hexachlorobutadiene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Isopropylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
m,p-Xylene	ND	1.0	1	B7I0385	09/15/2017	09/15/17 18:32	
Methylene chloride	ND	1.0	1	B7I0385	09/15/2017	09/15/17 18:32	
n-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
n-Propylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Naphthalene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
o-Xylene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
sec-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Styrene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
tert-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Tetrachloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Toluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Trichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Trichlorofluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Vinyl chloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:32	
Surrogate: 1,2-Dichloroethane-d4	103 %	70 - 166		B7I0385	09/15/2017	09/15/17 18:32	
Surrogate: 4-Bromofluorobenzene	106 %	88 - 120		B7I0385	09/15/2017	09/15/17 18:32	
Surrogate: Dibromofluoromethane	105 %	80 - 150		B7I0385	09/15/2017	09/15/17 18:32	
Surrogate: Toluene-d8	108 %	87 - 121		B7I0385	09/15/2017	09/15/17 18:32	



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 : 09/22/2017

Client Sample ID CBT

Lab ID: 1703355-02

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	B7I0385	09/15/2017	09/15/17 18:57	
1,1,1-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,1,2-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,1-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,1-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,1-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2,3-Trichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2-Dibromoethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,3-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,3-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
1,4-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
2,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
2-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
4-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
4-Isopropyltoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Benzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Bromobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Bromodichloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Bromoform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Bromomethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Carbon tetrachloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Chlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Chloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Chloroform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Chloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Dibromochloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	



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 : 09/22/2017

Client Sample ID CBT

Lab ID: 1703355-02

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	B7I0385	09/15/2017	09/15/17 18:57	
Dichlorodifluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Ethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Hexachlorobutadiene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Isopropylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
m,p-Xylene	ND	1.0	1	B7I0385	09/15/2017	09/15/17 18:57	
Methylene chloride	ND	1.0	1	B7I0385	09/15/2017	09/15/17 18:57	
n-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
n-Propylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Naphthalene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
o-Xylene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
sec-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Styrene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
tert-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Tetrachloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Toluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Trichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Trichlorofluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Vinyl chloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 18:57	
Surrogate: 1,2-Dichloroethane-d4	100 %	70 - 166		B7I0385	09/15/2017	09/15/17 18:57	
Surrogate: 4-Bromofluorobenzene	106 %	88 - 120		B7I0385	09/15/2017	09/15/17 18:57	
Surrogate: Dibromofluoromethane	101 %	80 - 150		B7I0385	09/15/2017	09/15/17 18:57	
Surrogate: Toluene-d8	110 %	87 - 121		B7I0385	09/15/2017	09/15/17 18:57	



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 : 09/22/2017

Client Sample ID CBT

Lab ID: 1703355-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7I0432	09/18/2017	09/18/17 16:09	
Surrogate: 1,2-Dichlorobenzene-d4	65.8 %	32 - 99		B7I0432	09/18/2017	09/18/17 16:09	
Surrogate: 2-Fluorobiphenyl	81.8 %	29 - 105		B7I0432	09/18/2017	09/18/17 16:09	
Surrogate: 4-Terphenyl-d14	104 %	32 - 119		B7I0432	09/18/2017	09/18/17 16:09	
Surrogate: Nitrobenzene-d5	65.3 %	17 - 123		B7I0432	09/18/2017	09/18/17 16:09	



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 : 09/22/2017

Client Sample ID POX

Lab ID: 1703355-03

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	B7I0385	09/15/2017	09/15/17 19:21	
1,1,1-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,1,2-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,1-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,1-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,1-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2,3-Trichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2-Dibromoethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,3-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,3-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
1,4-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
2,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
2-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
4-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
4-Isopropyltoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Benzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Bromobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Bromodichloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Bromoform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Bromomethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Carbon tetrachloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Chlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Chloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Chloroform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Chloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Dibromochloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	



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 : 09/22/2017

Client Sample ID POX

Lab ID: 1703355-03

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	B7I0385	09/15/2017	09/15/17 19:21	
Dichlorodifluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Ethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Hexachlorobutadiene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Isopropylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
m,p-Xylene	ND	1.0	1	B7I0385	09/15/2017	09/15/17 19:21	
Methylene chloride	ND	1.0	1	B7I0385	09/15/2017	09/15/17 19:21	
n-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
n-Propylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Naphthalene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
o-Xylene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
sec-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Styrene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
tert-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Tetrachloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Toluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Trichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Trichlorofluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Vinyl chloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:21	
Surrogate: 1,2-Dichloroethane-d4	105 %	70 - 166		B7I0385	09/15/2017	09/15/17 19:21	
Surrogate: 4-Bromofluorobenzene	109 %	88 - 120		B7I0385	09/15/2017	09/15/17 19:21	
Surrogate: Dibromofluoromethane	105 %	80 - 150		B7I0385	09/15/2017	09/15/17 19:21	
Surrogate: Toluene-d8	110 %	87 - 121		B7I0385	09/15/2017	09/15/17 19:21	



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 : 09/22/2017

Client Sample ID POX

Lab ID: 1703355-03

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7I0432	09/18/2017	09/18/17 16:36	
Surrogate: 1,2-Dichlorobenzene-d4	79.0 %	32 - 99		B7I0432	09/18/2017	09/18/17 16:36	
Surrogate: 2-Fluorobiphenyl	103 %	29 - 105		B7I0432	09/18/2017	09/18/17 16:36	
Surrogate: 4-Terphenyl-d14	111 %	32 - 119		B7I0432	09/18/2017	09/18/17 16:36	
Surrogate: Nitrobenzene-d5	77.6 %	17 - 123		B7I0432	09/18/2017	09/18/17 16:36	



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 : 09/22/2017

Client Sample ID CEFF

Lab ID: 1703355-04

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	B7I0385	09/15/2017	09/15/17 19:46	
1,1,1-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,1,2-Trichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,1-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,1-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,1-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2,3-Trichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2-Dibromoethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2-Dichloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,3-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,3-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
1,4-Dichlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
2,2-Dichloropropane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
2-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
4-Chlorotoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
4-Isopropyltoluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Benzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Bromobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Bromodichloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Bromoform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Bromomethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Carbon tetrachloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Chlorobenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Chloroethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Chloroform	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Chloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Dibromochloromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	



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 : 09/22/2017

Client Sample ID CEFF

Lab ID: 1703355-04

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	B7I0385	09/15/2017	09/15/17 19:46	
Dichlorodifluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Ethylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Hexachlorobutadiene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Isopropylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
m,p-Xylene	ND	1.0	1	B7I0385	09/15/2017	09/15/17 19:46	
Methylene chloride	ND	1.0	1	B7I0385	09/15/2017	09/15/17 19:46	
n-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
n-Propylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Naphthalene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
o-Xylene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
sec-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Styrene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
tert-Butylbenzene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Tetrachloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Toluene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Trichloroethene	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Trichlorofluoromethane	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Vinyl chloride	ND	0.50	1	B7I0385	09/15/2017	09/15/17 19:46	
Surrogate: 1,2-Dichloroethane-d4	104 %	70 - 166		B7I0385	09/15/2017	09/15/17 19:46	
Surrogate: 4-Bromofluorobenzene	108 %	88 - 120		B7I0385	09/15/2017	09/15/17 19:46	
Surrogate: Dibromofluoromethane	103 %	80 - 150		B7I0385	09/15/2017	09/15/17 19:46	
Surrogate: Toluene-d8	109 %	87 - 121		B7I0385	09/15/2017	09/15/17 19:46	



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 : 09/22/2017

Client Sample ID CEFF

Lab ID: 1703355-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7I0432	09/18/2017	09/18/17 17:04	
Surrogate: 1,2-Dichlorobenzene-d4	67.4 %	32 - 99		B7I0432	09/18/2017	09/18/17 17:04	
Surrogate: 2-Fluorobiphenyl	83.3 %	29 - 105		B7I0432	09/18/2017	09/18/17 17:04	
Surrogate: 4-Terphenyl-d14	86.1 %	32 - 119		B7I0432	09/18/2017	09/18/17 17:04	
Surrogate: Nitrobenzene-d5	65.1 %	17 - 123		B7I0432	09/18/2017	09/18/17 17:04	



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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 : 09/22/2017

Client Sample ID INF

Lab ID: 1703355-05

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	B7I0427	09/18/2017	09/18/17 18:56	
1,1,1-Trichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,1,2-Trichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,1-Dichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,1-Dichloroethene	47	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,1-Dichloropropene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2,3-Trichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2-Dibromoethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2-Dichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2-Dichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,2-Dichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,3-Dichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,3-Dichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
1,4-Dichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
2,2-Dichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
2-Chlorotoluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
4-Chlorotoluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
4-Isopropyltoluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Benzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Bromobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Bromodichloromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Bromoform	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Bromomethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Carbon tetrachloride	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Chlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Chloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Chloroform	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Chloromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Dibromochloromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	



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 : 09/22/2017

Client Sample ID INF

Lab ID: 1703355-05

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	B7I0427	09/18/2017	09/18/17 18:56	
Dichlorodifluoromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Ethylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Hexachlorobutadiene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Isopropylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
m,p-Xylene	ND	1.0	1	B7I0427	09/18/2017	09/18/17 18:56	
Methylene chloride	ND	1.0	1	B7I0427	09/18/2017	09/18/17 18:56	
n-Butylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
n-Propylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Naphthalene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
o-Xylene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
sec-Butylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Styrene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
tert-Butylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Tetrachloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Toluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Trichloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Trichlorofluoromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Vinyl chloride	ND	0.50	1	B7I0427	09/18/2017	09/18/17 18:56	
Surrogate: 1,2-Dichloroethane-d4	104 %	70 - 166		B7I0427	09/18/2017	09/18/17 18:56	
Surrogate: 4-Bromofluorobenzene	105 %	88 - 120		B7I0427	09/18/2017	09/18/17 18:56	
Surrogate: Dibromofluoromethane	104 %	80 - 150		B7I0427	09/18/2017	09/18/17 18:56	
Surrogate: Toluene-d8	109 %	87 - 121		B7I0427	09/18/2017	09/18/17 18:56	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2017

Client Sample ID INF

Lab ID: 1703355-05

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	22	2.0	1	B7I0471	09/19/2017	09/19/17 13:21	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>49.9 %</i>	<i>17 - 101</i>		B7I0471	09/19/2017	<i>09/19/17 13:21</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>63.2 %</i>	<i>29 - 109</i>		B7I0471	09/19/2017	<i>09/19/17 13:21</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>85.0 %</i>	<i>49 - 122</i>		B7I0471	09/19/2017	<i>09/19/17 13:21</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>57.6 %</i>	<i>19 - 111</i>		B7I0471	09/19/2017	<i>09/19/17 13:21</i>	



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

Report To : Steve Netto

Reported : 09/22/2017

Client Sample ID EW-02

Lab ID: 1703355-06

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	B7I0427	09/18/2017	09/18/17 17:18	
1,1,1-Trichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,1,2-Trichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,1-Dichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,1-Dichloroethene	8.5	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,1-Dichloropropene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2,3-Trichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2-Dibromoethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2-Dichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2-Dichloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,2-Dichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,3-Dichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,3-Dichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
1,4-Dichlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
2,2-Dichloropropane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
2-Chlorotoluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
4-Chlorotoluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
4-Isopropyltoluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Benzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Bromobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Bromodichloromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Bromoform	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Bromomethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Carbon tetrachloride	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Chlorobenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Chloroethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Chloroform	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Chloromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Dibromochloromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2017

Client Sample ID EW-02

Lab ID: 1703355-06

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	B7I0427	09/18/2017	09/18/17 17:18	
Dichlorodifluoromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Ethylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Hexachlorobutadiene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Isopropylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
m,p-Xylene	ND	1.0	1	B7I0427	09/18/2017	09/18/17 17:18	
Methylene chloride	ND	1.0	1	B7I0427	09/18/2017	09/18/17 17:18	
n-Butylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
n-Propylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Naphthalene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
o-Xylene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
sec-Butylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Styrene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
tert-Butylbenzene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Tetrachloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Toluene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Trichloroethene	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Trichlorofluoromethane	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Vinyl chloride	ND	0.50	1	B7I0427	09/18/2017	09/18/17 17:18	
Surrogate: 1,2-Dichloroethane-d4	103 %	70 - 166		B7I0427	09/18/2017	09/18/17 17:18	
Surrogate: 4-Bromofluorobenzene	109 %	88 - 120		B7I0427	09/18/2017	09/18/17 17:18	
Surrogate: Dibromofluoromethane	104 %	80 - 150		B7I0427	09/18/2017	09/18/17 17:18	
Surrogate: Toluene-d8	109 %	87 - 121		B7I0427	09/18/2017	09/18/17 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 : 09/22/2017

Client Sample ID EW-02

Lab ID: 1703355-06

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7I0471	09/19/2017	09/19/17 13:48	
Surrogate: 1,2-Dichlorobenzene-d4	44.2 %	17 - 101		B7I0471	09/19/2017	09/19/17 13:48	
Surrogate: 2-Fluorobiphenyl	55.6 %	29 - 109		B7I0471	09/19/2017	09/19/17 13:48	
Surrogate: 4-Terphenyl-d14	79.8 %	49 - 122		B7I0471	09/19/2017	09/19/17 13:48	
Surrogate: Nitrobenzene-d5	54.2 %	19 - 111		B7I0471	09/19/2017	09/19/17 13:48	



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 : 09/22/2017

Client Sample ID MW-29

Lab ID: 1703355-07

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	B7I0463	09/19/2017	09/19/17 18:05	
1,1,1-Trichloroethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,1,2-Trichloroethane	0.70	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,1-Dichloroethane	1.7	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,1-Dichloroethene	160	5.0	10	B7I0427	09/18/2017	09/18/17 20:33	
1,1-Dichloropropene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2,3-Trichloropropane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2,3-Trichlorobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2,4-Trichlorobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2,4-Trimethylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2-Dibromoethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2-Dichlorobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2-Dichloroethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,2-Dichloropropane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,3,5-Trimethylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,3-Dichlorobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,3-Dichloropropane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
1,4-Dichlorobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
2,2-Dichloropropane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
2-Chlorotoluene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
4-Chlorotoluene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
4-Isopropyltoluene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Benzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Bromobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Bromodichloromethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Bromoform	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Bromomethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Carbon tetrachloride	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Chlorobenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Chloroethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Chloroform	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Chloromethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
cis-1,2-Dichloroethene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
cis-1,3-Dichloropropene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Dibromochloromethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	



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 : 09/22/2017

Client Sample ID MW-29

Lab ID: 1703355-07

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	B7I0463	09/19/2017	09/19/17 18:05	
Dichlorodifluoromethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Ethylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Hexachlorobutadiene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Isopropylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
m,p-Xylene	ND	1.0	1	B7I0463	09/19/2017	09/19/17 18:05	
Methylene chloride	ND	1.0	1	B7I0463	09/19/2017	09/19/17 18:05	
n-Butylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
n-Propylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Naphthalene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
o-Xylene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
sec-Butylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Styrene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
tert-Butylbenzene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Tetrachloroethene	0.98	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Toluene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
trans-1,2-Dichloroethene	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Trichloroethene	1.9	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Trichlorofluoromethane	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	
Vinyl chloride	ND	0.50	1	B7I0463	09/19/2017	09/19/17 18:05	

Surrogate: 1,2-Dichloroethane-d4	99.7 %	70 - 166	B7I0427	09/18/2017	09/18/17 20:33
Surrogate: 1,2-Dichloroethane-d4	90.8 %	70 - 166	B7I0463	09/19/2017	09/19/17 18:05
Surrogate: 4-Bromofluorobenzene	105 %	88 - 120	B7I0427	09/18/2017	09/18/17 20:33
Surrogate: 4-Bromofluorobenzene	104 %	88 - 120	B7I0463	09/19/2017	09/19/17 18:05
Surrogate: Dibromofluoromethane	104 %	80 - 150	B7I0427	09/18/2017	09/18/17 20:33
Surrogate: Dibromofluoromethane	93.3 %	80 - 150	B7I0463	09/19/2017	09/19/17 18:05
Surrogate: Toluene-d8	104 %	87 - 121	B7I0463	09/19/2017	09/19/17 18:05
Surrogate: Toluene-d8	109 %	87 - 121	B7I0427	09/18/2017	09/18/17 20:33



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 09/22/2017

Client Sample ID MW-29

Lab ID: 1703355-07

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	82	2.0	1	B7I0471	09/19/2017	09/19/17 14:15	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>60.3 %</i>	<i>17 - 101</i>		B7I0471	09/19/2017	<i>09/19/17 14:15</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>73.4 %</i>	<i>29 - 109</i>		B7I0471	09/19/2017	<i>09/19/17 14:15</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>95.4 %</i>	<i>49 - 122</i>		B7I0471	09/19/2017	<i>09/19/17 14:15</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>70.6 %</i>	<i>19 - 111</i>		B7I0471	09/19/2017	<i>09/19/17 14:15</i>	



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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0385 - MSVOA_LL_W

Blank (B7I0385-BLK1)

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0385 - MSVOA_LL_W (continued)

Blank (B7I0385-BLK1) - Continued

Prepared: 9/15/2017 Analyzed: 9/15/2017

Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.48		25.0000	97.9	70 - 166
Surrogate: 4-Bromofluorobenzene	26.51		25.0000	106	88 - 120
Surrogate: Dibromofluoromethane	25.09		25.0000	100	80 - 150
Surrogate: Toluene-d8	26.22		25.0000	105	87 - 121

LCS (B7I0385-BS1)

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,1,1,2-Tetrachloroethane	11.4100	0.50	0.13	10.0000	114	73 - 136
1,1,1-Trichloroethane	10.6300	0.50	0.38	10.0000	106	73 - 143
1,1,2,2-Tetrachloroethane	9.77000	0.50	0.20	10.0000	97.7	62 - 127
1,1,2-Trichloroethane	10.1500	0.50	0.19	10.0000	102	72 - 122
1,1-Dichloroethane	8.87000	0.50	0.20	10.0000	88.7	73 - 138
1,1-Dichloroethene	9.08000	0.50	0.28	10.0000	90.8	74 - 132
1,1-Dichloropropene	10.5200	0.50	0.36	10.0000	105	70 - 143
1,2,3-Trichloropropane	9.87000	0.50	0.16	10.0000	98.7	66 - 119
1,2,3-Trichlorobenzene	10.8300	0.50	0.06	10.0000	108	70 - 131
1,2,4-Trichlorobenzene	10.1200	0.50	0.07	10.0000	101	70 - 128
1,2,4-Trimethylbenzene	12.1800	0.50	0.09	10.0000	122	74 - 142
1,2-Dibromo-3-chloropropane	8.38000	0.50	0.20	10.0000	83.8	56 - 118
1,2-Dibromoethane	10.2700	0.50	0.13	10.0000	103	73 - 122
1,2-Dichlorobenzene	10.5300	0.50	0.12	10.0000	105	75 - 128
1,2-Dichloroethane	10.5000	0.50	0.39	10.0000	105	70 - 131
1,2-Dichloropropane	9.57000	0.50	0.47	10.0000	95.7	69 - 124
1,3,5-Trimethylbenzene	12.3700	0.50	0.08	10.0000	124	73 - 144



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0385 - MSVOA_LL_W (continued)

LCS (B7I0385-BS1) - Continued

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,3-Dichlorobenzene	11.0900	0.50	0.13	10.0000		111	75 - 131			
1,3-Dichloropropane	9.81000	0.50	0.08	10.0000		98.1	70 - 122			
1,4-Dichlorobenzene	10.5300	0.50	0.18	10.0000		105	75 - 127			
2,2-Dichloropropane	9.90000	0.50	0.23	10.0000		99.0	68 - 151			
2-Chlorotoluene	11.8700	0.50	0.12	10.0000		119	72 - 138			
4-Chlorotoluene	11.8300	0.50	0.11	10.0000		118	72 - 140			
4-Isopropyltoluene	12.6900	0.50	0.12	10.0000		127	74 - 149			
Benzene	24.5700	0.50	0.21	20.0000		123	67 - 138			
Bromobenzene	10.9800	0.50	0.12	10.0000		110	73 - 127			
Bromodichloromethane	10.5300	0.50	0.32	10.0000		105	74 - 129			
Bromoform	10.6200	0.50	0.14	10.0000		106	63 - 131			
Bromomethane	12.7100	0.50	0.22	10.0000		127	57 - 216			
Carbon tetrachloride	12.2000	0.50	0.31	10.0000		122	77 - 151			
Chlorobenzene	11.2100	0.50	0.16	10.0000		112	73 - 125			
Chloroethane	9.61000	0.50	0.29	10.0000		96.1	54 - 154			
Chloroform	9.29000	0.50	0.16	10.0000		92.9	77 - 132			
Chloromethane	7.08000	0.50	0.19	10.0000		70.8	57 - 142			
cis-1,2-Dichloroethene	9.02000	0.50	0.39	10.0000		90.2	73 - 126			
cis-1,3-Dichloropropene	9.84000	0.50	0.08	10.0000		98.4	76 - 120			
Dibromochloromethane	9.82000	0.50	0.11	10.0000		98.2	71 - 126			
Dibromomethane	9.95000	0.50	0.09	10.0000		99.5	73 - 121			
Dichlorodifluoromethane	10.3000	0.50	0.31	10.0000		103	48 - 152			
Ethylbenzene	24.9500	0.50	0.08	20.0000		125	72 - 134			
Hexachlorobutadiene	12.0600	0.50	0.22	10.0000		121	72 - 139			
Isopropylbenzene	12.4300	0.50	0.10	10.0000		124	73 - 146			
m,p-Xylene	25.2800	1.0	0.18	20.0000		126	75 - 138			
Methylene chloride	9.36000	1.0	0.26	10.0000		93.6	52 - 154			
n-Butylbenzene	12.8200	0.50	0.15	10.0000		128	72 - 151			
n-Propylbenzene	12.7900	0.50	0.14	10.0000		128	69 - 149			
Naphthalene	8.61000	0.50	0.09	10.0000		86.1	61 - 122			
o-Xylene	25.8800	0.50	0.04	20.0000		129	66 - 147			
sec-Butylbenzene	12.8400	0.50	0.15	10.0000		128	72 - 148			
Styrene	12.6500	0.50	0.05	10.0000		126	72 - 138			
tert-Butylbenzene	12.4900	0.50	0.11	10.0000		125	70 - 145			
Tetrachloroethene	12.1700	0.50	0.18	10.0000		122	61 - 145			
Toluene	24.8900	0.50	0.14	20.0000		124	70 - 140			
trans-1,2-Dichloroethene	9.17000	0.50	0.15	10.0000		91.7	73 - 130			
Trichloroethene	10.5700	0.50	0.15	10.0000		106	69 - 126			
Trichlorofluoromethane	12.7600	0.50	0.33	10.0000		128	70 - 159			
Vinyl chloride	8.49000	0.50	0.25	10.0000		84.9	56 - 151			
Surrogate: 1,2-Dichloroethane-d4	24.30			25.0000		97.2	70 - 166			



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 : 09/22/2017

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
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Batch B7I0385 - MSVOA_LL_W (continued)

LCS (B7I0385-BS1) - Continued

Prepared: 9/15/2017 Analyzed: 9/15/2017

Surrogate: 4-Bromofluorobenzene	28.22		25.0000		113	88 - 120			
Surrogate: Dibromofluoromethane	24.84		25.0000		99.4	80 - 150			
Surrogate: Toluene-d8	28.43		25.0000		114	87 - 121			

LCS Dup (B7I0385-BSD1)

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,1,1,2-Tetrachloroethane	11.1900	0.50	0.13	10.0000	112	73 - 136	1.95	20	
1,1,1-Trichloroethane	10.4100	0.50	0.38	10.0000	104	73 - 143	2.09	20	
1,1,2,2-Tetrachloroethane	9.80000	0.50	0.20	10.0000	98.0	62 - 127	0.307	20	
1,1,2-Trichloroethane	9.83000	0.50	0.19	10.0000	98.3	72 - 122	3.20	20	
1,1-Dichloroethane	8.78000	0.50	0.20	10.0000	87.8	73 - 138	1.02	20	
1,1-Dichloroethene	8.92000	0.50	0.28	10.0000	89.2	74 - 132	1.78	20	
1,1-Dichloropropene	10.3400	0.50	0.36	10.0000	103	70 - 143	1.73	20	
1,2,3-Trichloropropane	9.54000	0.50	0.16	10.0000	95.4	66 - 119	3.40	20	
1,2,3-Trichlorobenzene	10.6100	0.50	0.06	10.0000	106	70 - 131	2.05	20	
1,2,4-Trichlorobenzene	10.5700	0.50	0.07	10.0000	106	70 - 128	4.35	20	
1,2,4-Trimethylbenzene	12.2000	0.50	0.09	10.0000	122	74 - 142	0.164	20	
1,2-Dibromo-3-chloropropane	8.71000	0.50	0.20	10.0000	87.1	56 - 118	3.86	20	
1,2-Dibromoethane	9.91000	0.50	0.13	10.0000	99.1	73 - 122	3.57	20	
1,2-Dichlorobenzene	10.6800	0.50	0.12	10.0000	107	75 - 128	1.41	20	
1,2-Dichloroethane	10.0900	0.50	0.39	10.0000	101	70 - 131	3.98	20	
1,2-Dichloropropane	9.34000	0.50	0.47	10.0000	93.4	69 - 124	2.43	20	
1,3,5-Trimethylbenzene	12.4800	0.50	0.08	10.0000	125	73 - 144	0.885	20	
1,3-Dichlorobenzene	11.1500	0.50	0.13	10.0000	112	75 - 131	0.540	20	
1,3-Dichloropropane	9.71000	0.50	0.08	10.0000	97.1	70 - 122	1.02	20	
1,4-Dichlorobenzene	10.4300	0.50	0.18	10.0000	104	75 - 127	0.954	20	
2,2-Dichloropropane	9.77000	0.50	0.23	10.0000	97.7	68 - 151	1.32	20	
2-Chlorotoluene	11.8700	0.50	0.12	10.0000	119	72 - 138	0.00	20	
4-Chlorotoluene	11.7700	0.50	0.11	10.0000	118	72 - 140	0.508	20	
4-Isopropyltoluene	12.7300	0.50	0.12	10.0000	127	74 - 149	0.315	20	
Benzene	24.1200	0.50	0.21	20.0000	121	67 - 138	1.85	20	
Bromobenzene	10.7000	0.50	0.12	10.0000	107	73 - 127	2.58	20	
Bromodichloromethane	10.0300	0.50	0.32	10.0000	100	74 - 129	4.86	20	
Bromoform	10.7000	0.50	0.14	10.0000	107	63 - 131	0.750	20	
Bromomethane	12.1700	0.50	0.22	10.0000	122	57 - 216	4.34	20	
Carbon tetrachloride	11.6300	0.50	0.31	10.0000	116	77 - 151	4.78	20	
Chlorobenzene	11.2400	0.50	0.16	10.0000	112	73 - 125	0.267	20	
Chloroethane	9.48000	0.50	0.29	10.0000	94.8	54 - 154	1.36	20	
Chloroform	9.14000	0.50	0.16	10.0000	91.4	77 - 132	1.63	20	
Chloromethane	7.12000	0.50	0.19	10.0000	71.2	57 - 142	0.563	20	
cis-1,2-Dichloroethene	8.84000	0.50	0.39	10.0000	88.4	73 - 126	2.02	20	
cis-1,3-Dichloropropene	9.59000	0.50	0.08	10.0000	95.9	76 - 120	2.57	20	
Dibromochloromethane	9.84000	0.50	0.11	10.0000	98.4	71 - 126	0.203	20	



Certificate of Analysis

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Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0385 - MSVOA_LL_W (continued)

LCS Dup (B7I0385-BSD1) - Continued

Prepared: 9/15/2017 Analyzed: 9/15/2017

Dibromomethane	9.72000	0.50	0.09	10.0000		97.2	73 - 121	2.34	20
Dichlorodifluoromethane	10.3000	0.50	0.31	10.0000		103	48 - 152	0.00	20
Ethylbenzene	24.7000	0.50	0.08	20.0000		124	72 - 134	1.01	20
Hexachlorobutadiene	12.1600	0.50	0.22	10.0000		122	72 - 139	0.826	20
Isopropylbenzene	12.4000	0.50	0.10	10.0000		124	73 - 146	0.242	20
m,p-Xylene	24.9900	1.0	0.18	20.0000		125	75 - 138	1.15	20
Methylene chloride	9.17000	1.0	0.26	10.0000		91.7	52 - 154	2.05	20
n-Butylbenzene	12.9800	0.50	0.15	10.0000		130	72 - 151	1.24	20
n-Propylbenzene	12.7100	0.50	0.14	10.0000		127	69 - 149	0.627	20
Naphthalene	8.42000	0.50	0.09	10.0000		84.2	61 - 122	2.23	20
o-Xylene	25.4900	0.50	0.04	20.0000		127	66 - 147	1.52	20
sec-Butylbenzene	12.7000	0.50	0.15	10.0000		127	72 - 148	1.10	20
Styrene	12.2600	0.50	0.05	10.0000		123	72 - 138	3.13	20
tert-Butylbenzene	12.4900	0.50	0.11	10.0000		125	70 - 145	0.00	20
Tetrachloroethene	12.1200	0.50	0.18	10.0000		121	61 - 145	0.412	20
Toluene	24.1300	0.50	0.14	20.0000		121	70 - 140	3.10	20
trans-1,2-Dichloroethene	8.92000	0.50	0.15	10.0000		89.2	73 - 130	2.76	20
Trichloroethene	10.7300	0.50	0.15	10.0000		107	69 - 126	1.50	20
Trichlorofluoromethane	12.5800	0.50	0.33	10.0000		126	70 - 159	1.42	20
Vinyl chloride	8.44000	0.50	0.25	10.0000		84.4	56 - 151	0.591	20
Surrogate: 1,2-Dichloroethane-d4	23.50			25.0000		94.0	70 - 166		
Surrogate: 4-Bromofluorobenzene	27.08			25.0000		108	88 - 120		
Surrogate: Dibromofluoromethane	24.26			25.0000		97.0	80 - 150		
Surrogate: Toluene-d8	27.31			25.0000		109	87 - 121		

Matrix Spike (B7I0385-MS1)

Source: 1703359-02

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,1,1,2-Tetrachloroethane	9.19000	0.50	0.13	10.0000	ND	91.9	73 - 136		
1,1,1-Trichloroethane	8.74000	0.50	0.38	10.0000	ND	87.4	73 - 143		
1,1,2,2-Tetrachloroethane	8.51000	0.50	0.20	10.0000	ND	85.1	62 - 127		
1,1,2-Trichloroethane	8.49000	0.50	0.19	10.0000	ND	84.9	72 - 122		
1,1-Dichloroethane	7.22000	0.50	0.20	10.0000	ND	72.2	73 - 138		M2
1,1-Dichloroethene	7.27000	0.50	0.28	10.0000	ND	72.7	74 - 132		M2
1,1-Dichloropropene	4.03000	0.50	0.36	10.0000	ND	40.3	70 - 143		M2
1,2,3-Trichloropropane	8.32000	0.50	0.16	10.0000	ND	83.2	66 - 119		
1,2,3-Trichlorobenzene	8.60000	0.50	0.06	10.0000	ND	86.0	70 - 131		
1,2,4-Trichlorobenzene	7.91000	0.50	0.07	10.0000	ND	79.1	70 - 128		
1,2,4-Trimethylbenzene	9.25000	0.50	0.09	10.0000	ND	92.5	74 - 142		
1,2-Dibromo-3-chloropropane	7.63000	0.50	0.20	10.0000	ND	76.3	56 - 118		
1,2-Dibromoethane	8.52000	0.50	0.13	10.0000	ND	85.2	73 - 122		
1,2-Dichlorobenzene	8.47000	0.50	0.12	10.0000	ND	84.7	75 - 128		
1,2-Dichloroethane	8.60000	0.50	0.39	10.0000	ND	86.0	70 - 131		



Certificate of Analysis

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Reported : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0385 - MSVOA_LL_W (continued)

