



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

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

July 14, 2020

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, Second Quarter 2020, 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 second quarter 2020 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 second quarter 2020 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 second quarter 2020 groundwater monitoring and pilot GETS operation from March through May 2020 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 May 2020 in general accordance with the GMWPSAP and Addendum No. 1 (H+A, 2003 and 2011a) (Table 1).

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 May 26 and May 28, 2020 (Table 2).

Other Offices:
Folsom, CA
Mesa, AZ
Tucson, AZ

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Groundwater samples were collected during the period from May 26 through May 28, 2020 (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 two 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 two-screen-volume purge method to the conventional three-screen-volume purge method which has been used historically at the Site for the large-volume monitor wells. Groundwater samples were collected after both two- and three-screen volumes had been purged from monitor wells MW-33 and MW-36 (Table 3; Appendix B).

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) samples collected in May 2020 consisted of trip blanks, field duplicates, equipment rinsate blanks, and a laboratory split sample. Trip blanks were provided by ATL. Field duplicate samples were collected for analysis of VOCs and 1,4-dioxane from monitor wells MW-31 and MW-32B in May 2020 (Table 3). Split samples were collected for analysis of VOCs and 1,4-dioxane from monitor well MW-31 in May 2020 (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. All results for groundwater samples collected from monitor wells MW-31 and MW-32B are within quality control criteria. The following table summarizes the principal Site compounds, 1,1-dichloroethylene (1,1-DCE), trichloroethylene (TCE) and 1,4-dioxane, results in the original, field duplicate and laboratory split groundwater samples, as well as the calculated RPDs and assigned qualifier flag, if any.

Well ID / Collection Date	Compound	Original (ug/l)	Duplicate (ug/l)	RPD (percent)	Split (ug/l)	RPD (percent)	Qualifier Flag
MW-31 5/28/20	1,1-DCE	38	43	12	41	7.6	
	TCE	3.8	3.5	8.2	3.8	0	
	1,4-dioxane	2.1	2.2	4.7	2.1	0	
MW-32B 5/27/20	1,1-DCE	58	57	1.7	--	--	
	TCE	14	14	0	--	--	
	1,4-dioxane	13	15	14	--	--	

ug/l = micrograms per liter

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The following table summarizes H+A project QA/QC criteria for field duplicate and laboratory split RPDs.

Range of detection	RPD Criteria (percent)	Project Qualifier Flag	Note
PQL to 10x PQL	< 100	E (estimated) or U (unusable)	Project qualifier flag may be assigned if RPD criteria is not met and/or result is not consistent with data trending
10x PQL to 100x PQL	< 30		
>100x PQL	< 50		

PQL = practical quantitation limit (undiluted)

< = less than

> = greater than

The data quality assessment also included review of laboratory QA/QC results. There was a detection of chloromethane at a concentration of 0.12 J ug/l in one of the laboratory method blanks suggesting that chloromethane was present in the laboratory during extraction and/or analysis of the groundwater samples (Appendix B). There were also low level detections of chloromethane ranging from 0.12 J ug/l to 0.35 J ug/l in 21 of the 25 groundwater, trip blank, and equipment blank samples submitted to the laboratory. Due to the presence of chloromethane in the laboratory method blank, all chloromethane detections have been qualified as unusable.

In addition to the chloromethane detections, there was a detection of chloroform at a concentration of 0.067 J ug/l in the trip blank analyzed at the split laboratory. Chloroform was detected in the associated laboratory method blank but not in the associated groundwater samples, so groundwater samples results were not project qualified. There were no other detections of VOCs or 1,4-dioxane in the trip blanks and/or laboratory method blanks analyzed with groundwater samples collected during the May 2020 groundwater monitoring event (Table 3; Appendix B). All other 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 March to May 2020. The pilot GETS consists of four groundwater extraction wells, the treatment system, and the disposal system; however, the current phase of pilot testing is operating using only two extraction wells, EW-02 and MW-29. Current extraction rates are nominally 40 gallons per minute (gpm) from extraction well EW-02 and nominally 10 gpm from extraction well MW-29. The treatment system processes extracted groundwater through an advanced oxidation unit that utilizes ultraviolet (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 to utilize the maximum local sewer capacity. Beginning in March 2010, the pilot GETS was operated at 50 gpm, entirely from extraction well EW-02. In 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

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system. Extraction wells EW-01 and MW-21 are on standby for the current phase of pilot testing, but are planned to be used as part of the full scale pump-and-treat system.

During the second quarter of 2020, the pilot GETS was operational approximately 97 percent of the available runtime and approximately 5 million gallons of groundwater were treated and discharged to the sanitary sewer (Table 4). Downtime during the second quarter of 2020 was associated with operations and maintenance activities. The average operational monthly discharge flowrate to the sanitary sewer from March to May 2020 was approximately 39.2 gpm. Since startup of the pilot GETS, approximately 197 million gallons of groundwater have been treated at an average operational flowrate of 41 gpm through the end of May 2020 (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 transmitted to ATL for analysis in accordance with chain-of-custody procedures. 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 second quarter of 2020. 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 for VOCs, and a single detection of 1,4-dioxane at 0.72 micrograms per liter (ug/L) on May 7, 2020 (Table 6). The concentration of 1,4-dioxane in the samples collected from the carbon breakthrough and carbon effluent on May 7, 2020 were 1.1 and 1.0 ug/L, respectively. Samples collected from the carbon breakthrough and carbon effluent remained non-detect for VOCs throughout the second quarter of 2020.

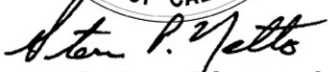
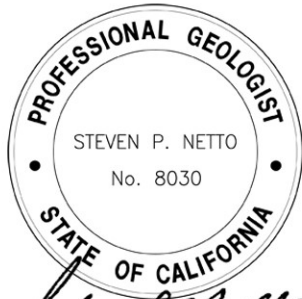
The pilot GETS continues to remove VOCs and 1,4-dioxane from extracted groundwater. During the second quarter of 2020, the pilot GETS removed approximately 1.9 pounds of VOCs and 1 pound of 1,4-dioxane from extracted groundwater. Since startup of the pilot GETS in July 2008, approximately 178 pounds of VOCs and 45 pounds of 1,4-dioxane have been removed from groundwater through May 2020 (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.

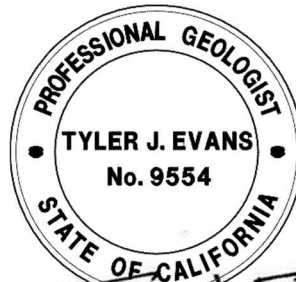
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Sincerely,

HARGIS + ASSOCIATES, INC.

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

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

A handwritten signature of Tyler J. Evans in black ink.

Tyler J. Evans, PG 9554
Hydrogeologist

A handwritten signature of Ross H. Horton in black ink.

Ross H. Horton
Engineer

SPN/TJE/RHH/jak

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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

Appendix A	Groundwater Sampling Field Forms (provided on CD in hard copy)
Appendix B	Laboratory Analytical Reports (provided on CD in hard copy)

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

Mr. Steve Rounds, Department of Toxic Substances Control, Chatsworth
Mr. Paul Pongetti, Department of Toxic Substances Control, Cypress
Mr. Dave Mark, Orange County Water District
Mr. Eric Silvers, Regency Centers

(2 copies w-CD)

Mr. Louis Gonzales, City of Fullerton

(via CD)

Ms. Tiffany Foo, City of Fullerton
Ms. Kim Buss, Orange County Public Works – Flood Control District
Mr. Carl Bernhardt, California Regional Water Quality Control Board, Santa Ana Region
Mr. Danny Samorano, Raytheon Company
Mr. Nabil Henein, City of Buena Park
Mr. Amir Modarressi, City of Buena Park

(via Email)

Mr. Jon Hone, Raytheon Company
Mr. Duc Nguyen, Orange County Public Works
Mr. Mike McGee, City of Buena Park
Ms. Lisa Turturro, Haley & Aldrich, Inc.
Mr. Jimmy Chung, Regency Centers
Ms. Marnie Farcone, 1st Commercial Realty Group, Inc.
Ms. Linda Opperman, Target Properties
Ms. Nicole Subia, Target Properties
Mr. Tom Shapiro, TA Realty
Mr. Kendrick Leckband, TA Realty
Ms. Christine Ehrhardt, Greystar
Ms. Carol Owens, Greystar
Mr. Paul Rodolf, Hydraflow
Mr. Robinson Sioson, Hydraflow

TABLE 1
GROUNDWATER MONITORING PROGRAM

WELL IDENTIFIER	HYDROGEOLOGIC ZONE	SAMPLED MAY 2020	SAMPLING FREQUENCY			
			QUARTERLY	SEMIANNUAL	ANNUAL	BIENNIAL
			FEB, MAY, AUG, NOV	FEBRUARY, AUGUST	FEBRUARY	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	✗	VOCs; 1,4-Dioxane			
EW-02*	B	✗	VOCs; 1,4-Dioxane			
MW-16	B			VOCs; 1,4-Dioxane		
MW-26C	B	✗	VOCs; 1,4-Dioxane			
MW-27	B				VOCs; 1,4-Dioxane	
MW-28	B	✗	VOCs; 1,4-Dioxane			
MW-29*	B	✗	VOCs; 1,4-Dioxane			
MW-30A	B	✗	VOCs; 1,4-Dioxane			
MW-31	B	✗	VOCs; 1,4-Dioxane			
MW-32B	B	✗	VOCs; 1,4-Dioxane			
MW-33	B	✗	VOCs; 1,4-Dioxane			
MW-34B	B	✗	VOCs; 1,4-Dioxane			
MW-35C	B	✗	VOCs; 1,4-Dioxane			
MW-36	B	✗	VOCs; 1,4-Dioxane			
MW-39	B	✗	VOCs; 1,4-Dioxane			
MW-40	B	✗	VOCs; 1,4-Dioxane			
MW-41	B	✗	VOCs; 1,4-Dioxane			
MW-42	B	✗	VOCs; 1,4-Dioxane			
MW-43	B	✗	VOCs; 1,4-Dioxane			
MW-21	BC	✗	VOCs; 1,4-Dioxane			
MW-08	BC	✗	VOCs; 1,4-Dioxane			
MW-30B	BC	✗	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
SECOND QUARTER 2020

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	05/26/20	184.70	150.84	33.86	
MW-08	05/26/20	155.91	127.86	28.05	
MW-09	05/26/20	180.10	149.38	30.72	
MW-13	05/26/20	141.84	117.87	23.97	
MW-15	05/26/20	144.95	126.66	18.29	
MW-16	05/26/20	142.40	116.40	26.00	
MW-17	05/26/20	142.70	117.81	24.89	
MW-18	05/26/20	142.32	118.23	24.09	
MW-19	05/26/20	142.06	117.85	24.21	
MW-20	05/26/20	184.19	146.82	37.37	
MW-21	05/26/20	141.18	112.09	29.09	
MW-22	05/26/20	138.65	114.55	24.10	
MW-23	05/26/20	137.33	114.66	22.67	
MW-24	05/26/20	142.83	112.00	30.83	
MW-25	05/26/20	142.64	112.60	30.04	
MW-26A	05/26/20	137.04	116.20	20.84	
MW-26B	05/26/20	137.05	118.71	18.34	
MW-26C	05/26/20	137.22	112.31	24.91	
MW-27	05/26/20	137.16	111.83	25.33	
MW-28	05/26/20	140.77	116.00	24.77	
MW-29	03/05/20	139.81	175.67	-35.86	Pilot GETS
MW-29	03/19/20	139.81	174.54	-34.73	Pilot GETS
MW-29	04/02/20	139.81	172.52	-32.71	Pilot GETS
MW-29	04/16/20	139.81	169.56	-29.75	Pilot GETS
MW-29	05/07/20	139.81	160.15	-20.34	Pilot GETS
MW-29	05/21/20	139.81	161.19	-21.38	Pilot GETS
MW-29	05/26/20	139.81	162.34	-22.53	Pilot GETS
MW-30A	05/26/20	129.44	105.56	23.88	
MW-30B	05/26/20	129.39	104.03	25.36	
MW-31	05/26/20	119.60	94.84	24.76	
MW-32A	05/26/20	92.88	69.80	23.08	
MW-32B	05/26/20	92.89	69.28	23.61	
MW-32C	05/26/20	92.88	64.00	28.88	
MW-33	05/26/20	83.19	61.10	22.09	

TABLE 2
GROUNDWATER LEVELS
SECOND QUARTER 2020

Well Identifier	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
<u>Reginal Groundwater System Monitor and Extraction Wells (continued)</u>					
MW-34A	05/26/20	153.25	135.69	17.56	
MW-34B	05/26/20	153.11	130.00	23.11	
MW-34C	05/26/20	153.29	129.89	23.40	
MW-35A	05/26/20	93.57	69.40	24.17	
MW-35B	05/26/20	93.56	74.38	19.18	
MW-35C	05/26/20	93.55	70.40	23.15	
MW-36	05/26/20	86.65	65.32	21.33	
MW-37	05/28/20	155.60	128.79	26.81	
MW-38	05/28/20	154.90	140.87	14.03	
MW-39	05/26/20	84.25	63.48	20.77	
MW-40	05/26/20	123.40	96.81	26.59	
MW-41	05/28/20	155.60	133.34	22.26	
MW-42	05/26/20	82.80	61.89	20.91	
MW-43	05/26/20	76.64	56.35	20.29	
EW-01	05/26/20	141.07	114.81	26.26	
EW-02	03/05/20	132.97	119.44	13.53	Pilot GETS
EW-02	03/19/20	132.97	118.9	14.07	Pilot GETS
EW-02	04/02/20	132.97	115.97	17.00	Pilot GETS
EW-02	04/16/20	132.97	113.44	19.53	Pilot GETS
EW-02	05/07/20	132.97	112.21	20.76	Pilot GETS
EW-02	05/21/20	132.97	113.32	19.65	Pilot GETS
EW-02	05/26/20	132.97	113.25	19.72	Pilot GETS
<u>Perched Zone Water Levels</u>					
P-07	05/26/20	142.31	111.07	31.24	
P-09	05/26/20	183.86	120.61	63.25	

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
SECOND QUARTER 2020**

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)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
Regional Groundwater System Monitor and Extraction Wells																
MW-08	05/27/20	ORG	< 0.50	< 0.50	0.32 J	< 0.50	< 0.50	21	1.8	2.6	< 0.50	< 0.50	47	0.30 J	< 0.50	1.3
Historical High/Low										High						
MW-08 Historical Range***			< 0.50 - 0.95	< 0.50 - 0.50	< 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 ⁽¹⁾	05/26/20	ORG	< 0.50	< 0.50	1.8	22	5.0	830	1.2	4.6	< 0.50	11	15	< 0.50	< 0.50	740
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	05/27/20	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	05/27/20	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.37 J	< 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	3/5/2020	ORG	< 0.50	< 0.50	< 0.50	1.6	< 0.50	160	< 0.50	0.62	< 0.50	0.64	1.8	1.2	< 0.50	120
MW-29	3/19/2020	ORG	< 0.50	< 0.50	< 0.50	1.6	< 0.50	170	< 0.50	0.52	< 0.50	0.56	1.6	1.1	< 0.50	110
MW-29	4/2/2020	ORG	< 0.50	< 0.50	< 0.50	1.4	< 0.50	130	< 0.50	0.53	< 0.50	< 0.50	1.4	0.61	< 0.50	75
MW-29	4/16/2020	ORG	< 0.50	< 0.50	< 0.50	1.4	< 0.50	130	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.57	< 0.50	81
MW-29	5/7/2020	ORG	< 0.50	< 0.50	< 0.50	1.6	< 0.50	140	< 0.50	< 0.50	< 0.50	0.50	1.3	0.69	< 0.50	95
MW-29	5/21/2020	ORG	< 0.50	< 0.50	< 0.50	1.2	< 0.50	130	< 0.50	0.86	< 0.50	< 0.50	1.2	0.51	< 0.50	91
MW-29 Historical Range***			< 0.50 - 0.57	< 0.50 - < 5.0	< 0.50 - 0.80	< 0.50 - 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	< 0.50 - 8.3	< 0.50 - 2.2	< 0.50 - < 5.0	26 BE - 301
MW-30A ⁽²⁾	05/27/20	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.14 J	< 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 ⁽³⁾	05/27/20	ORG	< 0.50	< 0.50	0.41 J	< 0.50	< 0.50	28	5.0	0.51	< 0.50	< 0.50	100	< 0.50	< 0.50	0.37
Historical High/Low										High						
MW-30B Historical Range***			< 0.50	< 0.50	< 0.50 - 0.77	< 0.50	< 0.50	< 0.50 - 28	< 0.50 - 8.2	< 0.50	< 0.50	< 0.50	< 0.50 - 110	< 0.50	< 0.50 - 4.5	< 0.20 - 28 E
MW-31	05/28/20	ORG	< 0.50	< 0.50	< 0.50	0.25 J	< 0.50	38	0.51	0.20 J	< 0.50	< 0.50	3.8	< 0.50	0.17 J	2.1
MW-3100	05/28/20	FD	< 0.50	< 0.50	< 0.50	0.22 J	< 0.50	43	< 0.50	< 0.50	< 0.50	< 0.50	3.5	< 0.50	< 0.50	2.2
MW-31 ⁽⁴⁾	05/28/20	SPT	< 0.50	< 0.50	< 0.50	0.25 J	< 0.50	41	0.15 J	< 0.50	< 0.50	< 0.50	3.8	< 0.50	< 0.50	2.1
MW-31 Historical Range***			< 0.50	< 0.50	< 0.50 - 0.58	< 0.50 - 5.0	< 0.50 - 0.51	25 - 430	< 0.50 - 3.0E	< 0.50 - 2.4E	< 0.50	< 0.50 - 1.2	0.50 - 21	< 0.50	< 0.50 - 1.0	< 0.20 - 16
MW-32B	05/27/20	ORG	< 0.50	< 0.50	< 0.50	0.46 J	< 0.50	58	1.6	< 0.50	< 0.50	< 0.50	14	< 0.50	< 0.50	2.1
MW-3200B	05/27/20	ORG	< 0.50	< 0.50	< 0.50	0.49 J	< 0.50	57	1.6	< 0.50	< 0.50	< 0.50	14	< 0.50	< 0.50	2.1
Historical High/Low									Low				Low			
MW-32B Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 3.6	< 0.50	16 - 290	1.9 - 7.9	< 0.50	< 0.50	< 0.50	20 - 75	< 0.50	< 0.50	< 2.0 - 8.0

TABLE 3

**PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
SECOND QUARTER 2020**

.....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)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
Regional Groundwater System Monitor and Extraction Wells (cont'd)																
MW-33_2SV	05/28/20	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.6	< 0.50	< 0.50	< 0.50	< 0.50	0.39 J	< 0.50	< 0.50	0.10 J
MW-33	05/28/20	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.2	< 0.50	< 0.50	< 0.50	< 0.50	0.51	< 0.50	< 0.50	0.11 J
MW-33 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 12	< 0.50	< 0.50 - 0.32 J	< 0.50	< 0.50	< 0.50 - 2.0	< 0.50	< 0.50 - 1.4	< 0.20 - 0.22
MW-34B	05/27/20	ORG	< 0.50	< 0.50	< 0.50	0.58	< 0.50	67	< 0.50	< 0.50	< 0.50	< 0.50	0.12 J	< 0.50	< 0.50	8.5
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	05/27/20	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 - 0.06 J
MW-36_2SV	05/28/20	ORG	< 0.50	< 0.50	0.18 J	0.75	< 0.50	100	< 0.50	0.46 J	< 0.50	< 0.50	0.13 J	< 0.50	< 0.50	9.8
MW-36	05/28/20	ORG	< 0.50	< 0.50	0.15 J	0.77	< 0.50	97	< 0.50	< 0.50	< 0.50	< 0.50	0.15 J	< 0.50	< 0.50	9.5
Historical High/Low						High							High			
MW-36 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.9	< 0.50	2.9 - 220	< 0.50	< 0.50	< 0.50	< 0.50 - 0.24 J	< 0.50	< 0.50	< 0.50 - 5.9	< 0.20 - 15
MW-39	05/27/20	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	05/28/20	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	05/28/20	ORG	< 0.50	< 0.50	0.61	< 0.50	< 0.50	0.81	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.25
MW-41 Historical Range***			< 0.50	< 0.50	< 0.50 - 0.86	< 0.50 - 1.3	< 0.50	< 0.50 - 130	< 0.50	< 0.50 - 0.20 J	< 0.50	< 0.50 - 0.39 J	< 0.50 - 110	< 0.50	< 0.50	< 0.20 - 18
MW-42	05/28/20	ORG	< 0.50	< 0.50	< 0.50	0.41 J	< 0.50	36	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.5
Historical High/Low						High		High								High
MW-42 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.41 J - 31 E	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 1.3
MW-43	05/28/20	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-43 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
EW-01	05/26/20	ORG	< 0.50	< 0.50	0.14 J	0.23 J	< 0.50	15	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	11
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	< 2.0 - 990 E