Matrix Spike (B7I0385-MS1) - Continued

Source: 1703359-02

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,2-Dichloropropane	7.40000	0.50	0.47	10.0000	ND	74.0	69 - 124			
1,3,5-Trimethylbenzene	9.57000	0.50	0.08	10.0000	ND	95.7	73 - 144			
1,3-Dichlorobenzene	8.92000	0.50	0.13	10.0000	ND	89.2	75 - 131			
1,3-Dichloropropane	8.07000	0.50	0.08	10.0000	ND	80.7	70 - 122			
1,4-Dichlorobenzene	8.42000	0.50	0.18	10.0000	ND	84.2	75 - 127			
2,2-Dichloropropane	8.45000	0.50	0.23	10.0000	ND	84.5	68 - 151			
2-Chlorotoluene	9.36000	0.50	0.12	10.0000	ND	93.6	72 - 138			
4-Chlorotoluene	9.32000	0.50	0.11	10.0000	ND	93.2	72 - 140			
4-Isopropyltoluene	9.76000	0.50	0.12	10.0000	ND	97.6	74 - 149			
Benzene	20.0500	0.50	0.21	20.0000	ND	100	67 - 138			
Bromobenzene	8.87000	0.50	0.12	10.0000	ND	88.7	73 - 127			
Bromodichloromethane	8.67000	0.50	0.32	10.0000	ND	86.7	74 - 129			
Bromoform	9.08000	0.50	0.14	10.0000	ND	90.8	63 - 131			
Bromomethane	10.6000	0.50	0.22	10.0000	ND	106	57 - 216			
Carbon tetrachloride	9.83000	0.50	0.31	10.0000	ND	98.3	77 - 151			
Chlorobenzene	9.08000	0.50	0.16	10.0000	ND	90.8	73 - 125			
Chloroethane	7.44000	0.50	0.29	10.0000	ND	74.4	54 - 154			
Chloroform	7.77000	0.50	0.16	10.0000	ND	77.7	77 - 132			
Chloromethane	5.61000	0.50	0.19	10.0000	ND	56.1	57 - 142			M2
cis-1,2-Dichloroethene	7.32000	0.50	0.39	10.0000	ND	73.2	73 - 126			
cis-1,3-Dichloropropene	6.70000	0.50	0.08	10.0000	ND	67.0	76 - 120			M2
Dibromochloromethane	8.10000	0.50	0.11	10.0000	ND	81.0	71 - 126			
Dibromomethane	8.44000	0.50	0.09	10.0000	ND	84.4	73 - 121			
Dichlorodifluoromethane	8.11000	0.50	0.31	10.0000	ND	81.1	48 - 152			
Ethylbenzene	20.1700	0.50	0.08	20.0000	ND	101	72 - 134			
Hexachlorobutadiene	9.82000	0.50	0.22	10.0000	ND	98.2	72 - 139			
Isopropylbenzene	9.46000	0.50	0.10	10.0000	ND	94.6	73 - 146			
m,p-Xylene	20.4300	1.0	0.18	20.0000	ND	102	75 - 138			
Methylene chloride	6.26000	1.0	0.26	10.0000	ND	62.6	52 - 154			
n-Butylbenzene	9.89000	0.50	0.15	10.0000	ND	98.9	72 - 151			
n-Propylbenzene	10.0300	0.50	0.14	10.0000	ND	100	69 - 149			
Naphthalene	6.61000	0.50	0.09	10.0000	ND	66.1	61 - 122			
o-Xylene	20.7500	0.50	0.04	20.0000	ND	104	66 - 147			
sec-Butylbenzene	9.86000	0.50	0.15	10.0000	ND	98.6	72 - 148			
Styrene	9.73000	0.50	0.05	10.0000	ND	97.3	72 - 138			
tert-Butylbenzene	9.61000	0.50	0.11	10.0000	ND	96.1	70 - 145			
Tetrachloroethene	10.8800	0.50	0.18	10.0000	1.09000	97.9	61 - 145			
Toluene	20.0600	0.50	0.14	20.0000	ND	100	70 - 140			
trans-1,2-Dichloroethene	7.47000	0.50	0.15	10.0000	ND	74.7	73 - 130			
Trichloroethene	8.50000	0.50	0.15	10.0000	0.460000	80.4	69 - 126			
Trichlorofluoromethane	10.3100	0.50	0.33	10.0000	ND	103	70 - 159			
Vinyl chloride	6.70000	0.50	0.25	10.0000	ND	67.0	56 - 151			



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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
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Batch B7I0385 - MSVOA_LL_W (continued)

Matrix Spike (B7I0385-MS1) - Continued

Source: 1703359-02

Prepared: 9/15/2017 Analyzed: 9/15/2017

Surrogate: 1,2-Dichloroethane-d4	25.48		25.0000		102	70 - 166			
Surrogate: 4-Bromofluorobenzene	28.77		25.0000		115	88 - 120			
Surrogate: Dibromofluoromethane	25.51		25.0000		102	80 - 150			
Surrogate: Toluene-d8	28.15		25.0000		113	87 - 121			

Matrix Spike Dup (B7I0385-MSD1)

Source: 1703359-02

Prepared: 9/15/2017 Analyzed: 9/15/2017

1,1,1,2-Tetrachloroethane	11.2300	0.50	0.13	10.0000	ND	112	73 - 136	20.0	20	
1,1,1-Trichloroethane	10.8800	0.50	0.38	10.0000	ND	109	73 - 143	21.8	20	R
1,1,2,2-Tetrachloroethane	10.4500	0.50	0.20	10.0000	ND	104	62 - 127	20.5	20	R
1,1,2-Trichloroethane	10.1200	0.50	0.19	10.0000	ND	101	72 - 122	17.5	20	
1,1-Dichloroethane	9.09000	0.50	0.20	10.0000	ND	90.9	73 - 138	22.9	20	R
1,1-Dichloroethene	9.32000	0.50	0.28	10.0000	ND	93.2	74 - 132	24.7	20	R
1,1-Dichloropropene	10.4200	0.50	0.36	10.0000	ND	104	70 - 143	88.4	20	R
1,2,3-Trichloropropane	9.96000	0.50	0.16	10.0000	ND	99.6	66 - 119	17.9	20	
1,2,3-Trichlorobenzene	10.9600	0.50	0.06	10.0000	ND	110	70 - 131	24.1	20	R
1,2,4-Trichlorobenzene	10.3000	0.50	0.07	10.0000	ND	103	70 - 128	26.2	20	R
1,2,4-Trimethylbenzene	11.9400	0.50	0.09	10.0000	ND	119	74 - 142	25.4	20	R
1,2-Dibromo-3-chloropropane	8.50000	0.50	0.20	10.0000	ND	85.0	56 - 118	10.8	20	
1,2-Dibromoethane	10.4800	0.50	0.13	10.0000	ND	105	73 - 122	20.6	20	R
1,2-Dichlorobenzene	10.6600	0.50	0.12	10.0000	ND	107	75 - 128	22.9	20	R
1,2-Dichloroethane	10.3500	0.50	0.39	10.0000	ND	104	70 - 131	18.5	20	
1,2-Dichloropropane	9.54000	0.50	0.47	10.0000	ND	95.4	69 - 124	25.3	20	R
1,3,5-Trimethylbenzene	12.1900	0.50	0.08	10.0000	ND	122	73 - 144	24.1	20	R
1,3-Dichlorobenzene	10.9900	0.50	0.13	10.0000	ND	110	75 - 131	20.8	20	R
1,3-Dichloropropane	9.97000	0.50	0.08	10.0000	ND	99.7	70 - 122	21.1	20	R
1,4-Dichlorobenzene	10.4200	0.50	0.18	10.0000	ND	104	75 - 127	21.2	20	R
2,2-Dichloropropane	10.5200	0.50	0.23	10.0000	ND	105	68 - 151	21.8	20	R
2-Chlorotoluene	11.6400	0.50	0.12	10.0000	ND	116	72 - 138	21.7	20	R
4-Chlorotoluene	11.6600	0.50	0.11	10.0000	ND	117	72 - 140	22.3	20	R
4-Isopropyltoluene	12.4100	0.50	0.12	10.0000	ND	124	74 - 149	23.9	20	R
Benzene	22.9000	0.50	0.21	20.0000	ND	114	67 - 138	13.3	20	
Bromobenzene	10.7700	0.50	0.12	10.0000	ND	108	73 - 127	19.3	20	
Bromodichloromethane	10.5300	0.50	0.32	10.0000	ND	105	74 - 129	19.4	20	
Bromoform	11.0600	0.50	0.14	10.0000	ND	111	63 - 131	19.7	20	
Bromomethane	12.4500	0.50	0.22	10.0000	ND	124	57 - 216	16.1	20	
Carbon tetrachloride	11.8000	0.50	0.31	10.0000	ND	118	77 - 151	18.2	20	
Chlorobenzene	11.2400	0.50	0.16	10.0000	ND	112	73 - 125	21.3	20	R
Chloroethane	9.72000	0.50	0.29	10.0000	ND	97.2	54 - 154	26.6	20	R
Chloroform	9.47000	0.50	0.16	10.0000	ND	94.7	77 - 132	19.7	20	
Chloromethane	7.04000	0.50	0.19	10.0000	ND	70.4	57 - 142	22.6	20	R
cis-1,2-Dichloroethene	9.38000	0.50	0.39	10.0000	ND	93.8	73 - 126	24.7	20	R



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0385 - MSVOA_LL_W (continued)

Matrix Spike Dup (B7I0385-MSD1) - Continued

Source: 1703359-02

Prepared: 9/15/2017 Analyzed: 9/15/2017

cis-1,3-Dichloropropene	8.97000	0.50	0.08	10.0000	ND	89.7	76 - 120	29.0	20	R
Dibromochloromethane	9.95000	0.50	0.11	10.0000	ND	99.5	71 - 126	20.5	20	R
Dibromomethane	10.1300	0.50	0.09	10.0000	ND	101	73 - 121	18.2	20	
Dichlorodifluoromethane	10.4400	0.50	0.31	10.0000	ND	104	48 - 152	25.1	20	R
Ethylbenzene	24.8700	0.50	0.08	20.0000	ND	124	72 - 134	20.9	20	R
Hexachlorobutadiene	11.7200	0.50	0.22	10.0000	ND	117	72 - 139	17.6	20	
Isopropylbenzene	12.1700	0.50	0.10	10.0000	ND	122	73 - 146	25.1	20	R
m,p-Xylene	24.8700	1.0	0.18	20.0000	ND	124	75 - 138	19.6	20	
Methylene chloride	8.24000	1.0	0.26	10.0000	ND	82.4	52 - 154	27.3	20	R
n-Butylbenzene	12.6400	0.50	0.15	10.0000	ND	126	72 - 151	24.4	20	R
n-Propylbenzene	12.4900	0.50	0.14	10.0000	ND	125	69 - 149	21.8	20	R
Naphthalene	8.76000	0.50	0.09	10.0000	ND	87.6	61 - 122	28.0	20	R
o-Xylene	25.5800	0.50	0.04	20.0000	ND	128	66 - 147	20.9	20	R
sec-Butylbenzene	12.4200	0.50	0.15	10.0000	ND	124	72 - 148	23.0	20	R
Styrene	12.3600	0.50	0.05	10.0000	ND	124	72 - 138	23.8	20	R
tert-Butylbenzene	12.1700	0.50	0.11	10.0000	ND	122	70 - 145	23.5	20	R
Tetrachloroethene	13.1100	0.50	0.18	10.0000	1.09000	120	61 - 145	18.6	20	
Toluene	24.3600	0.50	0.14	20.0000	ND	122	70 - 140	19.4	20	
trans-1,2-Dichloroethene	9.18000	0.50	0.15	10.0000	ND	91.8	73 - 130	20.5	20	R
Trichloroethene	10.5800	0.50	0.15	10.0000	0.460000	101	69 - 126	21.8	20	R
Trichlorofluoromethane	13.0300	0.50	0.33	10.0000	ND	130	70 - 159	23.3	20	R
Vinyl chloride	8.59000	0.50	0.25	10.0000	ND	85.9	56 - 151	24.7	20	R
Surrogate: 1,2-Dichloroethane-d4	25.62			25.0000		102	70 - 166			
Surrogate: 4-Bromofluorobenzene	28.52			25.0000		114	88 - 120			
Surrogate: Dibromofluoromethane	25.98			25.0000		104	80 - 150			
Surrogate: Toluene-d8	28.21			25.0000		113	87 - 121			



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 : 09/22/2017

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0427 - MSVOA_LL_W

Blank (B7I0427-BLK1)

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0427 - MSVOA_LL_W (continued)

Blank (B7I0427-BLK1) - Continued

Prepared: 9/18/2017 Analyzed: 9/18/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	25.84		25.0000	103	70 - 166
Surrogate: 4-Bromofluorobenzene	26.58		25.0000	106	88 - 120
Surrogate: Dibromofluoromethane	26.66		25.0000	107	80 - 150
Surrogate: Toluene-d8	26.75		25.0000	107	87 - 121

LCS (B7I0427-BS1)

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,1,1,2-Tetrachloroethane	11.3000	0.50	0.13	10.0000	113	73 - 136
1,1,1-Trichloroethane	10.6700	0.50	0.38	10.0000	107	73 - 143
1,1,2,2-Tetrachloroethane	8.97000	0.50	0.20	10.0000	89.7	62 - 127
1,1,2-Trichloroethane	9.44000	0.50	0.19	10.0000	94.4	72 - 122
1,1-Dichloroethane	8.64000	0.50	0.20	10.0000	86.4	73 - 138
1,1-Dichloroethene	8.87000	0.50	0.28	10.0000	88.7	74 - 132
1,1-Dichloropropene	10.6500	0.50	0.36	10.0000	106	70 - 143
1,2,3-Trichloropropane	8.97000	0.50	0.16	10.0000	89.7	66 - 119
1,2,3-Trichlorobenzene	10.2500	0.50	0.06	10.0000	102	70 - 131
1,2,4-Trichlorobenzene	9.64000	0.50	0.07	10.0000	96.4	70 - 128
1,2,4-Trimethylbenzene	11.6100	0.50	0.09	10.0000	116	74 - 142
1,2-Dibromo-3-chloropropane	8.14000	0.50	0.20	10.0000	81.4	56 - 118
1,2-Dibromoethane	9.86000	0.50	0.13	10.0000	98.6	73 - 122
1,2-Dichlorobenzene	10.2000	0.50	0.12	10.0000	102	75 - 128
1,2-Dichloroethane	10.3800	0.50	0.39	10.0000	104	70 - 131
1,2-Dichloropropane	9.26000	0.50	0.47	10.0000	92.6	69 - 124
1,3,5-Trimethylbenzene	11.9200	0.50	0.08	10.0000	119	73 - 144
1,3-Dichlorobenzene	10.7900	0.50	0.13	10.0000	108	75 - 131
1,3-Dichloropropane	9.20000	0.50	0.08	10.0000	92.0	70 - 122



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0427 - MSVOA_LL_W (continued)

LCS (B7I0427-BS1) - Continued

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,4-Dichlorobenzene	10.2700	0.50	0.18	10.0000		103	75 - 127		
2,2-Dichloropropane	10.1900	0.50	0.23	10.0000		102	68 - 151		
2-Chlorotoluene	11.6900	0.50	0.12	10.0000		117	72 - 138		
4-Chlorotoluene	11.6000	0.50	0.11	10.0000		116	72 - 140		
4-Isopropyltoluene	12.3400	0.50	0.12	10.0000		123	74 - 149		
Benzene	23.1000	0.50	0.21	20.0000		116	67 - 138		
Bromobenzene	10.6300	0.50	0.12	10.0000		106	73 - 127		
Bromodichloromethane	10.6000	0.50	0.32	10.0000		106	74 - 129		
Bromoform	10.8700	0.50	0.14	10.0000		109	63 - 131		
Bromomethane	12.9700	0.50	0.22	10.0000		130	57 - 216		
Carbon tetrachloride	12.7400	0.50	0.31	10.0000		127	77 - 151		
Chlorobenzene	11.0400	0.50	0.16	10.0000		110	73 - 125		
Chloroethane	9.47000	0.50	0.29	10.0000		94.7	54 - 154		
Chloroform	9.26000	0.50	0.16	10.0000		92.6	77 - 132		
Chloromethane	6.85000	0.50	0.19	10.0000		68.5	57 - 142		
cis-1,2-Dichloroethene	8.73000	0.50	0.39	10.0000		87.3	73 - 126		
cis-1,3-Dichloropropene	9.78000	0.50	0.08	10.0000		97.8	76 - 120		
Dibromochloromethane	9.68000	0.50	0.11	10.0000		96.8	71 - 126		
Dibromomethane	9.49000	0.50	0.09	10.0000		94.9	73 - 121		
Dichlorodifluoromethane	10.3900	0.50	0.31	10.0000		104	48 - 152		
Ethylbenzene	24.6000	0.50	0.08	20.0000		123	72 - 134		
Hexachlorobutadiene	11.9000	0.50	0.22	10.0000		119	72 - 139		
Isopropylbenzene	11.8700	0.50	0.10	10.0000		119	73 - 146		
m,p-Xylene	24.8900	1.0	0.18	20.0000		124	75 - 138		
Methylene chloride	9.70000	1.0	0.26	10.0000		97.0	52 - 154		
n-Butylbenzene	12.3400	0.50	0.15	10.0000		123	72 - 151		
n-Propylbenzene	12.4300	0.50	0.14	10.0000		124	69 - 149		
Naphthalene	7.84000	0.50	0.09	10.0000		78.4	61 - 122		
o-Xylene	25.6600	0.50	0.04	20.0000		128	66 - 147		
sec-Butylbenzene	12.4200	0.50	0.15	10.0000		124	72 - 148		
Styrene	12.4200	0.50	0.05	10.0000		124	72 - 138		
tert-Butylbenzene	12.0700	0.50	0.11	10.0000		121	70 - 145		
Tetrachloroethene	11.6800	0.50	0.18	10.0000		117	61 - 145		
Toluene	24.5600	0.50	0.14	20.0000		123	70 - 140		
trans-1,2-Dichloroethene	8.78000	0.50	0.15	10.0000		87.8	73 - 130		
Trichloroethene	10.4600	0.50	0.15	10.0000		105	69 - 126		
Trichlorofluoromethane	12.9800	0.50	0.33	10.0000		130	70 - 159		
Vinyl chloride	8.21000	0.50	0.25	10.0000		82.1	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	24.02			25.0000		96.1	70 - 166		
Surrogate: 4-Bromofluorobenzene	27.70			25.0000		111	88 - 120		
Surrogate: Dibromofluoromethane	24.55			25.0000		98.2	80 - 150		



Certificate of Analysis

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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 Limits	RPD	RPD Limit	Notes
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Batch B7I0427 - MSVOA_LL_W (continued)

LCS (B7I0427-BS1) - Continued

Prepared: 9/18/2017 Analyzed: 9/18/2017

Surrogate: Toluene-d8 28.35 25.0000 113 87 - 121

LCS Dup (B7I0427-BS1)

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,1,1,2-Tetrachloroethane	11.5700	0.50	0.13	10.0000	116	73 - 136	2.36	20	
1,1,1-Trichloroethane	10.7900	0.50	0.38	10.0000	108	73 - 143	1.12	20	
1,1,2,2-Tetrachloroethane	9.93000	0.50	0.20	10.0000	99.3	62 - 127	10.2	20	
1,1,2-Trichloroethane	10.5600	0.50	0.19	10.0000	106	72 - 122	11.2	20	
1,1-Dichloroethane	8.69000	0.50	0.20	10.0000	86.9	73 - 138	0.577	20	
1,1-Dichloroethene	8.73000	0.50	0.28	10.0000	87.3	74 - 132	1.59	20	
1,1-Dichloropropene	10.8200	0.50	0.36	10.0000	108	70 - 143	1.58	20	
1,2,3-Trichloropropane	9.93000	0.50	0.16	10.0000	99.3	66 - 119	10.2	20	
1,2,3-Trichlorobenzene	10.6900	0.50	0.06	10.0000	107	70 - 131	4.20	20	
1,2,4-Trichlorobenzene	9.83000	0.50	0.07	10.0000	98.3	70 - 128	1.95	20	
1,2,4-Trimethylbenzene	11.7300	0.50	0.09	10.0000	117	74 - 142	1.03	20	
1,2-Dibromo-3-chloropropane	9.01000	0.50	0.20	10.0000	90.1	56 - 118	10.1	20	
1,2-Dibromoethane	10.3900	0.50	0.13	10.0000	104	73 - 122	5.23	20	
1,2-Dichlorobenzene	10.5300	0.50	0.12	10.0000	105	75 - 128	3.18	20	
1,2-Dichloroethane	10.8600	0.50	0.39	10.0000	109	70 - 131	4.52	20	
1,2-Dichloropropane	9.58000	0.50	0.47	10.0000	95.8	69 - 124	3.40	20	
1,3,5-Trimethylbenzene	11.9900	0.50	0.08	10.0000	120	73 - 144	0.586	20	
1,3-Dichlorobenzene	10.9000	0.50	0.13	10.0000	109	75 - 131	1.01	20	
1,3-Dichloropropane	9.73000	0.50	0.08	10.0000	97.3	70 - 122	5.60	20	
1,4-Dichlorobenzene	10.2600	0.50	0.18	10.0000	103	75 - 127	0.0974	20	
2,2-Dichloropropane	9.76000	0.50	0.23	10.0000	97.6	68 - 151	4.31	20	
2-Chlorotoluene	11.6600	0.50	0.12	10.0000	117	72 - 138	0.257	20	
4-Chlorotoluene	11.6700	0.50	0.11	10.0000	117	72 - 140	0.602	20	
4-Isopropyltoluene	12.1800	0.50	0.12	10.0000	122	74 - 149	1.31	20	
Benzene	25.6500	0.50	0.21	20.0000	128	67 - 138	10.5	20	
Bromobenzene	10.4800	0.50	0.12	10.0000	105	73 - 127	1.42	20	
Bromodichloromethane	10.8000	0.50	0.32	10.0000	108	74 - 129	1.87	20	
Bromoform	11.5300	0.50	0.14	10.0000	115	63 - 131	5.89	20	
Bromomethane	12.2800	0.50	0.22	10.0000	123	57 - 216	5.47	20	
Carbon tetrachloride	13.0100	0.50	0.31	10.0000	130	77 - 151	2.10	20	
Chlorobenzene	11.0600	0.50	0.16	10.0000	111	73 - 125	0.181	20	
Chloroethane	8.92000	0.50	0.29	10.0000	89.2	54 - 154	5.98	20	
Chloroform	9.20000	0.50	0.16	10.0000	92.0	77 - 132	0.650	20	
Chloromethane	6.45000	0.50	0.19	10.0000	64.5	57 - 142	6.02	20	
cis-1,2-Dichloroethene	8.75000	0.50	0.39	10.0000	87.5	73 - 126	0.229	20	
cis-1,3-Dichloropropene	9.65000	0.50	0.08	10.0000	96.5	76 - 120	1.34	20	
Dibromochloromethane	10.4700	0.50	0.11	10.0000	105	71 - 126	7.84	20	
Dibromomethane	10.4400	0.50	0.09	10.0000	104	73 - 121	9.53	20	
Dichlorodifluoromethane	9.84000	0.50	0.31	10.0000	98.4	48 - 152	5.44	20	



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0427 - MSVOA_LL_W (continued)

LCS Dup (B7I0427-BSD1) - Continued

Prepared: 9/18/2017 Analyzed: 9/18/2017

Ethylbenzene	24.9100	0.50	0.08	20.0000		125	72 - 134	1.25	20
Hexachlorobutadiene	11.9400	0.50	0.22	10.0000		119	72 - 139	0.336	20
Isopropylbenzene	12.0100	0.50	0.10	10.0000		120	73 - 146	1.17	20
m,p-Xylene	25.3400	1.0	0.18	20.0000		127	75 - 138	1.79	20
Methylene chloride	9.04000	1.0	0.26	10.0000		90.4	52 - 154	7.04	20
n-Butylbenzene	12.3600	0.50	0.15	10.0000		124	72 - 151	0.162	20
n-Propylbenzene	12.3400	0.50	0.14	10.0000		123	69 - 149	0.727	20
Naphthalene	8.62000	0.50	0.09	10.0000		86.2	61 - 122	9.48	20
o-Xylene	26.0000	0.50	0.04	20.0000		130	66 - 147	1.32	20
sec-Butylbenzene	12.2900	0.50	0.15	10.0000		123	72 - 148	1.05	20
Styrene	12.3400	0.50	0.05	10.0000		123	72 - 138	0.646	20
tert-Butylbenzene	12.1700	0.50	0.11	10.0000		122	70 - 145	0.825	20
Tetrachloroethene	11.6900	0.50	0.18	10.0000		117	61 - 145	0.0856	20
Toluene	25.3300	0.50	0.14	20.0000		127	70 - 140	3.09	20
trans-1,2-Dichloroethene	8.98000	0.50	0.15	10.0000		89.8	73 - 130	2.25	20
Trichloroethene	10.6400	0.50	0.15	10.0000		106	69 - 126	1.71	20
Trichlorofluoromethane	12.6700	0.50	0.33	10.0000		127	70 - 159	2.42	20
Vinyl chloride	7.57000	0.50	0.25	10.0000		75.7	56 - 151	8.11	20
Surrogate: 1,2-Dichloroethane-d4	25.04			25.0000		100	70 - 166		
Surrogate: 4-Bromofluorobenzene	28.78			25.0000		115	88 - 120		
Surrogate: Dibromofluoromethane	25.77			25.0000		103	80 - 150		
Surrogate: Toluene-d8	28.50			25.0000		114	87 - 121		



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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0463 - MSVOA_LL_W

Blank (B7I0463-BLK1)

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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 : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0463 - MSVOA_LL_W (continued)

Blank (B7I0463-BLK1) - Continued

Prepared: 9/19/2017 Analyzed: 9/19/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.89		25.0000	99.6	70 - 166
Surrogate: 4-Bromofluorobenzene	26.65		25.0000	107	88 - 120
Surrogate: Dibromofluoromethane	25.21		25.0000	101	80 - 150
Surrogate: Toluene-d8	26.27		25.0000	105	87 - 121

LCS (B7I0463-BS1)

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,1,1,2-Tetrachloroethane	11.1300	0.50	0.13	10.0000	111	73 - 136
1,1,1-Trichloroethane	10.2400	0.50	0.38	10.0000	102	73 - 143
1,1,2,2-Tetrachloroethane	9.75000	0.50	0.20	10.0000	97.5	62 - 127
1,1,2-Trichloroethane	9.74000	0.50	0.19	10.0000	97.4	72 - 122
1,1-Dichloroethane	8.60000	0.50	0.20	10.0000	86.0	73 - 138
1,1-Dichloroethene	8.89000	0.50	0.28	10.0000	88.9	74 - 132
1,1-Dichloropropene	10.3200	0.50	0.36	10.0000	103	70 - 143
1,2,3-Trichloropropane	9.58000	0.50	0.16	10.0000	95.8	66 - 119
1,2,3-Trichlorobenzene	10.2300	0.50	0.06	10.0000	102	70 - 131
1,2,4-Trichlorobenzene	9.46000	0.50	0.07	10.0000	94.6	70 - 128
1,2,4-Trimethylbenzene	11.1700	0.50	0.09	10.0000	112	74 - 142
1,2-Dibromo-3-chloropropane	9.30000	0.50	0.20	10.0000	93.0	56 - 118
1,2-Dibromoethane	10.0400	0.50	0.13	10.0000	100	73 - 122
1,2-Dichlorobenzene	10.1300	0.50	0.12	10.0000	101	75 - 128
1,2-Dichloroethane	10.2000	0.50	0.39	10.0000	102	70 - 131
1,2-Dichloropropane	9.08000	0.50	0.47	10.0000	90.8	69 - 124
1,3,5-Trimethylbenzene	11.4500	0.50	0.08	10.0000	114	73 - 144
1,3-Dichlorobenzene	10.4900	0.50	0.13	10.0000	105	75 - 131
1,3-Dichloropropane	9.37000	0.50	0.08	10.0000	93.7	70 - 122



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0463 - MSVOA_LL_W (continued)

LCS (B7I0463-BS1) - Continued

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,4-Dichlorobenzene	9.95000	0.50	0.18	10.0000		99.5	75 - 127		
2,2-Dichloropropane	9.45000	0.50	0.23	10.0000		94.5	68 - 151		
2-Chlorotoluene	11.2800	0.50	0.12	10.0000		113	72 - 138		
4-Chlorotoluene	11.3000	0.50	0.11	10.0000		113	72 - 140		
4-Isopropyltoluene	11.8500	0.50	0.12	10.0000		118	74 - 149		
Benzene	22.3200	0.50	0.21	20.0000		112	67 - 138		
Bromobenzene	10.2500	0.50	0.12	10.0000		102	73 - 127		
Bromodichloromethane	10.1100	0.50	0.32	10.0000		101	74 - 129		
Bromoform	10.8200	0.50	0.14	10.0000		108	63 - 131		
Bromomethane	12.5700	0.50	0.22	10.0000		126	57 - 216		
Carbon tetrachloride	11.7500	0.50	0.31	10.0000		118	77 - 151		
Chlorobenzene	10.8800	0.50	0.16	10.0000		109	73 - 125		
Chloroethane	9.63000	0.50	0.29	10.0000		96.3	54 - 154		
Chloroform	9.25000	0.50	0.16	10.0000		92.5	77 - 132		
Chloromethane	7.12000	0.50	0.19	10.0000		71.2	57 - 142		
cis-1,2-Dichloroethene	8.83000	0.50	0.39	10.0000		88.3	73 - 126		
cis-1,3-Dichloropropene	9.54000	0.50	0.08	10.0000		95.4	76 - 120		
Dibromochloromethane	9.78000	0.50	0.11	10.0000		97.8	71 - 126		
Dibromomethane	9.96000	0.50	0.09	10.0000		99.6	73 - 121		
Dichlorodifluoromethane	9.98000	0.50	0.31	10.0000		99.8	48 - 152		
Ethylbenzene	23.9700	0.50	0.08	20.0000		120	72 - 134		
Hexachlorobutadiene	11.4700	0.50	0.22	10.0000		115	72 - 139		
Isopropylbenzene	11.6500	0.50	0.10	10.0000		116	73 - 146		
m,p-Xylene	24.2300	1.0	0.18	20.0000		121	75 - 138		
Methylene chloride	8.72000	1.0	0.26	10.0000		87.2	52 - 154		
n-Butylbenzene	11.8900	0.50	0.15	10.0000		119	72 - 151		
n-Propylbenzene	11.9800	0.50	0.14	10.0000		120	69 - 149		
Naphthalene	8.17000	0.50	0.09	10.0000		81.7	61 - 122		
o-Xylene	24.6800	0.50	0.04	20.0000		123	66 - 147		
sec-Butylbenzene	11.9200	0.50	0.15	10.0000		119	72 - 148		
Styrene	11.9500	0.50	0.05	10.0000		120	72 - 138		
tert-Butylbenzene	11.6800	0.50	0.11	10.0000		117	70 - 145		
Tetrachloroethene	11.6500	0.50	0.18	10.0000		116	61 - 145		
Toluene	23.6800	0.50	0.14	20.0000		118	70 - 140		
trans-1,2-Dichloroethene	9.18000	0.50	0.15	10.0000		91.8	73 - 130		
Trichloroethene	10.5400	0.50	0.15	10.0000		105	69 - 126		
Trichlorofluoromethane	12.6400	0.50	0.33	10.0000		126	70 - 159		
Vinyl chloride	8.20000	0.50	0.25	10.0000		82.0	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	24.97			25.0000		99.9	70 - 166		
Surrogate: 4-Bromofluorobenzene	28.53			25.0000		114	88 - 120		
Surrogate: Dibromofluoromethane	25.89			25.0000		104	80 - 150		



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
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Batch B7I0463 - MSVOA_LL_W (continued)

LCS (B7I0463-BS1) - Continued

Prepared: 9/19/2017 Analyzed: 9/19/2017

Surrogate: Toluene-d8 28.56 25.0000 114 87 - 121

LCS Dup (B7I0463-BSD1)