TABLE 3

**PREVALENT VOLATILE ORGANIC COMPOUNDS AND 1,4-DIOXANE IN GROUNDWATER
SECOND QUARTER 2020**

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)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
EW-02	3/5/2020	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	14	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.1
EW-02	3/19/2020	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	15	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	6.8
EW-02	4/2/2020	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	5.8
EW-02	4/16/2020	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	12	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.4
EW-02	5/7/2020	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	13	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.5
EW-02	5/21/2020	ORG	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	13	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.5
EW-02 Historical Range***			< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	2.3 - 160	< 0.50	< 0.50	< 0.50	< 0.50 - 0.59	< 0.50	< 0.50	< 0.50 - 0.85	< 2.0 - 48
QUALITY ASSURANCE/QUALITY CONTROL SAMPLES																
TB-030520	3/5/2020	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-031920	3/19/2020	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-040220	4/2/2020	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-041620	4/16/2020	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-050720	5/7/2020	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-052120	5/21/2020	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-052620	5/26/2020	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-052720	5/27/2020	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
TB-052820A	5/28/2020	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-052820B ⁽⁵⁾	5/28/2020	TB-SPT	< 0.50	< 0.50	0.067 J B	< 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⁾ trans-1,2-Dichloroethene was detected at a concentration of 0.26 J ug/l in the original sample for monitor well MW-21 on 05/26/20

⁽²⁾ Chloroethane was detected at a concentration of 0.25 J ug/l in the original sample for monitor well MW-30A on 05/27/20

⁽³⁾ 1,1-Dichloropropene and naphthalene were detected at concentrations of 0.37 J ug/l and 0.64 ug/l, respectively, in the original sample for monitor well MW-30B on 05/27/20

⁽⁴⁾ 1,1,2-Trichloro-1,2,2-trifluoroethane was detected at a concentration of 0.54 ug/l in the split sample for monitor well MW-31 on 5/28/20

⁽⁵⁾ Methylene Chloride was detected at a concentration of 0.54 J ug/l in the split trip blank sample TB-052820B on 5/28/20

FOOTNOTES

1,1-DCA = 1,1-Dichloroethane
 1,2-DCA = 1,2-Dichloroethane
 1,1-DCE = 1,1-Dichloroethene
 cis-1,2-DCE = cis-1,2-Dichloroethene
 PCE = Tetrachloroethene
 1,1,1-TCA = 1,1,1-Trichloroethane
 1,1,2-TCA = 1,1,2-Trichloroethane

TCE = Trichloroethene
 TCFM = Trichlorofluoromethane
 (<) = Less than; the value is the Limit of Detection for that compound
 * = 1,4-Dioxane Action Level of 3 ug/l
 ** = California Notification Level for 1,4-Dioxane of 1 ug/l
 *** = Historical Range determined using original samples exclusively
 Semi-VOCs = Semivolatile organic compounds

NA = Not analyzed for constituent
 FD = Field duplicate sample
 ORG = Original sample
 E = Data qualified as Estimated in accordance with quality control criteria.
 TB = Trip blank sample
 RB = Rinsate blank sample
 B = Analyte detected in the associated Method Blank
 ug/l = Micrograms per liter
 MCL = Maximum Contaminant Level
 QA = Quality Assurance
 SPT = Split sample
 ug/l = micrograms per liter

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%
2017^(j)	18,364,603	34.6	39.8	7,684	8,835	87%
2018^(k)	18,144,835	34.5	38.3	7,889	8,760	90%
2019^(l)	18,725,398	35.8	40.3	7,737	8,710	89%
December 2019	1,525,727	34.1	39.0	653	746	87%
January 2020	1,939,910	38.6	38.7	836	837	100%
February 2020	1,272,146	31.4	34.9	608	675	90%
Q1 2020	4,737,783	35.0	37.7	2,096	2,258	93%
March 2020	1,516,218	37.8	39.7	636	669	95%
April 2020	1,929,588	38.3	39.0	825	840	98%
May 2020	1,603,929	38.5	39.0	686	695	99%
Q2 2020	5,049,735	38.2	39.2	2,147	2,204	97%
SINCE INCEPTION	197,435,262	31.5	40.8	80,664	104,520	77%

Notes:

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

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

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

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

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

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

(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 12/1/2014 through 11/30/2015

(j) 2017 Calendar year is from 12/1/2014 through 11/30/2015

(k) 2018 Calendar year is from 12/1/2017 through 11/30/2018

(l) 2019 Calendar year is from 12/1/2018 through 11/30/2019

gpm = gallons per minute

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

Treatment of groundwater from EW-02 initiated in 2010

Treatment of groundwater from MW-29 initiated in 2014

CEFF = Carbon effluent

TABLE 5

PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLING SCHEDULE

				SAMPLE FREQUENCY AND LOCATION																	
				Daily Samples ¹ : Days 1-5					Weekly Samples ¹ : Weeks 1-4					Monthly Samples: Week 5+					Quarterly Samples: Week 1+		
				System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT) ³	Post-Carbon (CEFF)	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT) ³	Post-Carbon (CEFF)	Extraction Wells (Well ID) ²	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT) ³	Post-Carbon (CEFF)	Extraction Wells (Well ID) ²	System Influent (INF)
COMPOUND(S) / CONSITITUENT	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				
1,4-Dioxane	EPA 8270 Modified	1 L Amber	0.002	X						X						X	X				
1,4-Dioxane	EPA 8270 SIM	1 L Amber	0.0002			X						X				X	X	X			
Total Suspended Solids	SM2540D	1 L poly	10																		
Total Dissolved Solids	SM2540C	125 mL poly	10															X	X	X	
SELECTED METALS																					
Dissolved Metals (Iron, Manganese, Calcium, Sodium, Magnesium)	EPA 6010B	500 mL poly	QAPP ⁴	(a)														X	X		
Selenium	EPA 6010B	500 mL poly, HNO ₃	QAPP ⁴															X	X		
SELECTED INORGANIC CONSTITUENTS																					
Hydroxide Alkalinity	SM2320B	250 mL poly	2.0	(a)												X	X				
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	2 - 40 mL VOA, H ₂ SO ₄	3.0	(a)												X	X				
Anions (Chloride, Sulfate, Nitrate, Nitrite, and Phosphate)	EPA 300.0	125 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	250 mL Glass	N/A	(a)												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	
Electrical Conductance (EC)	N/A	N/A	N/A	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	
Temperature	N/A	N/A	N/A	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	
Turbidity	N/A	N/A	N/A	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	

TABLE 5

PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLING SCHEDULE

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
SECOND QUARTER 2020

Compound	Date	Units	MW-21	MW-29	EW-01	EW-02	INF*	PF	POX	CBT	CEFF
1,1,2-Trichloroethane (5 ug/L MCL)	03/05/20	ug/L	--	0.64	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	0.56	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	11	--	<0.50	--	--	--	--	--	--
1,1-Dichloroethane (5 ug/L MCL)	03/05/20	ug/L	--	1.6	--	<0.50	0.50	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	1.6	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	1.4	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	1.4	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	1.6	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	1.2	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	22	--	0.23 J	--	--	--	--	--	--
1,1-Dichloroethane (6 ug/L MCL)	03/05/20	ug/L	--	160	--	14	55	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	170	--	15	49	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	130	--	11	40	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	130	--	12	43	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	140	--	13	45	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	130	--	13	41	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	830	--	15	--	--	--	--	--	--
1,2-Dichloroethane (0.5 ug/L MCL)	03/05/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	5.0	--	<0.50	--	--	--	--	--	--
cis-1,2-Dichloroethene (6 ug/L MCL)	03/05/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	1.2	--	<0.50	--	--	--	--	--	--
Tetrachloroethene (5 ug/L MCL)	03/05/20	ug/L	--	0.62	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	0.52	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	0.53	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	0.86	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	4.6	--	<0.50	--	--	--	--	--	--
Trichloroethene (5 ug/L MCL)	03/05/20	ug/L	--	1.8	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	03/19/20	ug/L	--	1.6	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/02/20	ug/L	--	1.4	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/16/20	ug/L	--	<0.50	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/07/20	ug/L	--	1.3	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/21/20	ug/L	--	1.2	--	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/26/20	ug/L	15	--	<0.50	--	--	--	--	--	--
1,4-Dioxane (1 ug/L California Notification Level)	03/05/20	ug/L	--	120	--	7.1	33	--	<0.20	<0.20	<0.20
	03/19/20	ug/L	--	110	--	6.8	30	--	<0.20	<0.20	<0.20
	04/02/20	ug/L	--	75	--	5.8	21	--	<0.20	<0.20	<0.20
	04/16/20	ug/L	--	81	--	5.4	23	--	<0.20	<0.20	<0.20
	05/07/20	ug/L	--	95	--	2.5	24	--	0.72	1.1	1.0
	05/21/20	ug/L	--	91	--	7.5	23	--	<0.20	<0.20	<0.20
	05/26/20	ug/L	740	--	11	--	--	--	--	--	--
Bromide	03/05/20	mg/L	--	0.41	--	0.29	0.25	--	--	--	--
	04/02/20	mg/L	--	0.57	--	0.29	0.31	--	--	--	--
	05/07/20	mg/L	--	0.34	--	0.20	0.23	--	--	--	--

TABLE 6
SELECT COMPOUNDS MONITORED IN
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SAMPLES
SECOND QUARTER 2020

Compound	Date	Units	MW-21	MW-29	EW-01	EW-02	INF*	PF	POX	CBT	CEFF
Bromate (10 ug/L MCL)	03/05/20	ug/L	--	--	--	--	<0.5	--	<0.5	--	--
	04/02/20	ug/L	--	--	--	--	<0.5	--	<0.5	--	--
	05/07/20	ug/L	--	--	--	--	<0.5	--	<0.5	--	--
Total Non-Filterable Residue	03/05/20	mg/L	--	--	--	--	--	<2.0	--	--	--
	04/02/20	mg/L	--	--	--	--	--	<1.0	--	--	--
	05/07/20	mg/L	--	--	--	--	--	<1.0	--	--	--
Total Non-Filterable Residue (500 mg/L MCL)	03/05/20	mg/L	--	690	--	570	460	--	610	--	630

FOOTNOTES

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

ug/L = Micrograms per liter

mg/L = Milligrams per liter

(--)= Not scheduled for performance monitoring

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

MW - Monitor Well(s)

EW- Extraction Well(s)

INF* = Influent (same as EW-02, when active)

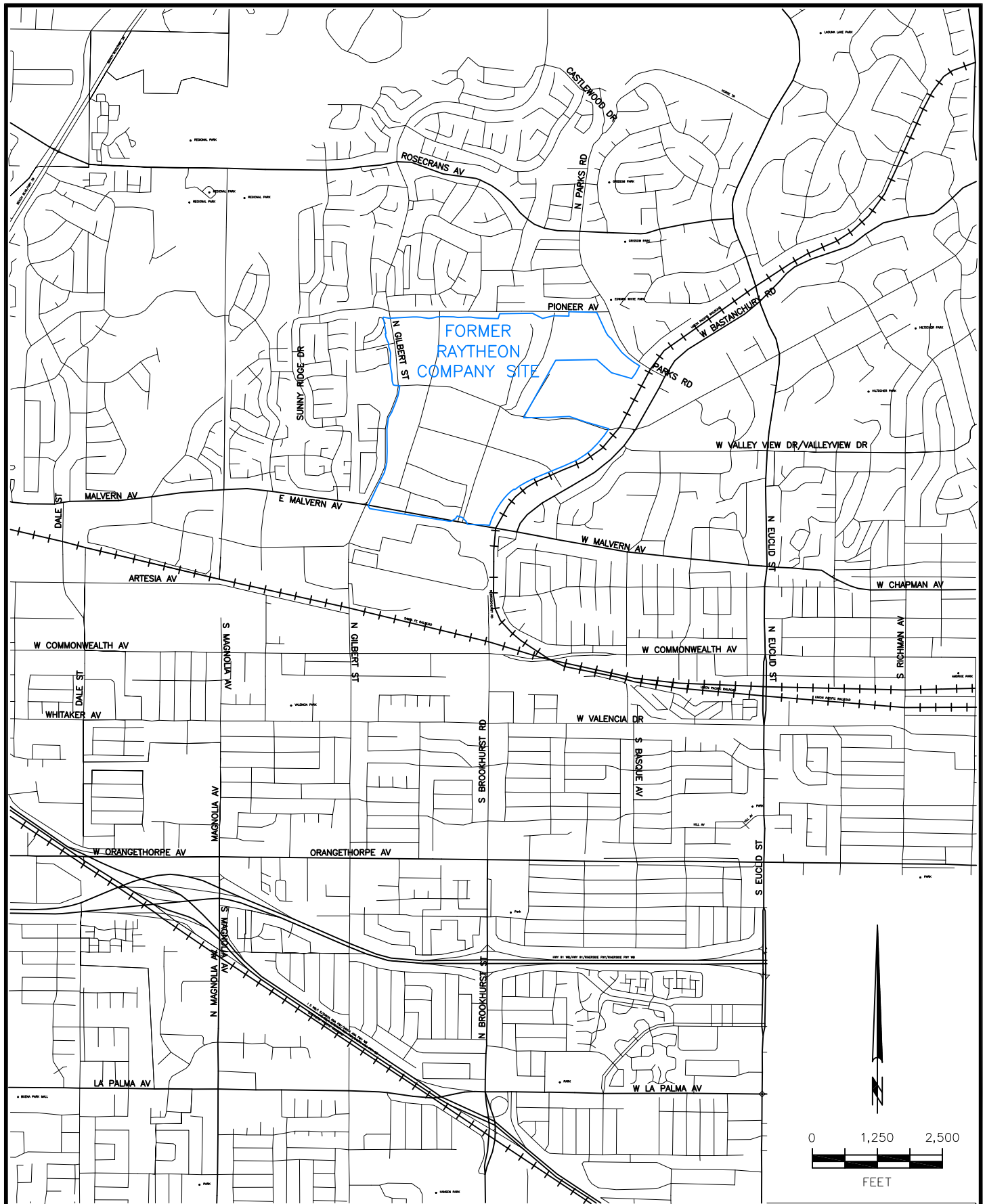
PF = Post Particulate Filter

POX = Post Hypox Oxidation

CBT = Carbon Breakthrough

CEFF = Carbon Effluent

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

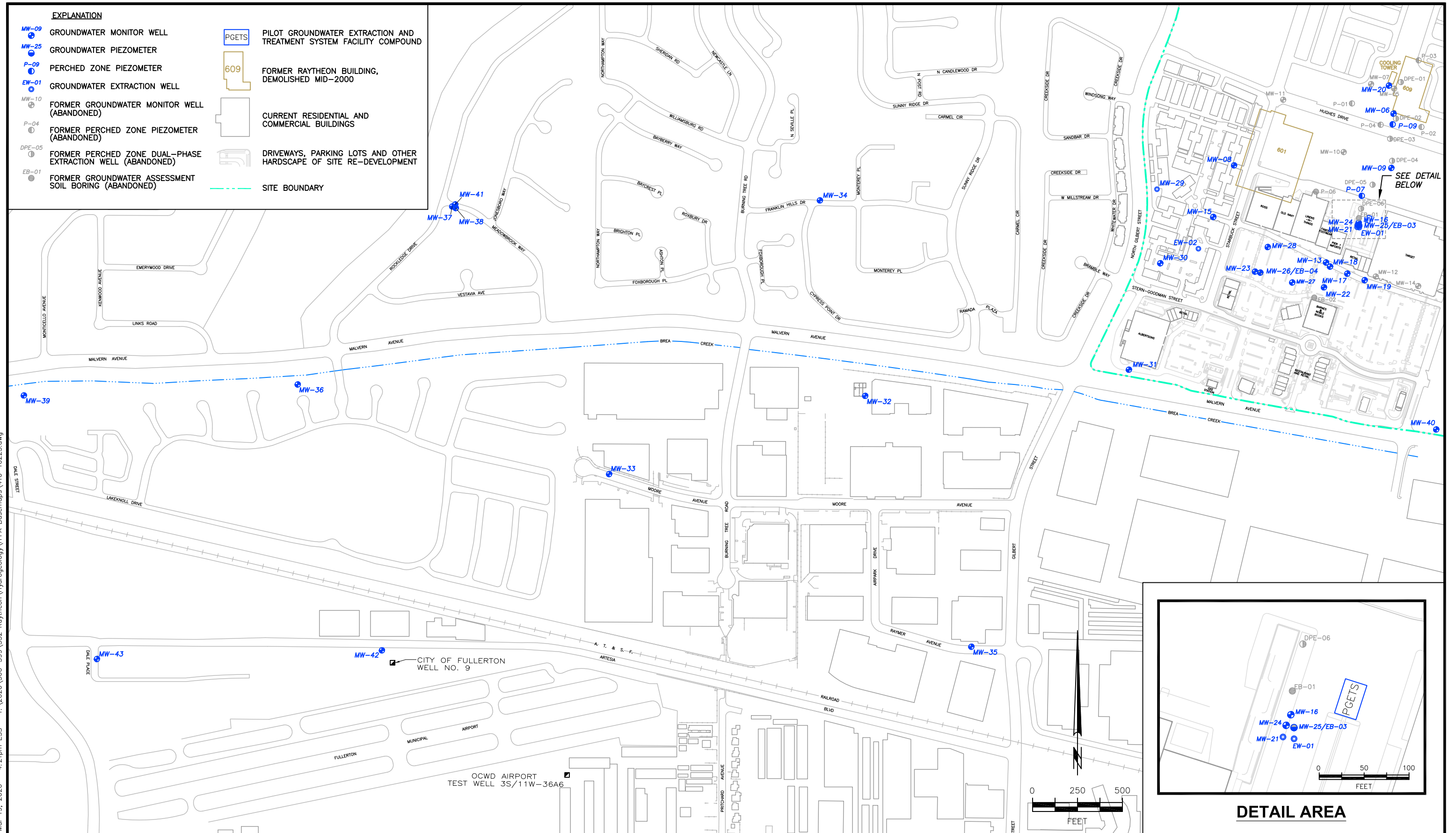


HARGIS+ASSOCIATES, INC.
Hydrogeology/Engineering

FIGURE 1. SITE LOCATION

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

Mar 19, 2020 - 4:21pm ESS - T: \2020\500-599\532 Raytheon\Hydrogeology\H+A Basemaps\410-10225.dwg



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FIGURE 2.
WELL AND PIEZOMETER LOCATIONS

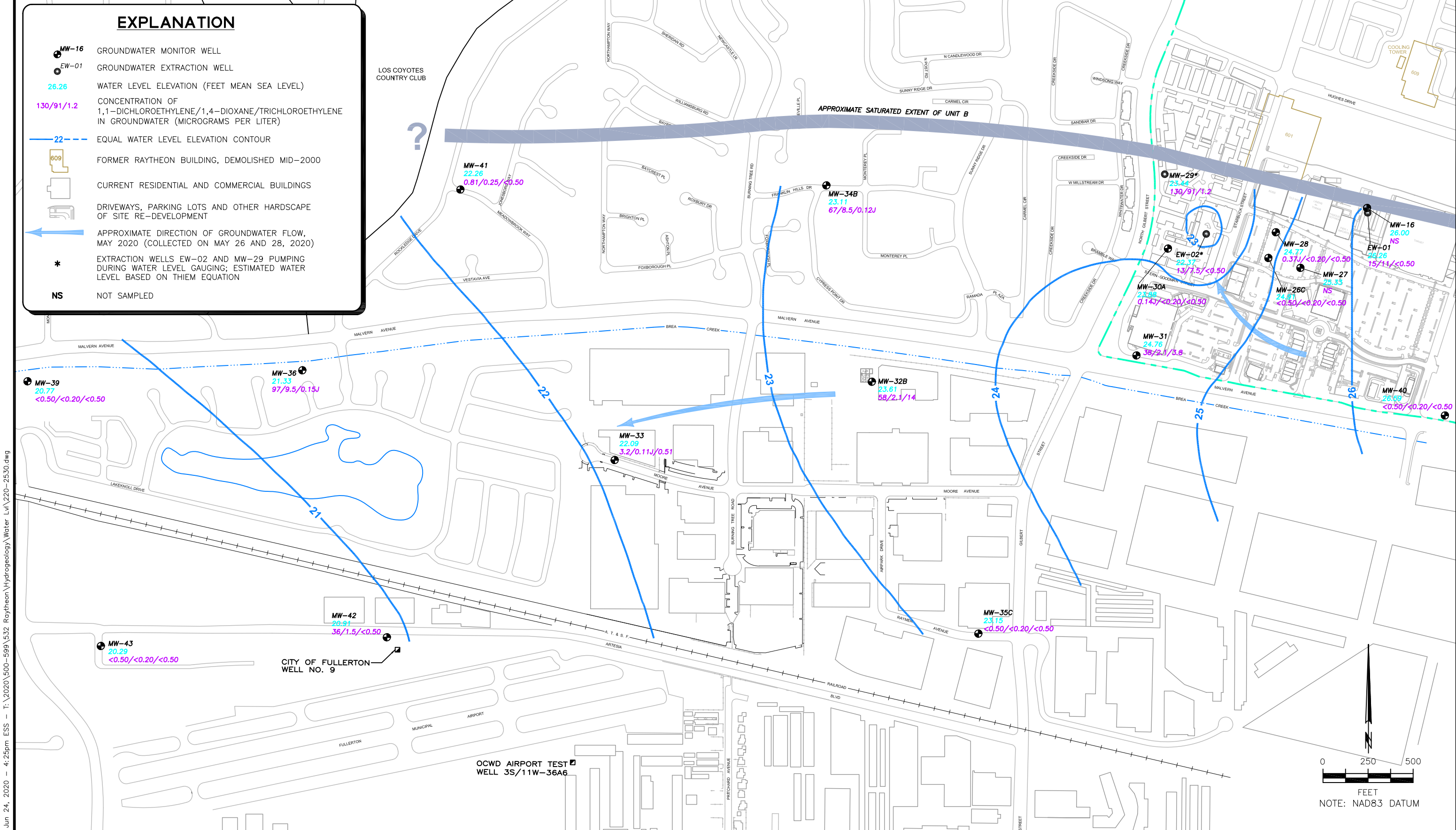


FIGURE 3.
WATER LEVEL AND WATER QUALITY UNIT B
MAY 2020

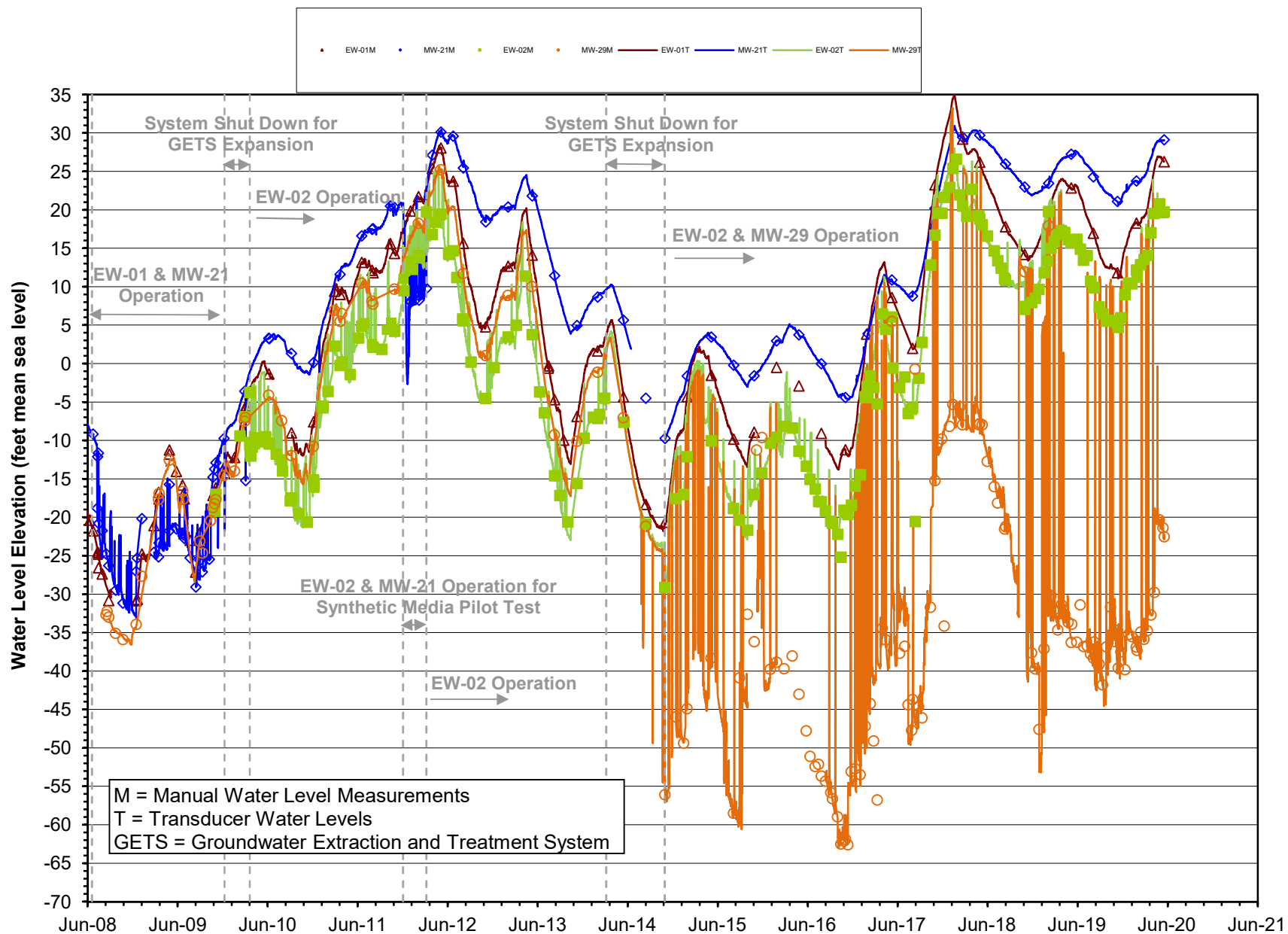


FIGURE 4.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATION
AND EXTRACTION WELL WATER LEVELS

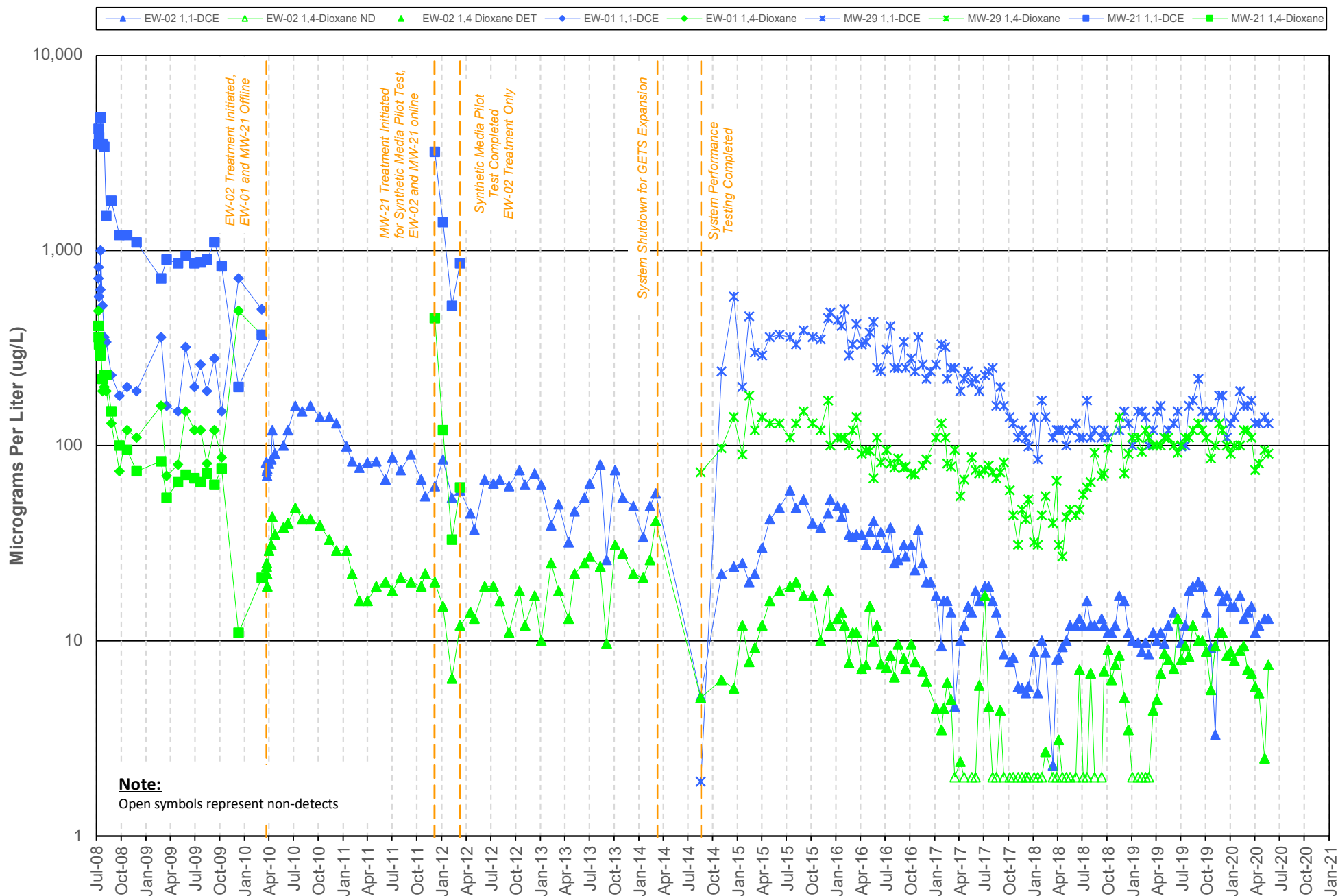


FIGURE 5.
1,1-DICHLOROETHYLENE AND 1,4-DIOXANE CONCENTRATIONS IN EXTRACTION WELLS

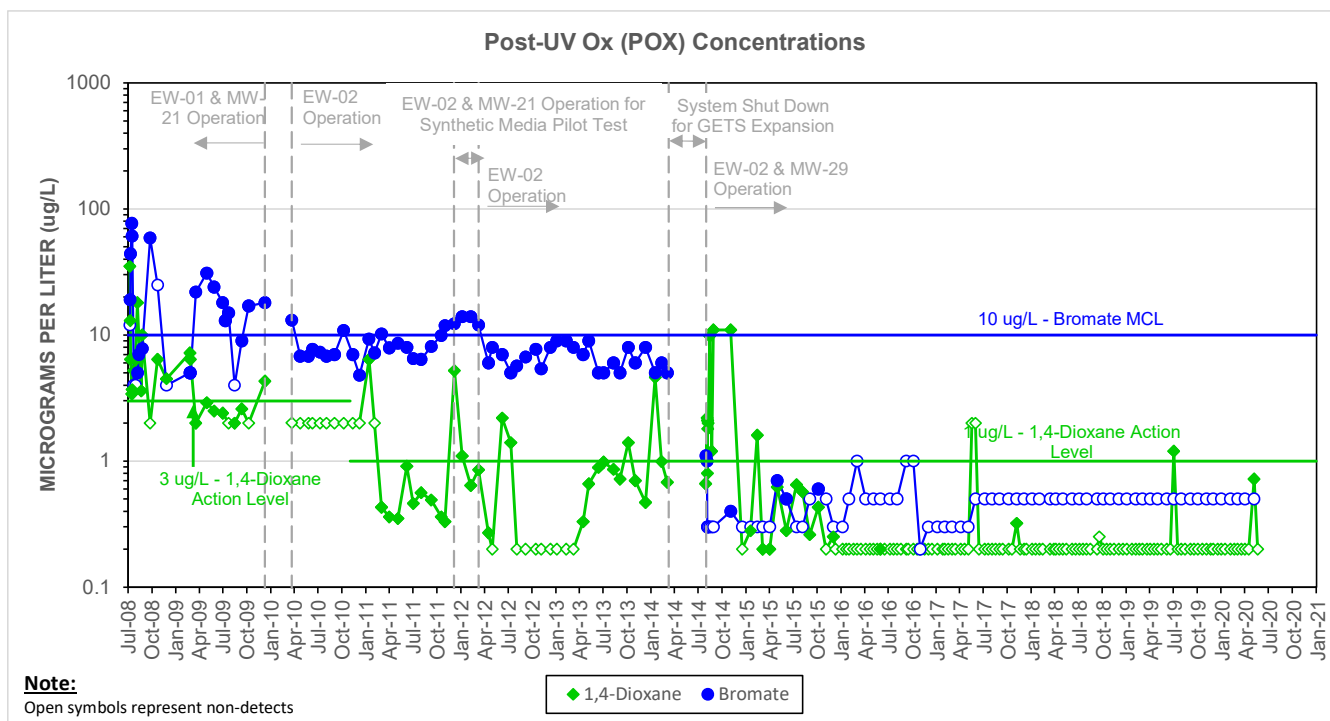
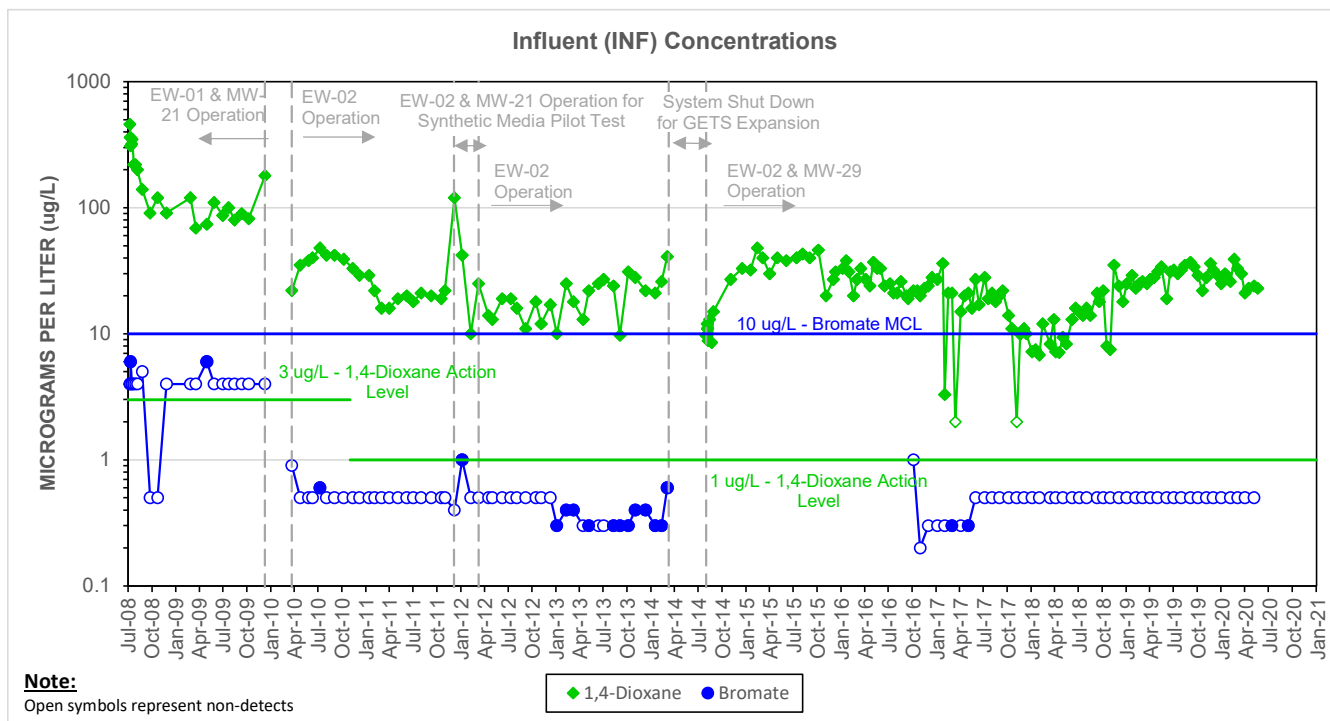


FIGURE 6.
1,4-DIOXANE AND BROMATE IN INFLUENT AND POST-OXIDATION SAMPLES

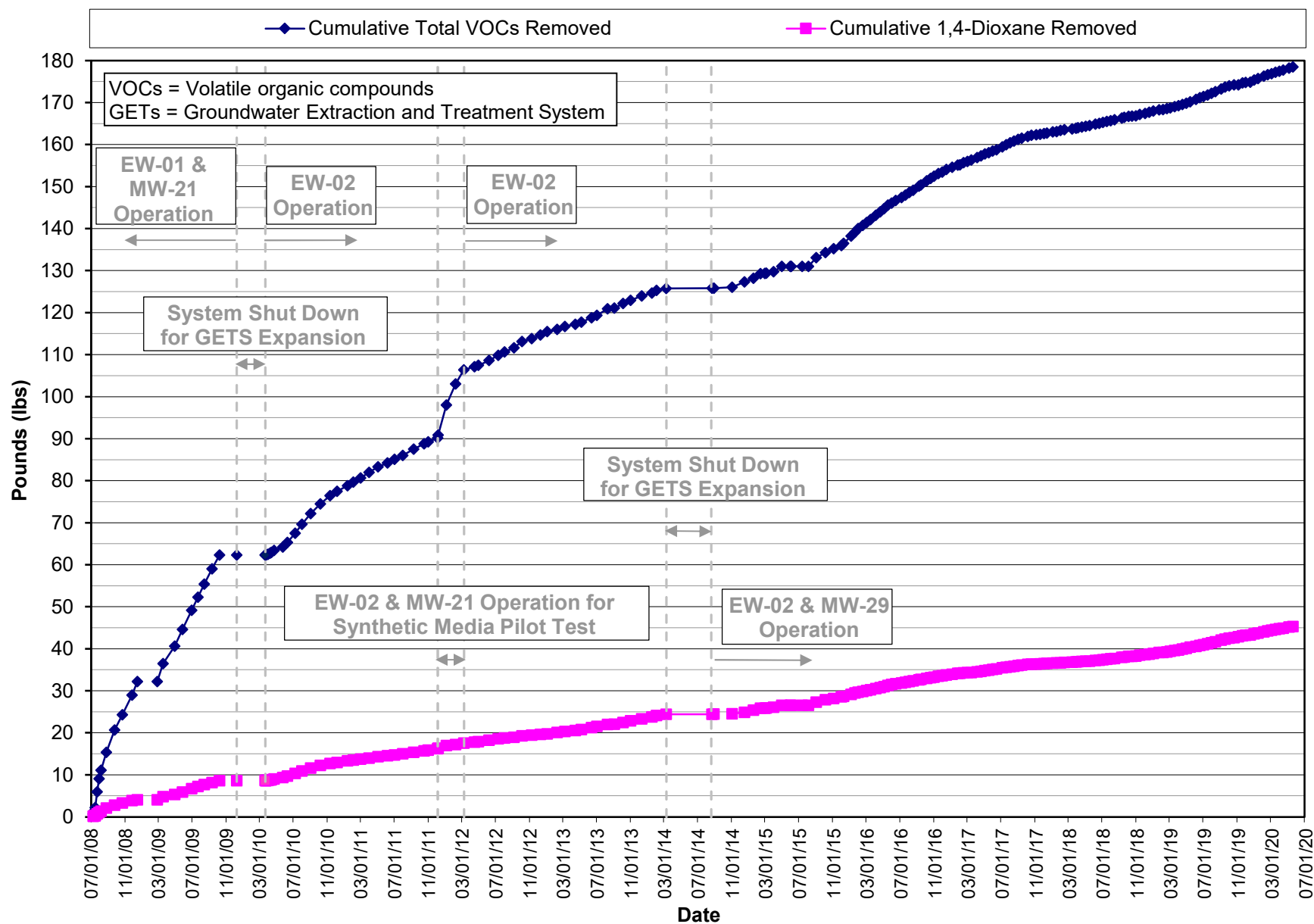


FIGURE 7.
PILOT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM MASS REMOVAL