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,1,1,2-Tetrachloroethane	11.6100	0.50	0.13	10.0000	116	73 - 136	4.22	20	
1,1,1-Trichloroethane	10.5600	0.50	0.38	10.0000	106	73 - 143	3.08	20	
1,1,2,2-Tetrachloroethane	9.75000	0.50	0.20	10.0000	97.5	62 - 127	0.00	20	
1,1,2-Trichloroethane	9.88000	0.50	0.19	10.0000	98.8	72 - 122	1.43	20	
1,1-Dichloroethane	8.89000	0.50	0.20	10.0000	88.9	73 - 138	3.32	20	
1,1-Dichloroethene	9.11000	0.50	0.28	10.0000	91.1	74 - 132	2.44	20	
1,1-Dichloropropene	10.4900	0.50	0.36	10.0000	105	70 - 143	1.63	20	
1,2,3-Trichloropropane	9.81000	0.50	0.16	10.0000	98.1	66 - 119	2.37	20	
1,2,3-Trichlorobenzene	10.4800	0.50	0.06	10.0000	105	70 - 131	2.41	20	
1,2,4-Trichlorobenzene	10.0800	0.50	0.07	10.0000	101	70 - 128	6.35	20	
1,2,4-Trimethylbenzene	11.8300	0.50	0.09	10.0000	118	74 - 142	5.74	20	
1,2-Dibromo-3-chloropropane	8.88000	0.50	0.20	10.0000	88.8	56 - 118	4.62	20	
1,2-Dibromoethane	9.92000	0.50	0.13	10.0000	99.2	73 - 122	1.20	20	
1,2-Dichlorobenzene	10.3100	0.50	0.12	10.0000	103	75 - 128	1.76	20	
1,2-Dichloroethane	10.4200	0.50	0.39	10.0000	104	70 - 131	2.13	20	
1,2-Dichloropropane	9.35000	0.50	0.47	10.0000	93.5	69 - 124	2.93	20	
1,3,5-Trimethylbenzene	12.0200	0.50	0.08	10.0000	120	73 - 144	4.86	20	
1,3-Dichlorobenzene	10.8600	0.50	0.13	10.0000	109	75 - 131	3.47	20	
1,3-Dichloropropane	9.55000	0.50	0.08	10.0000	95.5	70 - 122	1.90	20	
1,4-Dichlorobenzene	10.2600	0.50	0.18	10.0000	103	75 - 127	3.07	20	
2,2-Dichloropropane	9.60000	0.50	0.23	10.0000	96.0	68 - 151	1.57	20	
2-Chlorotoluene	11.6700	0.50	0.12	10.0000	117	72 - 138	3.40	20	
4-Chlorotoluene	11.6500	0.50	0.11	10.0000	116	72 - 140	3.05	20	
4-Isopropyltoluene	12.3700	0.50	0.12	10.0000	124	74 - 149	4.29	20	
Benzene	23.6200	0.50	0.21	20.0000	118	67 - 138	5.66	20	
Bromobenzene	10.6600	0.50	0.12	10.0000	107	73 - 127	3.92	20	
Bromodichloromethane	10.5500	0.50	0.32	10.0000	106	74 - 129	4.26	20	
Bromoform	11.1200	0.50	0.14	10.0000	111	63 - 131	2.73	20	
Bromomethane	12.5900	0.50	0.22	10.0000	126	57 - 216	0.159	20	
Carbon tetrachloride	12.1400	0.50	0.31	10.0000	121	77 - 151	3.26	20	
Chlorobenzene	11.2000	0.50	0.16	10.0000	112	73 - 125	2.90	20	
Chloroethane	9.13000	0.50	0.29	10.0000	91.3	54 - 154	5.33	20	
Chloroform	9.28000	0.50	0.16	10.0000	92.8	77 - 132	0.324	20	
Chloromethane	7.23000	0.50	0.19	10.0000	72.3	57 - 142	1.53	20	
cis-1,2-Dichloroethene	9.13000	0.50	0.39	10.0000	91.3	73 - 126	3.34	20	
cis-1,3-Dichloropropene	9.81000	0.50	0.08	10.0000	98.1	76 - 120	2.79	20	
Dibromochloromethane	10.1100	0.50	0.11	10.0000	101	71 - 126	3.32	20	
Dibromomethane	9.92000	0.50	0.09	10.0000	99.2	73 - 121	0.402	20	
Dichlorodifluoromethane	10.4700	0.50	0.31	10.0000	105	48 - 152	4.79	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)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0463 - MSVOA_LL_W (continued)

LCS Dup (B7I0463-BSD1) - Continued

Prepared: 9/19/2017 Analyzed: 9/19/2017

Ethylbenzene	24.7800	0.50	0.08	20.0000		124	72 - 134	3.32	20
Hexachlorobutadiene	11.7800	0.50	0.22	10.0000		118	72 - 139	2.67	20
Isopropylbenzene	11.9400	0.50	0.10	10.0000		119	73 - 146	2.46	20
m,p-Xylene	24.8000	1.0	0.18	20.0000		124	75 - 138	2.33	20
Methylene chloride	9.30000	1.0	0.26	10.0000		93.0	52 - 154	6.44	20
n-Butylbenzene	12.4300	0.50	0.15	10.0000		124	72 - 151	4.44	20
n-Propylbenzene	12.3900	0.50	0.14	10.0000		124	69 - 149	3.36	20
Naphthalene	8.40000	0.50	0.09	10.0000		84.0	61 - 122	2.78	20
o-Xylene	25.3100	0.50	0.04	20.0000		127	66 - 147	2.52	20
sec-Butylbenzene	12.5200	0.50	0.15	10.0000		125	72 - 148	4.91	20
Styrene	12.4100	0.50	0.05	10.0000		124	72 - 138	3.78	20
tert-Butylbenzene	12.1700	0.50	0.11	10.0000		122	70 - 145	4.11	20
Tetrachloroethene	11.9200	0.50	0.18	10.0000		119	61 - 145	2.29	20
Toluene	24.2300	0.50	0.14	20.0000		121	70 - 140	2.30	20
trans-1,2-Dichloroethene	9.39000	0.50	0.15	10.0000		93.9	73 - 130	2.26	20
Trichloroethene	10.8000	0.50	0.15	10.0000		108	69 - 126	2.44	20
Trichlorofluoromethane	12.6800	0.50	0.33	10.0000		127	70 - 159	0.316	20
Vinyl chloride	8.43000	0.50	0.25	10.0000		84.3	56 - 151	2.77	20
Surrogate: 1,2-Dichloroethane-d4	24.82			25.0000		99.3	70 - 166		
Surrogate: 4-Bromofluorobenzene	28.09			25.0000		112	88 - 120		
Surrogate: Dibromofluoromethane	25.54			25.0000		102	80 - 150		
Surrogate: Toluene-d8	28.29			25.0000		113	87 - 121		

Matrix Spike (B7I0463-MS1)

Source: 1703394-04

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,1,1,2-Tetrachloroethane	10.8700	0.50	0.13	10.0000	ND	109	73 - 136
1,1,1-Trichloroethane	9.71000	0.50	0.38	10.0000	ND	97.1	73 - 143
1,1,2,2-Tetrachloroethane	9.18000	0.50	0.20	10.0000	ND	91.8	62 - 127
1,1,2-Trichloroethane	9.21000	0.50	0.19	10.0000	ND	92.1	72 - 122
1,1-Dichloroethane	8.41000	0.50	0.20	10.0000	ND	84.1	73 - 138
1,1-Dichloroethene	8.88000	0.50	0.28	10.0000	ND	88.8	74 - 132
1,1-Dichloropropene	10.0400	0.50	0.36	10.0000	ND	100	70 - 143
1,2,3-Trichloropropane	8.89000	0.50	0.16	10.0000	ND	88.9	66 - 119
1,2,3-Trichlorobenzene	10.1300	0.50	0.06	10.0000	ND	101	70 - 131
1,2,4-Trichlorobenzene	9.99000	0.50	0.07	10.0000	ND	99.9	70 - 128
1,2,4-Trimethylbenzene	11.8100	0.50	0.09	10.0000	ND	118	74 - 142
1,2-Dibromo-3-chloropropane	8.19000	0.50	0.20	10.0000	ND	81.9	56 - 118
1,2-Dibromoethane	9.25000	0.50	0.13	10.0000	ND	92.5	73 - 122
1,2-Dichlorobenzene	10.1800	0.50	0.12	10.0000	ND	102	75 - 128
1,2-Dichloroethane	9.04000	0.50	0.39	10.0000	ND	90.4	70 - 131
1,2-Dichloropropane	9.51000	0.50	0.47	10.0000	ND	95.1	69 - 124
1,3,5-Trimethylbenzene	12.1100	0.50	0.08	10.0000	ND	121	73 - 144



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0463 - MSVOA_LL_W (continued)

Matrix Spike (B7I0463-MS1) - Continued

Source: 1703394-04

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,3-Dichlorobenzene	10.7900	0.50	0.13	10.0000	ND	108	75 - 131			
1,3-Dichloropropane	9.06000	0.50	0.08	10.0000	ND	90.6	70 - 122			
1,4-Dichlorobenzene	10.0300	0.50	0.18	10.0000	ND	100	75 - 127			
2,2-Dichloropropane	9.73000	0.50	0.23	10.0000	ND	97.3	68 - 151			
2-Chlorotoluene	11.7900	0.50	0.12	10.0000	ND	118	72 - 138			
4-Chlorotoluene	11.6800	0.50	0.11	10.0000	ND	117	72 - 140			
4-Isopropyltoluene	12.5500	0.50	0.12	10.0000	ND	126	74 - 149			
Benzene	22.9400	0.50	0.21	20.0000	ND	115	67 - 138			
Bromobenzene	10.6200	0.50	0.12	10.0000	ND	106	73 - 127			
Bromodichloromethane	9.68000	0.50	0.32	10.0000	ND	96.8	74 - 129			
Bromoform	10.1600	0.50	0.14	10.0000	ND	102	63 - 131			
Bromomethane	12.0500	0.50	0.22	10.0000	ND	120	57 - 216			
Carbon tetrachloride	11.1100	0.50	0.31	10.0000	ND	111	77 - 151			
Chlorobenzene	11.0200	0.50	0.16	10.0000	ND	110	73 - 125			
Chloroethane	9.19000	0.50	0.29	10.0000	ND	91.9	54 - 154			
Chloroform	8.63000	0.50	0.16	10.0000	ND	86.3	77 - 132			
Chloromethane	7.51000	0.50	0.19	10.0000	ND	75.1	57 - 142			
cis-1,2-Dichloroethene	8.55000	0.50	0.39	10.0000	ND	85.5	73 - 126			
cis-1,3-Dichloropropene	8.65000	0.50	0.08	10.0000	ND	86.5	76 - 120			
Dibromochloromethane	9.50000	0.50	0.11	10.0000	ND	95.0	71 - 126			
Dibromomethane	9.33000	0.50	0.09	10.0000	ND	93.3	73 - 121			
Dichlorodifluoromethane	10.2200	0.50	0.31	10.0000	ND	102	48 - 152			
Ethylbenzene	24.1200	0.50	0.08	20.0000	ND	121	72 - 134			
Hexachlorobutadiene	12.4300	0.50	0.22	10.0000	ND	124	72 - 139			
Isopropylbenzene	12.2200	0.50	0.10	10.0000	ND	122	73 - 146			
m,p-Xylene	24.4700	1.0	0.18	20.0000	ND	122	75 - 138			
Methylene chloride	7.68000	1.0	0.26	10.0000	ND	76.8	52 - 154			
n-Butylbenzene	12.7100	0.50	0.15	10.0000	ND	127	72 - 151			
n-Propylbenzene	12.6100	0.50	0.14	10.0000	ND	126	69 - 149			
Naphthalene	7.95000	0.50	0.09	10.0000	ND	79.5	61 - 122			
o-Xylene	24.9600	0.50	0.04	20.0000	ND	125	66 - 147			
sec-Butylbenzene	12.5700	0.50	0.15	10.0000	ND	126	72 - 148			
Styrene	11.8000	0.50	0.05	10.0000	ND	118	72 - 138			
tert-Butylbenzene	12.1600	0.50	0.11	10.0000	ND	122	70 - 145			
Tetrachloroethene	12.2200	0.50	0.18	10.0000	ND	122	61 - 145			
Toluene	23.4000	0.50	0.14	20.0000	ND	117	70 - 140			
trans-1,2-Dichloroethene	8.85000	0.50	0.15	10.0000	ND	88.5	73 - 130			
Trichloroethene	10.3200	0.50	0.15	10.0000	ND	103	69 - 126			
Trichlorofluoromethane	11.7600	0.50	0.33	10.0000	ND	118	70 - 159			
Vinyl chloride	8.75000	0.50	0.25	10.0000	ND	87.5	56 - 151			

Surrogate: 1,2-Dichloroethane-d4	22.39			25.0000		89.6	70 - 166
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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 : 09/22/2017

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
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Batch B7I0463 - MSVOA_LL_W (continued)

Matrix Spike (B7I0463-MS1) - Continued

Source: 1703394-04

Prepared: 9/19/2017 Analyzed: 9/19/2017

Surrogate: 4-Bromofluorobenzene	26.75	25.0000	107	88 - 120
Surrogate: Dibromofluoromethane	23.38	25.0000	93.5	80 - 150
Surrogate: Toluene-d8	27.15	25.0000	109	87 - 121



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 : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0471 - MSSEMI_W

Blank (B7I0471-BLK1)

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	51.80			100.000	51.8	17 - 101			
Surrogate: 2-Fluorobiphenyl	63.49			100.000	63.5	29 - 109			
Surrogate: 4-Terphenyl-d14	85.03			100.000	85.0	49 - 122			
Surrogate: Nitrobenzene-d5	58.44			100.000	58.4	19 - 111			

LCS (B7I0471-BS1)

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,4-Dioxane	102.090	2.0	0.84	100.000	102	85 - 121			
Surrogate: 1,2-Dichlorobenzene-d	50.20			100.000	50.2	17 - 101			
Surrogate: 2-Fluorobiphenyl	68.71			100.000	68.7	29 - 109			
Surrogate: 4-Terphenyl-d14	73.31			100.000	73.3	49 - 122			
Surrogate: Nitrobenzene-d5	61.45			100.000	61.4	19 - 111			

LCS Dup (B7I0471-BSD1)

Prepared: 9/19/2017 Analyzed: 9/19/2017

1,4-Dioxane	118.980	2.0	0.84	100.000	119	85 - 121	15.3	20	
Surrogate: 1,2-Dichlorobenzene-d	54.31			100.000	54.3	17 - 101			
Surrogate: 2-Fluorobiphenyl	76.46			100.000	76.5	29 - 109			
Surrogate: 4-Terphenyl-d14	82.55			100.000	82.6	49 - 122			
Surrogate: Nitrobenzene-d5	67.89			100.000	67.9	19 - 111			



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 : 09/22/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7I0432 - MSSEMI_W

Blank (B7I0432-BLK1)

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,4-Dioxane	ND	0.20	0.11							
Surrogate: 1,2-Dichlorobenzene-d	0.6121			1.00000		61.2	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.7727			1.00000		77.3	29 - 105			
Surrogate: 4-Terphenyl-d14	1.051			1.00000		105	32 - 119			
Surrogate: Nitrobenzene-d5	0.6081			1.00000		60.8	17 - 123			

LCS (B7I0432-BS1)

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,4-Dioxane	0.995310	0.20	0.11	1.00000		99.5	61 - 166			
Surrogate: 1,2-Dichlorobenzene-d	0.5500			1.00000		55.0	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.7053			1.00000		70.5	29 - 105			
Surrogate: 4-Terphenyl-d14	1.001			1.00000		100	32 - 119			
Surrogate: Nitrobenzene-d5	0.5664			1.00000		56.6	17 - 123			

LCS Dup (B7I0432-BSD1)

Prepared: 9/18/2017 Analyzed: 9/18/2017

1,4-Dioxane	0.901410	0.20	0.11	1.00000		90.1	61 - 166	9.90	20	
Surrogate: 1,2-Dichlorobenzene-d	0.4659			1.00000		46.6	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.6107			1.00000		61.1	29 - 105			
Surrogate: 4-Terphenyl-d14	1.090			1.00000		109	32 - 119			
Surrogate: Nitrobenzene-d5	0.4756			1.00000		47.6	17 - 123			



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 : 09/22/2017

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.
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)

Notes:

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



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

09/14/2017

Date: 8/17/2017
Page 1 of 1

PROJECT: Raytheon Main GETS Mid Month Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Steve Stewart

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	Total Suspended Solids by 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			
1708355-01	TB-081717	8/17/2017	10:00	X	X				X	2						X																					
-02	CBT	8/17/2017	13:20	X	X				X	3					1	X								X	X												
-03	POX	8/17/2017	13:25	X	X				X	3					1	X								X	X												
-04	CEFF	8/17/2017	13:15	X	X				X	3					1	X								X	X												
-05	INF	8/17/2017	13:30	X	X				X	3					1	X							X				X										
-06	EW-02	8/17/2017	14:00	X	X				X	3					1	X							X			X											
-07	MW-29	8/17/2017	14:15	X	X				X	3					1	X							X			X											
		9/14/2017																																			
Total number of containers per analysis:										20					6											Total No. of Containers: 26											

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>SA Stewart H+A</u>	<u>8/14/17</u> <u>14:30</u>	<u>[Signature]</u>	<u>8/14/17</u> <u>1430</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature]</u>	<u>9/14/17</u> <u>1633</u>	<u>FPD [Signature]</u>	<u>9/14/17</u> <u>1633</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 275
San Diego, CA 92122
Ph: 858.455.6500
snetto@hargis.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
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.

Date: 8/17/2017
Page 1 of 1

PROJECT: Raytheon Main GETS Mid Month Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Steve Stewart

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		MATRIX	PRESERVATION	CONTAINERS				ANALYSIS REQUESTED										Expected Concentration Range (ppb) for	SPECIAL HANDLING				REMARKS												
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	Total Suspended Solids by 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			
170355-01	TB-081717 091417	8/17/2017	10:00 7:00	X	X				X	2						X									X												
-02	CBT	8/17/2017	13:20	X	X				X	3						1	X								X	X											
-03	POX	8/17/2017	13:25	X	X				X	3						1	X							X	X												
-04	CEFF	8/17/2017	13:15	X	X				X	3						1	X							X	X												
-05	INF	8/17/2017	13:30	X	X				X	3						1	X					X					X										
-06	EW-02	8/17/2017	14:00	X	X				X	3						1	X					X			X												
-07	MW-29	8/17/2017	14:15	X	X				X	3						1	X					X			X												
		9/14/2017																																			

Total number of containers per analysis:

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
SA Netto H+A	8/14/17 14:30	SA Netto	8/14/17 1430
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
SA Netto	9/14/17 11033	FPD	9/14/17 1633

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

Total No. of Containers: 26

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.

1.0

Temperature on receipt



October 20, 2017

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

Re: ATL Work Order Number : 1703587

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on October 06, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", followed by the initials "ER" in a smaller, more stylized script.

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.

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www.atlglobal.com



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 : 10/20/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-100617	1703587-01	Lab prepared water	10/06/17 8:00	10/06/17 13:01
CBT	1703587-02	Groundwater	10/06/17 10:55	10/06/17 13:01
POX	1703587-03	Groundwater	10/06/17 11:00	10/06/17 13:01
CEFF	1703587-04	Groundwater	10/06/17 10:50	10/06/17 13:01
PF	1703587-05	Groundwater	10/06/17 11:05	10/06/17 13:01
INF	1703587-06	Groundwater	10/06/17 11:10	10/06/17 13:01
EW-02	1703587-07	Groundwater	10/06/17 11:30	10/06/17 13:01
MW-29	1703587-08	Groundwater	10/06/17 11:50	10/06/17 13:01

CASE NARRATIVE

The samples for Bromate by IC-MS/MS 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 : 10/20/2017

Client Sample ID TB-100617

Lab ID: 1703587-01

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	B7J0146	10/06/2017	10/06/17 18:56	
1,1,1-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,1,2-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,1-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,1-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,1-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2,3-Trichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2-Dibromoethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,3-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,3-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
1,4-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
2,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
2-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
4-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
4-Isopropyltoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Benzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Bromobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Bromodichloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Bromoform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Bromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Carbon tetrachloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Chlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Chloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Chloroform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Chloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	



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 : 10/20/2017

Client Sample ID TB-100617

Lab ID: 1703587-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Dibromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Dichlorodifluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Ethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Hexachlorobutadiene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Isopropylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
m,p-Xylene	ND	1.0	1	B7J0146	10/06/2017	10/06/17 18:56	
Methylene chloride	ND	1.0	1	B7J0146	10/06/2017	10/06/17 18:56	
n-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
n-Propylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Naphthalene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
o-Xylene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
sec-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Styrene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
tert-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Tetrachloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Toluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Trichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Trichlorofluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Vinyl chloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 18:56	
Surrogate: 1,2-Dichloroethane-d4	96.9 %	70 - 166		B7J0146	10/06/2017	10/06/17 18:56	
Surrogate: 4-Bromofluorobenzene	93.1 %	88 - 120		B7J0146	10/06/2017	10/06/17 18:56	
Surrogate: Dibromofluoromethane	101 %	80 - 150		B7J0146	10/06/2017	10/06/17 18:56	
Surrogate: Toluene-d8	99.5 %	87 - 121		B7J0146	10/06/2017	10/06/17 18:56	



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 : 10/20/2017

Client Sample ID CBT

Lab ID: 1703587-02

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	B7J0146	10/06/2017	10/06/17 19:45	
1,1,1-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,1,2-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,1-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,1-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,1-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2,3-Trichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2-Dibromoethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,3-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,3-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
1,4-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
2,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
2-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
4-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
4-Isopropyltoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Benzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Bromobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Bromodichloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Bromoform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Bromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Carbon tetrachloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Chlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Chloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Chloroform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Chloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	



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 : 10/20/2017

Client Sample ID CBT

Lab ID: 1703587-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Dibromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Dichlorodifluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Ethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Hexachlorobutadiene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Isopropylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
m,p-Xylene	ND	1.0	1	B7J0146	10/06/2017	10/06/17 19:45	
Methylene chloride	ND	1.0	1	B7J0146	10/06/2017	10/06/17 19:45	
n-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
n-Propylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Naphthalene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
o-Xylene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
sec-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Styrene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
tert-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Tetrachloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Toluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Trichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Trichlorofluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Vinyl chloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 19:45	
Surrogate: 1,2-Dichloroethane-d4	96.8 %	70 - 166		B7J0146	10/06/2017	10/06/17 19:45	
Surrogate: 4-Bromofluorobenzene	93.8 %	88 - 120		B7J0146	10/06/2017	10/06/17 19:45	
Surrogate: Dibromofluoromethane	99.3 %	80 - 150		B7J0146	10/06/2017	10/06/17 19:45	
Surrogate: Toluene-d8	99.6 %	87 - 121		B7J0146	10/06/2017	10/06/17 19:45	



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 : 10/20/2017

Client Sample ID CBT

Lab ID: 1703587-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7J0184	10/09/2017	10/10/17 10:56	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>66.2 %</i>	<i>32 - 99</i>		B7J0184	10/09/2017	<i>10/10/17 10:56</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>76.0 %</i>	<i>29 - 105</i>		B7J0184	10/09/2017	<i>10/10/17 10:56</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>85.5 %</i>	<i>32 - 119</i>		B7J0184	10/09/2017	<i>10/10/17 10:56</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>62.8 %</i>	<i>17 - 123</i>		B7J0184	10/09/2017	<i>10/10/17 10:56</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 : 10/20/2017

Client Sample ID POX

Lab ID: 1703587-03

Alkalinity, Speciated by SM 2320B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	210	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	
Alkalinity, Total (as CaCO ₃)	210	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	

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	B7J0245	10/10/2017	10/10/17 16:49	

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	B7J0146	10/06/2017	10/06/17 20:09	
1,1,1-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,1,2-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,1-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,1-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,1-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2,3-Trichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2-Dibromoethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,3-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,3-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
1,4-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
2,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	



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 : 10/20/2017

Client Sample ID POX

Lab ID: 1703587-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
4-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
4-Isopropyltoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Benzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Bromobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Bromodichloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Bromoform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Bromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Carbon tetrachloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Chlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Chloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Chloroform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Chloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Dibromochloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Dibromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Dichlorodifluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Ethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Hexachlorobutadiene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Isopropylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
m,p-Xylene	ND	1.0	1	B7J0146	10/06/2017	10/06/17 20:09	
Methylene chloride	ND	1.0	1	B7J0146	10/06/2017	10/06/17 20:09	
n-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
n-Propylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Naphthalene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
o-Xylene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
sec-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Styrene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
tert-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Tetrachloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Toluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Trichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Trichlorofluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	
Vinyl chloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:09	



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 : 10/20/2017

Client Sample ID POX

Lab ID: 1703587-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: 1,2-Dichloroethane-d4	96.4 %	70 - 166		B7J0146	10/06/2017	10/06/17 20:09	
Surrogate: 4-Bromofluorobenzene	94.2 %	88 - 120		B7J0146	10/06/2017	10/06/17 20:09	
Surrogate: Dibromofluoromethane	98.4 %	80 - 150		B7J0146	10/06/2017	10/06/17 20:09	
Surrogate: Toluene-d8	99.8 %	87 - 121		B7J0146	10/06/2017	10/06/17 20:09	

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7J0184	10/09/2017	10/10/17 11:23	
Surrogate: 1,2-Dichlorobenzene-d4	84.9 %	32 - 99		B7J0184	10/09/2017	10/10/17 11:23	
Surrogate: 2-Fluorobiphenyl	95.8 %	29 - 105		B7J0184	10/09/2017	10/10/17 11:23	
Surrogate: 4-Terphenyl-d14	100 %	32 - 119		B7J0184	10/09/2017	10/10/17 11:23	
Surrogate: Nitrobenzene-d5	77.3 %	17 - 123		B7J0184	10/09/2017	10/10/17 11:23	



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 : 10/20/2017

Client Sample ID CEFF

Lab ID: 1703587-04

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	B7J0146	10/06/2017	10/06/17 20:34	
1,1,1-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,1,2-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,1-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,1-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,1-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2,3-Trichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2-Dibromoethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,3-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,3-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
1,4-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
2,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
2-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
4-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
4-Isopropyltoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Benzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Bromobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Bromodichloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Bromoform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Bromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Carbon tetrachloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Chlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Chloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Chloroform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Chloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	



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 : 10/20/2017

Client Sample ID CEFF

Lab ID: 1703587-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Dibromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Dichlorodifluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Ethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Hexachlorobutadiene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Isopropylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
m,p-Xylene	ND	1.0	1	B7J0146	10/06/2017	10/06/17 20:34	
Methylene chloride	ND	1.0	1	B7J0146	10/06/2017	10/06/17 20:34	
n-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
n-Propylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Naphthalene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
o-Xylene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
sec-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Styrene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
tert-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Tetrachloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Toluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Trichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Trichlorofluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Vinyl chloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:34	
Surrogate: 1,2-Dichloroethane-d4	98.6 %	70 - 166		B7J0146	10/06/2017	10/06/17 20:34	
Surrogate: 4-Bromofluorobenzene	93.9 %	88 - 120		B7J0146	10/06/2017	10/06/17 20:34	
Surrogate: Dibromofluoromethane	99.3 %	80 - 150		B7J0146	10/06/2017	10/06/17 20:34	
Surrogate: Toluene-d8	99.2 %	87 - 121		B7J0146	10/06/2017	10/06/17 20:34	



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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 : 10/20/2017

Client Sample ID CEFF

Lab ID: 1703587-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7J0184	10/09/2017	10/10/17 11:50	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>80.5 %</i>	<i>32 - 99</i>		B7J0184	10/09/2017	<i>10/10/17 11:50</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>90.5 %</i>	<i>29 - 105</i>		B7J0184	10/09/2017	<i>10/10/17 11:50</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>95.3 %</i>	<i>32 - 119</i>		B7J0184	10/09/2017	<i>10/10/17 11:50</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.9 %</i>	<i>17 - 123</i>		B7J0184	10/09/2017	<i>10/10/17 11:50</i>	



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San Diego, CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Client Sample ID PF

Lab ID: 1703587-05

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7J0161	10/06/2017	10/06/17 16:57	

Alkalinity, Speciated by SM 2320B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	210	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	
Alkalinity, Total (as CaCO ₃)	210	5.0	1	B7J0227	10/10/2017	10/11/17 08:47	

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

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B7J0209	10/10/2017	10/11/17 09:15	

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	B7J0245	10/10/2017	10/10/17 17:04	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Client Sample ID INF

Lab ID: 1703587-06

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.19	0.10	2	B7J0217	10/10/2017	10/10/17 16:13	

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	B7J0146	10/06/2017	10/06/17 21:23	
1,1,1-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,1,2-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,1-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,1-Dichloroethene	39	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,1-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2,3-Trichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2-Dibromoethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,3-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,3-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
1,4-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
2,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
2-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
4-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
4-Isopropyltoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Benzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Bromobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Bromodichloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Bromoform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Bromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Carbon tetrachloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	



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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 : 10/20/2017

Client Sample ID INF

Lab ID: 1703587-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Chloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Chloroform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Chloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Dibromochloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Dibromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Dichlorodifluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Ethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Hexachlorobutadiene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Isopropylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
m,p-Xylene	ND	1.0	1	B7J0146	10/06/2017	10/06/17 21:23	
Methylene chloride	ND	1.0	1	B7J0146	10/06/2017	10/06/17 21:23	
n-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
n-Propylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Naphthalene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
o-Xylene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
sec-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Styrene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
tert-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Tetrachloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Toluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Trichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Trichlorofluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Vinyl chloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 21:23	
Surrogate: 1,2-Dichloroethane-d4	99.8 %	70 - 166		B7J0146	10/06/2017	10/06/17 21:23	
Surrogate: 4-Bromofluorobenzene	93.8 %	88 - 120		B7J0146	10/06/2017	10/06/17 21:23	
Surrogate: Dibromofluoromethane	100 %	80 - 150		B7J0146	10/06/2017	10/06/17 21:23	
Surrogate: Toluene-d8	101 %	87 - 121		B7J0146	10/06/2017	10/06/17 21:23	



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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 : 10/20/2017

Client Sample ID INF

Lab ID: 1703587-06

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	14	2.0	1	B7J0208	10/10/2017	10/10/17 14:01	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>61.8 %</i>	<i>17 - 101</i>		B7J0208	10/10/2017	<i>10/10/17 14:01</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>78.1 %</i>	<i>29 - 109</i>		B7J0208	10/10/2017	<i>10/10/17 14:01</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>109 %</i>	<i>49 - 122</i>		B7J0208	10/10/2017	<i>10/10/17 14:01</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>84.9 %</i>	<i>19 - 111</i>		B7J0208	10/10/2017	<i>10/10/17 14:01</i>	



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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 : 10/20/2017

Client Sample ID EW-02

Lab ID: 1703587-07

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.18	0.10	2	B7J0217	10/10/2017	10/10/17 16:24	

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	B7J0146	10/06/2017	10/06/17 20:59	
1,1,1-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,1,2-Trichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,1-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,1-Dichloroethene	7.8	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,1-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2,3-Trichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2-Dibromoethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2-Dichloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,3-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,3-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
1,4-Dichlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
2,2-Dichloropropane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
2-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
4-Chlorotoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
4-Isopropyltoluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Benzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Bromobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Bromodichloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Bromoform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Bromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Carbon tetrachloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	



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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 : 10/20/2017

Client Sample ID EW-02

Lab ID: 1703587-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Chloroethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Chloroform	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Chloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Dibromochloromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Dibromomethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Dichlorodifluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Ethylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Hexachlorobutadiene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Isopropylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
m,p-Xylene	ND	1.0	1	B7J0146	10/06/2017	10/06/17 20:59	
Methylene chloride	ND	1.0	1	B7J0146	10/06/2017	10/06/17 20:59	
n-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
n-Propylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Naphthalene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
o-Xylene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
sec-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Styrene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
tert-Butylbenzene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Tetrachloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Toluene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Trichloroethene	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Trichlorofluoromethane	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Vinyl chloride	ND	0.50	1	B7J0146	10/06/2017	10/06/17 20:59	
Surrogate: 1,2-Dichloroethane-d4	98.6 %	70 - 166		B7J0146	10/06/2017	10/06/17 20:59	
Surrogate: 4-Bromofluorobenzene	95.0 %	88 - 120		B7J0146	10/06/2017	10/06/17 20:59	
Surrogate: Dibromofluoromethane	102 %	80 - 150		B7J0146	10/06/2017	10/06/17 20:59	
Surrogate: Toluene-d8	102 %	87 - 121		B7J0146	10/06/2017	10/06/17 20:59	



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Client Sample ID EW-02

Lab ID: 1703587-07

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7J0208	10/10/2017	10/10/17 14:28	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.1 %</i>	<i>17 - 101</i>		B7J0208	10/10/2017	<i>10/10/17 14:28</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>77.9 %</i>	<i>29 - 109</i>		B7J0208	10/10/2017	<i>10/10/17 14:28</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>111 %</i>	<i>49 - 122</i>		B7J0208	10/10/2017	<i>10/10/17 14:28</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>88.4 %</i>	<i>19 - 111</i>		B7J0208	10/10/2017	<i>10/10/17 14:28</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Client Sample ID MW-29

Lab ID: 1703587-08

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.30	0.10	2	B7J0217	10/10/2017	10/10/17 16:36	