APPENDIX A
GROUNDWATER SAMPLING FIELD FORMS

SCANNED
7/6/20 - JAK

MAY 2020

QUARTERLY 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: MAY 2020

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)	FEB 2020 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
P-07	05/26/20	1408	TOC	111.07	142.31	31.24	112.16	+1.09		AMD/TJE
P-09	05/26/20	823	TOC	~~120.6~~ 120.84	183.86	63.25	120.74	+0.13		↓
MW-06	05/26/20	821	TOC	150.84	184.70	33.86	159.15	+8.31		↓
MW-08	05/ /20				155.91		132.98			
MW-09	05/26/20	810	TOC	149.38	180.10	30.72	157.39	+7.99		AMD/TJE
MW-13	05/26/20	0843	TOC	117.87	141.84	23.97	122.70	+4.83		↓
MW-15	05/ /20				144.95		130.51			
MW-16	05/26/20	1250	TOC	116.40	142.40	26.00	124.41	+8.01		AMD/TJE
MW-17	05/26/20	849	TOC	117.81	142.70	24.89	122.60	+4.79		↓
MW-18	05/26/20	841	TOC	118.23	142.32	24.09	123.07	+4.84		↓
MW-19	05/26/20	852	TOST	117.85	142.06	24.21	122.78	+4.93		↓
MW-20	05/26/20	831	TOC	146.82	184.19	37.37	155.21	+8.39		↓
MW-21	05/26/20	1255	TOST	112.09	141.18	29.09	117.42	+5.33	Totalizer: UTM Pumping? N	↓
MW-22	05/26/20	0946	TOST	114.55	138.65	24.10	119.16	+4.61		↓
MW-23	05/26/20	1018	TOST	114.66	137.33	22.67	119.06	+4.40		↓
MW-24	05/26/20	1250	TOST	112.00	142.83	30.83	120.02	+8.02		↓
MW-25	05/26/20	1252	TOC	112.60	142.64	30.04	119.12	+6.52		↓
MW-26A	05/26/20	1005	TOC	116.20	137.04	20.84	121.41	+5.21		↓
MW-26B	05/26/20	1007	TOC	118.71	137.05	18.34	121.13	+2.42		↓
MW-26C	05/26/20	1009	TOC	112.31	137.22	24.91	120.03	+7.72		↓

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: MAY 2020

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)	FEB 2020 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-27	05/26/20	0955	TOST	111.83	137.16	25.33	119.56	+7.73		AMD/TJE
MW-28	05/26/20	1024	TOST	116.00	140.77	24.77	123.90	+7.90		↓
MW-29	05/ /20				139.81		176.70P		Totalizer: Pumping?	
MW-30A	05/ /20				129.44		113.12			
MW-30B	05/ /20				129.39		110.58			
MW-31	05/ /20				119.60		101.89			
MW-32A	05/ /20				92.88		76.60			
MW-32B	05/ /20				92.89		76.20			
MW-32C	05/ /20				92.88		72.58			
MW-33	05/ /20				83.19		67.68			
MW-34A	05/26/20	1043	TOST	135.69	153.25	17.56	139.43	+3.74		AMD/TJE
MW-34B	05/26/20	1046	TOST	130.00	153.11	23.11	137.37	+7.37		↓
MW-34C	05/26/20	1037	TOST	129.89	153.29	23.40	136.24	+6.35		↓
MW-35A	05/ /20				93.57		68.91			
MW-35B	05/ /20				93.56		76.69			
MW-35C	05/ /20				93.55		77.21			
MW-36	05/26/20	1203	TOST	65.32	86.65	21.33	71.92	+6.60		AMD/TJE
MW-37	05/28/20	1013	TOST	128.79	155.60	26.81	138.79	+10.00		↓
MW-38	05/28/20	1010	TOST	140.87	154.90	14.03	145.67	+4.80		↓
MW-39	05/26/20	1219	TOST	63.48	84.25	20.77	69.90	+6.42		↓

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: MAY 2020

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)	FEB 2020 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-40	05/ /20				123.40		104.24			
MW-41	05/28/20	0940	TOST	133.34	155.60	22.26	139.75	+6.41		AMD/TJE
MW-42	05/ /20				82.80		68.32			
MW-43	05/ /20				76.64		62.58			
EW-01	05/26/20	1309	TOST	114.81	141.07	26.26	122.80	+7.99	SOUNDING TUBE TO 172.65 Totalizer: Pumping? ~~X~~ N	AMD/TJE
EW-02	05/ /20				132.97		120.80P		Totalizer: Pumping?	

 msl = Mean sea level
 ft = feet

**MAY 2020 GROUNDWATER SAMPLE PLAN
TEAM 2**

QA/QC	Total VOC's µg/L	1,4-Dioxane µg/L	APPROX. GALLONS	ESTIMATE D TIME (minutes)	WELL IDENTIFIER	HYDROGEOLOGIC ZONE	MAY 2020 SAMPLING SCHEDULE	SAMPLE METHOD
	34	34	138	12	~~EW-01~~	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
SPT/DUP	776	460	276	12	~~MW-21~~	Water Table; BC	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
	0	0	280	26	~~MW-40~~	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	100	19	~~MW-28~~	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0.31	0	67	10	~~MW-30A~~	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	2.3	0.21	331	31	~~MW-41~~	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
	67	20	244	12	~~MW-34B~~	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded 240V
	131	0.56	128	24	~~MW-30B~~	Deep; BC	VOCs; 1,4-Dioxane	Ded.240V
SPT/DUP	187	4.9	81	28	~~MW-32B~~	Deep; B	VOCs; 1,4-Dioxane	Ded. Redi-Flo 2
	0	0	159	53	~~MW-26C~~	Deep; B	VOCs; 1,4-Dioxane	Redi-flo
	82	0.94	18	19	~~MW-08~~	Water Table; BC	VOCs; 1,4-Dioxane	Redi-flo

NOTE

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

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

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

Wells with dedicated pumps should follow concentration order when possible.

MW-36 and MW-39 Gate Access Code: 3252

**MAY 2020 GROUNDWATER SAMPLE PLAN
TEAM 1**

QA/QC	Total VOC's µg/L	1,4-Dioxane µg/L	APROX. GALLONS	ESTIMATED TIME (minutes)	WELL IDENTIFIER	HYDROGEOLOGIC ZONE	MAY 2020 SAMPLING SCHEDULE	SAMPLE METHOD
	0	0	900	43	~~MW-35C~~	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	848	54	~~MW-39~~	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	910	41	MW-43	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
2/3SV	3.4	0.22	914	48	MW-33	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	31	1.3	999	45	MW-42	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
2/3SV	50	9.2	1026	77	MW-36	Deep; D	VOCs; 1,4-Dioxane	Ded.240V
	75	4.1	318	27	MW-31	Deep; B	VOCs; 1,4-Dioxane	Ded.240V

NOTES

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

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

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

Wells with dedicated pumps should follow concentration order when possible.

MW-36 and MW-39 Gate Access Code: 3252

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

GROUNDWATER SAMPLING INFORMATION

DATE: 5/26/20TASK: 532.30WELL ID: EW-01

Time <u>1309</u> Static DTW (ft below reference point) <u>114.81</u>	Casing Volume (CV) (gallons) <u>48.4</u> 3 CV (gallons) <u>145</u>	Weather Conditions Time <u>1313</u> Temp. <u>79</u>	Initials: <u>AMD/TJE</u>
Casing Total Depth (ft below reference point) <u>188.1</u>	Purging Device <u>ded pump</u> Sampling Device <u>ded sample port</u>	Skies <u>clear</u>	Begin Purge <u>1313</u> End Purge <u>1328</u>
Water Column (feet) <u>73.27</u>	Pump: Depth (ft brp) <u>-</u> Type <u>-</u> Voltage <u>-</u> HP <u>-</u>	Wind (mph) <u>-</u> From <u>-</u>	Gallons Purged <u>180</u> CVs Purged <u>3.75</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>	DTW (ft brp) <u>-</u> Time <u>-</u>	

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1313	114.81	0	0	PUMP ON							
1315	UTM	24	0.5	23.6	7.26	1311	97.1	6.32	2.27	-	Q = 12 gpm
1317	UTM	48	1.0	22.8	7.18	1308	98.1	6.37	2.63	-	
1319	UTM	72	1.5	22.6	7.16	1297	102.3	5.71	2.16	-	
1320	UTM	84	2.0	23.8	7.17	1293	101.6	5.77	3.45	-	
1322	UTM	108	2.25	23.3	7.22	1296	100.3	6.01	2.16	-	
1325	UTM	144	3.0	23.9	7.17	1296	101.0	5.96	2.63	-	COLLECT SAMPLE
1328	VTM	180	3.75	PUMP OFF							

SAMPLE COLLECTION SAMPLE TIME 1325

ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>63</u>	40 ml VOA
8270 SIM 1,4 dioxane		1 L Amber
8270 MOD 1,4 dioxane	<u>21</u>	1 L Amber

DUPLICATES SPLITS / BLANKS? (X) (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 EW-0100 @ 1327. No duplicate collected.

Unable to measure water level - sounder stuck in sounding tube during pumping

GROUNDWATER SAMPLING INFORMATION

DATE: 5/27/20

TASK: 532.30

WELL ID: MW-26C

Time 848 Static DTW (ft below reference point)	112.50	Screen ^{SV} Casing Volume (CV) (gallons) 49	^{SV} 3 CV (gallons) 147	Weather Conditions	Initials: TJE/AMD
Casing Total Depth (ft below reference point)	499	Purging Device Grundfos	Sampling Device ded	Time 0845 Temp. 70	Begin Purge 1020 End Purge 1108
Water Column (feet)	299	Pump: Depth (ft brp) ~200 Type MD1	Voltage 115 HP 0.5	Skies clear	Gallons Purged 155 CVs Purged 3.3
Casing Capacity (Diameter 2") (gallons per foot)	0.163	Monitor Well Recharge Rate: Slow	Fast	Wind (mph) 0-2 From var	DTW (ft brp) 112.50 Time 848

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (S/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
1026	112.50	0	0	—	—	Begin	Purge	—	—	325	
1027	113.80	23	0.5	21.9	9.15	325	95.3	0.98	2.11	325	Q = 325 gpm
1035	113.86	49	1.0	21.9	8.73	496	78.6	0.59	1.16	325	
1042	113.86	72	1.5	22.0	7.96	736	-103.1	0.41	0.44	325	
1052	113.87	104	2.2	22.3	7.81	737	-114.1	0.61	0.39	325	
1058	113.87	123	2.6	22.0	7.73	738	-119.2	0.53	0.41	325	
1106	113.87	149	3.1	22.0	7.71	738	-124.0	0.50	NM	325	
1108	NM	155	3.3	—	—	pump off	—	—	—	—	

SAMPLE COLLECTION SAMPLE TIME 1107	
ANALYSIS	QUANTITY TYPE
8260B VOCs	3 40 ml VOA
8270 SIM 1,4 dioxane	1 1 L Amber
8270 MOD 1,4 dioxane	1 1 L Amber
DUPLICATES / SPLITS / BLANKS? Y (N)	

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

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

RB-052720 @ 1330

GROUNDWATER SAMPLING INFORMATION

DATE: 5/21/20

TASK: 532.30

WELL ID: MW-28

Time 1128 Static DTW (ft below reference point) 116.20	Screen Casing Volume (CV) (gallons) 27 SV (gallons) 81	Weather Conditions	Initials: AMD/TJF
Casing Total Depth (ft below reference point) 375	Purging Device ded pump Sampling Device ND pipettor	Time 1130 Temp. 80	Begin Purge 1134 End Purge 1144
Water Column (feet) 45	Pump: Depth (ft brp) 330 Type Grundfos Voltage 240 HP 0.5	Skies clear	Gallons Purged 93 CVs Purged 94
Casing Capacity (Diameter 4") (gallons per foot) 0.60	Monitor Well Recharge Rate: Slow Fast ☒	Wind (mph) 2-5 From W	DTW (ft brp) 116.20 Time 1128

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)		
1134	116.20	0	0	Begin Purge							Q ≈ 9 GPM
1136	NM	18	0.6	21.5	7.56	871	108.7	2.11	1.76	-	
1138	NM	20	1.0	21.4	7.53	898	119.6	3.02	0.98	-	
1139	126.65	37	1.4	21.4	7.53	883	125.8	2.85	0.76	-	
1141	126.29	54	2.0	21.4	7.47	861	131.6	2.45	1.40	-	
1142	126.41	68	2.5	21.4	7.49	860	136.4	2.35	0.85	-	
1143	126.43	81	3.0	21.4	7.51	860	140.1	2.35	0.95	-	
1144	NM	93	3.4	pump off							

SAMPLE COLLECTION SAMPLE TIME 1144	
ANALYSIS	QUANTITY TYPE
8260B VOCs	3 40 ml VOA
8270 SIM 1,4 dioxane	1 L Amber
8270 MOD 1,4 dioxane	1 L Amber
DUPLICATES / SPLITS / BLANKS? Y ☒	

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: 5/27/20

TASK: 532.30

WELL ID: MW-32B

Time <u>1251</u> Static DTW (ft below reference point)	<u>69.68</u>	Screen SV <u>19.2</u> SV (gallons)	<u>57.6</u>	Weather Conditions	Initials: <u>AMO/TJE</u>
Casing Total Depth (ft below reference point)	<u>999</u>	Purging Device <u>ded. grundfos rediflo 2</u>	Sampling Device <u>ded tubing</u>	Time <u>1254</u> Temp. <u>75</u>	Begin Purge <u>1256</u> End Purge <u>1317</u>
Water Column (feet)	<u>32</u>	Pump: Depth (ft brp) <u>967</u> Type <u>rediflo 2</u> Voltage <u>110</u> HP <u>~</u>		Skies <u>clear</u>	Gallons Purged <u>75</u> CVs Purged <u>3.8</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot)	<u>0.6</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>		Wind (mph) <u>1</u> From <u>S</u>	DTW (ft brp) <u>72.35</u> Time <u>1313</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>1256</u>	<u>69.68</u>	<u>0</u>	<u>0</u>			<u>BEGIN PURGE</u>					
<u>1259</u>	<u>72.10</u>	<u>10.5</u>	<u>0.5</u>	<u>21.3</u>	<u>7.60</u>	<u>787</u>	<u>107.9</u>	<u>0.43</u>	<u>1.99</u>	<u>300</u>	<u>Q ≈ 3.5 gpm</u>
<u>1302</u>	<u>72.20</u>	<u>21</u>	<u>1.0</u>	<u>21.2</u>	<u>7.60</u>	<u>782</u>	<u>93.7</u>	<u>0.24</u>	<u>2.24</u>	<u>300</u>	
<u>1305</u>	<u>72.25</u>	<u>31.5</u>	<u>1.5</u>	<u>21.1</u>	<u>7.59</u>	<u>784</u>	<u>81.3</u>	<u>0.25</u>	<u>1.61</u>	<u>300</u>	
<u>1307</u>	<u>72.28</u>	<u>38.5</u>	<u>2.0</u>	<u>21.1</u>	<u>7.59</u>	<u>785</u>	<u>76.2</u>	<u>0.16</u>	<u>1.61</u>	<u>300</u>	
<u>1309</u>	<u>72.29</u>	<u>45.5</u>	<u>2.4</u>	<u>21.1</u>	<u>7.58</u>	<u>787</u>	<u>71.3</u>	<u>0.20</u>	<u>1.44</u>	<u>300</u>	
<u>1313</u>	<u>72.35</u>	<u>60</u>	<u>3.0</u>	<u>21.1</u>	<u>7.58</u>	<u>788</u>	<u>66.1</u>	<u>0.22</u>	<u>1.46</u>	<u>300</u>	<u>COLLECT SAMPLE</u>
<u>1317</u>	<u>NM</u>	<u>75</u>	<u>3.8</u>			<u>END PURGE</u>					

SAMPLE COLLECTION SAMPLE TIME 1313
ANALYSIS QUANTITY TYPE

8260B VOCs 9 40 ml VOA
8270 SIM 1,4 dioxane 1 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.)

DUP MW-3200B @ 1315
SPLIT MW-32B @ 1317

GROUNDWATER SAMPLING INFORMATION

DATE: 5/27/20

TASK: 532.30

WELL ID: MW-08

Time 1352 Static DTW (ft below reference point)	127.82	Casing Volume (CV) (gallons) 6-2 3 CV (gallons) 18.7	Weather Conditions	Initials: TJE/AMD
Casing Total Depth (ft below reference point)	166.10	Purging Device grundfos Sampling Device ded tubing	Time 1350 Temp. 75	Begin Purge 1401 End Purge 1416
Water Column (feet)	38.28	Pump: Depth (ft brp) 164 Type ~~HP~~ rediflow Voltage 240 HP -	Skies clear	Gallons Purged 20 CVs Purged 3.2
Casing Capacity (Diameter 2") (gallons per foot)	0.163	Monitor Well Recharge Rate: Slow Fast X	Wind (mph) 2.5 From S	DTW (ft brp) 127.82 Time 1352

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)		
1401	127.82	0	0	Begin Purge							Q ≈ 1.5 gpm
1403	NM	3	0.5	23.7	7.51	1717	128.9	-	NM	275	- parameters measured in cup -
1405	126.48	6	1.0	23.1	7.17	1652	-	-	7.08	275	
1408	126.88	9	1.5	23.1	7.18	1656	-	-	2.10	275	
1410	NM	12.5	2.0	23.0	7.20	1633	-	-	1.42	275	
1413	NM	16	2.5	23.0	7.18	1625	-	-	0.98	275	
1415	NM	19	3.0	23.2	7.09	1617	-	-	0.91	275	
1416	NM	20	3.2	end purge							

SAMPLE COLLECTION SAMPLE TIME 1416		
ANALYSIS	QUANTITY	TYPE
8260B VOCs	3	40 ml VOA
8270 SIM 1,4 dioxane	1	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber
DUPLICATES / SPLITS / BLANKS? Y (N)		

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: 5/27/20

TASK: 532.30

WELL ID: MW-30A

Time <u>1452</u> Static DTW (ft below reference point) <u>106.70</u>	Screen <u>SV</u> Casing Volume (gallons) <u>17.2</u> 3 CV (gallons) <u>51.5</u>	Weather Conditions	Initials: <u>AMD/TJE</u>
Casing Total Depth (ft below reference point) <u>564</u>	Purging Device <u>ded pump</u> Sampling Device <u>0-10 pipe stand</u>	Time <u>1454</u> Temp. <u>80</u>	Begin Purge <u>1458</u> End Purge <u>1508</u>
Water Column (feet) <u>44</u>	Pump: Depth (ft brp) <u>520</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>60</u> CVs Purged <u>3.5</u>
Casing Capacity (Diameter <u>3"</u>) (gallons per foot) <u>0.39</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>-</u> From <u>-</u>	DTW (ft brp) <u>107.96</u> Time <u>1506</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)		
1458	106.70	0	0			BEGIN PURGE					
1500	107.50	10	0.58	22.6	7.64	707	100.2	3.29	2.61	-	Q ≈ 6 gpm
1502	107.19	25	1.45	22.8	7.55	696	99.0	1.70	1.54	-	
1504	107.95	39	2.26	21.5	7.52	695	98.9	1.47	1.63	-	
1505	107.95	44	2.55	21.5	7.51	695	98.8	1.38	1.21	-	
1506	107.96	52	3.0	21.5	7.50	694	98.7	1.33	NM	-	COLLECT SAMPLE
1508	NM	60	3.48			END PURGE					

SAMPLE COLLECTION SAMPLE TIME <u>1506</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u> If yes, complete appropriate forms.	

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

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

GROUNDWATER SAMPLING INFORMATION

DATE: 5/27/20

TASK: 532.30

WELL ID: MW-30B

Time <u>1513</u> Static DTW (ft below reference point)	<u>104.45</u>	screen SV Casing Volume (CV) (gallons) <u>37.4</u> SV (gallons) <u>112.3</u>	Weather Conditions
Casing Total Depth (ft below reference point)	<u>616</u>	Purging Device <u>ded pump</u> Sampling Device <u>7100 pipestand</u>	Time <u>1516</u> Temp. <u>80</u>
Water Column (feet)	<u>96</u>	Pump: Depth (ft brp) <u>520</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>
Casing Capacity (Diameter <u>3"</u>) (gallons per foot)	<u>0.39</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>-</u> From <u>-</u>
Initials: <u>AMP / TJE</u>		Begin Purge <u>1517</u> End Purge <u>1540</u>	
Gallons Purged <u>122</u> CVs Purged <u>3.3</u>		DTW (ft brp) <u>>130</u> Time <u>1540</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)		
1517	104.45	0	0			BEGIN PURGE					
1520	126.33	19	0.5	21.3	7.29	1211	99.5	0.51	0.64	-	Q ≈ 5.5 gpm
1524	128.33	38	1.0	21.4	7.31	1186	76.8	0.36	1.94	-	
1526	129.90	69.59	1.6	21.6	7.29	1279	56.2	1.32	NM		
1530	12 UTM	74	2.0	21.6	7.30	1269	53.6	1.41	0.86	-	sounder stuck at transducer set depth
1534	UTM	93	2.5	21.6	7.30	1268	51.2	1.40	1.44	-	
1538	UTM	112	3.0	21.6	7.30	1271	49.2	1.34	1.02	-	COLLECT SAMPLE
1540	UTM	122	3.3			END PURGE					

SAMPLE COLLECTION SAMPLE TIME <u>1538</u>			AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA			
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
8260B VOCs	<u>3</u>	40 ml VOA				
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber				
8270 MOD 1,4 dioxane		1 L Amber				
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u> If yes, complete appropriate forms.						

GROUNDWATER SAMPLING INFORMATION

DATE: 5/27/20

TASK: 532-30

WELL ID: MW-34B

Time <u>1558</u> Static DTW (ft below reference point) <u>130.00</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>46</u> 3 CV (gallons) <u>138</u>	Weather Conditions	Initials: <u>AMO/TJE</u>
Casing Total Depth (ft below reference point) <u>536</u>	Purging Device <u>ded pump</u> Sampling Device <u>10-100 pipe stand</u>	Time <u>1558</u> Temp. <u>80</u>	Begin Purge <u>1603</u> End Purge <u>1612</u>
Water Column (feet) <u>76</u>	Pump: Depth (ft brp) <u>460</u> Type <u>grundfor</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>162</u> CVs Purged <u>3.5</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>-</u> Fast <u>X</u>	Wind (mph) <u>-</u> From <u>-</u>	DTW (ft brp) <u>1611</u> Time <u>132.78</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)		
1603	130.00	0	0			BEGIN	PURGE				
1605	~~132.60~~ 132.20	23	0.5	21.6	7.48	804	88.3	1.96	14.9	-	Q ² 20 gpm
1607	132.60	46	1.0	21.6	7.46	836	96.1	1.25	NM	-	
1608	132.60	90	2.0	21.6	7.44	837	98.9	1.22	11.6	-	
1609	132.60	100	2.2	21.6	7.44	837	100.2	1.21	NM	-	
1610	132.73	110	2.4	21.6	7.41	840	101.2	1.23	7.37	-	
1611	132.78	138	3.0	21.6	7.43	843	103.2	1.23	5.38	-	COLLECT SAMPLE
1612	NM	162	3.5			END	PURGE				

SAMPLE COLLECTION SAMPLE TIME <u>1611</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u>	
If yes, complete appropriate forms.	

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

GROUNDWATER SAMPLING INFORMATION

DATE: 5/28/20

TASK: 532.30

WELL ID: MW-31

Time <u>0828</u> Static DTW (ft below reference point)	<u>95.40</u>	screen <u>SV</u> Casing Volume (CV) (gallons) <u>81</u> <u>SV</u> 3 CV (gallons) <u>243</u>	Weather Conditions
Casing Total Depth (ft below reference point)	<u>996</u>	Purging Device <u>ded pump</u> Sampling Device <u>10-100 pipestand</u>	Time <u>0830</u> Temp. <u>70</u>
Water Column (feet)	<u>54</u>	Pump: Depth (ft brp) <u>942</u> Type <u>grundfor</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>cloudy</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>-</u> From <u>-</u>
		Initials: <u>AMD/TUE</u>	
		Begin Purge <u>0832</u> End Purge <u>0856</u>	
		Gallons Purged <u>286</u> CVs Purged <u>3.5</u>	
		DTW (ft brp) <u>95.40</u> Time <u>0828</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)		
0832	95.40	0	0			BEGIN PURGING					
0836	99.80	40	0.5	20.9	9.82	949	149.5	0.36	4.38	-	Q ≈ 12 gpm
0839	99.89	80	1.0	21.0	7.84	1484	153.4	0.17	7.76	-	
0841	99.88	120	1.5	21.1	7.58	1178	134.5	0.18	5.82	-	
0844	99.80	162	2.0	21.1	7.56	1072	120.8	0.21	3.86	-	
0847	99.81	202	2.5	21.1	7.53	1003	112.2	0.29	3.94	-	
0851	99.81	243	3.0	21.2	7.52	962	108.0	0.30	2.17	-	
0856	NM	286	3.5			pump off					

SAMPLE COLLECTION SAMPLE TIME <u>852</u>		
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? ☒ 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.)			
<u>SPT @ 855</u> <u>DUP @ 859 - MW-3100B</u>			

GROUNDWATER SAMPLING INFORMATION

DATE: 5/28/20

TASK: 532.30

WELL ID: MW-41

Time <u>0940</u> Static DTW (ft below reference point) <u>133.34</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>39</u> 3 CV (gallons) <u>117</u>	Weather Conditions	Initials: <u>AMD/TJE</u>
Casing Total Depth (ft below reference point) <u>425</u>	Purging Device <u>ded pump</u> Sampling Device <u>0-10 piperstand</u>	Time <u>0943</u> Temp. <u>75</u>	Begin Purge <u>0943</u> End Purge <u>1004</u>
Water Column (feet) <u>65</u>	Pump: Depth (ft brp) <u>360</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>230</u> CVs Purged <u>5.75</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>-</u> From <u>-</u>	DTW (ft brp) <u>141.90</u> Time <u>1002</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)		
0943	133.34	0	0	—	—	BEGIN	PURGE	—	—	—	
0945	141.59	20	0.5	21.5	7.09	1913	138.8	3.71	13.8	-	Q ≈ 10.5 gpm
0947	141.59	40	1.0	21.7	7.01	1910	141.1	3.25	27.7	-	
0949	141.62	60	1.5	21.7	6.96	1909	141.9	3.10	29.1	-	
0950	141.67	80	2.0	21.7	6.97	1910	141.9	3.11	23.4	-	
0952	141.74	100	2.5	21.7	6.96	1908	141.7	3.04	20.6	-	
0955	141.81	140	3.5	21.7	6.96	1910	141.0	3.10	15.2	-	
0957	141.82	~~160~~ 150	3.75	21.7	6.95	1909	140.7	3.03	13.9	-	
0959	141.84	170	4.25	21.7	6.95	1909	140.2	3.05	11.3	-	
1002	141.90	200	5.0	21.7	6.95	1908	139.9	3.05	10.0	-	COLLECT SAMPLE
1004	NM	230	5.75	—	—	END	PURGE	—	—	—	

SAMPLE COLLECTION	SAMPLE TIME	<u>1002</u>
ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>3</u>	40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber
8270 MOD 1,4 dioxane		1 L Amber
DUPLICATES / SPLITS / BLANKS?	Y	(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: 5/28/20

TASK: 532.30

WELL ID: MW-40

Time <u>1218</u> Static DTW (ft below reference point)	<u>96.81</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>75</u> <u>SV</u> (gallons) <u>225</u>	Weather Conditions Time <u>1225</u> Temp. <u>75</u>	Initials: <u>AMD/TJE</u>
Casing Total Depth (ft below reference point)	<u>970</u>	Purging Device <u>ded pump</u> Sampling Device <u>ND pipestand</u>	Skies <u>clear</u>	Begin Purge <u>1220</u> End Purge <u>1245</u>
Water Column (feet)	<u>50</u>	Pump: Depth (ft brp) <u>926</u> Type <u>grundfos</u> Voltage <u>1.74</u> HP <u>-</u>	Wind (mph) <u>-</u> From <u>-</u>	Gallons Purged <u>241</u> CVs Purged <u>3.2</u>
Casing Capacity (Diameter <u>6</u> ") (gallons per foot)	<u>1.5</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>		DTW (ft brp) <u>98.45</u> Time <u>1244</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>1220</u>	<u>96.81</u>	<u>0</u>	<u>0</u>			<u>BEGIN PURGE</u>					
<u>1224</u>	<u>98.45</u>	<u>37.5</u>	<u>0.5</u>	<u>22.9</u>	<u>7.99</u>	<u>748</u>	<u>-</u>	<u>-</u>	<u>1.74</u>	<u>-</u>	<u>Q ≈ 9 gpm</u>
<u>1227</u>	<u>98.45</u>	<u>75</u>	<u>1.0</u>	<u>22.1</u>	<u>7.92</u>	<u>744</u>	<u>-</u>	<u>-</u>	<u>1.69</u>	<u>-</u>	
<u>1231</u>	<u>98.45</u>	<u>112</u>	<u>1.5</u>	<u>22.3</u>	<u>7.74</u>	<u>764</u>	<u>-</u>	<u>-</u>	<u>0.49</u>	<u>-</u>	
<u>1235</u>	<u>98.45</u>	<u>150</u>	<u>2.0</u>	<u>21.9</u>	<u>7.78</u>	<u>768</u>	<u>-</u>	<u>-</u>	<u>0.97</u>	<u>-</u>	
<u>1239</u>	<u>98.45</u>	<u>187.5</u>	<u>2.5</u>	<u>22.0</u>	<u>7.72</u>	<u>768</u>	<u>-</u>	<u>-</u>	<u>1.36</u>	<u>-</u>	
<u>1244</u>	<u>98.45</u>	<u>225</u>	<u>3.0</u>	<u>22.0</u>	<u>7.72</u>	<u>767</u>	<u>-</u>	<u>-</u>	<u>1.00</u>	<u>-</u>	
<u>1245</u>	<u>NM</u>	<u>241</u>	<u>3.2</u>			<u>END PURGE</u>					

SAMPLE COLLECTION SAMPLE TIME <u>1244</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? Y <u>N</u>	
If yes, complete appropriate forms.	

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

GROUNDWATER SAMPLING INFORMATION

DATE: 5/26/20

TASK: 532.30

WELL ID: MW-21

Time <u>1255</u> Static DTW (ft below reference point)	<u>112.09</u>	Casing Volume (CV) (gallons) <u>79.2</u> 3 CV (gallons) <u>237</u>	Weather Conditions	Initials: <u>AMP/TJE</u>
Casing Total Depth (ft below reference point)	<u>232.1</u>	Purging Device <u>ded pump</u> Sampling Device <u>ded sample port</u>	Time <u>1334</u> Temp. <u>79</u>	Begin Purge <u>1338</u> End Purge <u>1349</u>
Water Column (feet)	<u>120.01</u>	Pump: Depth (ft brp) <u>-</u> Type <u>-</u> Voltage <u>-</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>253</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>X</u>	Wind (mph) <u>-</u> From <u>-</u>	DTW (ft brp) <u>130.30</u> Time <u>1348</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)		
1338	112.09	0	0			BEGIN PURGE					Q ≈ 23 gpm
1340	127.61	46	0.58	24.7	7.46	1037	69.0	0.79	12.2	-	
1341	129.10	69	0.87	23.7	7.28	1868	4.0	3.57	4.55	-	
1342	NM	92	1.16	22.4	7.22	1932	6.1	3.83	1.81	-	
1344	130.30	138	1.74	22.5	7.16	1963	22.7	3.67	0.94	-	
1346	130.30	184	2.32	22.6	7.15	1968	33.0	3.78	0.90	-	
1348	130.30	230	3.0	22.5	7.15	1969	36.1	3.61	0.81	-	
1349	NM	253	3.2			END PURGE					

SAMPLE COLLECTION SAMPLE TIME <u>1346</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u>	
If yes, complete appropriate forms.	

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

MAY 2020

SCANNED
7/6/20 -JAK

QUARTERLY GROUNDWATER MONITORING
FIELD NOTEBOOK
LARGE VOLUME MONITOR WELLS

RAYTHEON COMPANY

532.30

1901 MALVERN AVE.
FULLERTON, CALIFORNIA



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

PROJECT NUMBER:532.30

[illegible]

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

[illegible]

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: MAY 2020

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)	FEB 2020 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
P-07	05/ /20				142.31		112.16			
P-09	05/ /20				183.86		120.74			
MW-06	05/ /20				184.70		159.15			
MW-08	05/26 /20	1259	1259 ^{TC}	127.86	155.91	28.05	132.98	+5.12		Ant/DJS
MW-09	05/ /20				180.10		157.39			
MW-13	05/ /20				141.84		122.70			
MW-15	05/28 /20	1330	TOC	186.6	144.95	18.29	130.51	+3.85		Ant/DJS
MW-16	05/ /20				142.40		124.41			
MW-17	05/ /20				142.70		122.60			
MW-18	05/ /20				142.32		123.07			
MW-19	05/ /20				142.06		122.78			
MW-20	05/ /20				184.19		155.21			
MW-21	05/ /20				141.18		117.42		Totalizer: Pumping?	
MW-22	05/ /20				138.65		119.16			
MW-23	05/ /20				137.33		119.06			
MW-24	05/ /20				142.83		120.02			
MW-25	05/ /20				142.64		119.12			
MW-26A	05/ /20				137.04		121.41			
MW-26B	05/ /20				137.05		121.13			
MW-26C	05/ /20				137.22		120.03			

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: MAY 2020

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)	FEB 2020 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-27	05/ /20				137.16		119.56			
MW-28	05/ /20				140.77		123.90			
MW-29	05/26/20	13:10	TOST	162.34P	139.81	-22.53	176.70P	+14.36	Totalizer: 7033-780.8 Pumping? ☒	AMS/DJS
MW-30A	05/26/20	13:35	TOST	105.56	129.44	23.88	113.12	+7.56		↓
MW-30B	05/26/20	13:38	TOST	104.03	129.39	25.36	110.58	+6.55		↓
MW-31	05/26/20	12:21	TOST	94.84	119.60	24.76	101.89	+7.05		AMS/DJS
MW-32A	05/26/20	09:32	TOC	69.80	92.88	23.08	76.60	+6.80		↓
MW-32B	05/26/20	09:29	TOST	69.88	92.89	23.61	76.20	+6.92		↓
MW-32C	05/26/20	09:25	TOST	69.00	92.88	28.88	72.58	+8.58		↓
MW-33	05/26/20	12:00	TOST	61.10	83.19	22.09	67.68	+6.58		↓
MW-34A	05/ /20				153.25		139.43			
MW-34B	05/ /20				153.11		137.37			
MW-34C	05/ /20				153.29		136.24			
MW-35A	05/26/20	10:42	TOST	69.40	93.57	24.17	68.91	-0.49		AMS/DJS
MW-35B	05/26/20	10:48	TOST	74.38	93.56	19.18	76.69	+2.31		↓
MW-35C	05/26/20	10:49	TOST	70.40	93.55	23.15	77.21	+6.81		↓
MW-36	05/ /20				86.65		71.92			
MW-37	05/ /20				155.60		138.79			
MW-38	05/ /20				154.90		145.67			
MW-39	05/ /20				84.25		69.90			

msl = Mean sea level

ft = feet

STATIC WATER LEVEL DATA SHEET

MONTH/YEAR: MAY 2020

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)	FEB 2020 PREVIOUS DEPTH TO WATER (ft)	CHANGE IN WATER LEVEL (± ft)	COMMENTS	INITIALS
MW-40	05/26/20	1245	TOST	96.81	123.40	26.59	104.24	+7.43		AMJ/DJS
MW-41	05/ /20				155.60		139.75			
MW-42	05/ /20	10:15	TOST	62.89	82.80	20.91	68.32	+6.43		AMJ/DJS
MW-43	05/26/20	10:08	TOST	66.35	76.64	20.29	62.58	+6.23		L
EW-01	05/ /20				141.07		122.80		SOUNDING TUBE TO 172.65 Totalizer: Pumping?	
EW-02	05/26/20	1353	TOST	113.25P	132.97	19.72	120.80P	+7.55	Totalizer: 48538.5 Pumping? 485	AMJ/DJS

 msl = Mean sea level
 ft = feet

**MAY 2020 GROUNDWATER SAMPLE PLAN
TEAM 1**

QA/QC	Total VOC's µg/L	1,4-Dioxane µg/L	APROX. GALLONS	ESTIMATED TIME (minutes)	WELL IDENTIFIER	HYDROGEOLOGIC ZONE	MAY 2020 SAMPLING SCHEDULE	SAMPLE METHOD
	0	0	900	43	~~MW-35C~~	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	848	54	MW-39	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
2/3SV	3.4	0.22	914	48	MW-33	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	75	4.1	318	27	MW-31	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
2/3SV	50	9.2	1026	77	MW-36	Deep; D	VOCs; 1,4-Dioxane	Ded.240V
SPT/DUP	187	4.9	81	28	MW-32B	Deep; B	VOCs; 1,4-Dioxane	Ded. Redi-Flo 2

NOTES

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

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

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

Wells with dedicated pumps should follow concentration order when possible.

MW-36 and MW-39 Gate Access Code: 3252

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

**MAY 2020 GROUNDWATER SAMPLE PLAN
TEAM 2**

QA/QC	Total VOC's µg/L	1,4-Dioxane µg/L	APPROX. GALLONS	ESTIMATE D TIME (minutes)	WELL IDENTIFIER	HYDROGEOLOGIC ZONE	MAY 2020 SAMPLING SCHEDULE	SAMPLE METHOD
	34	34	138	12	EW-01	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
SPT/DUP	776	460	276	12	MW-21	Water Table; BC	VOCs; 1,4-Dioxane (8270 MOD)	Dedicated
	0	0	280	26	MW-40	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	67	10	MW-30A	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	100	19	MW-28	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	0	0	910	41	MW-43	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	2.3	0.21	331	31	MW-41	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
	31	1.3	999	45	MW-42	Deep; B	VOCs; 1,4-Dioxane	Ded.240V
	67	20	244	12	MW-34B	Deep; B	VOCs; 1,4-Dioxane (8270 MOD)	Ded.240V
	131	0.56	128	24	MW-30B	Deep; BC	VOCs; 1,4-Dioxane	Ded.240V
	0	0	159	53	MW-26C	Deep; B	VOCs; 1,4-Dioxane	Redi-flo
	82	0.94	18	19	MW-08	Water Table; BC	VOCs; 1,4-Dioxane	Redi-flo

NOTE

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

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

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

Wells with dedicated pumps should follow concentration order when possible.

MW-36 and MW-39 Gate Access Code: 3252

Thurs 3am

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GROUNDWATER SAMPLING INFORMATION

DATE: 5/27/20

TASK: 532.30

WELL ID: MW-35C

Time <u>0854</u> Static DTW (ft below reference point) <u>70.75</u>	<u>Screen SV</u> Casing Volume (CV) (gallons) <u>288</u> <u>SV</u> 3 CV (gallons) <u>864</u>	Weather Conditions	Initials: <u>AMS/DJS/GTC</u>
Casing Total Depth (ft below reference point) <u>1040</u>	Purging Device <u>ded. pump</u> Sampling Device <u>ND p. standard</u>	Time <u>0857</u> Temp. <u>75</u>	Begin Purge <u>1025</u> End Purge <u>1251</u>
<u>pump 40 screen</u> Water Column (feet) <u>480</u>	Pump: Depth (ft brp) <u>560</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>901 SV</u> CVs Purged <u>31</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>-</u> From <u>-</u>	DTW (ft brp) <u>80.72</u> Time <u>1245</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>1025</u>	<u>70.75</u>	<u>0</u>	<u>0</u>								<u>Q ≈ 20.5 GPM</u>
<u>1033</u>	<u>79.65</u>	<u>144</u>	<u>0.5</u>	<u>20.4</u>	<u>7.34</u>	<u>0.917</u>	<u>84.3</u>	<u>0.54</u>	<u>0.52</u>	<u>-</u>	
<u>1040</u>	<u>79.80</u>	<u>288</u>	<u>1.0</u>	<u>20.5</u>	<u>7.40</u>	<u>0.738</u>	<u>84.6</u>	<u>2.62</u>	<u>6.5</u>	<u>-</u>	
<u>1052</u>	<u>NM</u>	<u>480</u> ⁵²⁵	<u>1.8</u>							<u>-</u>	<u>issues w/ water trailer</u>
<u>1233</u>	<u>71.00</u>	<u>525</u>	<u>1.8</u>							<u>-</u>	<u>Q ≈ 20 GPM</u>
<u>1235</u>	<u>80.31</u>	<u>576</u>	<u>2.0</u>	<u>20.4</u>	<u>7.39</u>	<u>0.781</u>	<u>138.3</u>	<u>3.13</u>	<u>NM</u>	<u>-</u>	<u>X</u>
<u>1240</u>	<u>80.69</u>	<u>680</u> ⁶⁸⁰	<u>2.1</u>	<u>20.5</u>	<u>7.38</u>	<u>0.770</u>	<u>114.4</u>	<u>3.40</u>	<u>0.52</u>	<u>-</u>	
<u>1245</u>	<u>80.77</u>	<u>768</u>	<u>2.7</u>	<u>20.5</u>	<u>7.36</u>	<u>0.769</u>	<u>94.1</u>	<u>3.38</u>	<u>2.21</u>	<u>-</u>	<u>1</u>
<u>1249</u>	<u>NM</u>	<u>864</u>	<u>3.0</u>	<u>20.5</u>	<u>7.35</u>	<u>0.771</u>	<u>86.8</u>	<u>3.47</u>	<u>2.89</u>	<u>-</u>	<u>collected samples</u>
<u>1251</u>	<u>NM</u>	<u>901</u>	<u>3.1</u>								

SAMPLE COLLECTION SAMPLE TIME <u>1249</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>NA</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> <u>N</u> If yes, complete appropriate forms.						