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	B7J0232	10/11/2017	10/11/17 20:14	
1,1,1-Trichloroethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,1,2-Trichloroethane	0.58	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,1-Dichloroethane	1.5	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,1-Dichloroethene	140	5.0	10	B7J0232	10/11/2017	10/11/17 20:38	
1,1-Dichloropropene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2,3-Trichloropropane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2-Dibromoethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2-Dichlorobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2-Dichloroethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,2-Dichloropropane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,3-Dichlorobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,3-Dichloropropane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
1,4-Dichlorobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
2,2-Dichloropropane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
2-Chlorotoluene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
4-Chlorotoluene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
4-Isopropyltoluene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Benzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Bromobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Bromodichloromethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Bromoform	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Bromomethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Carbon tetrachloride	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Client Sample ID MW-29

Lab ID: 1703587-08

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Chloroethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Chloroform	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Chloromethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Dibromochloromethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Dibromomethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Dichlorodifluoromethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Ethylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Hexachlorobutadiene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Isopropylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
m,p-Xylene	ND	1.0	1	B7J0232	10/11/2017	10/11/17 20:14	
Methylene chloride	ND	1.0	1	B7J0232	10/11/2017	10/11/17 20:14	
n-Butylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
n-Propylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Naphthalene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
o-Xylene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
sec-Butylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Styrene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
tert-Butylbenzene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Tetrachloroethene	0.52	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Toluene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Trichloroethene	1.2	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Trichlorofluoromethane	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
Vinyl chloride	ND	0.50	1	B7J0232	10/11/2017	10/11/17 20:14	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>	<i>70 - 166</i>		B7J0232	10/11/2017	<i>10/11/17 20:38</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>	<i>70 - 166</i>		B7J0232	10/11/2017	<i>10/11/17 20:14</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94.0 %</i>	<i>88 - 120</i>		B7J0232	10/11/2017	<i>10/11/17 20:38</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93.9 %</i>	<i>88 - 120</i>		B7J0232	10/11/2017	<i>10/11/17 20:14</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>	<i>80 - 150</i>		B7J0232	10/11/2017	<i>10/11/17 20:38</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>	<i>80 - 150</i>		B7J0232	10/11/2017	<i>10/11/17 20:14</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>87 - 121</i>		B7J0232	10/11/2017	<i>10/11/17 20:38</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.2 %</i>	<i>87 - 121</i>		B7J0232	10/11/2017	<i>10/11/17 20:14</i>	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Client Sample ID MW-29

Lab ID: 1703587-08

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	59	2.0	1	B7J0208	10/10/2017	10/10/17 16:20	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>65.6 %</i>	<i>17 - 101</i>		B7J0208	10/10/2017	<i>10/10/17 16:20</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80.7 %</i>	<i>29 - 109</i>		B7J0208	10/10/2017	<i>10/10/17 16:20</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>121 %</i>	<i>49 - 122</i>		B7J0208	10/10/2017	<i>10/10/17 16:20</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>90.5 %</i>	<i>19 - 111</i>		B7J0208	10/10/2017	<i>10/10/17 16:20</i>	



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QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0227 - No_Prep_WC1_W

Blank (B7J0227-BLK1)

Prepared: 10/10/2017 Analyzed: 10/11/2017

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Total (as CaCO ₃)	ND	5.0	1.6

LCS (B7J0227-BS1)

Prepared: 10/10/2017 Analyzed: 10/11/2017

Alkalinity, Total (as CaCO ₃)	100.210	5.0	1.6	99.9580	100	80 - 120
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Matrix Spike (B7J0227-MS1)

Source: 1703564-01

Prepared: 10/10/2017 Analyzed: 10/11/2017

Alkalinity, Total (as CaCO ₃)	479.340	10	3.2	199.916	278.930	100	80 - 120
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Matrix Spike Dup (B7J0227-MSD1)

Source: 1703564-01

Prepared: 10/10/2017 Analyzed: 10/11/2017

Alkalinity, Total (as CaCO ₃)	481.400	10	3.2	199.916	278.930	101	80 - 120	0.429	20
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Project Number : Raytheon Main GETS Monthly Sample, 5

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

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B7J0209 - No_Prep_WC1_W

Blank (B7J0209-BLK1)

Prepared: 10/10/2017 Analyzed: 10/11/2017

Residue, Suspended ND 1.0 1.0

LCS (B7J0209-BS1)

Prepared: 10/10/2017 Analyzed: 10/11/2017

Residue, Suspended 89.0000 10 10 92.0000 96.7 80 - 120

Duplicate (B7J0209-DUP1)

Source: 1703592-01

Prepared: 10/10/2017 Analyzed: 10/11/2017

Residue, Suspended 21.3333 3.3 3.3 20.0000 6.45 10



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Bromide by Ion Chromatography EPA 300 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0217 - No_Prep_IC1_W

Blank (B7J0217-BLK1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

Bromide ND 0.05 0.02

LCS (B7J0217-BS1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

Bromide 0.937300 0.05 0.02 1.00000 93.7 90 - 110

Duplicate (B7J0217-DUP1)

Source: 1703577-02

Prepared: 10/10/2017 Analyzed: 10/10/2017

Bromide ND 5.0 1.7 ND 20

Matrix Spike (B7J0217-MS1)

Source: 1703577-02

Prepared: 10/10/2017 Analyzed: 10/10/2017

Bromide 2.58240 2.50000 0.00000 103 80 - 120

Matrix Spike Dup (B7J0217-MSD1)

Source: 1703577-02

Prepared: 10/10/2017 Analyzed: 10/10/2017

Bromide 2.64180 2.50000 0.00000 106 80 - 120 2.27 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

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Reported : 10/20/2017

UV Absorption by EPA 415.3 - Quality Control

Analyte	Result (1/cm)	PQL (1/cm)	MDL (1/cm)	Spike Level	Source Result	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B7J0161 - No_Prep_II_W

Duplicate (B7J0161-DUP1)

Source: 1703587-05

Prepared: 10/6/2017 Analyzed: 10/11/2017

UV Absorption	ND	0.01	0.01	ND	NR	20
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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Total Organic Carbon by SM 5310B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0245 - No_Prep_II_W

Blank (B7J0245-BLK1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

Organic Carbon, Total ND 3.0 1.8

LCS (B7J0245-BS1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

Organic Carbon, Total 17.2000 3.0 1.8 20.0000 86.0 80 - 120

LCS Dup (B7J0245-BSD1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

Organic Carbon, Total 17.0400 3.0 1.8 20.0000 85.2 80 - 120 0.935 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0146 - MSVOA_LL_W

Blank (B7J0146-BLK1)

Prepared: 10/6/2017 Analyzed: 10/6/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0146 - MSVOA_LL_W (continued)

Blank (B7J0146-BLK1) - Continued

Prepared: 10/6/2017 Analyzed: 10/6/2017

Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d	24.81	25.0000	99.2	70 - 166
Surrogate: 4-Bromofluorobenzene	24.04	25.0000	96.2	88 - 120
Surrogate: Dibromofluoromethane	25.88	25.0000	104	80 - 150
Surrogate: Toluene-d8	25.11	25.0000	100	87 - 121

LCS (B7J0146-BS1)

Prepared: 10/6/2017 Analyzed: 10/6/2017

1,1,1,2-Tetrachloroethane	7.78000	0.50	0.13	10.0000	77.8	73 - 136
1,1,1-Trichloroethane	9.40000	0.50	0.38	10.0000	94.0	73 - 143
1,1,2,2-Tetrachloroethane	9.45000	0.50	0.20	10.0000	94.5	62 - 127
1,1,2-Trichloroethane	9.83000	0.50	0.19	10.0000	98.3	72 - 122
1,1-Dichloroethane	9.90000	0.50	0.20	10.0000	99.0	73 - 138
1,1-Dichloroethene	10.0000	0.50	0.28	10.0000	100	74 - 132
1,1-Dichloropropene	12.0700	0.50	0.36	10.0000	121	70 - 143
1,2,3-Trichloropropane	10.1700	0.50	0.16	10.0000	102	66 - 119
1,2,3-Trichlorobenzene	10.6500	0.50	0.06	10.0000	106	70 - 131
1,2,4-Trichlorobenzene	10.7600	0.50	0.07	10.0000	108	70 - 128
1,2,4-Trimethylbenzene	10.9200	0.50	0.09	10.0000	109	74 - 142
1,2-Dibromo-3-chloropropane	6.60000	0.50	0.20	10.0000	66.0	56 - 118
1,2-Dibromoethane	10.1000	0.50	0.13	10.0000	101	73 - 122
1,2-Dichlorobenzene	10.7400	0.50	0.12	10.0000	107	75 - 128
1,2-Dichloroethane	12.4400	0.50	0.39	10.0000	124	70 - 131
1,2-Dichloropropane	10.5700	0.50	0.47	10.0000	106	69 - 124
1,3,5-Trimethylbenzene	10.9800	0.50	0.08	10.0000	110	73 - 144



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 : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0146 - MSVOA_LL_W (continued)

LCS (B7J0146-BS1) - Continued

Prepared: 10/6/2017 Analyzed: 10/6/2017

1,3-Dichlorobenzene	10.8400	0.50	0.13	10.0000		108	75 - 131		
1,3-Dichloropropane	10.5000	0.50	0.08	10.0000		105	70 - 122		
1,4-Dichlorobenzene	10.8200	0.50	0.18	10.0000		108	75 - 127		
2,2-Dichloropropane	9.75000	0.50	0.23	10.0000		97.5	68 - 151		
2-Chlorotoluene	10.7500	0.50	0.12	10.0000		108	72 - 138		
4-Chlorotoluene	10.4500	0.50	0.11	10.0000		104	72 - 140		
4-Isopropyltoluene	11.3200	0.50	0.12	10.0000		113	74 - 149		
Benzene	23.7100	0.50	0.21	20.0000		119	67 - 138		
Bromobenzene	10.7800	0.50	0.12	10.0000		108	73 - 127		
Bromodichloromethane	7.98000	0.50	0.32	10.0000		79.8	74 - 129		
Bromoform	5.34000	0.50	0.14	10.0000		53.4	63 - 131		L4
Bromomethane	12.4900	0.50	0.22	10.0000		125	57 - 216		
Carbon tetrachloride	8.43000	0.50	0.31	10.0000		84.3	77 - 151		
Chlorobenzene	10.4800	0.50	0.16	10.0000		105	73 - 125		
Chloroethane	11.8200	0.50	0.29	10.0000		118	54 - 154		
Chloroform	10.0200	0.50	0.16	10.0000		100	77 - 132		
Chloromethane	6.32000	0.50	0.19	10.0000		63.2	57 - 142		
cis-1,2-Dichloroethene	9.84000	0.50	0.39	10.0000		98.4	73 - 126		
cis-1,3-Dichloropropene	9.00000	0.50	0.08	10.0000		90.0	76 - 120		
Dibromochloromethane	6.61000	0.50	0.11	10.0000		66.1	71 - 126		L4
Dibromomethane	9.58000	0.50	0.09	10.0000		95.8	73 - 121		
Dichlorodifluoromethane	9.42000	0.50	0.31	10.0000		94.2	48 - 152		
Ethylbenzene	21.5600	0.50	0.08	20.0000		108	72 - 134		
Hexachlorobutadiene	11.3400	0.50	0.22	10.0000		113	72 - 139		
Isopropylbenzene	11.1300	0.50	0.10	10.0000		111	73 - 146		
m,p-Xylene	20.9100	1.0	0.18	20.0000		105	75 - 138		
Methylene chloride	9.34000	1.0	0.26	10.0000		93.4	52 - 154		
n-Butylbenzene	11.4800	0.50	0.15	10.0000		115	72 - 151		
n-Propylbenzene	11.3300	0.50	0.14	10.0000		113	69 - 149		
Naphthalene	10.2500	0.50	0.09	10.0000		102	61 - 122		
o-Xylene	20.7000	0.50	0.04	20.0000		104	66 - 147		
sec-Butylbenzene	11.5400	0.50	0.15	10.0000		115	72 - 148		
Styrene	10.3000	0.50	0.05	10.0000		103	72 - 138		
tert-Butylbenzene	11.1500	0.50	0.11	10.0000		112	70 - 145		
Tetrachloroethene	11.0400	0.50	0.18	10.0000		110	61 - 145		
Toluene	21.3600	0.50	0.14	20.0000		107	70 - 140		
trans-1,2-Dichloroethene	10.1600	0.50	0.15	10.0000		102	73 - 130		
Trichloroethene	10.6300	0.50	0.15	10.0000		106	69 - 126		
Trichlorofluoromethane	11.2500	0.50	0.33	10.0000		112	70 - 159		
Vinyl chloride	10.0800	0.50	0.25	10.0000		101	56 - 151		



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 : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B7J0146 - MSVOA_LL_W (continued)

LCS (B7J0146-BS1) - Continued

Prepared: 10/6/2017 Analyzed: 10/6/2017

Surrogate: 1,2-Dichloroethane-d	23.48		25.0000		93.9	70 - 166			
Surrogate: 4-Bromofluorobenzen	24.60		25.0000		98.4	88 - 120			
Surrogate: Dibromofluoromethan	24.16		25.0000		96.6	80 - 150			
Surrogate: Toluene-d8	24.77		25.0000		99.1	87 - 121			

LCS Dup (B7J0146-BS1)

Prepared: 10/6/2017 Analyzed: 10/6/2017

1,1,1,2-Tetrachloroethane	7.67000	0.50	0.13	10.0000	76.7	73 - 136	1.42	20	
1,1,1-Trichloroethane	9.47000	0.50	0.38	10.0000	94.7	73 - 143	0.742	20	
1,1,2,2-Tetrachloroethane	9.81000	0.50	0.20	10.0000	98.1	62 - 127	3.74	20	
1,1,2-Trichloroethane	10.0600	0.50	0.19	10.0000	101	72 - 122	2.31	20	
1,1-Dichloroethane	10.0400	0.50	0.20	10.0000	100	73 - 138	1.40	20	
1,1-Dichloroethene	10.1500	0.50	0.28	10.0000	102	74 - 132	1.49	20	
1,1-Dichloropropene	12.1700	0.50	0.36	10.0000	122	70 - 143	0.825	20	
1,2,3-Trichloropropane	10.5500	0.50	0.16	10.0000	106	66 - 119	3.67	20	
1,2,3-Trichlorobenzene	10.6300	0.50	0.06	10.0000	106	70 - 131	0.188	20	
1,2,4-Trichlorobenzene	10.5700	0.50	0.07	10.0000	106	70 - 128	1.78	20	
1,2,4-Trimethylbenzene	10.6900	0.50	0.09	10.0000	107	74 - 142	2.13	20	
1,2-Dibromo-3-chloropropane	7.32000	0.50	0.20	10.0000	73.2	56 - 118	10.3	20	
1,2-Dibromoethane	10.3800	0.50	0.13	10.0000	104	73 - 122	2.73	20	
1,2-Dichlorobenzene	10.5900	0.50	0.12	10.0000	106	75 - 128	1.41	20	
1,2-Dichloroethane	12.8900	0.50	0.39	10.0000	129	70 - 131	3.55	20	
1,2-Dichloropropane	10.8000	0.50	0.47	10.0000	108	69 - 124	2.15	20	
1,3,5-Trimethylbenzene	10.7500	0.50	0.08	10.0000	108	73 - 144	2.12	20	
1,3-Dichlorobenzene	10.5500	0.50	0.13	10.0000	106	75 - 131	2.71	20	
1,3-Dichloropropane	10.7600	0.50	0.08	10.0000	108	70 - 122	2.45	20	
1,4-Dichlorobenzene	10.7200	0.50	0.18	10.0000	107	75 - 127	0.928	20	
2,2-Dichloropropane	9.53000	0.50	0.23	10.0000	95.3	68 - 151	2.28	20	
2-Chlorotoluene	10.4900	0.50	0.12	10.0000	105	72 - 138	2.45	20	
4-Chlorotoluene	10.3300	0.50	0.11	10.0000	103	72 - 140	1.15	20	
4-Isopropyltoluene	11.0100	0.50	0.12	10.0000	110	74 - 149	2.78	20	
Benzene	23.8500	0.50	0.21	20.0000	119	67 - 138	0.589	20	
Bromobenzene	10.6800	0.50	0.12	10.0000	107	73 - 127	0.932	20	
Bromodichloromethane	8.19000	0.50	0.32	10.0000	81.9	74 - 129	2.60	20	
Bromoform	5.55000	0.50	0.14	10.0000	55.5	63 - 131	3.86	20	L4
Bromomethane	12.3600	0.50	0.22	10.0000	124	57 - 216	1.05	20	
Carbon tetrachloride	8.24000	0.50	0.31	10.0000	82.4	77 - 151	2.28	20	
Chlorobenzene	10.4400	0.50	0.16	10.0000	104	73 - 125	0.382	20	
Chloroethane	10.6400	0.50	0.29	10.0000	106	54 - 154	10.5	20	
Chloroform	10.2200	0.50	0.16	10.0000	102	77 - 132	1.98	20	
Chloromethane	6.13000	0.50	0.19	10.0000	61.3	57 - 142	3.05	20	
cis-1,2-Dichloroethene	10.0300	0.50	0.39	10.0000	100	73 - 126	1.91	20	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0146 - MSVOA_LL_W (continued)

LCS Dup (B7J0146-BSD1) - Continued

Prepared: 10/6/2017 Analyzed: 10/6/2017

cis-1,3-Dichloropropene	9.30000	0.50	0.08	10.0000		93.0	76 - 120	3.28	20	L4
Dibromochloromethane	6.85000	0.50	0.11	10.0000		68.5	71 - 126	3.57	20	
Dibromomethane	10.2800	0.50	0.09	10.0000		103	73 - 121	7.05	20	
Dichlorodifluoromethane	9.41000	0.50	0.31	10.0000		94.1	48 - 152	0.106	20	
Ethylbenzene	21.2800	0.50	0.08	20.0000		106	72 - 134	1.31	20	
Hexachlorobutadiene	10.7300	0.50	0.22	10.0000		107	72 - 139	5.53	20	
Isopropylbenzene	11.0000	0.50	0.10	10.0000		110	73 - 146	1.17	20	
m,p-Xylene	20.7400	1.0	0.18	20.0000		104	75 - 138	0.816	20	
Methylene chloride	9.47000	1.0	0.26	10.0000		94.7	52 - 154	1.38	20	
n-Butylbenzene	11.0500	0.50	0.15	10.0000		110	72 - 151	3.82	20	
n-Propylbenzene	11.0600	0.50	0.14	10.0000		111	69 - 149	2.41	20	
Naphthalene	10.8600	0.50	0.09	10.0000		109	61 - 122	5.78	20	
o-Xylene	20.7900	0.50	0.04	20.0000		104	66 - 147	0.434	20	
sec-Butylbenzene	11.0600	0.50	0.15	10.0000		111	72 - 148	4.25	20	
Styrene	10.2000	0.50	0.05	10.0000		102	72 - 138	0.976	20	
tert-Butylbenzene	10.8100	0.50	0.11	10.0000		108	70 - 145	3.10	20	
Tetrachloroethene	10.7400	0.50	0.18	10.0000		107	61 - 145	2.75	20	
Toluene	21.7100	0.50	0.14	20.0000		109	70 - 140	1.63	20	
trans-1,2-Dichloroethene	10.2900	0.50	0.15	10.0000		103	73 - 130	1.27	20	
Trichloroethene	11.0100	0.50	0.15	10.0000		110	69 - 126	3.51	20	
Trichlorofluoromethane	11.0700	0.50	0.33	10.0000		111	70 - 159	1.61	20	
Vinyl chloride	9.96000	0.50	0.25	10.0000		99.6	56 - 151	1.20	20	
Surrogate: 1,2-Dichloroethane-d	24.66			25.0000		98.6	70 - 166			
Surrogate: 4-Bromofluorobenzene	24.33			25.0000		97.3	88 - 120			
Surrogate: Dibromofluoromethane	25.41			25.0000		102	80 - 150			
Surrogate: Toluene-d8	24.65			25.0000		98.6	87 - 121			



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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0232 - MSVOA_LL_W

Blank (B7J0232-BLK1)

Prepared: 10/11/2017 Analyzed: 10/11/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08



Certificate of Analysis

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Reported : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0232 - MSVOA_LL_W (continued)

Blank (B7J0232-BLK1) - Continued

Prepared: 10/11/2017 Analyzed: 10/11/2017

Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d	22.79	25.0000	91.2	70 - 166
Surrogate: 4-Bromofluorobenzene	22.98	25.0000	91.9	88 - 120
Surrogate: Dibromofluoromethane	24.06	25.0000	96.2	80 - 150
Surrogate: Toluene-d8	24.18	25.0000	96.7	87 - 121

LCS (B7J0232-BS1)

Prepared: 10/11/2017 Analyzed: 10/11/2017

1,1,1,2-Tetrachloroethane	7.47000	0.50	0.13	10.0000	74.7	73 - 136
1,1,1-Trichloroethane	9.75000	0.50	0.38	10.0000	97.5	73 - 143
1,1,2,2-Tetrachloroethane	8.73000	0.50	0.20	10.0000	87.3	62 - 127
1,1,2-Trichloroethane	9.69000	0.50	0.19	10.0000	96.9	72 - 122
1,1-Dichloroethane	10.3800	0.50	0.20	10.0000	104	73 - 138
1,1-Dichloroethene	10.3600	0.50	0.28	10.0000	104	74 - 132
1,1-Dichloropropene	12.6000	0.50	0.36	10.0000	126	70 - 143
1,2,3-Trichloropropane	9.21000	0.50	0.16	10.0000	92.1	66 - 119
1,2,3-Trichlorobenzene	10.1000	0.50	0.06	10.0000	101	70 - 131
1,2,4-Trichlorobenzene	10.3100	0.50	0.07	10.0000	103	70 - 128
1,2,4-Trimethylbenzene	10.3300	0.50	0.09	10.0000	103	74 - 142
1,2-Dibromo-3-chloropropane	5.99000	0.50	0.20	10.0000	59.9	56 - 118
1,2-Dibromoethane	9.90000	0.50	0.13	10.0000	99.0	73 - 122
1,2-Dichlorobenzene	10.3400	0.50	0.12	10.0000	103	75 - 128
1,2-Dichloroethane	11.8300	0.50	0.39	10.0000	118	70 - 131
1,2-Dichloropropane	10.9900	0.50	0.47	10.0000	110	69 - 124
1,3,5-Trimethylbenzene	10.3200	0.50	0.08	10.0000	103	73 - 144



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0232 - MSVOA_LL_W (continued)

LCS (B7J0232-BS1) - Continued

Prepared: 10/11/2017 Analyzed: 10/11/2017

1,3-Dichlorobenzene	10.6100	0.50	0.13	10.0000	106	75 - 131			
1,3-Dichloropropane	10.4900	0.50	0.08	10.0000	105	70 - 122			
1,4-Dichlorobenzene	10.6000	0.50	0.18	10.0000	106	75 - 127			
2,2-Dichloropropane	10.0500	0.50	0.23	10.0000	100	68 - 151			
2-Chlorotoluene	10.2700	0.50	0.12	10.0000	103	72 - 138			
4-Chlorotoluene	10.1000	0.50	0.11	10.0000	101	72 - 140			
4-Isopropyltoluene	10.7200	0.50	0.12	10.0000	107	74 - 149			
Benzene	24.7700	0.50	0.21	20.0000	124	67 - 138			
Bromobenzene	10.5200	0.50	0.12	10.0000	105	73 - 127			
Bromodichloromethane	8.26000	0.50	0.32	10.0000	82.6	74 - 129			
Bromoform	5.44000	0.50	0.14	10.0000	54.4	63 - 131			L4
Bromomethane	16.8400	0.50	0.22	10.0000	168	57 - 216			
Carbon tetrachloride	8.78000	0.50	0.31	10.0000	87.8	77 - 151			
Chlorobenzene	10.5000	0.50	0.16	10.0000	105	73 - 125			
Chloroethane	12.4700	0.50	0.29	10.0000	125	54 - 154			
Chloroform	10.4000	0.50	0.16	10.0000	104	77 - 132			
Chloromethane	6.58000	0.50	0.19	10.0000	65.8	57 - 142			
cis-1,2-Dichloroethene	10.1100	0.50	0.39	10.0000	101	73 - 126			
cis-1,3-Dichloropropene	9.17000	0.50	0.08	10.0000	91.7	76 - 120			
Dibromochloromethane	6.65000	0.50	0.11	10.0000	66.5	71 - 126			L4
Dibromomethane	9.99000	0.50	0.09	10.0000	99.9	73 - 121			
Dichlorodifluoromethane	9.23000	0.50	0.31	10.0000	92.3	48 - 152			
Ethylbenzene	21.4600	0.50	0.08	20.0000	107	72 - 134			
Hexachlorobutadiene	10.8800	0.50	0.22	10.0000	109	72 - 139			
Isopropylbenzene	10.5600	0.50	0.10	10.0000	106	73 - 146			
m,p-Xylene	21.1200	1.0	0.18	20.0000	106	75 - 138			
Methylene chloride	9.26000	1.0	0.26	10.0000	92.6	52 - 154			
n-Butylbenzene	10.8900	0.50	0.15	10.0000	109	72 - 151			
n-Propylbenzene	10.7000	0.50	0.14	10.0000	107	69 - 149			
Naphthalene	9.59000	0.50	0.09	10.0000	95.9	61 - 122			
o-Xylene	20.9000	0.50	0.04	20.0000	104	66 - 147			
sec-Butylbenzene	10.7400	0.50	0.15	10.0000	107	72 - 148			
Styrene	10.3200	0.50	0.05	10.0000	103	72 - 138			
tert-Butylbenzene	10.5200	0.50	0.11	10.0000	105	70 - 145			
Tetrachloroethene	11.1300	0.50	0.18	10.0000	111	61 - 145			
Toluene	21.4200	0.50	0.14	20.0000	107	70 - 140			
trans-1,2-Dichloroethene	10.3700	0.50	0.15	10.0000	104	73 - 130			
Trichloroethene	10.9100	0.50	0.15	10.0000	109	69 - 126			
Trichlorofluoromethane	11.5000	0.50	0.33	10.0000	115	70 - 159			
Vinyl chloride	9.60000	0.50	0.25	10.0000	96.0	56 - 151			



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 : 10/20/2017

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
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Batch B7J0232 - MSVOA_LL_W (continued)

LCS (B7J0232-BS1) - Continued

Prepared: 10/11/2017 Analyzed: 10/11/2017

Surrogate: 1,2-Dichloroethane-d	23.10		25.0000		92.4	70 - 166			
Surrogate: 4-Bromofluorobenzen	23.53		25.0000		94.1	88 - 120			
Surrogate: Dibromofluoromethan	24.09		25.0000		96.4	80 - 150			
Surrogate: Toluene-d8	23.61		25.0000		94.4	87 - 121			

LCS Dup (B7J0232-BS1)

Prepared: 10/11/2017 Analyzed: 10/11/2017

1,1,1,2-Tetrachloroethane	7.61000	0.50	0.13	10.0000	76.1	73 - 136	1.86	20	
1,1,1-Trichloroethane	9.72000	0.50	0.38	10.0000	97.2	73 - 143	0.308	20	
1,1,2,2-Tetrachloroethane	9.22000	0.50	0.20	10.0000	92.2	62 - 127	5.46	20	
1,1,2-Trichloroethane	9.63000	0.50	0.19	10.0000	96.3	72 - 122	0.621	20	
1,1-Dichloroethane	10.2600	0.50	0.20	10.0000	103	73 - 138	1.16	20	
1,1-Dichloroethene	10.3700	0.50	0.28	10.0000	104	74 - 132	0.0965	20	
1,1-Dichloropropene	12.6200	0.50	0.36	10.0000	126	70 - 143	0.159	20	
1,2,3-Trichloropropane	9.61000	0.50	0.16	10.0000	96.1	66 - 119	4.25	20	
1,2,3-Trichlorobenzene	10.4100	0.50	0.06	10.0000	104	70 - 131	3.02	20	
1,2,4-Trichlorobenzene	10.5600	0.50	0.07	10.0000	106	70 - 128	2.40	20	
1,2,4-Trimethylbenzene	10.7300	0.50	0.09	10.0000	107	74 - 142	3.80	20	
1,2-Dibromo-3-chloropropane	6.23000	0.50	0.20	10.0000	62.3	56 - 118	3.93	20	
1,2-Dibromoethane	9.97000	0.50	0.13	10.0000	99.7	73 - 122	0.705	20	
1,2-Dichlorobenzene	10.6400	0.50	0.12	10.0000	106	75 - 128	2.86	20	
1,2-Dichloroethane	11.8200	0.50	0.39	10.0000	118	70 - 131	0.0846	20	
1,2-Dichloropropane	10.8900	0.50	0.47	10.0000	109	69 - 124	0.914	20	
1,3,5-Trimethylbenzene	10.7800	0.50	0.08	10.0000	108	73 - 144	4.36	20	
1,3-Dichlorobenzene	10.8100	0.50	0.13	10.0000	108	75 - 131	1.87	20	
1,3-Dichloropropane	10.5200	0.50	0.08	10.0000	105	70 - 122	0.286	20	
1,4-Dichlorobenzene	10.7400	0.50	0.18	10.0000	107	75 - 127	1.31	20	
2,2-Dichloropropane	9.94000	0.50	0.23	10.0000	99.4	68 - 151	1.10	20	
2-Chlorotoluene	10.5800	0.50	0.12	10.0000	106	72 - 138	2.97	20	
4-Chlorotoluene	10.4400	0.50	0.11	10.0000	104	72 - 140	3.31	20	
4-Isopropyltoluene	11.0600	0.50	0.12	10.0000	111	74 - 149	3.12	20	
Benzene	24.9100	0.50	0.21	20.0000	125	67 - 138	0.564	20	
Bromobenzene	10.8500	0.50	0.12	10.0000	108	73 - 127	3.09	20	
Bromodichloromethane	8.35000	0.50	0.32	10.0000	83.5	74 - 129	1.08	20	
Bromoform	5.70000	0.50	0.14	10.0000	57.0	63 - 131	4.67	20	L4
Bromomethane	16.2100	0.50	0.22	10.0000	162	57 - 216	3.81	20	
Carbon tetrachloride	8.81000	0.50	0.31	10.0000	88.1	77 - 151	0.341	20	
Chlorobenzene	10.5000	0.50	0.16	10.0000	105	73 - 125	0.00	20	
Chloroethane	11.8300	0.50	0.29	10.0000	118	54 - 154	5.27	20	
Chloroform	10.5200	0.50	0.16	10.0000	105	77 - 132	1.15	20	
Chloromethane	6.28000	0.50	0.19	10.0000	62.8	57 - 142	4.67	20	
cis-1,2-Dichloroethene	10.2600	0.50	0.39	10.0000	103	73 - 126	1.47	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 : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0232 - MSVOA_LL_W (continued)

LCS Dup (B7J0232-BSD1) - Continued

Prepared: 10/11/2017 Analyzed: 10/11/2017

cis-1,3-Dichloropropene	9.18000	0.50	0.08	10.0000		91.8	76 - 120	0.109	20	L4
Dibromochloromethane	6.91000	0.50	0.11	10.0000		69.1	71 - 126	3.83	20	
Dibromomethane	9.72000	0.50	0.09	10.0000		97.2	73 - 121	2.74	20	
Dichlorodifluoromethane	9.18000	0.50	0.31	10.0000		91.8	48 - 152	0.543	20	
Ethylbenzene	21.5900	0.50	0.08	20.0000		108	72 - 134	0.604	20	
Hexachlorobutadiene	11.2300	0.50	0.22	10.0000		112	72 - 139	3.17	20	
Isopropylbenzene	10.9900	0.50	0.10	10.0000		110	73 - 146	3.99	20	
m,p-Xylene	20.9400	1.0	0.18	20.0000		105	75 - 138	0.856	20	
Methylene chloride	9.39000	1.0	0.26	10.0000		93.9	52 - 154	1.39	20	
n-Butylbenzene	11.1900	0.50	0.15	10.0000		112	72 - 151	2.72	20	
n-Propylbenzene	11.0900	0.50	0.14	10.0000		111	69 - 149	3.58	20	
Naphthalene	9.96000	0.50	0.09	10.0000		99.6	61 - 122	3.79	20	
o-Xylene	20.5600	0.50	0.04	20.0000		103	66 - 147	1.64	20	
sec-Butylbenzene	11.1400	0.50	0.15	10.0000		111	72 - 148	3.66	20	
Styrene	10.2400	0.50	0.05	10.0000		102	72 - 138	0.778	20	
tert-Butylbenzene	10.8500	0.50	0.11	10.0000		108	70 - 145	3.09	20	
Tetrachloroethene	11.2800	0.50	0.18	10.0000		113	61 - 145	1.34	20	
Toluene	21.5000	0.50	0.14	20.0000		108	70 - 140	0.373	20	
trans-1,2-Dichloroethene	10.5400	0.50	0.15	10.0000		105	73 - 130	1.63	20	
Trichloroethene	10.9200	0.50	0.15	10.0000		109	69 - 126	0.0916	20	
Trichlorofluoromethane	11.3600	0.50	0.33	10.0000		114	70 - 159	1.22	20	
Vinyl chloride	9.81000	0.50	0.25	10.0000		98.1	56 - 151	2.16	20	
Surrogate: 1,2-Dichloroethane-d	23.68			25.0000		94.7	70 - 166			
Surrogate: 4-Bromofluorobenzene	24.06			25.0000		96.2	88 - 120			
Surrogate: Dibromofluoromethane	25.09			25.0000		100	80 - 150			
Surrogate: Toluene-d8	23.88			25.0000		95.5	87 - 121			



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 : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0208 - MSSEMI_W

Blank (B7J0208-BLK1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-	67.61			100.000	67.6	17 - 101			
Surrogate: 2-Fluorobiphenyl	77.23			100.000	77.2	29 - 109			
Surrogate: 4-Terphenyl-d14	108.8			100.000	109	49 - 122			
Surrogate: Nitrobenzene-d5	81.28			100.000	81.3	19 - 111			

LCS (B7J0208-BS1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

1,4-Dioxane	104.760	2.0	0.84	100.000	105	85 - 121			
Surrogate: 1,2-Dichlorobenzene-	64.13			100.000	64.1	17 - 101			
Surrogate: 2-Fluorobiphenyl	85.85			100.000	85.8	29 - 109			
Surrogate: 4-Terphenyl-d14	89.31			100.000	89.3	49 - 122			
Surrogate: Nitrobenzene-d5	87.62			100.000	87.6	19 - 111			

LCS Dup (B7J0208-BSD1)

Prepared: 10/10/2017 Analyzed: 10/10/2017

1,4-Dioxane	107.790	2.0	0.84	100.000	108	85 - 121	2.85	20	
Surrogate: 1,2-Dichlorobenzene-	63.34			100.000	63.3	17 - 101			
Surrogate: 2-Fluorobiphenyl	85.25			100.000	85.2	29 - 109			
Surrogate: 4-Terphenyl-d14	87.52			100.000	87.5	49 - 122			
Surrogate: Nitrobenzene-d5	86.38			100.000	86.4	19 - 111			



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 : 10/20/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0184 - MSSEMI_W

Blank (B7J0184-BLK1)

Prepared: 10/9/2017 Analyzed: 10/10/2017

1,4-Dioxane	ND	0.20	0.11						
Surrogate: 1,2-Dichlorobenzene-	0.7718			1.00000		77.2	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8651			1.00000		86.5	29 - 105		
Surrogate: 4-Terphenyl-d14	0.9570			1.00000		95.7	32 - 119		
Surrogate: Nitrobenzene-d5	0.7245			1.00000		72.5	17 - 123		

LCS (B7J0184-BS1)

Prepared: 10/9/2017 Analyzed: 10/10/2017

1,4-Dioxane	0.779210	0.20	0.11	1.00000		77.9	61 - 166		
Surrogate: 1,2-Dichlorobenzene-	0.8249			1.00000		82.5	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.9540			1.00000		95.4	29 - 105		
Surrogate: 4-Terphenyl-d14	1.043			1.00000		104	32 - 119		
Surrogate: Nitrobenzene-d5	0.7974			1.00000		79.7	17 - 123		

LCS Dup (B7J0184-BSD1)

Prepared: 10/9/2017 Analyzed: 10/10/2017

1,4-Dioxane	0.792240	0.20	0.11	1.00000		79.2	61 - 166	1.66	20
Surrogate: 1,2-Dichlorobenzene-	0.8244			1.00000		82.4	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.9354			1.00000		93.5	29 - 105		
Surrogate: 4-Terphenyl-d14	1.041			1.00000		104	32 - 119		
Surrogate: Nitrobenzene-d5	0.7857			1.00000		78.6	17 - 123		



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 : 10/20/2017

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)

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.

Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com



Testing, calibrating, advising

Certificate of Analysis

October 19, 2017

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Attn: Rachelle Arada

Exova Job No: 216902
Purchase Order: CREDIT CARD
Project Name: 1703587 / Groundwater
Samples Received: 2
Date Received: 10-09-17

Analysis	Page
Bromate by SOP 5600, Rev 3	2



Michael Shelton
Technical Director



Ishika Lokuge
Senior Chemist

Bromate by SOP 5600, Rev 3
Ion Chromatography-Tandem Mass Spectrometry

Sample preparation: An aliquot of each sample was pipetted into a Nalgene bottle, spiked with internal standard (bromate- $^{18}\text{O}_3$), and diluted with water. The sample solutions were passed through a Dionex OnGuard II H cartridge and analyzed using IC-MS/MS.

Parts Per Billion ($\mu\text{g/L}$)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1703587-03 / POX	ND
ATL Lab#: 1703587-06 / INF	ND
Method Blank	ND
Detection Limit	0.5
Date Analyzed: 10-17-17	

Quality Control Summary

Sample ID: ATL Lab#: 1703587-03 / POX

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>Spike RPD</u>
Bromate	ND	10.0	10.1	101	9.98	100	1
QC Guidelines				80-120		80-120	NMT 15

ADVANCED TECHNOLOGY
LABORATORIES
SUBCONTRACT ORDER

Work Order: 1703587

Page 44 of 45

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Arad (Rachelle@atlglobal.com)
Sampler: Steve Stewart (Signed)

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone: (562) 948-2225
Fax: (562) 948-5850
PO#: SC11979-STANDARD TAT

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

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1703587-03 / POX Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] Poly Unpres - 125mL	10/20/17 17:00	11/03/17 11:00	10/06/17 11:00	
ATL Lab#: 1703587-06 / INF Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] Poly Unpres - 125mL	10/20/17 17:00	11/03/17 11:10	10/06/17 11:10	

10-09-17 AND samples also have
① H
② F

Released By

Date

Received By

Date

Released By

Date

Received By

Date

216902

Page 1 of 1

PROJECT: Raytheon Main GETS Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto
QA Manager Steve Stewart
Phone 858.455.6500
Fax 858.455.6533

Sampled By: <u>Steve Stewart</u>				SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS				ANALYSIS REQUESTED										Expected Concentration Range (ppb) for VOAs				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	Total Suspended Solids by 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			
1703587-01	TB-100617	10/6/2017	8:00		X	X			X	2						X									X												
-02	CBT	10/6/2017	10:55	X		X			X	3					1	X									X	X											
-03	POX	10/6/2017	11:00	X		X			X	5	1	1			1	X	X		X	X				X	X												
-04	CEFF	10/6/2017	10:50	X		X			X	3					1	X								X	X												
-05	PF	10/6/2017	11:05	X		X			X	2		1	1	1					X	X	X	X															
-06	INF	10/6/2017	11:10	X		X			X	3	2				1	X	X	X					X				X										
-07	EW-02	10/6/2017	11:30	X		X			X	3	1				1	X		X					X				X										
-08	MW-29	10/6/2017	11:50	X		X			X	3	1				1	X		X					X				X										
Total number of containers per analysis:										24	5	2	1	1	6											Total No. of Containers: <u>39</u>											
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																																
<u>Steve Stewart</u> H+A		10/6/17 12:00	<u>RL Hatt</u> H+A		10/6/2017 12:00																																
Relinquished By: / Company:		Date / Time	Received By: / Company		Date / Time																																
<u>RL Hatt</u> H+A		10/6/2017 1:01	<u>SC</u>		10/6/17 1301																																

- ☐ 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

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.

0.8 ICE Temperature on receipt



October 27, 2017

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

Re: ATL Work Order Number : 1703760

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on October 19, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", with a small "ER" monogram below it.

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.

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www.atlglobal.com



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 : 10/27/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-101917	1703760-01	Lab prepared water	10/19/17 10:00	10/19/17 15:48
CBT	1703760-02	Groundwater	10/19/17 12:25	10/19/17 15:48
POX	1703760-03	Groundwater	10/19/17 12:30	10/19/17 15:48
CEFF	1703760-04	Groundwater	10/19/17 12:15	10/19/17 15:48
INF	1703760-05	Groundwater	10/19/17 12:35	10/19/17 15:48
EW-02	1703760-06	Groundwater	10/19/17 13:00	10/19/17 15:48
MW-29	1703760-07	Groundwater	10/19/17 13:30	10/19/17 15:48



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 : 10/27/2017

Client Sample ID TB-101917

Lab ID: 1703760-01

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	B7J0771	10/25/2017	10/25/17 22:36	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,1,2-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,1-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,1-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Benzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Bromobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Bromodichloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Bromoform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Bromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Chlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Chloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Chloroform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Chloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	



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 : 10/27/2017

Client Sample ID TB-101917

Lab ID: 1703760-01

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Dibromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Ethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Isopropylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
m,p-Xylene	ND	1.0	1	B7J0771	10/25/2017	10/25/17 22:36	
Methylene chloride	ND	1.0	1	B7J0771	10/25/2017	10/25/17 22:36	
n-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
n-Propylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Naphthalene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
o-Xylene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Styrene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Tetrachloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Toluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Trichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Vinyl chloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 22:36	
Surrogate: 1,2-Dichloroethane-d4	119 %	70 - 166		B7J0771	10/25/2017	10/25/17 22:36	
Surrogate: 4-Bromofluorobenzene	98.8 %	88 - 120		B7J0771	10/25/2017	10/25/17 22:36	
Surrogate: Dibromofluoromethane	114 %	80 - 150		B7J0771	10/25/2017	10/25/17 22:36	
Surrogate: Toluene-d8	99.4 %	87 - 121		B7J0771	10/25/2017	10/25/17 22:36	



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 : 10/27/2017

Client Sample ID CBT

Lab ID: 1703760-02

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	B7J0771	10/25/2017	10/25/17 23:01	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,1,2-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,1-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,1-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Benzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Bromobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Bromodichloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Bromoform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Bromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Chlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Chloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Chloroform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Chloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	



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 : 10/27/2017

Client Sample ID CBT

Lab ID: 1703760-02

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Dibromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Ethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Isopropylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
m,p-Xylene	ND	1.0	1	B7J0771	10/25/2017	10/25/17 23:01	
Methylene chloride	ND	1.0	1	B7J0771	10/25/2017	10/25/17 23:01	
n-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
n-Propylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Naphthalene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
o-Xylene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Styrene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Tetrachloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Toluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Trichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Vinyl chloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:01	
Surrogate: 1,2-Dichloroethane-d4	121 %	70 - 166		B7J0771	10/25/2017	10/25/17 23:01	
Surrogate: 4-Bromofluorobenzene	102 %	88 - 120		B7J0771	10/25/2017	10/25/17 23:01	
Surrogate: Dibromofluoromethane	117 %	80 - 150		B7J0771	10/25/2017	10/25/17 23:01	
Surrogate: Toluene-d8	103 %	87 - 121		B7J0771	10/25/2017	10/25/17 23:01	



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 : 10/27/2017

Client Sample ID CBT

Lab ID: 1703760-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7J0692	10/23/2017	10/23/17 17:39	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>54.8 %</i>	<i>32 - 99</i>		B7J0692	10/23/2017	<i>10/23/17 17:39</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>66.0 %</i>	<i>29 - 105</i>		B7J0692	10/23/2017	<i>10/23/17 17:39</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>81.3 %</i>	<i>32 - 119</i>		B7J0692	10/23/2017	<i>10/23/17 17:39</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>39.6 %</i>	<i>17 - 123</i>		B7J0692	10/23/2017	<i>10/23/17 17:39</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 : 10/27/2017

Client Sample ID POX

Lab ID: 1703760-03

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	B7J0771	10/25/2017	10/25/17 23:25	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,1,2-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,1-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,1-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Benzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Bromobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Bromodichloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Bromoform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Bromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Chlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Chloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Chloroform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Chloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	



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 : 10/27/2017

Client Sample ID POX

Lab ID: 1703760-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Dibromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Ethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Isopropylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
m,p-Xylene	ND	1.0	1	B7J0771	10/25/2017	10/25/17 23:25	
Methylene chloride	ND	1.0	1	B7J0771	10/25/2017	10/25/17 23:25	
n-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
n-Propylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Naphthalene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
o-Xylene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Styrene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Tetrachloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Toluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Trichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Vinyl chloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:25	
Surrogate: 1,2-Dichloroethane-d4	117 %	70 - 166		B7J0771	10/25/2017	10/25/17 23:25	
Surrogate: 4-Bromofluorobenzene	101 %	88 - 120		B7J0771	10/25/2017	10/25/17 23:25	
Surrogate: Dibromofluoromethane	118 %	80 - 150		B7J0771	10/25/2017	10/25/17 23:25	
Surrogate: Toluene-d8	101 %	87 - 121		B7J0771	10/25/2017	10/25/17 23:25	



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 : 10/27/2017

Client Sample ID POX

Lab ID: 1703760-03

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7J0692	10/23/2017	10/23/17 18:08	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>76.8 %</i>	<i>32 - 99</i>		B7J0692	10/23/2017	<i>10/23/17 18:08</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>93.2 %</i>	<i>29 - 105</i>		B7J0692	10/23/2017	<i>10/23/17 18:08</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>98.8 %</i>	<i>32 - 119</i>		B7J0692	10/23/2017	<i>10/23/17 18:08</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>56.4 %</i>	<i>17 - 123</i>		B7J0692	10/23/2017	<i>10/23/17 18:08</i>	



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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 : 10/27/2017

Client Sample ID CEFF

Lab ID: 1703760-04

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	B7J0771	10/25/2017	10/25/17 23:50	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,1,2-Trichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,1-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,1-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Benzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Bromobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Bromodichloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Bromoform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Bromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Chlorobenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Chloroethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Chloroform	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Chloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	



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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 : 10/27/2017

Client Sample ID CEFF

Lab ID: 1703760-04

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Dibromomethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Ethylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Isopropylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
m,p-Xylene	ND	1.0	1	B7J0771	10/25/2017	10/25/17 23:50	
Methylene chloride	ND	1.0	1	B7J0771	10/25/2017	10/25/17 23:50	
n-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
n-Propylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Naphthalene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
o-Xylene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Styrene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Tetrachloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Toluene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Trichloroethene	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Vinyl chloride	ND	0.50	1	B7J0771	10/25/2017	10/25/17 23:50	
Surrogate: 1,2-Dichloroethane-d4	126 %	70 - 166		B7J0771	10/25/2017	10/25/17 23:50	
Surrogate: 4-Bromofluorobenzene	103 %	88 - 120		B7J0771	10/25/2017	10/25/17 23:50	
Surrogate: Dibromofluoromethane	120 %	80 - 150		B7J0771	10/25/2017	10/25/17 23:50	
Surrogate: Toluene-d8	109 %	87 - 121		B7J0771	10/25/2017	10/25/17 23:50	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2017

Client Sample ID CEFF

Lab ID: 1703760-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7J0692	10/23/2017	10/23/17 18:37	
Surrogate: 1,2-Dichlorobenzene-d4	76.6 %	32 - 99		B7J0692	10/23/2017	10/23/17 18:37	
Surrogate: 2-Fluorobiphenyl	90.3 %	29 - 105		B7J0692	10/23/2017	10/23/17 18:37	
Surrogate: 4-Terphenyl-d14	101 %	32 - 119		B7J0692	10/23/2017	10/23/17 18:37	
Surrogate: Nitrobenzene-d5	55.2 %	17 - 123		B7J0692	10/23/2017	10/23/17 18:37	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2017

Client Sample ID INF

Lab ID: 1703760-05

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	B7J0771	10/26/2017	10/26/17 00:15	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,1,2-Trichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,1-Dichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,1-Dichloroethene	39	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Benzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Bromobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Bromodichloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Bromoform	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Bromomethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Chlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Chloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Chloroform	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Chloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	



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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 : 10/27/2017

Client Sample ID INF

Lab ID: 1703760-05

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Dibromomethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Ethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Isopropylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
m,p-Xylene	ND	1.0	1	B7J0771	10/26/2017	10/26/17 00:15	
Methylene chloride	ND	1.0	1	B7J0771	10/26/2017	10/26/17 00:15	
n-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
n-Propylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Naphthalene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
o-Xylene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Styrene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Tetrachloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Toluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Trichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Vinyl chloride	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:15	
Surrogate: 1,2-Dichloroethane-d4	117 %	70 - 166		B7J0771	10/26/2017	10/26/17 00:15	
Surrogate: 4-Bromofluorobenzene	99.4 %	88 - 120		B7J0771	10/26/2017	10/26/17 00:15	
Surrogate: Dibromofluoromethane	117 %	80 - 150		B7J0771	10/26/2017	10/26/17 00:15	
Surrogate: Toluene-d8	102 %	87 - 121		B7J0771	10/26/2017	10/26/17 00:15	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2017

Client Sample ID INF

Lab ID: 1703760-05

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	11	2.0	1	B7J0678	10/23/2017	10/24/17 13:03	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>50.7 %</i>	<i>17 - 101</i>		B7J0678	10/23/2017	<i>10/24/17 13:03</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>62.6 %</i>	<i>29 - 109</i>		B7J0678	10/23/2017	<i>10/24/17 13:03</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>99.4 %</i>	<i>49 - 122</i>		B7J0678	10/23/2017	<i>10/24/17 13:03</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>55.2 %</i>	<i>19 - 111</i>		B7J0678	10/23/2017	<i>10/24/17 13:03</i>	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2017

Client Sample ID EW-02

Lab ID: 1703760-06

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	B7J0771	10/26/2017	10/26/17 00:39	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,1,2-Trichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,1-Dichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,1-Dichloroethene	8.2	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Benzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Bromobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Bromodichloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Bromoform	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Bromomethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Chlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Chloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Chloroform	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Chloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	



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 : 10/27/2017

Client Sample ID EW-02

Lab ID: 1703760-06

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Dibromomethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Ethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Isopropylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
m,p-Xylene	ND	1.0	1	B7J0771	10/26/2017	10/26/17 00:39	
Methylene chloride	ND	1.0	1	B7J0771	10/26/2017	10/26/17 00:39	
n-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
n-Propylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Naphthalene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
o-Xylene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Styrene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Tetrachloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Toluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Trichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Vinyl chloride	ND	0.50	1	B7J0771	10/26/2017	10/26/17 00:39	
Surrogate: 1,2-Dichloroethane-d4	118 %	70 - 166		B7J0771	10/26/2017	10/26/17 00:39	
Surrogate: 4-Bromofluorobenzene	99.3 %	88 - 120		B7J0771	10/26/2017	10/26/17 00:39	
Surrogate: Dibromofluoromethane	115 %	80 - 150		B7J0771	10/26/2017	10/26/17 00:39	
Surrogate: Toluene-d8	99.3 %	87 - 121		B7J0771	10/26/2017	10/26/17 00:39	



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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 : 10/27/2017

Client Sample ID EW-02

Lab ID: 1703760-06

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7J0678	10/23/2017	10/24/17 13:32	
Surrogate: 1,2-Dichlorobenzene-d4	57.4 %	17 - 101		B7J0678	10/23/2017	10/24/17 13:32	
Surrogate: 2-Fluorobiphenyl	69.5 %	29 - 109		B7J0678	10/23/2017	10/24/17 13:32	
Surrogate: 4-Terphenyl-d14	98.6 %	49 - 122		B7J0678	10/23/2017	10/24/17 13:32	
Surrogate: Nitrobenzene-d5	62.4 %	19 - 111		B7J0678	10/23/2017	10/24/17 13:32	



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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 : 10/27/2017

Client Sample ID MW-29

Lab ID: 1703760-07

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	B7J0771	10/26/2017	10/26/17 01:04	
1,1,1-Trichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,1,2-Trichloroethane	0.56	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,1-Dichloroethane	1.6	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,1-Dichloroethene	130	5.0	10	B7J0771	10/26/2017	10/26/17 01:28	
1,1-Dichloropropene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2,3-Trichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2,3-Trichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2,4-Trichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2,4-Trimethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2-Dibromoethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2-Dichloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,2-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,3,5-Trimethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,3-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,3-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
1,4-Dichlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
2,2-Dichloropropane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
2-Chlorotoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
4-Chlorotoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
4-Isopropyltoluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Benzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Bromobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Bromodichloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Bromoform	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Bromomethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Carbon tetrachloride	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Chlorobenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Chloroethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Chloroform	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Chloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
cis-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
cis-1,3-Dichloropropene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	



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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 : 10/27/2017

Client Sample ID MW-29

Lab ID: 1703760-07

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Dibromomethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Dichlorodifluoromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Ethylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Hexachlorobutadiene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Isopropylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
m,p-Xylene	ND	1.0	1	B7J0771	10/26/2017	10/26/17 01:04	
Methylene chloride	ND	1.0	1	B7J0771	10/26/2017	10/26/17 01:04	
n-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
n-Propylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Naphthalene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
o-Xylene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
sec-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Styrene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
tert-Butylbenzene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Tetrachloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Toluene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
trans-1,2-Dichloroethene	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Trichloroethene	1.1	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Trichlorofluoromethane	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
Vinyl chloride	ND	0.50	1	B7J0771	10/26/2017	10/26/17 01:04	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>117 %</i>	<i>70 - 166</i>		B7J0771	10/26/2017	<i>10/26/17 01:28</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>	<i>70 - 166</i>		B7J0771	10/26/2017	<i>10/26/17 01:04</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.0 %</i>	<i>88 - 120</i>		B7J0771	10/26/2017	<i>10/26/17 01:28</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>	<i>88 - 120</i>		B7J0771	10/26/2017	<i>10/26/17 01:04</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>119 %</i>	<i>80 - 150</i>		B7J0771	10/26/2017	<i>10/26/17 01:28</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>119 %</i>	<i>80 - 150</i>		B7J0771	10/26/2017	<i>10/26/17 01:04</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>87 - 121</i>		B7J0771	10/26/2017	<i>10/26/17 01:04</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>87 - 121</i>		B7J0771	10/26/2017	<i>10/26/17 01:28</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 : 10/27/2017

Client Sample ID MW-29

Lab ID: 1703760-07

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	44	2.0	1	B7J0678	10/23/2017	10/24/17 14:00	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>50.1 %</i>	<i>17 - 101</i>		B7J0678	10/23/2017	<i>10/24/17 14:00</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>63.0 %</i>	<i>29 - 109</i>		B7J0678	10/23/2017	<i>10/24/17 14:00</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>99.2 %</i>	<i>49 - 122</i>		B7J0678	10/23/2017	<i>10/24/17 14:00</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>56.5 %</i>	<i>19 - 111</i>		B7J0678	10/23/2017	<i>10/24/17 14:00</i>	



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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 : 10/27/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0771 - MSVOA_LL_W

Blank (B7J0771-BLK1)

Prepared: 10/25/2017 Analyzed: 10/25/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 10/27/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0771 - MSVOA_LL_W (continued)

Blank (B7J0771-BLK1) - Continued

Prepared: 10/25/2017 Analyzed: 10/25/2017

Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d	29.92	25.0000	120	70 - 166
Surrogate: 4-Bromofluorobenzene	25.24	25.0000	101	88 - 120
Surrogate: Dibromofluoromethane	28.48	25.0000	114	80 - 150
Surrogate: Toluene-d8	25.61	25.0000	102	87 - 121

LCS (B7J0771-BS1)

Prepared: 10/25/2017 Analyzed: 10/25/2017

1,1,1,2-Tetrachloroethane	9.77000	0.50	0.13	10.0000	97.7	73 - 136
1,1,1-Trichloroethane	9.34000	0.50	0.38	10.0000	93.4	73 - 143
1,1,2,2-Tetrachloroethane	8.72000	0.50	0.20	10.0000	87.2	62 - 127
1,1,2-Trichloroethane	9.88000	0.50	0.19	10.0000	98.8	72 - 122
1,1-Dichloroethane	9.44000	0.50	0.20	10.0000	94.4	73 - 138
1,1-Dichloroethene	8.65000	0.50	0.28	10.0000	86.5	74 - 132
1,1-Dichloropropene	9.73000	0.50	0.36	10.0000	97.3	70 - 143
1,2,3-Trichloropropane	8.71000	0.50	0.16	10.0000	87.1	66 - 119
1,2,3-Trichlorobenzene	9.56000	0.50	0.06	10.0000	95.6	70 - 131
1,2,4-Trichlorobenzene	9.61000	0.50	0.07	10.0000	96.1	70 - 128
1,2,4-Trimethylbenzene	9.88000	0.50	0.09	10.0000	98.8	74 - 142
1,2-Dibromo-3-chloropropane	8.57000	0.50	0.20	10.0000	85.7	56 - 118
1,2-Dibromoethane	10.1200	0.50	0.13	10.0000	101	73 - 122
1,2-Dichlorobenzene	9.67000	0.50	0.12	10.0000	96.7	75 - 128
1,2-Dichloroethane	9.76000	0.50	0.39	10.0000	97.6	70 - 131



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

Report To : Steve Netto

Reported : 10/27/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0771 - MSVOA_LL_W (continued)

LCS (B7J0771-BS1) - Continued

Prepared: 10/25/2017 Analyzed: 10/25/2017

1,2-Dichloropropane	10.1900	0.50	0.47	10.0000	102	69 - 124
1,3,5-Trimethylbenzene	9.81000	0.50	0.08	10.0000	98.1	73 - 144
1,3-Dichlorobenzene	9.67000	0.50	0.13	10.0000	96.7	75 - 131
1,3-Dichloropropane	9.88000	0.50	0.08	10.0000	98.8	70 - 122
1,4-Dichlorobenzene	9.58000	0.50	0.18	10.0000	95.8	75 - 127
2,2-Dichloropropane	9.86000	0.50	0.23	10.0000	98.6	68 - 151
2-Chlorotoluene	9.60000	0.50	0.12	10.0000	96.0	72 - 138
4-Chlorotoluene	9.59000	0.50	0.11	10.0000	95.9	72 - 140
4-Isopropyltoluene	9.97000	0.50	0.12	10.0000	99.7	74 - 149
Benzene	19.9900	0.50	0.21	20.0000	100	67 - 138
Bromobenzene	9.48000	0.50	0.12	10.0000	94.8	73 - 127
Bromodichloromethane	9.26000	0.50	0.32	10.0000	92.6	74 - 129
Bromoform	8.25000	0.50	0.14	10.0000	82.5	63 - 131
Bromomethane	10.8600	0.50	0.22	10.0000	109	57 - 216
Carbon tetrachloride	9.09000	0.50	0.31	10.0000	90.9	77 - 151
Chlorobenzene	9.61000	0.50	0.16	10.0000	96.1	73 - 125
Chloroethane	9.99000	0.50	0.29	10.0000	99.9	54 - 154
Chloroform	9.42000	0.50	0.16	10.0000	94.2	77 - 132
Chloromethane	11.7200	0.50	0.19	10.0000	117	57 - 142
cis-1,2-Dichloroethene	9.89000	0.50	0.39	10.0000	98.9	73 - 126
cis-1,3-Dichloropropene	10.0200	0.50	0.08	10.0000	100	76 - 120
Dibromochloromethane	9.00000	0.50	0.11	10.0000	90.0	71 - 126
Dibromomethane	9.23000	0.50	0.09	10.0000	92.3	73 - 121
Dichlorodifluoromethane	8.66000	0.50	0.31	10.0000	86.6	48 - 152
Ethylbenzene	19.4200	0.50	0.08	20.0000	97.1	72 - 134
Hexachlorobutadiene	9.61000	0.50	0.22	10.0000	96.1	72 - 139
Isopropylbenzene	9.45000	0.50	0.10	10.0000	94.5	73 - 146
m,p-Xylene	19.7900	1.0	0.18	20.0000	99.0	75 - 138
Methylene chloride	9.62000	1.0	0.26	10.0000	96.2	52 - 154
n-Butylbenzene	9.90000	0.50	0.15	10.0000	99.0	72 - 151
n-Propylbenzene	9.57000	0.50	0.14	10.0000	95.7	69 - 149
Naphthalene	9.30000	0.50	0.09	10.0000	93.0	61 - 122
o-Xylene	20.4700	0.50	0.04	20.0000	102	66 - 147
sec-Butylbenzene	9.60000	0.50	0.15	10.0000	96.0	72 - 148
Styrene	10.1900	0.50	0.05	10.0000	102	72 - 138
tert-Butylbenzene	9.57000	0.50	0.11	10.0000	95.7	70 - 145
Tetrachloroethene	9.22000	0.50	0.18	10.0000	92.2	61 - 145
Toluene	19.7100	0.50	0.14	20.0000	98.6	70 - 140
trans-1,2-Dichloroethene	9.74000	0.50	0.15	10.0000	97.4	73 - 130
Trichloroethene	10.3200	0.50	0.15	10.0000	103	69 - 126



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 : 10/27/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0771 - MSVOA_LL_W (continued)

LCS (B7J0771-BS1) - Continued

Prepared: 10/25/2017 Analyzed: 10/25/2017

Trichlorofluoromethane	9.44000	0.50	0.33	10.0000		94.4	70 - 159		
Vinyl chloride	9.55000	0.50	0.25	10.0000		95.5	56 - 151		
Surrogate: 1,2-Dichloroethane-d	24.20			25.0000		96.8	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.40			25.0000		102	88 - 120		
Surrogate: Dibromofluoromethane	24.57			25.0000		98.3	80 - 150		
Surrogate: Toluene-d8	25.24			25.0000		101	87 - 121		

LCS Dup (B7J0771-BS1)

Prepared: 10/25/2017 Analyzed: 10/25/2017

1,1,1,2-Tetrachloroethane	10.6900	0.50	0.13	10.0000		107	73 - 136	8.99	20
1,1,1-Trichloroethane	10.1200	0.50	0.38	10.0000		101	73 - 143	8.02	20
1,1,2,2-Tetrachloroethane	9.72000	0.50	0.20	10.0000		97.2	62 - 127	10.8	20
1,1,2-Trichloroethane	9.96000	0.50	0.19	10.0000		99.6	72 - 122	0.806	20
1,1-Dichloroethane	10.0600	0.50	0.20	10.0000		101	73 - 138	6.36	20
1,1-Dichloroethene	9.75000	0.50	0.28	10.0000		97.5	74 - 132	12.0	20
1,1-Dichloropropene	9.87000	0.50	0.36	10.0000		98.7	70 - 143	1.43	20
1,2,3-Trichloropropane	9.55000	0.50	0.16	10.0000		95.5	66 - 119	9.20	20
1,2,3-Trichlorobenzene	10.1600	0.50	0.06	10.0000		102	70 - 131	6.09	20
1,2,4-Trichlorobenzene	10.1300	0.50	0.07	10.0000		101	70 - 128	5.27	20
1,2,4-Trimethylbenzene	10.3400	0.50	0.09	10.0000		103	74 - 142	4.55	20
1,2-Dibromo-3-chloropropane	9.26000	0.50	0.20	10.0000		92.6	56 - 118	7.74	20
1,2-Dibromoethane	10.1700	0.50	0.13	10.0000		102	73 - 122	0.493	20
1,2-Dichlorobenzene	10.0500	0.50	0.12	10.0000		100	75 - 128	3.85	20
1,2-Dichloroethane	9.73000	0.50	0.39	10.0000		97.3	70 - 131	0.308	20
1,2-Dichloropropane	9.91000	0.50	0.47	10.0000		99.1	69 - 124	2.79	20
1,3,5-Trimethylbenzene	10.3700	0.50	0.08	10.0000		104	73 - 144	5.55	20
1,3-Dichlorobenzene	9.96000	0.50	0.13	10.0000		99.6	75 - 131	2.95	20
1,3-Dichloropropane	10.2900	0.50	0.08	10.0000		103	70 - 122	4.07	20
1,4-Dichlorobenzene	9.68000	0.50	0.18	10.0000		96.8	75 - 127	1.04	20
2,2-Dichloropropane	10.5100	0.50	0.23	10.0000		105	68 - 151	6.38	20
2-Chlorotoluene	10.1000	0.50	0.12	10.0000		101	72 - 138	5.08	20
4-Chlorotoluene	9.96000	0.50	0.11	10.0000		99.6	72 - 140	3.79	20
4-Isopropyltoluene	10.5700	0.50	0.12	10.0000		106	74 - 149	5.84	20
Benzene	20.4700	0.50	0.21	20.0000		102	67 - 138	2.37	20
Bromobenzene	10.0200	0.50	0.12	10.0000		100	73 - 127	5.54	20
Bromodichloromethane	9.33000	0.50	0.32	10.0000		93.3	74 - 129	0.753	20
Bromoform	8.81000	0.50	0.14	10.0000		88.1	63 - 131	6.57	20
Bromomethane	11.6500	0.50	0.22	10.0000		116	57 - 216	7.02	20
Carbon tetrachloride	9.72000	0.50	0.31	10.0000		97.2	77 - 151	6.70	20
Chlorobenzene	9.79000	0.50	0.16	10.0000		97.9	73 - 125	1.86	20
Chloroethane	10.2000	0.50	0.29	10.0000		102	54 - 154	2.08	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 : 10/27/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0771 - MSVOA_LL_W (continued)