GROUNDWATER SAMPLING INFORMATION

DATE: 5/27/20

TASK: 532.30

WELL ID: MW-39

Time <u>1546</u> Static DTW (ft below reference point) <u>63.81</u>	screen <u>SV</u> Casing Volume (gallons) <u>271</u> 3 CV (gallons) <u>814</u>	Weather Conditions	Initials: <u>AMS/DJS/GTC</u>
Casing Total Depth (ft below reference point) <u>1012</u>	Purging Device <u>ded. pump</u> Sampling Device <u>ND pipet/d</u>	Time <u>1547</u> Temp. <u>82</u>	Begin Purge <u>1550</u> End Purge <u>1633</u>
<u>pump to screen</u> Water Column (feet) <u>452</u>	Pump: Depth (ft brp) <u>560</u> Type <u>grundfos</u> Voltage <u>240</u> HP <u>-</u>	Skies <u>clear</u>	Gallons Purged <u>952</u> CVs Purged <u>3.5</u>
Casing Capacity (Diameter <u>4</u> ") (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>X</u>	Wind (mph) <u>-</u> From <u>-</u>	DTW (ft brp) <u>63.81</u> Time <u>1546</u>

Time	Depth to Water	Volume Purged (Gallons)	Casing Volumes Purged	...FIELD PARAMETERS...						Pump Frequency Hz	COMMENTS
				Temp. (°C)	pH	EC (mS/cm)	O.R.P. (mV)	D.O. (mg/L)	Turbidity (NTU)		
<u>1550</u>	<u>63.81</u>	<u>0</u>	<u>0</u>	<u>pump on</u>							<u>Q ≈ 22 GPM</u>
<u>1556</u>	<u>79.35</u>	<u>136</u>	<u>0.5</u>	<u>21.6</u>	<u>8.16</u>	<u>0.412</u>	<u>-223.4</u>	<u>0.20</u>	<u>4.50</u>	<u>-</u>	
<u>1602</u>	<u>79.51</u>	<u>271</u>	<u>1.0</u>	<u>22.2</u>	<u>8.26</u>	<u>0.404</u>	<u>-239.2</u>	<u>0.17</u>	<u>4.24</u>	<u>-</u>	
<u>1608</u>	<u>79.62</u>	<u>407</u>	<u>1.5</u>	<u>22.5</u>	<u>8.18</u>	<u>0.409</u>	<u>-213.2</u>	<u>0.16</u>	<u>4.58</u>	<u>-</u>	
<u>1615</u>	<u>79.75</u>	<u>552</u>	<u>2.0</u>	<u>22.5</u>	<u>8.16</u>	<u>0.412</u>	<u>-95.5</u>	<u>0.23</u>	<u>4.50</u>	<u>-</u>	
<u>1621</u>	<u>79.78</u>	<u>678</u>	<u>2.5</u>	<u>22.5</u>	<u>8.11</u>	<u>0.414</u>	<u>-137.9</u>	<u>0.17</u>	<u>4.51</u>	<u>-</u>	
<u>1627</u>	<u>NM</u>	<u>814</u>	<u>3.0</u>	<u>22.5</u>	<u>8.10</u>	<u>0.415</u>	<u>-154.7</u>	<u>0.16</u>	<u>4.41</u>	<u>-</u>	
<u>1632</u>	<u>NM</u>	<u>916</u>	<u>3.4</u>	<u>22.5</u>	<u>8.09</u>	<u>0.416</u>	<u>-162.6</u>	<u>0.16</u>	<u>4.40</u>	<u>-</u>	<u>collect samples</u>
<u>1633</u>	<u>NM</u>	<u>952</u>	<u>3.5</u>	<u>pump off</u>							

SAMPLE COLLECTION SAMPLE TIME <u>1632</u>			AIR MONITORING PID/FID ppm: VAULT NA BKGD NA BREATHING ZONE NA DISCHARGE WATER NA			
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
8260B VOCs	<u>3</u>	40 ml VOA				
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber				
8270 MOD 1,4 dioxane		1 L Amber				
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u>						
If yes, complete appropriate forms.						

GROUNDWATER SAMPLING INFORMATION

DATE: 05-28-20

TASK: 532.30

WELL ID: MW-43

Time <u>08:33</u> Static DTW (ft below reference point) <u>56.48</u>	<u>Screen</u> <u>SV</u> Casing Volume (gallons) <u>301.8</u> 3 <u>SV</u> (gallons) <u>905</u>	Weather Conditions	Initials: <u>DTS, Amy, CTC</u>
Casing Total Depth (ft below reference point) <u>1046</u>	Purging Device <u>ded pump</u> Sampling Device <u>ND 81651m</u>	Time <u>0830</u> Temp. <u>70°</u>	Begin Purge <u>0838</u> End Purge <u>0923</u>
Water Column (feet) <u>486</u> <u>484.02</u>	Pump: Depth (ft brp) <u>560</u> Type <u>grinder</u> Voltage <u>24</u> HP <u>5</u>	Skies <u>Cloudy</u>	Gallons Purged <u>964</u> CVs Purged <u>3.1</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>✓</u> Fast <u>✓</u>	Wind (mph) <u>~</u> From <u>~</u>	DTW (ft brp) <u>56.98</u> Time <u>08:33</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>0838</u>	<u>56.98</u>	<u>0</u>	<u>0</u>	<u>~</u>	<u>B</u>	<u>0.479</u>	<u>-207.4</u>	<u>0.20</u>	<u>4.23</u>	<u>-</u>	<u>Q 22 GPM</u>
<u>0846</u>	<u>64.15</u>	<u>190.83</u>	<u>0.5</u>	<u>20.7</u>	<u>4.04</u>	<u>0.497</u>	<u>-207.4</u>	<u>0.20</u>	<u>4.23</u>	<u>-</u>	
<u>0853</u>	<u>64.30</u>	<u>301.66</u>	<u>1.0</u>	<u>21.5</u>	<u>7.86</u>	<u>0.491</u>	<u>-157.3</u>	<u>0.17</u>	<u>0.00</u>	<u>-</u>	
<u>0859</u>	<u>64.35</u>	<u>452.49</u>	<u>1.5</u>	<u>21.5</u>	<u>7.86</u>	<u>0.479</u>	<u>-157.8</u>	<u>0.16</u>	<u>0.00</u>	<u>-</u>	
<u>0906</u>	<u>64.40</u>	<u>603.32</u>	<u>2.0</u>	<u>21.6</u>	<u>7.83</u>	<u>0.479</u>	<u>-43.9</u>	<u>0.29</u>	<u>0.00</u>	<u>-</u>	
<u>914</u>	<u>64.45</u>	<u>754.15</u>	<u>2.5</u>	<u>21.6</u>	<u>7.83</u>	<u>0.479</u>	<u>-60.8</u>	<u>0.20</u>	<u>0.00</u>	<u>-</u>	
<u>9:20</u>	<u>64.48</u>	<u>905</u>	<u>3.0</u>	<u>21.6</u>	<u>7.82</u>	<u>0.481</u>	<u>-67.5</u>	<u>0.21</u>	<u>0.00</u>	<u>✓</u>	
<u>09:23</u>	<u>NM</u>	<u>964</u>	<u>3.1</u>	<u>~</u>	<u>End purge</u>	<u>~</u>	<u>~</u>	<u>~</u>	<u>~</u>	<u>~</u>	

SAMPLE COLLECTION SAMPLE TIME <u>0920</u>		
ANALYSIS	QUANTITY	TYPE
8260B VOCs	<u>3</u>	40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u>	1 L Amber
8270 MOD 1,4 dioxane	<u>1</u>	1 L Amber
DUPLICATES / SPLITS / BLANKS? <u>Y</u> <u>(N)</u>		

AIR MONITORING PID/FID ppm: VAULT NA BKOD 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: 05.28.20

TASK: 532-30

WELL ID: MW-412

Time <u>0950</u> Static DTW (ft below reference point) <u>62.68</u>	<u>screen</u> <u>SV</u> Casing Volume (CV) (gallons) <u>290.6</u> 3 CV (gallons) <u>883.8</u>	Weather Conditions Time <u>0950</u> Temp. <u>80</u>	Initials: <u>AMJ, DJS, GTC</u>
Casing Total Depth (ft below reference point) <u>1051</u>	Purging Device <u>del pump</u> Sampling Device <u>10-100 pipe</u>	Skies <u>clear</u>	Begin Purge <u>9:58</u> End Purge <u>1042</u>
Water Column (feet) <u>491</u>	Pump: Depth (ft brp) <u>560</u> Type <u>4 inch</u> Voltage <u>240</u> HP <u>X</u>	Wind (mph) <u>-</u> From <u>-</u>	Gallons Purged <u>950</u> CVs Purged <u>3.2</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>-</u> Fast <u>✓</u>	DTW (ft brp) <u>62.68</u> Time <u>950</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>0958</u>	<u>62.68</u>	<u>0</u>	<u>0</u>	<u>~</u>	<u>Begin</u>	<u>purge</u>	<u>~</u>				<u>Q ≈ 22 GPM</u>
<u>1006</u>	<u>71.42</u>	<u>1473</u>	<u>0.5</u>	<u>20.9</u>	<u>7.90</u>	<u>0.553</u>	<u>-133.4</u>	<u>0.18</u>	<u>4.48</u>	<u>-</u>	
<u>1012</u>	<u>71.40</u>	<u>294.6</u>	<u>1.0</u>	<u>21.4</u>	<u>7.84</u>	<u>0.559</u>	<u>-126.1</u>	<u>0.16</u>	<u>4.43</u>	<u>-</u>	
<u>1019</u>	<u>71.60</u>	<u>441.9</u>	<u>1.5</u>	<u>21.5</u>	<u>7.85</u>	<u>0.559</u>	<u>-122.6</u>	<u>0.14</u>	<u>4.50</u>	<u>-</u>	
<u>1026</u>	<u>71.60</u>	<u>584.2</u>	<u>2.0</u>	<u>21.5</u>	<u>7.84</u>	<u>0.559</u>	<u>-124.3</u>	<u>0.14</u>	<u>4.53</u>	<u>✓</u>	
<u>1032</u>	<u>71.68</u>	<u>736.5</u>	<u>2.5</u>	<u>21.5</u>	<u>7.84</u>	<u>0.559</u>	<u>-125.9</u>	<u>0.13</u>	<u>4.57</u>	<u>~</u>	
<u>1038</u> <u>4632-2</u>	<u>71.70</u>	<u>850</u>	<u>3.0</u>	<u>21.5</u>	<u>7.85</u>	<u>0.558</u>	<u>-128.0</u>	<u>0.13</u>	<u>4.55</u>	<u>✓</u>	<u>* Sample</u>
<u>1042</u>	<u>NM</u>	<u>950</u>	<u>3.2</u>	<u>~</u>	<u>End</u>	<u>purge</u>	<u>~</u>			<u>-</u>	<u>* Sample</u>

SAMPLE COLLECTION SAMPLE TIME <u>1038</u>	
ANALYSIS	QUANTITY TYPE
8260B VOCs	<u>3</u> 40 ml VOA
8270 SIM 1,4 dioxane	<u>1</u> 1 L Amber
8270 MOD 1,4 dioxane	<u>1</u> 1 L Amber
DUPLICATES / SPLITS / BLANKS? Y <u>(N)</u>	

AIR MONITORING PID/FID ppm: VAULT NA BKOB 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: 5-28-20

TASK: 532.38

WELL ID: MW-38

Time <u>1220</u> Static DTW (ft below reference point) <u>65.95</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>320.4</u> 3 CV (gallons) <u>961</u>	Weather Conditions	Initials: <u>AMJ, DJT, GE</u>
Casing Total Depth (ft below reference point) <u>994</u>	Purging Device <u>44.1 pump</u> Sampling Device <u>10-100 ft</u>	Time <u>1225</u> Temp. <u>75</u>	Begin Purge <u>1228</u> End Purge <u>1341</u>
Water Column (feet) <u>534</u>	Pump: Depth (ft brp) <u>460</u> Type <u>peristaltic</u> Voltage <u>240</u> HP <u>1/2</u>	Skies <u>clear</u>	Gallons Purged <u>974</u> CVs Purged <u>3.1</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow <u>✓</u> Fast <u>✓</u>	Wind (mph) <u>-</u> From <u>-</u>	DTW (ft brp) <u>65.95</u> Time <u>1220</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)		
1225	65.95	0	0	~	Begin	Purge	~	~	~	-	
1234	69.55	160.2	0.5	21.3	7.50	1.078	-35.9	0.16	4.38	-	Q ≈ 13 GPM
1251	69.62	320.4	1.0	21.7	7.45	1.220	-61.9	0.15	7.89	-	
1303	69.60	480	1.5	21.8	7.41	1.295	-55.4	0.14	4.06	-	
1315	69.71	640.8	2.0	21.8	7.42	1.296	-51.7	0.13	4.32	-	* Sample
1326	69.72	801	2.5	21.8	7.43	1.296	-50.0	0.13	4.29	-	
1340	69.65	961	3.0	21.9	7.43	1.292	-50.4	0.13	4.24	-	* Sample
1341	NM	974	3.1	~	End	Purge	~	~	~	-	

SAMPLE COLLECTION SAMPLE TIME <u>1340</u>			AIR MONITORING PID/FID ppm: VAULT NA <u>✓</u> BKGD NA <u>✓</u> BREATHING ZONE NA <u>✓</u> DISCHARGE WATER NA <u>✓</u>			
ANALYSIS	QUANTITY	TYPE	NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
8260B VOCs	<u>6</u>	40 ml VOA	<u>Collected MW-38-2SV @ 1315 after 2 screen volumes.</u>			
8270 SIM 1,4 dioxane	<u>2</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: 5/28/20

TASK: 532.30

WELL ID: MW-33

Time <u>1430</u> Static DTW (ft below reference point) <u>61.95</u>	Screen <u>SV</u> Casing Volume (CV) (gallons) <u>291</u> 3 CV (gallons) <u>873</u>	Weather Conditions	Initials: <u>AM, DJ, GF</u>
Casing Total Depth (ft below reference point) <u>1020</u>	Purging Device <u>ded pump</u> Sampling Device <u>0-10 PS</u>	Time <u>1435</u> Temp. <u>80</u>	Begin Purge <u>1438</u> End Purge <u>1528</u>
<u>pump to screen</u> Water Column (feet) <u>485</u> ~~458.05~~	Pump: Depth (ft brp) <u>535</u> Type <u>grindstone</u> Voltage <u>240</u> HP <u>5</u>	Skies <u>clear</u>	Gallons Purged <u>909</u> CVs Purged <u>3.1</u>
Casing Capacity (Diameter <u>4"</u>) (gallons per foot) <u>0.60</u>	Monitor Well Recharge Rate: Slow _____ Fast <u>✓</u>	Wind (mph) <u>2</u> From <u>2</u>	DTW (ft brp) <u>61.95</u> Time <u>1438</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)		
1430	61.95	0	0							-	Q ≈ 18 GPM
1447	64.03	145.5	0.5	20.6	7.75	0.2330	-36.7	4.81	0.66	-	
1455	64.21	291	1.0	20.9	7.72	0.478	7.1	6.12	2.35	-	
1503	64.23	436.5	1.5	20.9	7.62	0.371	38.2	4.93	1.05	-	
1511	64.29	582	2.0	20.9	7.61	0.371	25.6	4.97	2.11	-	* Sample
1519	64.30	727.5	2.5	20.9	7.61	0.358	41.9	4.91	2.0	-	
1527	64.30	873	3.0	20.9	7.63	0.678	53.0	5.35	4.49	-	
1528	NM	909	3.1		End					-	

SAMPLE COLLECTION SAMPLE TIME <u>1527</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? <u>Y</u> N	
If yes, complete appropriate forms.	

AIR MONITORING PID/FID ppm: VAULT NA	BKGD NA	BREATHING ZONE NA	DISCHARGE WATER NA
NOTES (Color, odor, sand and silt content, factors possibly affecting samples, condition of vault, wellhead, sampling apparatus, etc.)			
<u>Collected MW-33-25V @ 1511. after 2 screen volumes</u>			

25V

APPENDIX B
LABORATORY ANALYTICAL REPORTS

GROUNDWATER SAMPLING ANALYTICAL RESULTS



June 04, 2020

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 : 2001285
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on May 27, 2020 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 'R. Karimi', enclosed within a large, loopy oval.

Dr. Reza Karimi
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, 532.30

Report To : Steve Netto

Reported : 06/04/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-052620	2001285-01	Water	5/26/20 13:00	5/27/20 17:00
EW-01	2001285-02	Water	5/26/20 13:25	5/27/20 17:00
MW-21	2001285-03	Water	5/26/20 13:48	5/27/20 17:00
MW-26C	2001285-04	Water	5/27/20 11:07	5/27/20 17:00
MW-28	2001285-05	Water	5/27/20 11:44	5/27/20 17:00
MW-32B	2001285-06	Water	5/27/20 13:13	5/27/20 17:00
MW-3200B	2001285-07	Water	5/27/20 13:15	5/27/20 17:00
RB-052720	2001285-08	Water	5/27/20 13:30	5/27/20 17:00
MW-08	2001285-09	Water	5/27/20 14:16	5/27/20 17:00
MW-30A	2001285-10	Water	5/27/20 15:06	5/27/20 17:00
MW-30B	2001285-11	Water	5/27/20 15:38	5/27/20 17:00
MW-34B	2001285-12	Water	5/27/20 16:11	5/27/20 17:00
MW-35C	2001285-13	Water	5/27/20 12:49	5/27/20 17:00
MW-39	2001285-14	Water	5/27/20 16:32	5/27/20 17:00



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 : 06/04/2020

Client Sample ID: TB-052620

Lab ID: 2001285-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 15:35	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 15:35	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 15:35	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 15:35	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:35	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 15:35	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 15:35	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 15:35	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 15:35	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 15:35	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 15:35	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:35	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 15:35	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:35	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 15:35	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 15:35	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 15:35	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 15:35	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:35	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 15:35	
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:35	
Chloromethane	0.12	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 15:35	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 15:35	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	



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 : 06/04/2020

Client Sample ID: TB-052620

Lab ID: 2001285-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 15:35	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 15:35	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 15:35	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 15:35	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:35	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 15:35	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 15:35	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:35	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:35	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 15:35	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:35	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:35	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:35	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 15:35	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:35	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:35	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 15:35	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:35	
Surrogate: 1,2-Dichloroethane-d4	130 %	59 - 158			B0F0014	06/01/2020	06/01/20 15:35	
Surrogate: 4-Bromofluorobenzene	111 %	71 - 127			B0F0014	06/01/2020	06/01/20 15:35	
Surrogate: Dibromofluoromethane	109 %	66 - 147			B0F0014	06/01/2020	06/01/20 15:35	
Surrogate: Toluene-d8	101 %	77 - 138			B0F0014	06/01/2020	06/01/20 15:35	



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 : 06/04/2020

Client Sample ID: EW-01

Lab ID: 2001285-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 22:52	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:52	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 22:52	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 22:52	
1,1-Dichloroethane	0.23	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:52	J
1,1-Dichloroethene	15	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:52	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:52	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:52	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:52	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 22:52	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 22:52	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:52	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:52	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:52	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:52	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:52	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:52	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 22:52	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:52	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:52	
Chloroform	0.14	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:52	J
Chloromethane	0.29	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:52	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:52	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	



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 : 06/04/2020

Client Sample ID: EW-01

Lab ID: 2001285-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:52	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 22:52	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 22:52	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:52	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:52	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 22:52	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 22:52	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:52	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:52	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 22:52	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:52	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:52	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:52	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:52	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:52	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:52	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 22:52	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:52	
Surrogate: 1,2-Dichloroethane-d4	130 %	59 - 158			B0F0014	06/01/2020	06/01/20 22:52	
Surrogate: 4-Bromofluorobenzene	112 %	71 - 127			B0F0014	06/01/2020	06/01/20 22:52	
Surrogate: Dibromofluoromethane	111 %	66 - 147			B0F0014	06/01/2020	06/01/20 22:52	
Surrogate: Toluene-d8	103 %	77 - 138			B0F0014	06/01/2020	06/01/20 22:52	



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 : 06/04/2020

Client Sample ID: EW-01

Lab ID: 2001285-02

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	11	2.0	0.84	1	B0F0037	06/02/2020	06/02/20 14:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.8 %</i>	<i>17 - 119</i>			B0F0037	06/02/2020	<i>06/02/20 14:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>77.2 %</i>	<i>10 - 133</i>			B0F0037	06/02/2020	<i>06/02/20 14:23</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>92.2 %</i>	<i>5 - 139</i>			B0F0037	06/02/2020	<i>06/02/20 14:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.6 %</i>	<i>13 - 150</i>			B0F0037	06/02/2020	<i>06/02/20 14:23</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-21