LCS Dup (B7J0771-BSD1) - Continued

Prepared: 10/25/2017 Analyzed: 10/25/2017

Chloroform	9.93000	0.50	0.16	10.0000		99.3	77 - 132	5.27	20
Chloromethane	11.4500	0.50	0.19	10.0000		114	57 - 142	2.33	20
cis-1,2-Dichloroethene	10.5600	0.50	0.39	10.0000		106	73 - 126	6.55	20
cis-1,3-Dichloropropene	9.90000	0.50	0.08	10.0000		99.0	76 - 120	1.20	20
Dibromochloromethane	9.47000	0.50	0.11	10.0000		94.7	71 - 126	5.09	20
Dibromomethane	9.51000	0.50	0.09	10.0000		95.1	73 - 121	2.99	20
Dichlorodifluoromethane	9.41000	0.50	0.31	10.0000		94.1	48 - 152	8.30	20
Ethylbenzene	20.0800	0.50	0.08	20.0000		100	72 - 134	3.34	20
Hexachlorobutadiene	10.2900	0.50	0.22	10.0000		103	72 - 139	6.83	20
Isopropylbenzene	10.1000	0.50	0.10	10.0000		101	73 - 146	6.65	20
m,p-Xylene	20.1300	1.0	0.18	20.0000		101	75 - 138	1.70	20
Methylene chloride	9.83000	1.0	0.26	10.0000		98.3	52 - 154	2.16	20
n-Butylbenzene	10.5200	0.50	0.15	10.0000		105	72 - 151	6.07	20
n-Propylbenzene	10.1900	0.50	0.14	10.0000		102	69 - 149	6.28	20
Naphthalene	10.0300	0.50	0.09	10.0000		100	61 - 122	7.55	20
o-Xylene	20.6500	0.50	0.04	20.0000		103	66 - 147	0.875	20
sec-Butylbenzene	10.3600	0.50	0.15	10.0000		104	72 - 148	7.62	20
Styrene	10.2500	0.50	0.05	10.0000		102	72 - 138	0.587	20
tert-Butylbenzene	10.2000	0.50	0.11	10.0000		102	70 - 145	6.37	20
Tetrachloroethene	9.73000	0.50	0.18	10.0000		97.3	61 - 145	5.38	20
Toluene	18.9300	0.50	0.14	20.0000		94.6	70 - 140	4.04	20
trans-1,2-Dichloroethene	10.4800	0.50	0.15	10.0000		105	73 - 130	7.32	20
Trichloroethene	10.5700	0.50	0.15	10.0000		106	69 - 126	2.39	20
Trichlorofluoromethane	11.3700	0.50	0.33	10.0000		114	70 - 159	18.5	20
Vinyl chloride	9.93000	0.50	0.25	10.0000		99.3	56 - 151	3.90	20
Surrogate: 1,2-Dichloroethane-d	25.48			25.0000		102	70 - 166		
Surrogate: 4-Bromofluorobenzene	25.39			25.0000		102	88 - 120		
Surrogate: Dibromofluoromethane	26.59			25.0000		106	80 - 150		
Surrogate: Toluene-d8	25.16			25.0000		101	87 - 121		



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 : 10/27/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0678 - MSSEMI_W

Blank (B7J0678-BLK1)

Prepared: 10/23/2017 Analyzed: 10/24/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-	55.53			100.000	55.5	17 - 101			
Surrogate: 2-Fluorobiphenyl	70.03			100.000	70.0	29 - 109			
Surrogate: 4-Terphenyl-d14	103.3			100.000	103	49 - 122			
Surrogate: Nitrobenzene-d5	62.68			100.000	62.7	19 - 111			

LCS (B7J0678-BS1)

Prepared: 10/23/2017 Analyzed: 10/24/2017

1,4-Dioxane	106.560	2.0	0.84	100.000	107	85 - 121			
Surrogate: 1,2-Dichlorobenzene-	52.49			100.000	52.5	17 - 101			
Surrogate: 2-Fluorobiphenyl	72.71			100.000	72.7	29 - 109			
Surrogate: 4-Terphenyl-d14	85.75			100.000	85.8	49 - 122			
Surrogate: Nitrobenzene-d5	64.07			100.000	64.1	19 - 111			

LCS Dup (B7J0678-BSD1)

Prepared: 10/23/2017 Analyzed: 10/24/2017

1,4-Dioxane	104.460	2.0	0.84	100.000	104	85 - 121	1.99	20	
Surrogate: 1,2-Dichlorobenzene-	53.32			100.000	53.3	17 - 101			
Surrogate: 2-Fluorobiphenyl	74.53			100.000	74.5	29 - 109			
Surrogate: 4-Terphenyl-d14	92.41			100.000	92.4	49 - 122			
Surrogate: Nitrobenzene-d5	66.76			100.000	66.8	19 - 111			



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 : 10/27/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7J0692 - MSSEMI_W

Blank (B7J0692-BLK1)

Prepared: 10/23/2017 Analyzed: 10/23/2017

1,4-Dioxane	ND	0.20	0.11						
Surrogate: 1,2-Dichlorobenzene-	0.7705			1.00000		77.0	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.9071			1.00000		90.7	29 - 105		
Surrogate: 4-Terphenyl-d14	0.9282			1.00000		92.8	32 - 119		
Surrogate: Nitrobenzene-d5	0.5532			1.00000		55.3	17 - 123		

LCS (B7J0692-BS1)

Prepared: 10/23/2017 Analyzed: 10/23/2017

1,4-Dioxane	0.613880	0.20	0.11	1.00000		61.4	61 - 166		
Surrogate: 1,2-Dichlorobenzene-	0.7176			1.00000		71.8	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8799			1.00000		88.0	29 - 105		
Surrogate: 4-Terphenyl-d14	0.9919			1.00000		99.2	32 - 119		
Surrogate: Nitrobenzene-d5	0.5283			1.00000		52.8	17 - 123		

LCS Dup (B7J0692-BSD1)

Prepared: 10/23/2017 Analyzed: 10/23/2017

1,4-Dioxane	0.650120	0.20	0.11	1.00000		65.0	61 - 166	5.73	20
Surrogate: 1,2-Dichlorobenzene-	0.7584			1.00000		75.8	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.9180			1.00000		91.8	29 - 105		
Surrogate: 4-Terphenyl-d14	0.9996			1.00000		100	32 - 119		
Surrogate: Nitrobenzene-d5	0.5574			1.00000		55.7	17 - 123		



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 : 10/27/2017

Notes and Definitions

ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

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 Steve Stewart

Phone 858.455.6500

Fax 858.455.6533

Date: 10/19/2017

Page 1 of 1

Sampled By: <u>Steve Stewart 10/19/17</u>				SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED										Expected Concentration Range (ppb) for		SPECIAL HANDLING		REMARKS										
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	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 Hour TAT	5 Day TAT	Level IV Data Validation Requested	MS/MSD Requested		
103960-1	TB-101917	10/19/2017	10:00		X	X			X	2						X																				
2	CBT	10/19/2017	12:25	X	X			X		3					1	X								X	X							X				
3	POX	10/19/2017	12:30	X	X			X		3					1	X							X	X								X				
4	CEFF	10/19/2017	12:15	X	X			X		3					1	X							X	X								X				
5	INF	10/19/2017	12:35	X	X			X		3					1	X											X					X				
6	EW-02	10/19/2017	13:00	X	X			X		3					1	X						X				X						X				
7	MW-29	10/19/2017	13:30	X	X			X		3					1	X						X				X						X				

Total number of containers per analysis:

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>Steve Stewart H+A</u>	<u>10/19/17 13:45</u>	<u>Steve Netto MPI</u>	<u>10/19/17 13:45</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>Steve Netto MPI</u>	<u>10/19/17 15:48</u>	<u>MFR [Signature]</u>	<u>10/19/17 15:48</u>

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

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.

Temperature on receipt

ice

Send Results to:

Steve Netto

9171 Towne Centre Drive

Suite 275

San Diego, CA 92122

Ph: 858.455.6500

snetto@hargis.com



November 17, 2017

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

Re: ATL Work Order Number : 1703947

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on November 06, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Eddie Rodriguez', followed by the initials 'AR'.

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 : 11/17/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-110617	1703947-01	Lab prepared water	11/06/17 8:00	11/06/17 16:00
CBT	1703947-02	Groundwater	11/06/17 12:20	11/06/17 16:00
POX	1703947-03	Groundwater	11/06/17 12:25	11/06/17 16:00
CEFF	1703947-04	Groundwater	11/06/17 12:15	11/06/17 16:00
PF	1703947-05	Groundwater	11/06/17 12:30	11/06/17 16:00
INF	1703947-06	Groundwater	11/06/17 12:10	11/06/17 16:00
EW-02	1703947-07	Groundwater	11/06/17 12:40	11/06/17 16:00
MW-29	1703947-08	Groundwater	11/06/17 13:00	11/06/17 16:00

CASE NARRATIVE

The samples for Bromate by IC-MS/MS 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 : 11/17/2017

Client Sample ID TB-110617

Lab ID: 1703947-01

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	B7K0164	11/07/2017	11/07/17 14:04	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,1-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,1-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
4-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Chloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	



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 : 11/17/2017

Client Sample ID TB-110617

Lab ID: 1703947-01

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	B7K0164	11/07/2017	11/07/17 14:04	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 14:04	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 14:04	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Tetrachloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Trichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:04	
Surrogate: 1,2-Dichloroethane-d4	107 %	70 - 166		B7K0164	11/07/2017	11/07/17 14:04	
Surrogate: 4-Bromofluorobenzene	92.8 %	88 - 120		B7K0164	11/07/2017	11/07/17 14:04	
Surrogate: Dibromofluoromethane	114 %	80 - 150		B7K0164	11/07/2017	11/07/17 14:04	
Surrogate: Toluene-d8	95.6 %	87 - 121		B7K0164	11/07/2017	11/07/17 14:04	



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 : 11/17/2017

Client Sample ID CBT

Lab ID: 1703947-02

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	B7K0164	11/07/2017	11/07/17 14:28	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,1-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,1-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
4-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Chloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	



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 : 11/17/2017

Client Sample ID CBT

Lab ID: 1703947-02

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	B7K0164	11/07/2017	11/07/17 14:28	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 14:28	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 14:28	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Tetrachloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Trichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:28	
Surrogate: 1,2-Dichloroethane-d4	103 %	70 - 166		B7K0164	11/07/2017	11/07/17 14:28	
Surrogate: 4-Bromofluorobenzene	91.2 %	88 - 120		B7K0164	11/07/2017	11/07/17 14:28	
Surrogate: Dibromofluoromethane	110 %	80 - 150		B7K0164	11/07/2017	11/07/17 14:28	
Surrogate: Toluene-d8	94.7 %	87 - 121		B7K0164	11/07/2017	11/07/17 14:28	



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 : 11/17/2017

Client Sample ID CBT

Lab ID: 1703947-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.61	0.20	1	B7K0229	11/08/2017	11/13/17 13:07	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>72.1 %</i>	<i>32 - 99</i>		B7K0229	11/08/2017	<i>11/13/17 13:07</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>68.5 %</i>	<i>29 - 105</i>		B7K0229	11/08/2017	<i>11/13/17 13:07</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>82.8 %</i>	<i>32 - 119</i>		B7K0229	11/08/2017	<i>11/13/17 13:07</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>87.3 %</i>	<i>17 - 123</i>		B7K0229	11/08/2017	<i>11/13/17 13:07</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 : 11/17/2017

Client Sample ID POX

Lab ID: 1703947-03

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7K0193	11/07/2017	11/07/17 17:12	

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	B7K0164	11/07/2017	11/07/17 14:53	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,1-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,1-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	



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 : 11/17/2017

Client Sample ID POX

Lab ID: 1703947-03

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	B7K0164	11/07/2017	11/07/17 14:53	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Chloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Dibromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 14:53	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 14:53	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Tetrachloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Trichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 14:53	

Surrogate: 1,2-Dichloroethane-d4

108 %

70 - 166

B7K0164

11/07/2017

11/07/17 14:53

Surrogate: 4-Bromofluorobenzene

93.3 %

88 - 120

B7K0164

11/07/2017

11/07/17 14:53



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 : 11/17/2017

Client Sample ID POX

Lab ID: 1703947-03

Volatile Organic Compounds by EPA 8260B

Analyst: QP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Dibromofluoromethane	117 %	80 - 150		B7K0164	11/07/2017	11/07/17 14:53	
Surrogate: Toluene-d8	95.8 %	87 - 121		B7K0164	11/07/2017	11/07/17 14:53	

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	0.32	0.20	1	B7K0229	11/08/2017	11/10/17 21:28	
Surrogate: 1,2-Dichlorobenzene-d4	64.1 %	32 - 99		B7K0229	11/08/2017	11/10/17 21:28	
Surrogate: 2-Fluorobiphenyl	73.1 %	29 - 105		B7K0229	11/08/2017	11/10/17 21:28	
Surrogate: 4-Terphenyl-d14	71.3 %	32 - 119		B7K0229	11/08/2017	11/10/17 21:28	
Surrogate: Nitrobenzene-d5	61.4 %	17 - 123		B7K0229	11/08/2017	11/10/17 21:28	



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 : 11/17/2017

Client Sample ID CEFF

Lab ID: 1703947-04

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	B7K0164	11/07/2017	11/07/17 15:17	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,1-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,1-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
4-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Chloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	



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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 : 11/17/2017

Client Sample ID CEFF

Lab ID: 1703947-04

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	B7K0164	11/07/2017	11/07/17 15:17	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 15:17	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 15:17	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Tetrachloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Trichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:17	
Surrogate: 1,2-Dichloroethane-d4	105 %	70 - 166		B7K0164	11/07/2017	11/07/17 15:17	
Surrogate: 4-Bromofluorobenzene	89.8 %	88 - 120		B7K0164	11/07/2017	11/07/17 15:17	
Surrogate: Dibromofluoromethane	114 %	80 - 150		B7K0164	11/07/2017	11/07/17 15:17	
Surrogate: Toluene-d8	94.2 %	87 - 121		B7K0164	11/07/2017	11/07/17 15:17	



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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 : 11/17/2017

Client Sample ID CEFF

Lab ID: 1703947-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0229	11/08/2017	11/10/17 21:55	
Surrogate: 1,2-Dichlorobenzene-d4	61.2 %	32 - 99		B7K0229	11/08/2017	11/10/17 21:55	
Surrogate: 2-Fluorobiphenyl	68.3 %	29 - 105		B7K0229	11/08/2017	11/10/17 21:55	
Surrogate: 4-Terphenyl-d14	69.7 %	32 - 119		B7K0229	11/08/2017	11/10/17 21:55	
Surrogate: Nitrobenzene-d5	58.8 %	17 - 123		B7K0229	11/08/2017	11/10/17 21:55	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 11/17/2017

Client Sample ID PF

Lab ID: 1703947-05

UV Absorption by EPA 415.3

Analyst: BL

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B7K0148	11/06/2017	11/06/17 19:06	

Alkalinity, Speciated by SM 2320B

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	210	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	
Alkalinity, Total (as CaCO ₃)	210	5.0	1	B7K0226	11/08/2017	11/08/17 14:37	

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

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B7K0171	11/07/2017	11/08/17 08:26	

Total Organic Carbon by SM 5310B

Analyst: DT

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B7K0193	11/07/2017	11/07/17 17:27	



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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 : 11/17/2017

Client Sample ID INF

Lab ID: 1703947-06

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.23	0.10	2	B7K0362	11/13/2017	11/13/17 09:57	

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	B7K0164	11/07/2017	11/07/17 15:42	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,1-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,1-Dichloroethene	23	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
4-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	



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 : 11/17/2017

Client Sample ID INF

Lab ID: 1703947-06

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	B7K0164	11/07/2017	11/07/17 15:42	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Dibromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 15:42	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 15:42	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Tetrachloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Trichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 15:42	
Surrogate: 1,2-Dichloroethane-d4	106 %	70 - 166		B7K0164	11/07/2017	11/07/17 15:42	
Surrogate: 4-Bromofluorobenzene	92.2 %	88 - 120		B7K0164	11/07/2017	11/07/17 15:42	
Surrogate: Dibromofluoromethane	113 %	80 - 150		B7K0164	11/07/2017	11/07/17 15:42	
Surrogate: Toluene-d8	92.7 %	87 - 121		B7K0164	11/07/2017	11/07/17 15:42	



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 : 11/17/2017

Client Sample ID INF

Lab ID: 1703947-06

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7K0255	11/09/2017	11/09/17 16:01	
Surrogate: 1,2-Dichlorobenzene-d4	55.5 %	17 - 101		B7K0255	11/09/2017	11/09/17 16:01	
Surrogate: 2-Fluorobiphenyl	75.8 %	29 - 109		B7K0255	11/09/2017	11/09/17 16:01	
Surrogate: 4-Terphenyl-d14	96.8 %	49 - 122		B7K0255	11/09/2017	11/09/17 16:01	
Surrogate: Nitrobenzene-d5	66.2 %	19 - 111		B7K0255	11/09/2017	11/09/17 16:01	



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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 : 11/17/2017

Client Sample ID EW-02

Lab ID: 1703947-07

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.21	0.10	2	B7K0362	11/13/2017	11/13/17 10:08	

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	B7K0164	11/07/2017	11/07/17 16:06	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,1-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,1-Dichloroethene	5.8	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
4-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	



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 : 11/17/2017

Client Sample ID EW-02

Lab ID: 1703947-07

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	B7K0164	11/07/2017	11/07/17 16:06	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Dibromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 16:06	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 16:06	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Tetrachloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Trichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:06	
Surrogate: 1,2-Dichloroethane-d4	112 %	70 - 166		B7K0164	11/07/2017	11/07/17 16:06	
Surrogate: 4-Bromofluorobenzene	93.4 %	88 - 120		B7K0164	11/07/2017	11/07/17 16:06	
Surrogate: Dibromofluoromethane	122 %	80 - 150		B7K0164	11/07/2017	11/07/17 16:06	
Surrogate: Toluene-d8	96.1 %	87 - 121		B7K0164	11/07/2017	11/07/17 16:06	



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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 : 11/17/2017

Client Sample ID EW-02

Lab ID: 1703947-07

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7K0255	11/09/2017	11/09/17 16:28	
Surrogate: 1,2-Dichlorobenzene-d4	47.2 %	17 - 101		B7K0255	11/09/2017	11/09/17 16:28	
Surrogate: 2-Fluorobiphenyl	62.7 %	29 - 109		B7K0255	11/09/2017	11/09/17 16:28	
Surrogate: 4-Terphenyl-d14	96.0 %	49 - 122		B7K0255	11/09/2017	11/09/17 16:28	
Surrogate: Nitrobenzene-d5	55.3 %	19 - 111		B7K0255	11/09/2017	11/09/17 16:28	



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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 : 11/17/2017

Client Sample ID MW-29

Lab ID: 1703947-08

Bromide by Ion Chromatography EPA 300

Analyst: JL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.32	0.10	2	B7K0362	11/13/2017	11/13/17 10:20	

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	B7K0164	11/07/2017	11/07/17 16:34	
1,1,1-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,1,2-Trichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,1-Dichloroethane	0.77	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,1-Dichloroethene	110	5.0	10	B7K0164	11/07/2017	11/07/17 16:59	
1,1-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2,3-Trichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2-Dibromoethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2-Dichloroethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,3-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,3-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
1,4-Dichlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
2,2-Dichloropropane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
2-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
4-Chlorotoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
4-Isopropyltoluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Benzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Bromobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Bromodichloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Bromoform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Bromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Carbon tetrachloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Chlorobenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	



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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 : 11/17/2017

Client Sample ID MW-29

Lab ID: 1703947-08

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	B7K0164	11/07/2017	11/07/17 16:34	
Chloroform	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Chloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Dibromochloromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Dibromomethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Dichlorodifluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Ethylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Hexachlorobutadiene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Isopropylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
m,p-Xylene	ND	1.0	1	B7K0164	11/07/2017	11/07/17 16:34	
Methylene chloride	ND	1.0	1	B7K0164	11/07/2017	11/07/17 16:34	
n-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
n-Propylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Naphthalene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
o-Xylene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
sec-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Styrene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
tert-Butylbenzene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Tetrachloroethene	0.57	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Toluene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Trichloroethene	1.0	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Trichlorofluoromethane	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
Vinyl chloride	ND	0.50	1	B7K0164	11/07/2017	11/07/17 16:34	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>106 %</i>	<i>70 - 166</i>		B7K0164	11/07/2017	<i>11/07/17 16:59</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>	<i>70 - 166</i>		B7K0164	11/07/2017	<i>11/07/17 16:34</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.4 %</i>	<i>88 - 120</i>		B7K0164	11/07/2017	<i>11/07/17 16:59</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93.1 %</i>	<i>88 - 120</i>		B7K0164	11/07/2017	<i>11/07/17 16:34</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>117 %</i>	<i>80 - 150</i>		B7K0164	11/07/2017	<i>11/07/17 16:34</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>118 %</i>	<i>80 - 150</i>		B7K0164	11/07/2017	<i>11/07/17 16:59</i>	
<i>Surrogate: Toluene-d8</i>	<i>95.7 %</i>	<i>87 - 121</i>		B7K0164	11/07/2017	<i>11/07/17 16:34</i>	
<i>Surrogate: Toluene-d8</i>	<i>93.7 %</i>	<i>87 - 121</i>		B7K0164	11/07/2017	<i>11/07/17 16:59</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 : 11/17/2017

Client Sample ID MW-29

Lab ID: 1703947-08

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	31	2.0	1	B7K0255	11/09/2017	11/09/17 16:54	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>55.1 %</i>	<i>17 - 101</i>		B7K0255	11/09/2017	<i>11/09/17 16:54</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>74.8 %</i>	<i>29 - 109</i>		B7K0255	11/09/2017	<i>11/09/17 16:54</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>112 %</i>	<i>49 - 122</i>		B7K0255	11/09/2017	<i>11/09/17 16:54</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>65.8 %</i>	<i>19 - 111</i>		B7K0255	11/09/2017	<i>11/09/17 16:54</i>	



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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 : 11/17/2017

QUALITY CONTROL SECTION

Alkalinity, Speciated by SM 2320B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0226 - No_Prep_WC1_W

Blank (B7K0226-BLK1)

Prepared: 11/8/2017 Analyzed: 11/8/2017

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1.6
Alkalinity, Total (as CaCO ₃)	ND	5.0	1.6

LCS (B7K0226-BS1)

Prepared: 11/8/2017 Analyzed: 11/8/2017

Alkalinity, Total (as CaCO ₃)	99.3900	5.0	1.6	99.9580	99.4	80 - 120
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Matrix Spike (B7K0226-MS1)

Source: 1703913-02

Prepared: 11/8/2017 Analyzed: 11/8/2017

Alkalinity, Total (as CaCO ₃)	290.980	10	3.2	199.916	94.2600	98.4	80 - 120
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Matrix Spike Dup (B7K0226-MSD1)

Source: 1703913-02

Prepared: 11/8/2017 Analyzed: 11/8/2017

Alkalinity, Total (as CaCO ₃)	290.980	10	3.2	199.916	94.2600	98.4	80 - 120	0.00	20
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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 11/17/2017

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

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0171 - No_Prep_WC1_W

Blank (B7K0171-BLK1)

Prepared: 11/7/2017 Analyzed: 11/8/2017

Residue, Suspended ND 1.0 1.0

LCS (B7K0171-BS1)

Prepared: 11/7/2017 Analyzed: 11/8/2017

Residue, Suspended 82.0000 10 10 92.0000 89.1 80 - 120

Duplicate (B7K0171-DUP1)

Source: 1703944-02

Prepared: 11/7/2017 Analyzed: 11/8/2017

Residue, Suspended 3212.00 20 20 3378.00 5.04 10



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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 : 11/17/2017

Bromide by Ion Chromatography EPA 300 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0362 - No_Prep_IC1_W

Blank (B7K0362-BLK1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

Bromide ND 0.05 0.02

LCS (B7K0362-BS1)

Prepared: 11/13/2017 Analyzed: 11/13/2017

Bromide 0.967700 0.05 0.02 1.00000 96.8 90 - 110

Duplicate (B7K0362-DUP1)

Source: 1703947-06

Prepared: 11/13/2017 Analyzed: 11/13/2017

Bromide 0.227800 0.10 0.03 0.234200 2.77 20

Matrix Spike (B7K0362-MS1)

Source: 1703947-06

Prepared: 11/13/2017 Analyzed: 11/13/2017

Bromide 2.54450 2.50000 0.117100 97.1 80 - 120

Matrix Spike Dup (B7K0362-MSD1)

Source: 1703947-06

Prepared: 11/13/2017 Analyzed: 11/13/2017

Bromide 2.55150 2.50000 0.117100 97.4 80 - 120 0.275 20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 11/17/2017

UV Absorption by EPA 415.3 - Quality Control

Analyte	Result (1/cm)	PQL (1/cm)	MDL (1/cm)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0148 - No_Prep_II_W

Duplicate (B7K0148-DUP1)

Source: 1703947-05

Prepared: 11/6/2017 Analyzed: 11/13/2017

UV Absorption	ND	0.01	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 : 11/17/2017

Total Organic Carbon by SM 5310B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0193 - No_Prep_II_W

Blank (B7K0193-BLK1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

Organic Carbon, Total ND 3.0 1.8

LCS (B7K0193-BS1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

Organic Carbon, Total 17.0700 3.0 1.8 20.0000 85.4 80 - 120

LCS Dup (B7K0193-BSD1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

Organic Carbon, Total 17.6900 3.0 1.8 20.0000 88.4 80 - 120 3.57 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 : 11/17/2017

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W

Blank (B7K0164-BLK1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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 : 11/17/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W (continued)

Blank (B7K0164-BLK1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	26.62		25.0000	106	70 - 166
Surrogate: 4-Bromofluorobenzene	23.01		25.0000	92.0	88 - 120
Surrogate: Dibromofluoromethane	29.18		25.0000	117	80 - 150
Surrogate: Toluene-d8	23.46		25.0000	93.8	87 - 121

LCS (B7K0164-BS1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,1,1,2-Tetrachloroethane	7.71000	0.50	0.13	10.0000	77.1	73 - 136
1,1,1-Trichloroethane	11.8000	0.50	0.38	10.0000	118	73 - 143
1,1,2,2-Tetrachloroethane	8.21000	0.50	0.20	10.0000	82.1	62 - 127
1,1,2-Trichloroethane	8.80000	0.50	0.19	10.0000	88.0	72 - 122
1,1-Dichloroethane	13.3400	0.50	0.20	10.0000	133	73 - 138
1,1-Dichloroethene	9.37000	0.50	0.28	10.0000	93.7	74 - 132
1,1-Dichloropropene	12.1100	0.50	0.36	10.0000	121	70 - 143
1,2,3-Trichloropropane	8.23000	0.50	0.16	10.0000	82.3	66 - 119
1,2,3-Trichlorobenzene	9.32000	0.50	0.06	10.0000	93.2	70 - 131
1,2,4-Trichlorobenzene	9.59000	0.50	0.07	10.0000	95.9	70 - 128
1,2,4-Trimethylbenzene	9.77000	0.50	0.09	10.0000	97.7	74 - 142
1,2-Dibromo-3-chloropropane	5.10000	0.50	0.20	10.0000	51.0	56 - 118
1,2-Dibromoethane	9.01000	0.50	0.13	10.0000	90.1	73 - 122
1,2-Dichlorobenzene	9.83000	0.50	0.12	10.0000	98.3	75 - 128
1,2-Dichloroethane	9.05000	0.50	0.39	10.0000	90.5	70 - 131
1,2-Dichloropropane	9.55000	0.50	0.47	10.0000	95.5	69 - 124
1,3,5-Trimethylbenzene	9.81000	0.50	0.08	10.0000	98.1	73 - 144
1,3-Dichlorobenzene	10.1000	0.50	0.13	10.0000	101	75 - 131
1,3-Dichloropropane	9.53000	0.50	0.08	10.0000	95.3	70 - 122

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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 : 11/17/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W (continued)

LCS (B7K0164-BS1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,4-Dichlorobenzene	9.91000	0.50	0.18	10.0000		99.1	75 - 127		
2,2-Dichloropropane	10.5000	0.50	0.23	10.0000		105	68 - 151		
2-Chlorotoluene	9.08000	0.50	0.12	10.0000		90.8	72 - 138		
4-Chlorotoluene	8.97000	0.50	0.11	10.0000		89.7	72 - 140		
4-Isopropyltoluene	10.1400	0.50	0.12	10.0000		101	74 - 149		
Benzene	19.8700	0.50	0.21	20.0000		99.4	67 - 138		
Bromobenzene	9.99000	0.50	0.12	10.0000		99.9	73 - 127		
Bromodichloromethane	7.69000	0.50	0.32	10.0000		76.9	74 - 129		
Bromoform	6.39000	0.50	0.14	10.0000		63.9	63 - 131		
Bromomethane	17.6400	0.50	0.22	10.0000		176	57 - 216		
Carbon tetrachloride	8.91000	0.50	0.31	10.0000		89.1	77 - 151		
Chlorobenzene	10.1700	0.50	0.16	10.0000		102	73 - 125		
Chloroethane	11.9600	0.50	0.29	10.0000		120	54 - 154		
Chloroform	11.3400	0.50	0.16	10.0000		113	77 - 132		
Chloromethane	11.7700	0.50	0.19	10.0000		118	57 - 142		
cis-1,2-Dichloroethene	11.1700	0.50	0.39	10.0000		112	73 - 126		
cis-1,3-Dichloropropene	7.60000	0.50	0.08	10.0000		76.0	76 - 120		
Dibromochloromethane	7.48000	0.50	0.11	10.0000		74.8	71 - 126		
Dibromomethane	8.80000	0.50	0.09	10.0000		88.0	73 - 121		
Dichlorodifluoromethane	10.1300	0.50	0.31	10.0000		101	48 - 152		
Ethylbenzene	20.0900	0.50	0.08	20.0000		100	72 - 134		
Hexachlorobutadiene	10.4200	0.50	0.22	10.0000		104	72 - 139		
Isopropylbenzene	9.76000	0.50	0.10	10.0000		97.6	73 - 146		
m,p-Xylene	19.8300	1.0	0.18	20.0000		99.2	75 - 138		
Methylene chloride	10.3100	1.0	0.26	10.0000		103	52 - 154		
n-Butylbenzene	9.73000	0.50	0.15	10.0000		97.3	72 - 151		
n-Propylbenzene	9.45000	0.50	0.14	10.0000		94.5	69 - 149		
Naphthalene	8.61000	0.50	0.09	10.0000		86.1	61 - 122		
o-Xylene	19.4100	0.50	0.04	20.0000		97.0	66 - 147		
sec-Butylbenzene	10.1700	0.50	0.15	10.0000		102	72 - 148		
Styrene	10.0700	0.50	0.05	10.0000		101	72 - 138		
tert-Butylbenzene	9.83000	0.50	0.11	10.0000		98.3	70 - 145		
Tetrachloroethene	11.8800	0.50	0.18	10.0000		119	61 - 145		
Toluene	18.1800	0.50	0.14	20.0000		90.9	70 - 140		
trans-1,2-Dichloroethene	11.4800	0.50	0.15	10.0000		115	73 - 130		
Trichloroethene	10.8400	0.50	0.15	10.0000		108	69 - 126		
Trichlorofluoromethane	13.4600	0.50	0.33	10.0000		135	70 - 159		
Vinyl chloride	10.1100	0.50	0.25	10.0000		101	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	23.70			25.0000		94.8	70 - 166		
Surrogate: 4-Bromofluorobenzene	23.55			25.0000		94.2	88 - 120		
Surrogate: Dibromofluoromethane	27.44			25.0000		110	80 - 150		



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 : 11/17/2017

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
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Batch B7K0164 - MSVOA_W (continued)

LCS (B7K0164-BS1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

Surrogate: Toluene-d8 23.28 25.0000 93.1 87 - 121

LCS Dup (B7K0164-BS1)

Prepared: 11/7/2017 Analyzed: 11/7/2017

1,1,1,2-Tetrachloroethane	7.39000	0.50	0.13	10.0000	73.9	73 - 136	4.24	20	
1,1,1-Trichloroethane	11.3400	0.50	0.38	10.0000	113	73 - 143	3.98	20	
1,1,2,2-Tetrachloroethane	8.70000	0.50	0.20	10.0000	87.0	62 - 127	5.80	20	
1,1,2-Trichloroethane	9.55000	0.50	0.19	10.0000	95.5	72 - 122	8.17	20	
1,1-Dichloroethane	12.6800	0.50	0.20	10.0000	127	73 - 138	5.07	20	
1,1-Dichloroethene	9.00000	0.50	0.28	10.0000	90.0	74 - 132	4.03	20	
1,1-Dichloropropene	12.2200	0.50	0.36	10.0000	122	70 - 143	0.904	20	
1,2,3-Trichloropropane	8.66000	0.50	0.16	10.0000	86.6	66 - 119	5.09	20	
1,2,3-Trichlorobenzene	9.60000	0.50	0.06	10.0000	96.0	70 - 131	2.96	20	
1,2,4-Trichlorobenzene	9.66000	0.50	0.07	10.0000	96.6	70 - 128	0.727	20	
1,2,4-Trimethylbenzene	9.61000	0.50	0.09	10.0000	96.1	74 - 142	1.65	20	
1,2-Dibromo-3-chloropropane	5.90000	0.50	0.20	10.0000	59.0	56 - 118	14.5	20	
1,2-Dibromoethane	9.75000	0.50	0.13	10.0000	97.5	73 - 122	7.89	20	
1,2-Dichlorobenzene	10.0400	0.50	0.12	10.0000	100	75 - 128	2.11	20	
1,2-Dichloroethane	9.76000	0.50	0.39	10.0000	97.6	70 - 131	7.55	20	
1,2-Dichloropropane	9.86000	0.50	0.47	10.0000	98.6	69 - 124	3.19	20	
1,3,5-Trimethylbenzene	9.67000	0.50	0.08	10.0000	96.7	73 - 144	1.44	20	
1,3-Dichlorobenzene	10.1500	0.50	0.13	10.0000	102	75 - 131	0.494	20	
1,3-Dichloropropane	9.91000	0.50	0.08	10.0000	99.1	70 - 122	3.91	20	
1,4-Dichlorobenzene	9.91000	0.50	0.18	10.0000	99.1	75 - 127	0.00	20	
2,2-Dichloropropane	10.0600	0.50	0.23	10.0000	101	68 - 151	4.28	20	
2-Chlorotoluene	9.08000	0.50	0.12	10.0000	90.8	72 - 138	0.00	20	
4-Chlorotoluene	8.82000	0.50	0.11	10.0000	88.2	72 - 140	1.69	20	
4-Isopropyltoluene	9.95000	0.50	0.12	10.0000	99.5	74 - 149	1.89	20	
Benzene	20.1900	0.50	0.21	20.0000	101	67 - 138	1.60	20	
Bromobenzene	10.1500	0.50	0.12	10.0000	102	73 - 127	1.59	20	
Bromodichloromethane	8.03000	0.50	0.32	10.0000	80.3	74 - 129	4.33	20	
Bromoform	6.69000	0.50	0.14	10.0000	66.9	63 - 131	4.59	20	
Bromomethane	16.3100	0.50	0.22	10.0000	163	57 - 216	7.84	20	
Carbon tetrachloride	8.86000	0.50	0.31	10.0000	88.6	77 - 151	0.563	20	
Chlorobenzene	10.2200	0.50	0.16	10.0000	102	73 - 125	0.490	20	
Chloroethane	12.0700	0.50	0.29	10.0000	121	54 - 154	0.916	20	
Chloroform	11.0500	0.50	0.16	10.0000	110	77 - 132	2.59	20	
Chloromethane	11.7700	0.50	0.19	10.0000	118	57 - 142	0.00	20	
cis-1,2-Dichloroethene	10.9200	0.50	0.39	10.0000	109	73 - 126	2.26	20	
cis-1,3-Dichloropropene	8.02000	0.50	0.08	10.0000	80.2	76 - 120	5.38	20	
Dibromochloromethane	7.67000	0.50	0.11	10.0000	76.7	71 - 126	2.51	20	
Dibromomethane	9.17000	0.50	0.09	10.0000	91.7	73 - 121	4.12	20	
Dichlorodifluoromethane	10.2100	0.50	0.31	10.0000	102	48 - 152	0.787	20	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 11/17/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0164 - MSVOA_W (continued)

LCS Dup (B7K0164-BSD1) - Continued

Prepared: 11/7/2017 Analyzed: 11/7/2017

Ethylbenzene	19.9000	0.50	0.08	20.0000		99.5	72 - 134	0.950	20	
Hexachlorobutadiene	10.0600	0.50	0.22	10.0000		101	72 - 139	3.52	20	
Isopropylbenzene	9.82000	0.50	0.10	10.0000		98.2	73 - 146	0.613	20	
m,p-Xylene	19.9700	1.0	0.18	20.0000		99.8	75 - 138	0.704	20	
Methylene chloride	10.5500	1.0	0.26	10.0000		106	52 - 154	2.30	20	
n-Butylbenzene	9.45000	0.50	0.15	10.0000		94.5	72 - 151	2.92	20	
n-Propylbenzene	9.30000	0.50	0.14	10.0000		93.0	69 - 149	1.60	20	
Naphthalene	9.10000	0.50	0.09	10.0000		91.0	61 - 122	5.53	20	
o-Xylene	19.4700	0.50	0.04	20.0000		97.4	66 - 147	0.309	20	
sec-Butylbenzene	10.0700	0.50	0.15	10.0000		101	72 - 148	0.988	20	
Styrene	9.98000	0.50	0.05	10.0000		99.8	72 - 138	0.898	20	
tert-Butylbenzene	9.71000	0.50	0.11	10.0000		97.1	70 - 145	1.23	20	
Tetrachloroethene	11.6300	0.50	0.18	10.0000		116	61 - 145	2.13	20	
Toluene	19.5800	0.50	0.14	20.0000		97.9	70 - 140	7.42	20	
trans-1,2-Dichloroethene	10.7900	0.50	0.15	10.0000		108	73 - 130	6.20	20	
Trichloroethene	11.1800	0.50	0.15	10.0000		112	69 - 126	3.09	20	
Trichlorofluoromethane	12.3300	0.50	0.33	10.0000		123	70 - 159	8.76	20	
Vinyl chloride	10.4000	0.50	0.25	10.0000		104	56 - 151	2.83	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>23.64</i>			<i>25.0000</i>		<i>94.6</i>	<i>70 - 166</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>23.85</i>			<i>25.0000</i>		<i>95.4</i>	<i>88 - 120</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>26.62</i>			<i>25.0000</i>		<i>106</i>	<i>80 - 150</i>			
<i>Surrogate: Toluene-d8</i>	<i>23.73</i>			<i>25.0000</i>		<i>94.9</i>	<i>87 - 121</i>			



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 11/17/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0255 - MSSEMI_W

Blank (B7K0255-BLK1)

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	64.42			100.000	64.4	17 - 101			
Surrogate: 2-Fluorobiphenyl	80.78			100.000	80.8	29 - 109			
Surrogate: 4-Terphenyl-d14	99.68			100.000	99.7	49 - 122			
Surrogate: Nitrobenzene-d5	68.61			100.000	68.6	19 - 111			

LCS (B7K0255-BS1)

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	53.5200	2.0	0.84	50.0000	107	85 - 121			
Surrogate: 1,2-Dichlorobenzene-d	63.95			100.000	64.0	17 - 101			
Surrogate: 2-Fluorobiphenyl	79.99			100.000	80.0	29 - 109			
Surrogate: 4-Terphenyl-d14	92.13			100.000	92.1	49 - 122			
Surrogate: Nitrobenzene-d5	72.27			100.000	72.3	19 - 111			

Matrix Spike (B7K0255-MS1)

Source: 1703949-01

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	48.6500	2.0	0.84	50.0000	ND	97.3	85 - 121		
Surrogate: 1,2-Dichlorobenzene-d	70.41			100.000	70.4	17 - 101			
Surrogate: 2-Fluorobiphenyl	79.17			100.000	79.2	29 - 109			
Surrogate: 4-Terphenyl-d14	88.98			100.000	89.0	49 - 122			
Surrogate: Nitrobenzene-d5	73.54			100.000	73.5	19 - 111			

Matrix Spike Dup (B7K0255-MSD1)

Source: 1703949-01

Prepared: 11/9/2017 Analyzed: 11/9/2017

1,4-Dioxane	50.9100	2.0	0.84	50.0000	ND	102	85 - 121	4.54	20
Surrogate: 1,2-Dichlorobenzene-d	68.81			100.000	68.8	17 - 101			
Surrogate: 2-Fluorobiphenyl	81.27			100.000	81.3	29 - 109			
Surrogate: 4-Terphenyl-d14	87.80			100.000	87.8	49 - 122			
Surrogate: Nitrobenzene-d5	70.72			100.000	70.7	19 - 111			



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 : 11/17/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0229 - MSSEMI_W

Blank (B7K0229-BLK1)

Prepared: 11/8/2017 Analyzed: 11/10/2017

1,4-Dioxane	ND	0.20	0.11							
Surrogate: 1,2-Dichlorobenzene-d	0.6752			1.00000		67.5	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.7092			1.00000		70.9	29 - 105			
Surrogate: 4-Terphenyl-d14	0.7908			1.00000		79.1	32 - 119			
Surrogate: Nitrobenzene-d5	0.7435			1.00000		74.4	17 - 123			

LCS (B7K0229-BS1)

Prepared: 11/8/2017 Analyzed: 11/10/2017

1,4-Dioxane	0.972520	0.20	0.11	1.00000		97.3	61 - 166			
Surrogate: 1,2-Dichlorobenzene-d	0.7044			1.00000		70.4	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.7870			1.00000		78.7	29 - 105			
Surrogate: 4-Terphenyl-d14	0.7762			1.00000		77.6	32 - 119			
Surrogate: Nitrobenzene-d5	0.7366			1.00000		73.7	17 - 123			

LCS Dup (B7K0229-BS1)

Prepared: 11/8/2017 Analyzed: 11/10/2017

1,4-Dioxane	0.977460	0.20	0.11	1.00000		97.7	61 - 166	0.507	20	
Surrogate: 1,2-Dichlorobenzene-d	0.6179			1.00000		61.8	32 - 99			
Surrogate: 2-Fluorobiphenyl	0.6532			1.00000		65.3	29 - 105			
Surrogate: 4-Terphenyl-d14	0.6722			1.00000		67.2	32 - 119			
Surrogate: Nitrobenzene-d5	0.6620			1.00000		66.2	17 - 123			



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 : 11/17/2017

Notes and Definitions

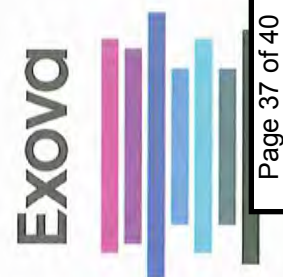
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

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.

Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com



Testing, calibrating, advising

Certificate of Analysis

November 16, 2017

Advanced Technology Laboratories
PO Box 92797
Long Beach, CA 90809-2797

Attn: Rachelle Arada

Exova Job No: 217720
Purchase Order: CREDIT CARD
Project Name: 1703947 / Groundwater
Samples Received: 2
Date Received: 11-08-17

Analysis	Page
Bromate by SOP 5600, Rev 3	2

A blue ink signature of Paul Colvin, consisting of a stylized 'P' followed by a horizontal line.

Paul Colvin
Senior Chemist

A blue ink signature of Robert Stead, consisting of a stylized 'R' followed by a horizontal line.

Robert Stead
Senior Chemist

Bromate by SOP 5600, Rev 3
Ion Chromatography-Tandem Mass Spectrometry

Sample preparation: An aliquot of each sample was pipetted into a Nalgene bottle, spiked with internal standard (bromate-¹⁸O₃), and diluted with water. The sample solutions were passed through a Dionex OnGuard II H cartridge and analyzed using IC-MS/MS.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 1703947-03 / POX	ND
ATL Lab#: 1703947-06 / INF	ND
Method Blank	ND
Detection Limit	0.5
Date Analyzed: 11-09-17	

Quality Control Summary

Sample ID: ATL Lab#: 1703947-03 / POX

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate Result</u>	<u>Spike Duplicate % Rec</u>	<u>Spike RPD</u>
Bromate	ND	10.0	10.6	106	10.6	106	1
QC Guidelines				80-120		80-120	NMT 15

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 1703947

Page 39 of 40

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Rachelle Aradé (Rachelle@atlglobal.com)
Sampler: T. Evans, R. Horton

RECEIVING LABORATORY:

Exova Inc.
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC12178- STANDARD TAT (RA)

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

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 1703947-03 ^{~2} / POX Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	11/21/17 17:00	Groundwater 12/04/17 12:25	11/06/17 12:25	
ATL Lab#: 1703947-06 ^{~2} / INF Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	11/21/17 17:00	Groundwater 12/04/17 12:10	11/06/17 12:10	

11-08-17 CP: Sample also has:

① H ② F

217720

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Raytheon Main GETS Monthly Sample

Fax 858.455.6533

Page 1 of 1

SAMPLE COLLECTION

Laboratory
Advanced Technology
Laboratories
Contact: Rachelle Arada
275 Walnut Ave
Walnut Hill, CA 90755
(562) 989-4045

Total No. of Containers:	39
--------------------------	----

Total No. of Containers:	39
--------------------------	----

Date / Time _____

Date / Time

11/06/14

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

9171 Towne Centre Drive
Suite 275
San Diego, CA 92122
Ph: 858.455.6500
snetto@hargis.com

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.

Temperature on receipt

Page 40 of 40



November 29, 2017

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

Re: ATL Work Order Number : 1704134

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on November 20, 2017 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", with a small "ER" monogram to the left.

Eddie Rodriguez
Laboratory Director

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



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/29/2017

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-112017	1704134-01	Lab prepared water	11/20/17 8:00	11/20/17 11:46
CEFF	1704134-02	Groundwater	11/20/17 8:55	11/20/17 11:46
CBT	1704134-03	Groundwater	11/20/17 9:05	11/20/17 11:46
POX	1704134-04	Groundwater	11/20/17 9:15	11/20/17 11:46
INF	1704134-05	Groundwater	11/20/17 9:25	11/20/17 11:46
EW-02	1704134-06	Groundwater	11/20/17 9:40	11/20/17 11:46
MW-29	1704134-07	Groundwater	11/20/17 9:50	11/20/17 11:46



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 : 11/29/2017

Client Sample ID TB-112017

Lab ID: 1704134-01

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	B7K0686	11/22/2017	11/22/17 20:01	
1,1,1-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,1,2-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,1-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,1-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,1-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2,3-Trichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2-Dibromoethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,3-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,3-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
1,4-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
2,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
2-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
4-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
4-Isopropyltoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Benzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Bromobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Bromodichloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Bromoform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Bromomethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Carbon tetrachloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Chlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Chloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Chloroform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Chloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Dibromochloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	



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 : 11/29/2017

Client Sample ID TB-112017

Lab ID: 1704134-01

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	B7K0686	11/22/2017	11/22/17 20:01	
Dichlorodifluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Ethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Hexachlorobutadiene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Isopropylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
m,p-Xylene	ND	1.0	1	B7K0686	11/22/2017	11/22/17 20:01	
Methylene chloride	ND	1.0	1	B7K0686	11/22/2017	11/22/17 20:01	
n-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
n-Propylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Naphthalene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
o-Xylene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
sec-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Styrene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
tert-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Tetrachloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Toluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Trichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Trichlorofluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Vinyl chloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:01	
Surrogate: 1,2-Dichloroethane-d4	96.8 %	70 - 166		B7K0686	11/22/2017	11/22/17 20:01	
Surrogate: 4-Bromofluorobenzene	98.6 %	88 - 120		B7K0686	11/22/2017	11/22/17 20:01	
Surrogate: Dibromofluoromethane	99.7 %	80 - 150		B7K0686	11/22/2017	11/22/17 20:01	
Surrogate: Toluene-d8	101 %	87 - 121		B7K0686	11/22/2017	11/22/17 20:01	



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 : 11/29/2017

Client Sample ID CEFF

Lab ID: 1704134-02

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	B7K0686	11/22/2017	11/22/17 20:24	
1,1,1-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,1,2-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,1-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,1-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,1-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2,3-Trichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2-Dibromoethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,3-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,3-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
1,4-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
2,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
2-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
4-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
4-Isopropyltoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Benzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Bromobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Bromodichloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Bromoform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Bromomethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Carbon tetrachloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Chlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Chloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Chloroform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Chloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Dibromochloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	



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 : 11/29/2017

Client Sample ID CEFF

Lab ID: 1704134-02

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	B7K0686	11/22/2017	11/22/17 20:24	
Dichlorodifluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Ethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Hexachlorobutadiene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Isopropylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
m,p-Xylene	ND	1.0	1	B7K0686	11/22/2017	11/22/17 20:24	
Methylene chloride	ND	1.0	1	B7K0686	11/22/2017	11/22/17 20:24	
n-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
n-Propylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Naphthalene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
o-Xylene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
sec-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Styrene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
tert-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Tetrachloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Toluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Trichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Trichlorofluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Vinyl chloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:24	
Surrogate: 1,2-Dichloroethane-d4	98.9 %	70 - 166		B7K0686	11/22/2017	11/22/17 20:24	
Surrogate: 4-Bromofluorobenzene	100 %	88 - 120		B7K0686	11/22/2017	11/22/17 20:24	
Surrogate: Dibromofluoromethane	103 %	80 - 150		B7K0686	11/22/2017	11/22/17 20:24	
Surrogate: Toluene-d8	101 %	87 - 121		B7K0686	11/22/2017	11/22/17 20:24	



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 : 11/29/2017

Client Sample ID CEFF

Lab ID: 1704134-02

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0635	11/21/2017	11/27/17 15:10	
Surrogate: 1,2-Dichlorobenzene-d4	76.7 %	32 - 99		B7K0635	11/21/2017	11/27/17 15:10	
Surrogate: 2-Fluorobiphenyl	79.6 %	29 - 105		B7K0635	11/21/2017	11/27/17 15:10	
Surrogate: 4-Terphenyl-d14	81.8 %	32 - 119		B7K0635	11/21/2017	11/27/17 15:10	
Surrogate: Nitrobenzene-d5	89.1 %	17 - 123		B7K0635	11/21/2017	11/27/17 15:10	



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 : 11/29/2017

Client Sample ID CBT

Lab ID: 1704134-03

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	B7K0686	11/22/2017	11/22/17 20:47	
1,1,1-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,1,2-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,1-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,1-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,1-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2,3-Trichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2-Dibromoethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,3-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,3-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
1,4-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
2,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
2-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
4-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
4-Isopropyltoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Benzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Bromobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Bromodichloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Bromoform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Bromomethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Carbon tetrachloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Chlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Chloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Chloroform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Chloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Dibromochloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	



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 : 11/29/2017

Client Sample ID CBT

Lab ID: 1704134-03

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	B7K0686	11/22/2017	11/22/17 20:47	
Dichlorodifluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Ethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Hexachlorobutadiene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Isopropylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
m,p-Xylene	ND	1.0	1	B7K0686	11/22/2017	11/22/17 20:47	
Methylene chloride	ND	1.0	1	B7K0686	11/22/2017	11/22/17 20:47	
n-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
n-Propylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Naphthalene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
o-Xylene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
sec-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Styrene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
tert-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Tetrachloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Toluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Trichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Trichlorofluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Vinyl chloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 20:47	
Surrogate: 1,2-Dichloroethane-d4	94.0 %	70 - 166		B7K0686	11/22/2017	11/22/17 20:47	
Surrogate: 4-Bromofluorobenzene	99.0 %	88 - 120		B7K0686	11/22/2017	11/22/17 20:47	
Surrogate: Dibromofluoromethane	101 %	80 - 150		B7K0686	11/22/2017	11/22/17 20:47	
Surrogate: Toluene-d8	99.8 %	87 - 121		B7K0686	11/22/2017	11/22/17 20:47	



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 : 11/29/2017

Client Sample ID CBT

Lab ID: 1704134-03

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0635	11/21/2017	11/27/17 15:36	
Surrogate: 1,2-Dichlorobenzene-d4	65.0 %	32 - 99		B7K0635	11/21/2017	11/27/17 15:36	
Surrogate: 2-Fluorobiphenyl	67.8 %	29 - 105		B7K0635	11/21/2017	11/27/17 15:36	
Surrogate: 4-Terphenyl-d14	81.1 %	32 - 119		B7K0635	11/21/2017	11/27/17 15:36	
Surrogate: Nitrobenzene-d5	76.5 %	17 - 123		B7K0635	11/21/2017	11/27/17 15:36	



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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 : 11/29/2017

Client Sample ID POX

Lab ID: 1704134-04

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	B7K0686	11/22/2017	11/22/17 21:10	
1,1,1-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,1,2-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,1-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,1-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,1-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2,3-Trichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2-Dibromoethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,3-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,3-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
1,4-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
2,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
2-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
4-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
4-Isopropyltoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Benzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Bromobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Bromodichloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Bromoform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Bromomethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Carbon tetrachloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Chlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Chloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Chloroform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Chloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Dibromochloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	



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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 : 11/29/2017

Client Sample ID POX

Lab ID: 1704134-04

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	B7K0686	11/22/2017	11/22/17 21:10	
Dichlorodifluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Ethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Hexachlorobutadiene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Isopropylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
m,p-Xylene	ND	1.0	1	B7K0686	11/22/2017	11/22/17 21:10	
Methylene chloride	ND	1.0	1	B7K0686	11/22/2017	11/22/17 21:10	
n-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
n-Propylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Naphthalene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
o-Xylene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
sec-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Styrene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
tert-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Tetrachloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Toluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Trichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Trichlorofluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Vinyl chloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:10	
Surrogate: 1,2-Dichloroethane-d4	96.0 %	70 - 166		B7K0686	11/22/2017	11/22/17 21:10	
Surrogate: 4-Bromofluorobenzene	98.2 %	88 - 120		B7K0686	11/22/2017	11/22/17 21:10	
Surrogate: Dibromofluoromethane	98.8 %	80 - 150		B7K0686	11/22/2017	11/22/17 21:10	
Surrogate: Toluene-d8	100 %	87 - 121		B7K0686	11/22/2017	11/22/17 21:10	



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 : 11/29/2017

Client Sample ID POX

Lab ID: 1704134-04

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	0.20	1	B7K0635	11/21/2017	11/27/17 16:03	
Surrogate: 1,2-Dichlorobenzene-d4	82.8 %	32 - 99		B7K0635	11/21/2017	11/27/17 16:03	
Surrogate: 2-Fluorobiphenyl	82.9 %	29 - 105		B7K0635	11/21/2017	11/27/17 16:03	
Surrogate: 4-Terphenyl-d14	83.2 %	32 - 119		B7K0635	11/21/2017	11/27/17 16:03	
Surrogate: Nitrobenzene-d5	94.3 %	17 - 123		B7K0635	11/21/2017	11/27/17 16:03	



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 : 11/29/2017

Client Sample ID INF

Lab ID: 1704134-05

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	B7K0686	11/22/2017	11/22/17 21:34	
1,1,1-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,1,2-Trichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,1-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,1-Dichloroethene	25	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,1-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2,3-Trichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2-Dibromoethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2-Dichloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,3-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,3-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
1,4-Dichlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
2,2-Dichloropropane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
2-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
4-Chlorotoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
4-Isopropyltoluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Benzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Bromobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Bromodichloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Bromoform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Bromomethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Carbon tetrachloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Chlorobenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Chloroethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Chloroform	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Chloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Dibromochloromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	



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 : 11/29/2017

Client Sample ID INF

Lab ID: 1704134-05

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	B7K0686	11/22/2017	11/22/17 21:34	
Dichlorodifluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Ethylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Hexachlorobutadiene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Isopropylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
m,p-Xylene	ND	1.0	1	B7K0686	11/22/2017	11/22/17 21:34	
Methylene chloride	ND	1.0	1	B7K0686	11/22/2017	11/22/17 21:34	
n-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
n-Propylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Naphthalene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
o-Xylene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
sec-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Styrene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
tert-Butylbenzene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Tetrachloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Toluene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Trichloroethene	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Trichlorofluoromethane	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Vinyl chloride	ND	0.50	1	B7K0686	11/22/2017	11/22/17 21:34	
Surrogate: 1,2-Dichloroethane-d4	103 %	70 - 166		B7K0686	11/22/2017	11/22/17 21:34	
Surrogate: 4-Bromofluorobenzene	101 %	88 - 120		B7K0686	11/22/2017	11/22/17 21:34	
Surrogate: Dibromofluoromethane	102 %	80 - 150		B7K0686	11/22/2017	11/22/17 21:34	
Surrogate: Toluene-d8	105 %	87 - 121		B7K0686	11/22/2017	11/22/17 21:34	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/29/2017

Client Sample ID INF

Lab ID: 1704134-05

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	9.9	2.0	1	B7K0712	11/27/2017	11/27/17 16:12	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>44.1 %</i>	<i>17 - 101</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 16:12</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>48.7 %</i>	<i>29 - 109</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 16:12</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>96.4 %</i>	<i>49 - 122</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 16:12</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>45.4 %</i>	<i>19 - 111</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 16:12</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 : 11/29/2017

Client Sample ID EW-02

Lab ID: 1704134-06

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,1,1-Trichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,1,2-Trichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,1-Dichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,1-Dichloroethene	5.7	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,1-Dichloropropene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2,3-Trichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2-Dibromoethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2-Dichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2-Dichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,2-Dichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,3-Dichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,3-Dichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
1,4-Dichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
2,2-Dichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
2-Chlorotoluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
4-Chlorotoluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
4-Isopropyltoluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Benzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Bromobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Bromodichloromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Bromoform	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Bromomethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Carbon tetrachloride	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Chlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Chloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Chloroform	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Chloromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Dibromochloromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	



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 : 11/29/2017

Client Sample ID EW-02

Lab ID: 1704134-06

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Dichlorodifluoromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Ethylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Hexachlorobutadiene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Isopropylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
m,p-Xylene	ND	1.0	1	B7K0725	11/27/2017	11/27/17 14:43	
Methylene chloride	ND	1.0	1	B7K0725	11/27/2017	11/27/17 14:43	
n-Butylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
n-Propylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Naphthalene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
o-Xylene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
sec-Butylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Styrene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
tert-Butylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Tetrachloroethene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Toluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Trichloroethene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Trichlorofluoromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Vinyl chloride	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:43	
Surrogate: 1,2-Dichloroethane-d4	97.3 %	70 - 166		B7K0725	11/27/2017	11/27/17 14:43	
Surrogate: 4-Bromofluorobenzene	103 %	88 - 120		B7K0725	11/27/2017	11/27/17 14:43	
Surrogate: Dibromofluoromethane	102 %	80 - 150		B7K0725	11/27/2017	11/27/17 14:43	
Surrogate: Toluene-d8	104 %	87 - 121		B7K0725	11/27/2017	11/27/17 14:43	



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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 : 11/29/2017

Client Sample ID EW-02

Lab ID: 1704134-06

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	ND	2.0	1	B7K0712	11/27/2017	11/27/17 16:39	
Surrogate: 1,2-Dichlorobenzene-d4	51.4 %	17 - 101		B7K0712	11/27/2017	11/27/17 16:39	
Surrogate: 2-Fluorobiphenyl	57.3 %	29 - 109		B7K0712	11/27/2017	11/27/17 16:39	
Surrogate: 4-Terphenyl-d14	112 %	49 - 122		B7K0712	11/27/2017	11/27/17 16:39	
Surrogate: Nitrobenzene-d5	51.2 %	19 - 111		B7K0712	11/27/2017	11/27/17 16:39	



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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 : 11/29/2017

Client Sample ID MW-29

Lab ID: 1704134-07

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,1,1-Trichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,1,2-Trichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,1-Dichloroethane	1.3	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,1-Dichloroethene	120	5.0	10	B7K0725	11/27/2017	11/27/17 16:39	
1,1-Dichloropropene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2,3-Trichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2,3-Trichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2,4-Trichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2,4-Trimethylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2-Dibromoethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2-Dichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2-Dichloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,2-Dichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,3,5-Trimethylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,3-Dichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,3-Dichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
1,4-Dichlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
2,2-Dichloropropane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
2-Chlorotoluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
4-Chlorotoluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
4-Isopropyltoluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Benzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Bromobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Bromodichloromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Bromoform	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Bromomethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Carbon tetrachloride	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Chlorobenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Chloroethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Chloroform	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Chloromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
cis-1,2-Dichloroethene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
cis-1,3-Dichloropropene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Dibromochloromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	



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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 : 11/29/2017

Client Sample ID MW-29

Lab ID: 1704134-07

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Dichlorodifluoromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Ethylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Hexachlorobutadiene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Isopropylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
m,p-Xylene	ND	1.0	1	B7K0725	11/27/2017	11/27/17 14:20	
Methylene chloride	ND	1.0	1	B7K0725	11/27/2017	11/27/17 14:20	
n-Butylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
n-Propylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Naphthalene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
o-Xylene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
sec-Butylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Styrene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
tert-Butylbenzene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Tetrachloroethene	0.56	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Toluene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
trans-1,2-Dichloroethene	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Trichloroethene	1.0	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Trichlorofluoromethane	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
Vinyl chloride	ND	0.50	1	B7K0725	11/27/2017	11/27/17 14:20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>	<i>70 - 166</i>		B7K0725	11/27/2017	<i>11/27/17 16:39</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>98.6 %</i>	<i>70 - 166</i>		B7K0725	11/27/2017	<i>11/27/17 14:20</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>88 - 120</i>		B7K0725	11/27/2017	<i>11/27/17 16:39</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>88 - 120</i>		B7K0725	11/27/2017	<i>11/27/17 14:20</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>80 - 150</i>		B7K0725	11/27/2017	<i>11/27/17 16:39</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>	<i>80 - 150</i>		B7K0725	11/27/2017	<i>11/27/17 14:20</i>	
<i>Surrogate: Toluene-d8</i>	<i>98.4 %</i>	<i>87 - 121</i>		B7K0725	11/27/2017	<i>11/27/17 14:20</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>87 - 121</i>		B7K0725	11/27/2017	<i>11/27/17 16:39</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 : 11/29/2017

Client Sample ID MW-29

Lab ID: 1704134-07

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

Analyst: SP

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,4-Dioxane	47	2.0	1	B7K0712	11/27/2017	11/27/17 17:06	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>46.4 %</i>	<i>17 - 101</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 17:06</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>55.2 %</i>	<i>29 - 109</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 17:06</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>93.9 %</i>	<i>49 - 122</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 17:06</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>46.9 %</i>	<i>19 - 111</i>		<i>B7K0712</i>	<i>11/27/2017</i>	<i>11/27/17 17:06</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 : 11/29/2017

QUALITY CONTROL SECTION

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0686 - MSVOA_W

Blank (B7K0686-BLK1)

Prepared: 11/22/2017 Analyzed: 11/22/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31



Certificate of Analysis

Hargis & Associates, Inc.