Lab ID: 2001285-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 08:26	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 08:26	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 08:26	
1,1,2-Trichloroethane	11	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 08:26	
1,1-Dichloroethane	22	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 08:26	
1,1-Dichloroethene	830	25	6.6	50	B0F0030	06/02/2020	06/02/20 19:35	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2-Dichloroethane	5.0	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 08:26	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 08:26	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 08:26	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 08:26	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 08:26	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 08:26	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 08:26	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 08:26	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 08:26	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 08:26	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 08:26	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 08:26	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 08:26	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 08:26	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 08:26	
Chloroform	1.8	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 08:26	
Chloromethane	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 08:26	
cis-1,2-Dichloroethene	1.2	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 08:26	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	



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 : 06/04/2020

Client Sample ID: MW-21

Lab ID: 2001285-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 08:26	
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 08:26	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 08:26	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 08:26	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 08:26	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 08:26	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 08:26	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 08:26	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 08:26	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 08:26	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 08:26	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 08:26	
Tetrachloroethene	4.6	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 08:26	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 08:26	
trans-1,2-Dichloroethene	0.26	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 08:26	J
Trichloroethene	15	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 08:26	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 08:26	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 08:26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>	<i>59 - 158</i>			B0F0030	06/02/2020	06/02/20 19:35	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>130 %</i>	<i>59 - 158</i>			B0F0019	06/02/2020	06/02/20 08:26	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90.3 %</i>	<i>71 - 127</i>			B0F0030	06/02/2020	06/02/20 19:35	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>	<i>71 - 127</i>			B0F0019	06/02/2020	06/02/20 08:26	
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>	<i>66 - 147</i>			B0F0030	06/02/2020	06/02/20 19:35	
<i>Surrogate: Dibromofluoromethane</i>	<i>110 %</i>	<i>66 - 147</i>			B0F0019	06/02/2020	06/02/20 08:26	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>77 - 138</i>			B0F0019	06/02/2020	06/02/20 08:26	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>77 - 138</i>			B0F0030	06/02/2020	06/02/20 19:35	



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 : 06/04/2020

Client Sample ID: MW-21

Lab ID: 2001285-03

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	740	4.0	1.7	2	B0F0037	06/02/2020	06/02/20 15:16	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>83.4 %</i>	<i>17 - 119</i>			B0F0037	06/02/2020	<i>06/02/20 15:16</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>85.4 %</i>	<i>10 - 133</i>			B0F0037	06/02/2020	<i>06/02/20 15:16</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>101 %</i>	<i>5 - 139</i>			B0F0037	06/02/2020	<i>06/02/20 15:16</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.6 %</i>	<i>13 - 150</i>			B0F0037	06/02/2020	<i>06/02/20 15:16</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 : 06/04/2020

Client Sample ID: MW-26C

Lab ID: 2001285-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 20:57	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 20:57	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 20:57	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 20:57	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 20:57	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 20:57	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 20:57	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 20:57	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 20:57	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 20:57	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 20:57	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 20:57	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 20:57	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 20:57	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 20:57	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 20:57	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 20:57	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 20:57	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 20:57	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 20:57	
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 20:57	
Chloromethane	0.20	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 20:57	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 20:57	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-26C

Lab ID: 2001285-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 20:57	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 20:57	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 20:57	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 20:57	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 20:57	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 20:57	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 20:57	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 20:57	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 20:57	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 20:57	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 20:57	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 20:57	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 20:57	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 20:57	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 20:57	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 20:57	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 20:57	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 20:57	
Surrogate: 1,2-Dichloroethane-d4	121 %	59 - 158			B0F0014	06/01/2020	06/01/20 20:57	
Surrogate: 4-Bromofluorobenzene	110 %	71 - 127			B0F0014	06/01/2020	06/01/20 20:57	
Surrogate: Dibromofluoromethane	108 %	66 - 147			B0F0014	06/01/2020	06/01/20 20:57	
Surrogate: Toluene-d8	103 %	77 - 138			B0F0014	06/01/2020	06/01/20 20:57	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-26C

Lab ID: 2001285-04

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 18:21	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>66.2 %</i>	<i>17 - 119</i>			B0F0077	06/02/2020	<i>06/02/20 18:21</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>79.0 %</i>	<i>10 - 133</i>			B0F0077	06/02/2020	<i>06/02/20 18:21</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>75.9 %</i>	<i>5 - 139</i>			B0F0077	06/02/2020	<i>06/02/20 18:21</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.9 %</i>	<i>13 - 150</i>			B0F0077	06/02/2020	<i>06/02/20 18:21</i>	



Certificate of Analysis

Hargis & Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-28

Lab ID: 2001285-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 21:20	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 21:20	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 21:20	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 21:20	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:20	
1,1-Dichloroethene	0.37	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	J
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 21:20	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 21:20	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 21:20	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 21:20	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 21:20	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 21:20	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:20	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 21:20	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:20	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 21:20	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 21:20	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 21:20	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 21:20	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:20	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 21:20	
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:20	
Chloromethane	0.19	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 21:20	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 21:20	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	



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 : 06/04/2020

Client Sample ID: MW-28

Lab ID: 2001285-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 21:20	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 21:20	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 21:20	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 21:20	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:20	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 21:20	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 21:20	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:20	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:20	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 21:20	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:20	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:20	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:20	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 21:20	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:20	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:20	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 21:20	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:20	
Surrogate: 1,2-Dichloroethane-d4	125 %	59 - 158			B0F0014	06/01/2020	06/01/20 21:20	
Surrogate: 4-Bromofluorobenzene	112 %	71 - 127			B0F0014	06/01/2020	06/01/20 21:20	
Surrogate: Dibromofluoromethane	110 %	66 - 147			B0F0014	06/01/2020	06/01/20 21:20	
Surrogate: Toluene-d8	102 %	77 - 138			B0F0014	06/01/2020	06/01/20 21:20	



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 : 06/04/2020

Client Sample ID: MW-28

Lab ID: 2001285-05

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 18:48	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>84.9 %</i>	<i>17 - 119</i>			B0F0077	06/02/2020	<i>06/02/20 18:48</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>89.0 %</i>	<i>10 - 133</i>			B0F0077	06/02/2020	<i>06/02/20 18:48</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>89.0 %</i>	<i>5 - 139</i>			B0F0077	06/02/2020	<i>06/02/20 18:48</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>83.5 %</i>	<i>13 - 150</i>			B0F0077	06/02/2020	<i>06/02/20 18:48</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 : 06/04/2020

Client Sample ID: MW-32B

Lab ID: 2001285-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 09:35	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 09:35	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 09:35	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 09:35	
1,1-Dichloroethane	0.46	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 09:35	J
1,1-Dichloroethene	58	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 09:35	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 09:35	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 09:35	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 09:35	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 09:35	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 09:35	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 09:35	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 09:35	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 09:35	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 09:35	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 09:35	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 09:35	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 09:35	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 09:35	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 09:35	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 09:35	
Chloromethane	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 09:35	
cis-1,2-Dichloroethene	1.6	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 09:35	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	



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 : 06/04/2020

Client Sample ID: MW-32B

Lab ID: 2001285-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 09:35	
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 09:35	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 09:35	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 09:35	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 09:35	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 09:35	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 09:35	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 09:35	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 09:35	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 09:35	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 09:35	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 09:35	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 09:35	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 09:35	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 09:35	
Trichloroethene	14	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 09:35	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 09:35	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 09:35	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>126 %</i>	<i>59 - 158</i>			B0F0019	06/02/2020	<i>06/02/20 09:35</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>71 - 127</i>			B0F0019	06/02/2020	<i>06/02/20 09:35</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>	<i>66 - 147</i>			B0F0019	06/02/2020	<i>06/02/20 09:35</i>	
<i>Surrogate: Toluene-d8</i>	<i>96.9 %</i>	<i>77 - 138</i>			B0F0019	06/02/2020	<i>06/02/20 09:35</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 : 06/04/2020

Client Sample ID: MW-32B

Lab ID: 2001285-06

1,4-Dioxane by EPA 8270/SIM: 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	2.1	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 19:15	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	77.8 %		17 - 119		B0F0077	06/02/2020	06/02/20 19:15	
<i>Surrogate: 2-Fluorobiphenyl</i>	82.6 %		10 - 133		B0F0077	06/02/2020	06/02/20 19:15	
<i>Surrogate: 4-Terphenyl-d14</i>	79.4 %		5 - 139		B0F0077	06/02/2020	06/02/20 19:15	
<i>Surrogate: Nitrobenzene-d5</i>	77.7 %		13 - 150		B0F0077	06/02/2020	06/02/20 19:15	



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 : 06/04/2020

Client Sample ID: MW-3200B

Lab ID: 2001285-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 10:44	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 10:44	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 10:44	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 10:44	
1,1-Dichloroethane	0.49	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 10:44	J
1,1-Dichloroethene	57	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 10:44	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 10:44	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 10:44	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 10:44	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 10:44	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 10:44	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 10:44	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 10:44	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 10:44	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 10:44	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 10:44	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 10:44	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 10:44	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 10:44	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 10:44	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 10:44	
Chloromethane	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 10:44	
cis-1,2-Dichloroethene	1.6	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 10:44	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	



Certificate of Analysis

Hargis & Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-3200B

Lab ID: 2001285-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 10:44	
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 10:44	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 10:44	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 10:44	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 10:44	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 10:44	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 10:44	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 10:44	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 10:44	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 10:44	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 10:44	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 10:44	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 10:44	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 10:44	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 10:44	
Trichloroethene	14	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 10:44	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 10:44	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 10:44	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>129 %</i>	<i>59 - 158</i>			B0F0019	06/02/2020	<i>06/02/20 10:44</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>	<i>71 - 127</i>			B0F0019	06/02/2020	<i>06/02/20 10:44</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>113 %</i>	<i>66 - 147</i>			B0F0019	06/02/2020	<i>06/02/20 10:44</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>77 - 138</i>			B0F0019	06/02/2020	<i>06/02/20 10:44</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 : 06/04/2020

Client Sample ID: MW-3200B

Lab ID: 2001285-07

1,4-Dioxane by EPA 8270/SIM: 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	2.1	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 19:41	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>71.3 %</i>	<i>17 - 119</i>			B0F0077	06/02/2020	<i>06/02/20 19:41</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>76.1 %</i>	<i>10 - 133</i>			B0F0077	06/02/2020	<i>06/02/20 19:41</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>77.6 %</i>	<i>5 - 139</i>			B0F0077	06/02/2020	<i>06/02/20 19:41</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>67.0 %</i>	<i>13 - 150</i>			B0F0077	06/02/2020	<i>06/02/20 19:41</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 : 06/04/2020

Client Sample ID: RB-052720

Lab ID: 2001285-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 15:58	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 15:58	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 15:58	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 15:58	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:58	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 15:58	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 15:58	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 15:58	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 15:58	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 15:58	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 15:58	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:58	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 15:58	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:58	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 15:58	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 15:58	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 15:58	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 15:58	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:58	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 15:58	
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:58	
Chloromethane	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 15:58	
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 15:58	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	



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 : 06/04/2020

Client Sample ID: RB-052720

Lab ID: 2001285-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 15:58	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 15:58	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 15:58	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 15:58	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:58	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 15:58	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 15:58	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 15:58	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:58	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 15:58	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:58	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:58	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:58	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 15:58	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 15:58	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 15:58	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 15:58	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 15:58	
Surrogate: 1,2-Dichloroethane-d4	129 %	59 - 158			B0F0014	06/01/2020	06/01/20 15:58	
Surrogate: 4-Bromofluorobenzene	111 %	71 - 127			B0F0014	06/01/2020	06/01/20 15:58	
Surrogate: Dibromofluoromethane	107 %	66 - 147			B0F0014	06/01/2020	06/01/20 15:58	
Surrogate: Toluene-d8	103 %	77 - 138			B0F0014	06/01/2020	06/01/20 15:58	



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 : 06/04/2020

Client Sample ID: RB-052720

Lab ID: 2001285-08

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 20:08	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>78.0 %</i>		<i>17 - 119</i>		B0F0077	06/02/2020	<i>06/02/20 20:08</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88.0 %</i>		<i>10 - 133</i>		B0F0077	06/02/2020	<i>06/02/20 20:08</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>95.7 %</i>		<i>5 - 139</i>		B0F0077	06/02/2020	<i>06/02/20 20:08</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.4 %</i>		<i>13 - 150</i>		B0F0077	06/02/2020	<i>06/02/20 20:08</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 : 06/04/2020

Client Sample ID: MW-08

Lab ID: 2001285-09

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 23:15	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 23:15	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 23:15	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 23:15	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 23:15	
1,1-Dichloroethene	21	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 23:15	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 23:15	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 23:15	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 23:15	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 23:15	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 23:15	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 23:15	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 23:15	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 23:15	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 23:15	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 23:15	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 23:15	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 23:15	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 23:15	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 23:15	
Chloroform	0.32	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 23:15	J
Chloromethane	0.24	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 23:15	J
cis-1,2-Dichloroethene	1.8	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 23:15	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	



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 : 06/04/2020

Client Sample ID: MW-08

Lab ID: 2001285-09

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 23:15	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 23:15	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 23:15	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 23:15	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 23:15	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 23:15	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 23:15	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 23:15	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 23:15	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 23:15	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 23:15	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 23:15	
Tetrachloroethene	2.6	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 23:15	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 23:15	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 23:15	
Trichloroethene	47	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 23:15	
Trichlorofluoromethane	0.30	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 23:15	J
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 23:15	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>131 %</i>	<i>59 - 158</i>			B0F0014	06/01/2020	<i>06/01/20 23:15</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>114 %</i>	<i>71 - 127</i>			B0F0014	06/01/2020	<i>06/01/20 23:15</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>	<i>66 - 147</i>			B0F0014	06/01/2020	<i>06/01/20 23:15</i>	
<i>Surrogate: Toluene-d8</i>	<i>98.2 %</i>	<i>77 - 138</i>			B0F0014	06/01/2020	<i>06/01/20 23:15</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 : 06/04/2020

Client Sample ID: MW-08

Lab ID: 2001285-09

1,4-Dioxane by EPA 8270/SIM: 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	1.3	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 20:35	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.7 %</i>		<i>17 - 119</i>		B0F0077	06/02/2020	<i>06/02/20 20:35</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>87.7 %</i>		<i>10 - 133</i>		B0F0077	06/02/2020	<i>06/02/20 20:35</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>73.1 %</i>		<i>5 - 139</i>		B0F0077	06/02/2020	<i>06/02/20 20:35</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>79.2 %</i>		<i>13 - 150</i>		B0F0077	06/02/2020	<i>06/02/20 20:35</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 : 06/04/2020

Client Sample ID: MW-30A

Lab ID: 2001285-10

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 21:43	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 21:43	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 21:43	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 21:43	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:43	
1,1-Dichloroethene	0.14	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	J
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 21:43	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 21:43	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 21:43	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 21:43	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 21:43	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 21:43	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:43	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 21:43	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:43	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 21:43	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 21:43	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 21:43	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 21:43	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:43	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
Chloroethane	0.25	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 21:43	J
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:43	
Chloromethane	0.18	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 21:43	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 21:43	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	



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 : 06/04/2020

Client Sample ID: MW-30A

Lab ID: 2001285-10

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 21:43	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 21:43	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 21:43	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 21:43	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:43	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 21:43	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 21:43	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 21:43	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:43	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 21:43	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:43	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:43	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:43	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 21:43	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 21:43	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 21:43	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 21:43	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 21:43	
Surrogate: 1,2-Dichloroethane-d4	128 %	59 - 158			B0F0014	06/01/2020	06/01/20 21:43	
Surrogate: 4-Bromofluorobenzene	114 %	71 - 127			B0F0014	06/01/2020	06/01/20 21:43	
Surrogate: Dibromofluoromethane	108 %	66 - 147			B0F0014	06/01/2020	06/01/20 21:43	
Surrogate: Toluene-d8	102 %	77 - 138			B0F0014	06/01/2020	06/01/20 21:43	



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 : 06/04/2020

Client Sample ID: MW-30A

Lab ID: 2001285-10

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0077	06/02/2020	06/02/20 21:01	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	88.2 %		17 - 119		B0F0077	06/02/2020	06/02/20 21:01	
<i>Surrogate: 2-Fluorobiphenyl</i>	92.9 %		10 - 133		B0F0077	06/02/2020	06/02/20 21:01	
<i>Surrogate: 4-Terphenyl-d14</i>	81.2 %		5 - 139		B0F0077	06/02/2020	06/02/20 21:01	
<i>Surrogate: Nitrobenzene-d5</i>	84.8 %		13 - 150		B0F0077	06/02/2020	06/02/20 21:01	



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 : 06/04/2020

Client Sample ID: MW-30B

Lab ID: 2001285-11

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 12:16	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 12:16	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 12:16	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 12:16	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 12:16	
1,1-Dichloroethene	28	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
1,1-Dichloropropene	0.37	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	J
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 12:16	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 12:16	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 12:16	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 12:16	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 12:16	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 12:16	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 12:16	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 12:16	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 12:16	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 12:16	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 12:16	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 12:16	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 12:16	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 12:16	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 12:16	
Chloroform	0.41	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 12:16	J
Chloromethane	0.14	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 12:16	J
cis-1,2-Dichloroethene	5.0	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 12:16	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	



Certificate of Analysis

Hargis & Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-30B

Lab ID: 2001285-11

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 12:16	
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 12:16	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 12:16	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 12:16	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 12:16	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 12:16	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 12:16	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 12:16	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 12:16	
Naphthalene	0.64	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 12:16	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 12:16	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 12:16	
Tetrachloroethene	0.51	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 12:16	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 12:16	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 12:16	
Trichloroethene	100	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 12:16	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 12:16	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 12:16	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>135 %</i>	<i>59 - 158</i>			B0F0019	06/02/2020	<i>06/02/20 12:16</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>110 %</i>	<i>71 - 127</i>			B0F0019	06/02/2020	<i>06/02/20 12:16</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>111 %</i>	<i>66 - 147</i>			B0F0019	06/02/2020	<i>06/02/20 12:16</i>	
<i>Surrogate: Toluene-d8</i>	<i>98.9 %</i>	<i>77 - 138</i>			B0F0019	06/02/2020	<i>06/02/20 12:16</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 : 06/04/2020

Client Sample ID: MW-30B

Lab ID: 2001285-11

1,4-Dioxane by EPA 8270/SIM: 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	0.37	0.20	0.05	1	B0F0077	06/02/2020	06/03/20 15:31	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.0 %</i>	<i>17 - 119</i>			B0F0077	06/02/2020	<i>06/03/20 15:31</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>70.3 %</i>	<i>10 - 133</i>			B0F0077	06/02/2020	<i>06/03/20 15:31</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>68.0 %</i>	<i>5 - 139</i>			B0F0077	06/02/2020	<i>06/03/20 15:31</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.6 %</i>	<i>13 - 150</i>			B0F0077	06/02/2020	<i>06/03/20 15:31</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 : 06/04/2020

Client Sample ID: MW-34B

Lab ID: 2001285-12

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 11:30	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 11:30	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 11:30	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 11:30	
1,1-Dichloroethane	0.58	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 11:30	
1,1-Dichloroethene	67	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 11:30	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 11:30	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 11:30	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 11:30	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 11:30	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 11:30	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 11:30	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 11:30	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 11:30	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 11:30	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 11:30	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 11:30	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 11:30	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 11:30	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 11:30	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 11:30	
Chloromethane	0.15	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 11:30	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 11:30	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	



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 : 06/04/2020

Client Sample ID: MW-34B

Lab ID: 2001285-12

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 11:30	
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 11:30	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 11:30	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 11:30	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 11:30	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 11:30	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 11:30	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 11:30	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 11:30	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 11:30	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 11:30	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 11:30	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 11:30	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 11:30	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 11:30	
Trichloroethene	0.12	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 11:30	J
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 11:30	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 11:30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>126 %</i>	<i>59 - 158</i>			B0F0019	06/02/2020	<i>06/02/20 11:30</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>71 - 127</i>			B0F0019	06/02/2020	<i>06/02/20 11:30</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>109 %</i>	<i>66 - 147</i>			B0F0019	06/02/2020	<i>06/02/20 11:30</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.9 %</i>	<i>77 - 138</i>			B0F0019	06/02/2020	<i>06/02/20 11:30</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 : 06/04/2020