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0686 - MSVOA_W (continued)

Blank (B7K0686-BLK1) - Continued

Prepared: 11/22/2017 Analyzed: 11/22/2017

Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	25.36		25.0000	101	70 - 166
Surrogate: 4-Bromofluorobenzene	25.20		25.0000	101	88 - 120
Surrogate: Dibromofluoromethane	25.99		25.0000	104	80 - 150
Surrogate: Toluene-d8	25.36		25.0000	101	87 - 121

LCS (B7K0686-BS1)

Prepared: 11/22/2017 Analyzed: 11/22/2017

1,1,1,2-Tetrachloroethane	21.8500	0.50	0.13	20.0000	109	73 - 136
1,1,1-Trichloroethane	21.8800	0.50	0.38	20.0000	109	73 - 143
1,1,2,2-Tetrachloroethane	19.6000	0.50	0.20	20.0000	98.0	62 - 127
1,1,2-Trichloroethane	20.4000	0.50	0.19	20.0000	102	72 - 122
1,1-Dichloroethane	20.0100	0.50	0.20	20.0000	100	73 - 138
1,1-Dichloroethene	20.6700	0.50	0.28	20.0000	103	74 - 132
1,1-Dichloropropene	22.2400	0.50	0.36	20.0000	111	70 - 143
1,2,3-Trichloropropane	17.8700	0.50	0.16	20.0000	89.4	66 - 119
1,2,3-Trichlorobenzene	19.9600	0.50	0.06	20.0000	99.8	70 - 131
1,2,4-Trichlorobenzene	20.5200	0.50	0.07	20.0000	103	70 - 128
1,2,4-Trimethylbenzene	21.0700	0.50	0.09	20.0000	105	74 - 142
1,2-Dibromo-3-chloropropane	19.0100	0.50	0.20	20.0000	95.0	56 - 118
1,2-Dibromoethane	20.0600	0.50	0.13	20.0000	100	73 - 122
1,2-Dichlorobenzene	20.0900	0.50	0.12	20.0000	100	75 - 128
1,2-Dichloroethane	20.1400	0.50	0.39	20.0000	101	70 - 131
1,2-Dichloropropane	20.2900	0.50	0.47	20.0000	101	69 - 124
1,3,5-Trimethylbenzene	20.8800	0.50	0.08	20.0000	104	73 - 144



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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B7K0686 - MSVOA_W (continued)									
LCS (B7K0686-BS1) - Continued					Prepared: 11/22/2017 Analyzed: 11/22/2017				
1,3-Dichlorobenzene	20.7400	0.50	0.13	20.0000		104	75 - 131		
1,3-Dichloropropane	19.2200	0.50	0.08	20.0000		96.1	70 - 122		
1,4-Dichlorobenzene	19.9200	0.50	0.18	20.0000		99.6	75 - 127		
2,2-Dichloropropane	24.0900	0.50	0.23	20.0000		120	68 - 151		
2-Chlorotoluene	20.2200	0.50	0.12	20.0000		101	72 - 138		
4-Chlorotoluene	20.2000	0.50	0.11	20.0000		101	72 - 140		
4-Isopropyltoluene	21.2600	0.50	0.12	20.0000		106	74 - 149		
Benzene	41.6700	0.50	0.21	40.0000		104	67 - 138		
Bromobenzene	20.3800	0.50	0.12	20.0000		102	73 - 127		
Bromodichloromethane	20.9900	0.50	0.32	20.0000		105	74 - 129		
Bromoform	22.8700	0.50	0.14	20.0000		114	63 - 131		
Bromomethane	21.3000	0.50	0.22	20.0000		106	57 - 216		
Carbon tetrachloride	25.3000	0.50	0.31	20.0000		126	77 - 151		
Chlorobenzene	20.1600	0.50	0.16	20.0000		101	73 - 125		
Chloroethane	26.7800	0.50	0.29	20.0000		134	54 - 154		
Chloroform	20.9300	0.50	0.16	20.0000		105	77 - 132		
Chloromethane	19.2300	0.50	0.19	20.0000		96.2	57 - 142		
cis-1,2-Dichloroethene	19.7100	0.50	0.39	20.0000		98.6	73 - 126		
cis-1,3-Dichloropropene	21.3700	0.50	0.08	20.0000		107	76 - 120		
Dibromochloromethane	21.0300	0.50	0.11	20.0000		105	71 - 126		
Dibromomethane	19.6300	0.50	0.09	20.0000		98.2	73 - 121		
Dichlorodifluoromethane	21.1000	0.50	0.31	20.0000		106	48 - 152		
Ethylbenzene	42.3000	0.50	0.08	40.0000		106	72 - 134		
Hexachlorobutadiene	21.6900	0.50	0.22	20.0000		108	72 - 139		
Isopropylbenzene	20.4700	0.50	0.10	20.0000		102	73 - 146		
m,p-Xylene	40.7300	1.0	0.18	40.0000		102	75 - 138		
Methylene chloride	22.4200	1.0	0.26	20.0000		112	52 - 154		
n-Butylbenzene	21.6300	0.50	0.15	20.0000		108	72 - 151		
n-Propylbenzene	20.9900	0.50	0.14	20.0000		105	69 - 149		
Naphthalene	19.2100	0.50	0.09	20.0000		96.0	61 - 122		
o-Xylene	40.8200	0.50	0.04	40.0000		102	66 - 147		
sec-Butylbenzene	20.6700	0.50	0.15	20.0000		103	72 - 148		
Styrene	20.5300	0.50	0.05	20.0000		103	72 - 138		
tert-Butylbenzene	20.7800	0.50	0.11	20.0000		104	70 - 145		
Tetrachloroethene	21.2800	0.50	0.18	20.0000		106	61 - 145		
Toluene	41.2900	0.50	0.14	40.0000		103	70 - 140		
trans-1,2-Dichloroethene	20.3200	0.50	0.15	20.0000		102	73 - 130		
Trichloroethene	21.3700	0.50	0.15	20.0000		107	69 - 126		
Trichlorofluoromethane	23.2300	0.50	0.33	20.0000		116	70 - 159		
Vinyl chloride	22.0800	0.50	0.25	20.0000		110	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	25.00			25.0000		100	70 - 166		



Certificate of Analysis

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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
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Batch B7K0686 - MSVOA_W (continued)

LCS (B7K0686-BS1) - Continued

Prepared: 11/22/2017 Analyzed: 11/22/2017

Surrogate: 4-Bromofluorobenzene	25.69		25.0000		103	88 - 120			
Surrogate: Dibromofluoromethane	25.68		25.0000		103	80 - 150			
Surrogate: Toluene-d8	24.76		25.0000		99.0	87 - 121			

LCS Dup (B7K0686-BSD1)

Prepared: 11/22/2017 Analyzed: 11/22/2017

1,1,1,2-Tetrachloroethane	22.5700	0.50	0.13	20.0000	113	73 - 136	3.24	20	
1,1,1-Trichloroethane	21.7300	0.50	0.38	20.0000	109	73 - 143	0.688	20	
1,1,2,2-Tetrachloroethane	17.8500	0.50	0.20	20.0000	89.2	62 - 127	9.35	20	
1,1,2-Trichloroethane	20.6000	0.50	0.19	20.0000	103	72 - 122	0.976	20	
1,1-Dichloroethane	20.0900	0.50	0.20	20.0000	100	73 - 138	0.399	20	
1,1-Dichloroethene	19.6500	0.50	0.28	20.0000	98.2	74 - 132	5.06	20	
1,1-Dichloropropene	21.2300	0.50	0.36	20.0000	106	70 - 143	4.65	20	
1,2,3-Trichloropropane	19.3200	0.50	0.16	20.0000	96.6	66 - 119	7.80	20	
1,2,3-Trichlorobenzene	20.7200	0.50	0.06	20.0000	104	70 - 131	3.74	20	
1,2,4-Trichlorobenzene	20.1300	0.50	0.07	20.0000	101	70 - 128	1.92	20	
1,2,4-Trimethylbenzene	21.1600	0.50	0.09	20.0000	106	74 - 142	0.426	20	
1,2-Dibromo-3-chloropropane	19.9600	0.50	0.20	20.0000	99.8	56 - 118	4.88	20	
1,2-Dibromoethane	21.0300	0.50	0.13	20.0000	105	73 - 122	4.72	20	
1,2-Dichlorobenzene	20.5200	0.50	0.12	20.0000	103	75 - 128	2.12	20	
1,2-Dichloroethane	20.6800	0.50	0.39	20.0000	103	70 - 131	2.65	20	
1,2-Dichloropropane	19.1900	0.50	0.47	20.0000	96.0	69 - 124	5.57	20	
1,3,5-Trimethylbenzene	20.6400	0.50	0.08	20.0000	103	73 - 144	1.16	20	
1,3-Dichlorobenzene	20.2300	0.50	0.13	20.0000	101	75 - 131	2.49	20	
1,3-Dichloropropane	20.2700	0.50	0.08	20.0000	101	70 - 122	5.32	20	
1,4-Dichlorobenzene	19.7700	0.50	0.18	20.0000	98.8	75 - 127	0.756	20	
2,2-Dichloropropane	18.4200	0.50	0.23	20.0000	92.1	68 - 151	26.7	20	R
2-Chlorotoluene	20.3000	0.50	0.12	20.0000	102	72 - 138	0.395	20	
4-Chlorotoluene	19.6800	0.50	0.11	20.0000	98.4	72 - 140	2.61	20	
4-Isopropyltoluene	21.0300	0.50	0.12	20.0000	105	74 - 149	1.09	20	
Benzene	41.1900	0.50	0.21	40.0000	103	67 - 138	1.16	20	
Bromobenzene	20.7600	0.50	0.12	20.0000	104	73 - 127	1.85	20	
Bromodichloromethane	21.0300	0.50	0.32	20.0000	105	74 - 129	0.190	20	
Bromoform	22.9200	0.50	0.14	20.0000	115	63 - 131	0.218	20	
Bromomethane	23.6900	0.50	0.22	20.0000	118	57 - 216	10.6	20	
Carbon tetrachloride	24.4700	0.50	0.31	20.0000	122	77 - 151	3.34	20	
Chlorobenzene	20.5900	0.50	0.16	20.0000	103	73 - 125	2.11	20	
Chloroethane	24.4900	0.50	0.29	20.0000	122	54 - 154	8.93	20	
Chloroform	20.3500	0.50	0.16	20.0000	102	77 - 132	2.81	20	
Chloromethane	19.4700	0.50	0.19	20.0000	97.4	57 - 142	1.24	20	
cis-1,2-Dichloroethene	19.3800	0.50	0.39	20.0000	96.9	73 - 126	1.69	20	
cis-1,3-Dichloropropene	20.8600	0.50	0.08	20.0000	104	76 - 120	2.42	20	
Dibromochloromethane	21.6900	0.50	0.11	20.0000	108	71 - 126	3.09	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)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0686 - MSVOA_W (continued)

LCS Dup (B7K0686-BSD1) - Continued

Prepared: 11/22/2017 Analyzed: 11/22/2017

Dibromomethane	20.6300	0.50	0.09	20.0000		103	73 - 121	4.97	20	
Dichlorodifluoromethane	19.4700	0.50	0.31	20.0000		97.4	48 - 152	8.04	20	
Ethylbenzene	42.4100	0.50	0.08	40.0000		106	72 - 134	0.260	20	
Hexachlorobutadiene	20.9300	0.50	0.22	20.0000		105	72 - 139	3.57	20	
Isopropylbenzene	20.3700	0.50	0.10	20.0000		102	73 - 146	0.490	20	
m,p-Xylene	41.7400	1.0	0.18	40.0000		104	75 - 138	2.45	20	
Methylene chloride	19.9700	1.0	0.26	20.0000		99.8	52 - 154	11.6	20	
n-Butylbenzene	20.5800	0.50	0.15	20.0000		103	72 - 151	4.98	20	
n-Propylbenzene	20.2800	0.50	0.14	20.0000		101	69 - 149	3.44	20	
Naphthalene	20.4900	0.50	0.09	20.0000		102	61 - 122	6.45	20	
o-Xylene	41.5400	0.50	0.04	40.0000		104	66 - 147	1.75	20	
sec-Butylbenzene	20.6100	0.50	0.15	20.0000		103	72 - 148	0.291	20	
Styrene	21.0200	0.50	0.05	20.0000		105	72 - 138	2.36	20	
tert-Butylbenzene	20.9200	0.50	0.11	20.0000		105	70 - 145	0.671	20	
Tetrachloroethene	21.6800	0.50	0.18	20.0000		108	61 - 145	1.86	20	
Toluene	41.6900	0.50	0.14	40.0000		104	70 - 140	0.964	20	
trans-1,2-Dichloroethene	18.5300	0.50	0.15	20.0000		92.6	73 - 130	9.21	20	
Trichloroethene	22.8300	0.50	0.15	20.0000		114	69 - 126	6.61	20	
Trichlorofluoromethane	23.1900	0.50	0.33	20.0000		116	70 - 159	0.172	20	
Vinyl chloride	20.6500	0.50	0.25	20.0000		103	56 - 151	6.69	20	
Surrogate: 1,2-Dichloroethane-d4	25.52			25.0000		102	70 - 166			
Surrogate: 4-Bromofluorobenzene	25.50			25.0000		102	88 - 120			
Surrogate: Dibromofluoromethane	26.23			25.0000		105	80 - 150			
Surrogate: Toluene-d8	24.86			25.0000		99.4	87 - 121			



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Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0725 - MSVOA_W

Blank (B7K0725-BLK1)

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,1,1,2-Tetrachloroethane	ND	0.50	0.13
1,1,1-Trichloroethane	ND	0.50	0.38
1,1,2,2-Tetrachloroethane	ND	0.50	0.20
1,1,2-Trichloroethane	ND	0.50	0.19
1,1-Dichloroethane	ND	0.50	0.20
1,1-Dichloroethene	ND	0.50	0.28
1,1-Dichloropropene	ND	0.50	0.36
1,2,3-Trichloropropane	ND	0.50	0.16
1,2,3-Trichlorobenzene	ND	0.50	0.06
1,2,4-Trichlorobenzene	ND	0.50	0.07
1,2,4-Trimethylbenzene	ND	0.50	0.09
1,2-Dibromo-3-chloropropane	ND	0.50	0.20
1,2-Dibromoethane	ND	0.50	0.13
1,2-Dichlorobenzene	ND	0.50	0.12
1,2-Dichloroethane	ND	0.50	0.39
1,2-Dichloropropane	ND	0.50	0.47
1,3,5-Trimethylbenzene	ND	0.50	0.08
1,3-Dichlorobenzene	ND	0.50	0.13
1,3-Dichloropropane	ND	0.50	0.08
1,4-Dichlorobenzene	ND	0.50	0.18
2,2-Dichloropropane	ND	0.50	0.23
2-Chlorotoluene	ND	0.50	0.12
4-Chlorotoluene	ND	0.50	0.11
4-Isopropyltoluene	ND	0.50	0.12
Benzene	ND	0.50	0.21
Bromobenzene	ND	0.50	0.12
Bromodichloromethane	ND	0.50	0.32
Bromoform	ND	0.50	0.14
Bromomethane	ND	0.50	0.22
Carbon tetrachloride	ND	0.50	0.31
Chlorobenzene	ND	0.50	0.16
Chloroethane	ND	0.50	0.29
Chloroform	ND	0.50	0.16
Chloromethane	ND	0.50	0.19
cis-1,2-Dichloroethene	ND	0.50	0.39
cis-1,3-Dichloropropene	ND	0.50	0.08
Dibromochloromethane	ND	0.50	0.11
Dibromomethane	ND	0.50	0.09
Dichlorodifluoromethane	ND	0.50	0.31
Ethylbenzene	ND	0.50	0.08
Hexachlorobutadiene	ND	0.50	0.22



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Reported : 11/29/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0725 - MSVOA_W (continued)

Blank (B7K0725-BLK1) - Continued

Prepared: 11/27/2017 Analyzed: 11/27/2017

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.18
Methylene chloride	ND	1.0	0.26
n-Butylbenzene	ND	0.50	0.15
n-Propylbenzene	ND	0.50	0.14
Naphthalene	ND	0.50	0.09
o-Xylene	ND	0.50	0.04
sec-Butylbenzene	ND	0.50	0.15
Styrene	ND	0.50	0.05
tert-Butylbenzene	ND	0.50	0.11
Tetrachloroethene	ND	0.50	0.18
Toluene	ND	0.50	0.14
trans-1,2-Dichloroethene	ND	0.50	0.15
Trichloroethene	ND	0.50	0.15
Trichlorofluoromethane	ND	0.50	0.33
Vinyl chloride	ND	0.50	0.25

Surrogate: 1,2-Dichloroethane-d4	24.19		25.0000	96.8	70 - 166
Surrogate: 4-Bromofluorobenzene	25.42		25.0000	102	88 - 120
Surrogate: Dibromofluoromethane	26.34		25.0000	105	80 - 150
Surrogate: Toluene-d8	26.36		25.0000	105	87 - 121

LCS (B7K0725-BS1)

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,1,1,2-Tetrachloroethane	21.1100	0.50	0.13	20.0000	106	73 - 136
1,1,1-Trichloroethane	20.4100	0.50	0.38	20.0000	102	73 - 143
1,1,2,2-Tetrachloroethane	17.7200	0.50	0.20	20.0000	88.6	62 - 127
1,1,2-Trichloroethane	18.5300	0.50	0.19	20.0000	92.6	72 - 122
1,1-Dichloroethane	20.1800	0.50	0.20	20.0000	101	73 - 138
1,1-Dichloroethene	17.9700	0.50	0.28	20.0000	89.8	74 - 132
1,1-Dichloropropene	19.1100	0.50	0.36	20.0000	95.6	70 - 143
1,2,3-Trichloropropane	16.6800	0.50	0.16	20.0000	83.4	66 - 119
1,2,3-Trichlorobenzene	18.7100	0.50	0.06	20.0000	93.6	70 - 131
1,2,4-Trichlorobenzene	19.6300	0.50	0.07	20.0000	98.2	70 - 128
1,2,4-Trimethylbenzene	20.4200	0.50	0.09	20.0000	102	74 - 142
1,2-Dibromo-3-chloropropane	16.5600	0.50	0.20	20.0000	82.8	56 - 118
1,2-Dibromoethane	18.2400	0.50	0.13	20.0000	91.2	73 - 122
1,2-Dichlorobenzene	19.5500	0.50	0.12	20.0000	97.8	75 - 128
1,2-Dichloroethane	18.4900	0.50	0.39	20.0000	92.4	70 - 131
1,2-Dichloropropane	19.0700	0.50	0.47	20.0000	95.4	69 - 124
1,3,5-Trimethylbenzene	19.9700	0.50	0.08	20.0000	99.8	73 - 144
1,3-Dichlorobenzene	20.0700	0.50	0.13	20.0000	100	75 - 131
1,3-Dichloropropane	18.6300	0.50	0.08	20.0000	93.2	70 - 122



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 : 11/29/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0725 - MSVOA_W (continued)

LCS (B7K0725-BS1) - Continued

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,4-Dichlorobenzene	19.1700	0.50	0.18	20.0000		95.8	75 - 127		
2,2-Dichloropropane	23.3300	0.50	0.23	20.0000		117	68 - 151		
2-Chlorotoluene	20.1300	0.50	0.12	20.0000		101	72 - 138		
4-Chlorotoluene	20.0300	0.50	0.11	20.0000		100	72 - 140		
4-Isopropyltoluene	20.2900	0.50	0.12	20.0000		101	74 - 149		
Benzene	39.7400	0.50	0.21	40.0000		99.4	67 - 138		
Bromobenzene	19.5200	0.50	0.12	20.0000		97.6	73 - 127		
Bromodichloromethane	20.1500	0.50	0.32	20.0000		101	74 - 129		
Bromoform	19.5500	0.50	0.14	20.0000		97.8	63 - 131		
Bromomethane	25.1800	0.50	0.22	20.0000		126	57 - 216		
Carbon tetrachloride	21.8900	0.50	0.31	20.0000		109	77 - 151		
Chlorobenzene	19.1000	0.50	0.16	20.0000		95.5	73 - 125		
Chloroethane	26.9800	0.50	0.29	20.0000		135	54 - 154		
Chloroform	19.7800	0.50	0.16	20.0000		98.9	77 - 132		
Chloromethane	21.0600	0.50	0.19	20.0000		105	57 - 142		
cis-1,2-Dichloroethene	19.2400	0.50	0.39	20.0000		96.2	73 - 126		
cis-1,3-Dichloropropene	20.4800	0.50	0.08	20.0000		102	76 - 120		
Dibromochloromethane	19.8000	0.50	0.11	20.0000		99.0	71 - 126		
Dibromomethane	19.2900	0.50	0.09	20.0000		96.4	73 - 121		
Dichlorodifluoromethane	17.3100	0.50	0.31	20.0000		86.6	48 - 152		
Ethylbenzene	40.4100	0.50	0.08	40.0000		101	72 - 134		
Hexachlorobutadiene	19.9600	0.50	0.22	20.0000		99.8	72 - 139		
Isopropylbenzene	19.6600	0.50	0.10	20.0000		98.3	73 - 146		
m,p-Xylene	39.7400	1.0	0.18	40.0000		99.4	75 - 138		
Methylene chloride	18.6400	1.0	0.26	20.0000		93.2	52 - 154		
n-Butylbenzene	20.7800	0.50	0.15	20.0000		104	72 - 151		
n-Propylbenzene	19.9800	0.50	0.14	20.0000		99.9	69 - 149		
Naphthalene	18.1300	0.50	0.09	20.0000		90.6	61 - 122		
o-Xylene	39.3300	0.50	0.04	40.0000		98.3	66 - 147		
sec-Butylbenzene	19.6900	0.50	0.15	20.0000		98.4	72 - 148		
Styrene	20.3700	0.50	0.05	20.0000		102	72 - 138		
tert-Butylbenzene	19.5000	0.50	0.11	20.0000		97.5	70 - 145		
Tetrachloroethene	19.5600	0.50	0.18	20.0000		97.8	61 - 145		
Toluene	39.3700	0.50	0.14	40.0000		98.4	70 - 140		
trans-1,2-Dichloroethene	19.2100	0.50	0.15	20.0000		96.0	73 - 130		
Trichloroethene	18.7700	0.50	0.15	20.0000		93.8	69 - 126		
Trichlorofluoromethane	20.3000	0.50	0.33	20.0000		102	70 - 159		
Vinyl chloride	20.0200	0.50	0.25	20.0000		100	56 - 151		
Surrogate: 1,2-Dichloroethane-d4	25.07			25.0000		100	70 - 166		
Surrogate: 4-Bromofluorobenzene	26.01			25.0000		104	88 - 120		
Surrogate: Dibromofluoromethane	26.26			25.0000		105	80 - 150		



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 : 11/29/2017

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
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Batch B7K0725 - MSVOA_W (continued)

LCS (B7K0725-BS1) - Continued

Prepared: 11/27/2017 Analyzed: 11/27/2017

Surrogate: Toluene-d8 25.22 25.0000 101 87 - 121

LCS Dup (B7K0725-BSD1)

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,1,1,2-Tetrachloroethane	22.1900	0.50	0.13	20.0000	111	73 - 136	4.99	20	
1,1,1-Trichloroethane	21.2200	0.50	0.38	20.0000	106	73 - 143	3.89	20	
1,1,2,2-Tetrachloroethane	19.8500	0.50	0.20	20.0000	99.2	62 - 127	11.3	20	
1,1,2-Trichloroethane	19.9200	0.50	0.19	20.0000	99.6	72 - 122	7.23	20	
1,1-Dichloroethane	20.7400	0.50	0.20	20.0000	104	73 - 138	2.74	20	
1,1-Dichloroethene	18.7900	0.50	0.28	20.0000	94.0	74 - 132	4.46	20	
1,1-Dichloropropene	20.0400	0.50	0.36	20.0000	100	70 - 143	4.75	20	
1,2,3-Trichloropropane	17.9000	0.50	0.16	20.0000	89.5	66 - 119	7.06	20	
1,2,3-Trichlorobenzene	20.7500	0.50	0.06	20.0000	104	70 - 131	10.3	20	
1,2,4-Trichlorobenzene	20.6700	0.50	0.07	20.0000	103	70 - 128	5.16	20	
1,2,4-Trimethylbenzene	21.1400	0.50	0.09	20.0000	106	74 - 142	3.46	20	
1,2-Dibromo-3-chloropropane	18.0400	0.50	0.20	20.0000	90.2	56 - 118	8.55	20	
1,2-Dibromoethane	19.2800	0.50	0.13	20.0000	96.4	73 - 122	5.54	20	
1,2-Dichlorobenzene	20.6200	0.50	0.12	20.0000	103	75 - 128	5.33	20	
1,2-Dichloroethane	19.3800	0.50	0.39	20.0000	96.9	70 - 131	4.70	20	
1,2-Dichloropropane	20.6200	0.50	0.47	20.0000	103	69 - 124	7.81	20	
1,3,5-Trimethylbenzene	21.1500	0.50	0.08	20.0000	106	73 - 144	5.74	20	
1,3-Dichlorobenzene	21.1600	0.50	0.13	20.0000	106	75 - 131	5.29	20	
1,3-Dichloropropane	19.2500	0.50	0.08	20.0000	96.2	70 - 122	3.27	20	
1,4-Dichlorobenzene	20.3500	0.50	0.18	20.0000	102	75 - 127	5.97	20	
2,2-Dichloropropane	24.3200	0.50	0.23	20.0000	122	68 - 151	4.16	20	
2-Chlorotoluene	20.9600	0.50	0.12	20.0000	105	72 - 138	4.04	20	
4-Chlorotoluene	21.0000	0.50	0.11	20.0000	105	72 - 140	4.73	20	
4-Isopropyltoluene	21.4700	0.50	0.12	20.0000	107	74 - 149	5.65	20	
Benzene	41.2100	0.50	0.21	40.0000	103	67 - 138	3.63	20	
Bromobenzene	20.7300	0.50	0.12	20.0000	104	73 - 127	6.01	20	
Bromodichloromethane	20.8800	0.50	0.32	20.0000	104	74 - 129	3.56	20	
Bromoform	21.9400	0.50	0.14	20.0000	110	63 - 131	11.5	20	
Bromomethane	29.2900	0.50	0.22	20.0000	146	57 - 216	15.1	20	
Carbon tetrachloride	22.5300	0.50	0.31	20.0000	113	77 - 151	2.88	20	
Chlorobenzene	20.1300	0.50	0.16	20.0000	101	73 - 125	5.25	20	
Chloroethane	27.6200	0.50	0.29	20.0000	138	54 - 154	2.34	20	
Chloroform	21.0300	0.50	0.16	20.0000	105	77 - 132	6.13	20	
Chloromethane	22.6200	0.50	0.19	20.0000	113	57 - 142	7.14	20	
cis-1,2-Dichloroethene	19.7900	0.50	0.39	20.0000	99.0	73 - 126	2.82	20	
cis-1,3-Dichloropropene	21.5400	0.50	0.08	20.0000	108	76 - 120	5.05	20	
Dibromochloromethane	21.4900	0.50	0.11	20.0000	107	71 - 126	8.19	20	
Dibromomethane	19.7900	0.50	0.09	20.0000	99.0	73 - 121	2.56	20	
Dichlorodifluoromethane	18.5100	0.50	0.31	20.0000	92.6	48 - 152	6.70	20	



Certificate of Analysis

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Reported : 11/29/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0725 - MSVOA_W (continued)

LCS Dup (B7K0725-BSD1) - Continued

Prepared: 11/27/2017 Analyzed: 11/27/2017

Ethylbenzene	42.6300	0.50	0.08	40.0000		107	72 - 134	5.35	20	
Hexachlorobutadiene	21.1600	0.50	0.22	20.0000		106	72 - 139	5.84	20	
Isopropylbenzene	20.3600	0.50	0.10	20.0000		102	73 - 146	3.50	20	
m,p-Xylene	41.9300	1.0	0.18	40.0000		105	75 - 138	5.36	20	
Methylene chloride	20.0500	1.0	0.26	20.0000		100	52 - 154	7.29	20	
n-Butylbenzene	21.5900	0.50	0.15	20.0000		108	72 - 151	3.82	20	
n-Propylbenzene	20.8600	0.50	0.14	20.0000		104	69 - 149	4.31	20	
Naphthalene	19.5000	0.50	0.09	20.0000		97.5	61 - 122	7.28	20	
o-Xylene	41.0400	0.50	0.04	40.0000		103	66 - 147	4.26	20	
sec-Butylbenzene	20.5400	0.50	0.15	20.0000		103	72 - 148	4.23	20	
Styrene	21.5000	0.50	0.05	20.0000		108	72 - 138	5.40	20	
tert-Butylbenzene	20.6500	0.50	0.11	20.0000		103	70 - 145	5.73	20	
Tetrachloroethene	19.2800	0.50	0.18	20.0000		96.4	61 - 145	1.44	20	
Toluene	41.1400	0.50	0.14	40.0000		103	70 - 140	4.40	20	
trans-1,2-Dichloroethene	22.9500	0.50	0.15	20.0000		115	73 - 130	17.7	20	
Trichloroethene	20.3400	0.50	0.15	20.0000		102	69 - 126	8.03	20	
Trichlorofluoromethane	20.7400	0.50	0.33	20.0000		104	70 - 159	2.14	20	
Vinyl chloride	21.1800	0.50	0.25	20.0000		106	56 - 151	5.63	20	
Surrogate: 1,2-Dichloroethane-d4	27.41			25.0000		110	70 - 166			
Surrogate: 4-Bromofluorobenzene	26.03			25.0000		104	88 - 120			
Surrogate: Dibromofluoromethane	27.01			25.0000		108	80 - 150			
Surrogate: Toluene-d8	25.83			25.0000		103	87 - 121			



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

Report To : Steve Netto

Reported : 11/29/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0712 - MSSEMI_W

Blank (B7K0712-BLK1)

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	47.83			100.000		47.8	17 - 101		
Surrogate: 2-Fluorobiphenyl	54.07			100.000		54.1	29 - 109		
Surrogate: 4-Terphenyl-d14	97.67			100.000		97.7	49 - 122		
Surrogate: Nitrobenzene-d5	50.01			100.000		50.0	19 - 111		

LCS (B7K0712-BS1)

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,4-Dioxane	114.140	2.0	0.84	100.000		114	85 - 121		
Surrogate: 1,2-Dichlorobenzene-d	50.32			100.000		50.3	17 - 101		
Surrogate: 2-Fluorobiphenyl	73.54			100.000		73.5	29 - 109		
Surrogate: 4-Terphenyl-d14	84.55			100.000		84.6	49 - 122		
Surrogate: Nitrobenzene-d5	57.95			100.000		58.0	19 - 111		

LCS Dup (B7K0712-BSD1)

Prepared: 11/27/2017 Analyzed: 11/27/2017

1,4-Dioxane	107.760	2.0	0.84	100.000		108	85 - 121	5.75	20
Surrogate: 1,2-Dichlorobenzene-d	53.74			100.000		53.7	17 - 101		
Surrogate: 2-Fluorobiphenyl	76.31			100.000		76.3	29 - 109		
Surrogate: 4-Terphenyl-d14	82.74			100.000		82.7	49 - 122		
Surrogate: Nitrobenzene-d5	60.00			100.000		60.0	19 - 111		



Certificate of Analysis

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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 11/29/2017

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

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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Batch B7K0635 - MSSEMI_W

Blank (B7K0635-BLK1)

Prepared: 11/21/2017 Analyzed: 11/27/2017

1,4-Dioxane	ND	0.20	0.11						
Surrogate: 1,2-Dichlorobenzene-d	0.7931			1.00000		79.3	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8145			1.00000		81.5	29 - 105		
Surrogate: 4-Terphenyl-d14	0.8824			1.00000		88.2	32 - 119		
Surrogate: Nitrobenzene-d5	0.9636			1.00000		96.4	17 - 123		

LCS (B7K0635-BS1)

Prepared: 11/21/2017 Analyzed: 11/27/2017

1,4-Dioxane	0.914910	0.20	0.11	1.00000		91.5	61 - 166		
Surrogate: 1,2-Dichlorobenzene-d	0.7473			1.00000		74.7	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.7839			1.00000		78.4	29 - 105		
Surrogate: 4-Terphenyl-d14	0.8519			1.00000		85.2	32 - 119		
Surrogate: Nitrobenzene-d5	0.8876			1.00000		88.8	17 - 123		

LCS Dup (B7K0635-BSD1)

Prepared: 11/21/2017 Analyzed: 11/27/2017

1,4-Dioxane	0.885580	0.20	0.11	1.00000		88.6	61 - 166	3.26	20
Surrogate: 1,2-Dichlorobenzene-d	0.7808			1.00000		78.1	32 - 99		
Surrogate: 2-Fluorobiphenyl	0.8210			1.00000		82.1	29 - 105		
Surrogate: 4-Terphenyl-d14	0.8561			1.00000		85.6	32 - 119		
Surrogate: Nitrobenzene-d5	0.9401			1.00000		94.0	17 - 123		



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Notes and Definitions

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)

Notes:

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



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

Date: 11/20/2017
Page 1 of 1

PROJECT: Raytheon Main GETS Mid Month Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Steve Stewart

Phone 858.455.6500

Fax 858.455.6533

Sampled By:		SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED		Expected Concentration Range (ppb) for		SPECIAL HANDLING		REMARKS																				
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	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 Hour TAT	5 Day TAT	Level IV Data Validation Requested	MS/MSD Requested		
1704134-01	TB-112017	11/20/2017	8:00		X	X			X	2						X									X											
	CEFF	11/20/2017	8:55		X	X			X	3						1	X								X	X										
	CBT	11/20/2017	9:05		X	X			X	3						1	X								X	X										
	POX	11/20/2017	9:15		X	X			X	3						1	X								X	X										
	INF	11/20/2017	9:25		X	X			X	3						1	X							X				X								
	EW-02	11/20/2017	9:40		X	X			X	3						1	X							X			X									
	MW-29	11/20/2017	9:50		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																														
RD H+ / H+A		11/20/2017 11:46		FPOW		11/20/17 11:46																														
Relinquished By: / Company:		Date / Time		Received By: / Company		Date / Time																														

☒ 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 ✕
- Note applicable preservatives, special instructions, and deviations from typical environmental samples. Consult project QA documents for specific instructions.

0.4°C 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