Client Sample ID: MW-34B

Lab ID: 2001285-12

1,4-Dioxane by EPA 8270/SIM: 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	8.5	0.20	0.05	1	B0F0077	06/02/2020	06/03/20 15:58	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>75.4 %</i>		<i>17 - 119</i>		B0F0077	06/02/2020	<i>06/03/20 15:58</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>79.4 %</i>		<i>10 - 133</i>		B0F0077	06/02/2020	<i>06/03/20 15:58</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>84.8 %</i>		<i>5 - 139</i>		B0F0077	06/02/2020	<i>06/03/20 15:58</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.1 %</i>		<i>13 - 150</i>		B0F0077	06/02/2020	<i>06/03/20 15:58</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 : 06/04/2020

Client Sample ID: MW-35C

Lab ID: 2001285-13

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 22:06	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:06	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 22:06	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 22:06	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:06	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:06	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:06	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:06	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:06	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 22:06	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 22:06	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:06	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:06	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:06	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:06	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:06	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:06	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 22:06	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:06	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:06	
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:06	
Chloromethane	0.30	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:06	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:06	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-35C

Lab ID: 2001285-13

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:06	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 22:06	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 22:06	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:06	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:06	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 22:06	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 22:06	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:06	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:06	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 22:06	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:06	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:06	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:06	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:06	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:06	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:06	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 22:06	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:06	
Surrogate: 1,2-Dichloroethane-d4	125 %	59 - 158			B0F0014	06/01/2020	06/01/20 22:06	
Surrogate: 4-Bromofluorobenzene	108 %	71 - 127			B0F0014	06/01/2020	06/01/20 22:06	
Surrogate: Dibromofluoromethane	106 %	66 - 147			B0F0014	06/01/2020	06/01/20 22:06	
Surrogate: Toluene-d8	101 %	77 - 138			B0F0014	06/01/2020	06/01/20 22:06	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-35C

Lab ID: 2001285-13

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0077	06/02/2020	06/03/20 16:26	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>75.5 %</i>	<i>17 - 119</i>			B0F0077	06/02/2020	<i>06/03/20 16:26</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>76.4 %</i>	<i>10 - 133</i>			B0F0077	06/02/2020	<i>06/03/20 16:26</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>79.2 %</i>	<i>5 - 139</i>			B0F0077	06/02/2020	<i>06/03/20 16:26</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>78.7 %</i>	<i>13 - 150</i>			B0F0077	06/02/2020	<i>06/03/20 16:26</i>	



Certificate of Analysis

Hargis & Associates, Inc.
9171 Towne Centre Drive, Suite 375
San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Client Sample ID: MW-39

Lab ID: 2001285-14

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0014	06/01/2020	06/01/20 22:29	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:29	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0014	06/01/2020	06/01/20 22:29	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0014	06/01/2020	06/01/20 22:29	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:29	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:29	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:29	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:29	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:29	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0014	06/01/2020	06/01/20 22:29	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0014	06/01/2020	06/01/20 22:29	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:29	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:29	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:29	
Benzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
Bromobenzene	ND	0.50	0.21	1	B0F0014	06/01/2020	06/01/20 22:29	
Bromodichloromethane	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:29	
Bromoform	ND	0.50	0.20	1	B0F0014	06/01/2020	06/01/20 22:29	
Bromomethane	ND	0.50	0.40	1	B0F0014	06/01/2020	06/01/20 22:29	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:29	
Chlorobenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
Chloroethane	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:29	
Chloroform	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:29	
Chloromethane	0.35	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:29	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0014	06/01/2020	06/01/20 22:29	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	



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 : 06/04/2020

Client Sample ID: MW-39

Lab ID: 2001285-14

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	0.16	1	B0F0014	06/01/2020	06/01/20 22:29	
Dibromomethane	ND	0.50	0.19	1	B0F0014	06/01/2020	06/01/20 22:29	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0014	06/01/2020	06/01/20 22:29	
Ethylbenzene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0014	06/01/2020	06/01/20 22:29	
Isopropylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:29	
m,p-Xylene	ND	1.0	0.19	1	B0F0014	06/01/2020	06/01/20 22:29	
Methylene chloride	ND	1.0	0.71	1	B0F0014	06/01/2020	06/01/20 22:29	
n-Butylbenzene	ND	0.50	0.11	1	B0F0014	06/01/2020	06/01/20 22:29	
n-Propylbenzene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:29	
Naphthalene	ND	0.50	0.41	1	B0F0014	06/01/2020	06/01/20 22:29	
o-Xylene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:29	
Styrene	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:29	
Tetrachloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:29	
Toluene	ND	0.50	0.12	1	B0F0014	06/01/2020	06/01/20 22:29	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0014	06/01/2020	06/01/20 22:29	
Trichloroethene	ND	0.50	0.10	1	B0F0014	06/01/2020	06/01/20 22:29	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0014	06/01/2020	06/01/20 22:29	
Vinyl chloride	ND	0.50	0.13	1	B0F0014	06/01/2020	06/01/20 22:29	
Surrogate: 1,2-Dichloroethane-d4	129 %	59 - 158			B0F0014	06/01/2020	06/01/20 22:29	
Surrogate: 4-Bromofluorobenzene	112 %	71 - 127			B0F0014	06/01/2020	06/01/20 22:29	
Surrogate: Dibromofluoromethane	112 %	66 - 147			B0F0014	06/01/2020	06/01/20 22:29	
Surrogate: Toluene-d8	104 %	77 - 138			B0F0014	06/01/2020	06/01/20 22:29	



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 : 06/04/2020

Client Sample ID: MW-39

Lab ID: 2001285-14

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0077	06/02/2020	06/03/20 16:53	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>63.5 %</i>	<i>17 - 119</i>			B0F0077	06/02/2020	<i>06/03/20 16:53</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>72.2 %</i>	<i>10 - 133</i>			B0F0077	06/02/2020	<i>06/03/20 16:53</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>86.7 %</i>	<i>5 - 139</i>			B0F0077	06/02/2020	<i>06/03/20 16:53</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>62.5 %</i>	<i>13 - 150</i>			B0F0077	06/02/2020	<i>06/03/20 16:53</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 : 06/04/2020

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

Batch B0F0014 - MSVOA_LL_W

Blank (B0F0014-BLK1)

Prepared: 6/1/2020 Analyzed: 6/1/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11							
1,1,1-Trichloroethane	ND	0.50	0.21							
1,1,2,2-Tetrachloroethane	ND	0.50	0.36							
1,1,2-Trichloroethane	ND	0.50	0.25							
1,1-Dichloroethane	ND	0.50	0.09							
1,1-Dichloroethene	ND	0.50	0.13							
1,1-Dichloropropene	0.210000	0.50	0.13							J
1,2,3-Trichloropropane	ND	0.50	0.39							
1,2,3-Trichlorobenzene	ND	0.50	0.18							
1,2,4-Trichlorobenzene	ND	0.50	0.16							
1,2,4-Trimethylbenzene	ND	0.50	0.14							
1,2-Dibromo-3-chloropropane	ND	0.50	0.41							
1,2-Dibromoethane	ND	0.50	0.24							
1,2-Dichlorobenzene	ND	0.50	0.20							
1,2-Dichloroethane	ND	0.50	0.20							
1,2-Dichloropropane	ND	0.50	0.15							
1,3,5-Trimethylbenzene	ND	0.50	0.13							
1,3-Dichlorobenzene	ND	0.50	0.16							
1,3-Dichloropropane	ND	0.50	0.21							
1,4-Dichlorobenzene	ND	0.50	0.17							
2,2-Dichloropropane	ND	0.50	0.38							
2-Chlorotoluene	ND	0.50	0.11							
4-Chlorotoluene	ND	0.50	0.12							
4-Isopropyltoluene	ND	0.50	0.11							
Benzene	ND	0.50	0.13							
Bromobenzene	ND	0.50	0.21							
Bromodichloromethane	ND	0.50	0.14							
Bromoform	ND	0.50	0.20							
Bromomethane	ND	0.50	0.40							
Carbon tetrachloride	ND	0.50	0.09							
Chlorobenzene	ND	0.50	0.13							
Chloroethane	ND	0.50	0.15							
Chloroform	ND	0.50	0.11							
Chloromethane	ND	0.50	0.12							
cis-1,2-Dichloroethene	ND	0.50	0.14							
cis-1,3-Dichloropropene	ND	0.50	0.13							
Dibromochloromethane	ND	0.50	0.16							
Dibromomethane	ND	0.50	0.19							



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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 B0F0014 - MSVOA_LL_W (continued)

Blank (B0F0014-BLK1) - Continued

Prepared: 6/1/2020 Analyzed: 6/1/2020

Dichlorodifluoromethane	ND	0.50	0.18						
Ethylbenzene	ND	0.50	0.13						
Hexachlorobutadiene	ND	0.50	0.15						
Isopropylbenzene	ND	0.50	0.10						
m,p-Xylene	ND	1.0	0.19						
Methylene chloride	ND	1.0	0.71						
n-Butylbenzene	ND	0.50	0.11						
n-Propylbenzene	ND	0.50	0.10						
Naphthalene	ND	0.50	0.41						
o-Xylene	ND	0.50	0.13						
sec-Butylbenzene	ND	0.50	0.09						
Styrene	ND	0.50	0.13						
tert-Butylbenzene	ND	0.50	0.09						
Tetrachloroethene	0.460000	0.50	0.10						J
Toluene	ND	0.50	0.12						
trans-1,2-Dichloroethene	ND	0.50	0.09						
Trichloroethene	ND	0.50	0.10						
Trichlorofluoromethane	ND	0.50	0.23						
Vinyl chloride	ND	0.50	0.13						
Surrogate: 1,2-Dichloroethane-d4	33.36			25.0000		133	59 - 158		
Surrogate: 4-Bromofluorobenzene	27.18			25.0000		109	71 - 127		
Surrogate: Dibromofluoromethane	27.13			25.0000		109	66 - 147		
Surrogate: Toluene-d8	25.30			25.0000		101	77 - 138		

LCS (B0F0014-BS1)

Prepared: 6/1/2020 Analyzed: 6/1/2020

1,1,1,2-Tetrachloroethane	18.6300	0.50	0.11	20.0000		93.2	71 - 133
1,1,1-Trichloroethane	22.4900	0.50	0.21	20.0000		112	62 - 124
1,1,2,2-Tetrachloroethane	15.8700	0.50	0.36	20.0000		79.4	50 - 131
1,1,2-Trichloroethane	17.9900	0.50	0.25	20.0000		90.0	77 - 121
1,1-Dichloroethane	18.3400	0.50	0.09	20.0000		91.7	52 - 130
1,1-Dichloroethene	22.1700	0.50	0.13	20.0000		111	61 - 136
1,1-Dichloropropene	19.3700	0.50	0.13	20.0000		96.8	80 - 128
1,2,3-Trichloropropane	17.6900	0.50	0.39	20.0000		88.4	59 - 126
1,2,3-Trichlorobenzene	19.6200	0.50	0.18	20.0000		98.1	69 - 138
1,2,4-Trichlorobenzene	18.0600	0.50	0.16	20.0000		90.3	78 - 125
1,2,4-Trimethylbenzene	19.8700	0.50	0.14	20.0000		99.4	70 - 126
1,2-Dibromo-3-chloropropane	14.3500	0.50	0.41	20.0000		71.8	58 - 127
1,2-Dibromoethane	20.4500	0.50	0.24	20.0000		102	76 - 120
1,2-Dichlorobenzene	17.9300	0.50	0.20	20.0000		89.6	82 - 117
1,2-Dichloroethane	22.8000	0.50	0.20	20.0000		114	66 - 126



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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 B0F0014 - MSVOA_LL_W (continued)

LCS (B0F0014-BS1) - Continued

Prepared: 6/1/2020 Analyzed: 6/1/2020

1,2-Dichloropropane	17.1700	0.50	0.15	20.0000		85.8	70 - 117		
1,3,5-Trimethylbenzene	19.6900	0.50	0.13	20.0000		98.4	71 - 125		
1,3-Dichlorobenzene	17.8900	0.50	0.16	20.0000		89.4	81 - 116		
1,3-Dichloropropane	17.9800	0.50	0.21	20.0000		89.9	69 - 124		
1,4-Dichlorobenzene	17.7000	0.50	0.17	20.0000		88.5	80 - 114		
2,2-Dichloropropane	21.2200	0.50	0.38	20.0000		106	58 - 132		
2-Chlorotoluene	19.1900	0.50	0.11	20.0000		96.0	71 - 119		
4-Chlorotoluene	19.7200	0.50	0.12	20.0000		98.6	72 - 122		
4-Isopropyltoluene	20.5100	0.50	0.11	20.0000		103	69 - 126		
Benzene	18.0200	0.50	0.13	20.0000		90.1	80 - 116		
Bromobenzene	17.3300	0.50	0.21	20.0000		86.6	77 - 118		
Bromodichloromethane	19.9900	0.50	0.14	20.0000		100	73 - 118		
Bromoform	17.4300	0.50	0.20	20.0000		87.2	65 - 133		
Bromomethane	23.8300	0.50	0.40	20.0000		119	7 - 205		
Carbon tetrachloride	23.5300	0.50	0.09	20.0000		118	63 - 133		
Chlorobenzene	17.5800	0.50	0.13	20.0000		87.9	86 - 113		
Chloroethane	22.0900	0.50	0.15	20.0000		110	66 - 141		
Chloroform	20.5700	0.50	0.11	20.0000		103	63 - 127		
Chloromethane	16.9100	0.50	0.12	20.0000		84.6	0 - 207		
cis-1,2-Dichloroethene	17.1100	0.50	0.14	20.0000		85.6	64 - 126		
cis-1,3-Dichloropropene	18.1100	0.50	0.13	20.0000		90.6	70 - 141		
Dibromochloromethane	18.8200	0.50	0.16	20.0000		94.1	67 - 135		
Dibromomethane	19.7000	0.50	0.19	20.0000		98.5	74 - 118		
Dichlorodifluoromethane	19.8200	0.50	0.18	20.0000		99.1	14 - 181		
Ethylbenzene	19.0900	0.50	0.13	20.0000		95.4	77 - 118		
Hexachlorobutadiene	20.0100	0.50	0.15	20.0000		100	66 - 125		
Isopropylbenzene	18.8000	0.50	0.10	20.0000		94.0	68 - 137		
m,p-Xylene	40.2300	1.0	0.19	40.0000		101	78 - 126		
Methylene chloride	18.5900	1.0	0.71	20.0000		93.0	51 - 149		
n-Butylbenzene	20.3800	0.50	0.11	20.0000		102	63 - 127		
n-Propylbenzene	18.8400	0.50	0.10	20.0000		94.2	69 - 124		
Naphthalene	16.3000	0.50	0.41	20.0000		81.5	60 - 126		
o-Xylene	19.0600	0.50	0.13	20.0000		95.3	79 - 126		
sec-Butylbenzene	19.1200	0.50	0.09	20.0000		95.6	69 - 124		
Styrene	20.9000	0.50	0.13	20.0000		104	80 - 127		
tert-Butylbenzene	18.9400	0.50	0.09	20.0000		94.7	71 - 124		
Tetrachloroethene	19.6400	0.50	0.10	20.0000		98.2	73 - 129		
Toluene	18.4900	0.50	0.12	20.0000		92.4	78 - 121		
trans-1,2-Dichloroethene	20.3600	0.50	0.09	20.0000		102	58 - 141		
Trichloroethene	17.7300	0.50	0.10	20.0000		88.6	73 - 126		



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

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 B0F0014 - MSVOA_LL_W (continued)

LCS (B0F0014-BS1) - Continued

Prepared: 6/1/2020 Analyzed: 6/1/2020

Trichlorofluoromethane	23.0700	0.50	0.23	20.0000	115	62 - 146			
Vinyl chloride	18.9400	0.50	0.13	20.0000	94.7	61 - 137			
Surrogate: 1,2-Dichloroethane-d4	30.61			25.0000	122	59 - 158			
Surrogate: 4-Bromofluorobenzene	28.01			25.0000	112	71 - 127			
Surrogate: Dibromofluoromethane	27.45			25.0000	110	66 - 147			
Surrogate: Toluene-d8	26.05			25.0000	104	77 - 138			

LCS Dup (B0F0014-BS1)

Prepared: 6/1/2020 Analyzed: 6/1/2020

1,1,1,2-Tetrachloroethane	20.3900	0.50	0.11	20.0000	102	71 - 133	9.02	20	
1,1,1-Trichloroethane	24.7400	0.50	0.21	20.0000	124	62 - 124	9.53	20	
1,1,2,2-Tetrachloroethane	18.5300	0.50	0.36	20.0000	92.6	50 - 131	15.5	20	
1,1,2-Trichloroethane	21.5400	0.50	0.25	20.0000	108	77 - 121	18.0	20	
1,1-Dichloroethane	20.5500	0.50	0.09	20.0000	103	52 - 130	11.4	20	
1,1-Dichloroethene	24.2500	0.50	0.13	20.0000	121	61 - 136	8.96	20	
1,1-Dichloropropene	21.2100	0.50	0.13	20.0000	106	80 - 128	9.07	20	
1,2,3-Trichloropropane	19.7300	0.50	0.39	20.0000	98.6	59 - 126	10.9	20	
1,2,3-Trichlorobenzene	21.8300	0.50	0.18	20.0000	109	69 - 138	10.7	20	
1,2,4-Trichlorobenzene	21.2900	0.50	0.16	20.0000	106	78 - 125	16.4	20	
1,2,4-Trimethylbenzene	21.9700	0.50	0.14	20.0000	110	70 - 126	10.0	20	
1,2-Dibromo-3-chloropropane	16.4900	0.50	0.41	20.0000	82.4	58 - 127	13.9	20	
1,2-Dibromoethane	23.5200	0.50	0.24	20.0000	118	76 - 120	14.0	20	
1,2-Dichlorobenzene	20.4300	0.50	0.20	20.0000	102	82 - 117	13.0	20	
1,2-Dichloroethane	26.3600	0.50	0.20	20.0000	132	66 - 126	14.5	20	L4
1,2-Dichloropropane	19.1700	0.50	0.15	20.0000	95.8	70 - 117	11.0	20	
1,3,5-Trimethylbenzene	21.7900	0.50	0.13	20.0000	109	71 - 125	10.1	20	
1,3-Dichlorobenzene	19.7300	0.50	0.16	20.0000	98.6	81 - 116	9.78	20	
1,3-Dichloropropane	20.7700	0.50	0.21	20.0000	104	69 - 124	14.4	20	
1,4-Dichlorobenzene	19.0800	0.50	0.17	20.0000	95.4	80 - 114	7.50	20	
2,2-Dichloropropane	22.0800	0.50	0.38	20.0000	110	58 - 132	3.97	20	
2-Chlorotoluene	20.7100	0.50	0.11	20.0000	104	71 - 119	7.62	20	
4-Chlorotoluene	21.4400	0.50	0.12	20.0000	107	72 - 122	8.36	20	
4-Isopropyltoluene	22.2900	0.50	0.11	20.0000	111	69 - 126	8.32	20	
Benzene	19.7100	0.50	0.13	20.0000	98.6	80 - 116	8.96	20	
Bromobenzene	19.4000	0.50	0.21	20.0000	97.0	77 - 118	11.3	20	
Bromodichloromethane	22.3500	0.50	0.14	20.0000	112	73 - 118	11.1	20	
Bromoform	20.2400	0.50	0.20	20.0000	101	65 - 133	14.9	20	
Bromomethane	22.9500	0.50	0.40	20.0000	115	7 - 205	3.76	20	
Carbon tetrachloride	24.9800	0.50	0.09	20.0000	125	63 - 133	5.98	20	
Chlorobenzene	19.3600	0.50	0.13	20.0000	96.8	86 - 113	9.64	20	
Chloroethane	23.0600	0.50	0.15	20.0000	115	66 - 141	4.30	20	



Certificate of Analysis

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Project Number : Raytheon Main, 532.30

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Reported : 06/04/2020

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 B0F0014 - MSVOA_LL_W (continued)

LCS Dup (B0F0014-BSD1) - Continued

Prepared: 6/1/2020 Analyzed: 6/1/2020

Chloroform	22.0500	0.50	0.11	20.0000	110	63 - 127	6.95	20	
Chloromethane	17.8300	0.50	0.12	20.0000	89.2	0 - 207	5.30	20	
cis-1,2-Dichloroethene	19.5000	0.50	0.14	20.0000	97.5	64 - 126	13.1	20	
cis-1,3-Dichloropropene	20.1800	0.50	0.13	20.0000	101	70 - 141	10.8	20	
Dibromochloromethane	21.1800	0.50	0.16	20.0000	106	67 - 135	11.8	20	
Dibromomethane	22.1400	0.50	0.19	20.0000	111	74 - 118	11.7	20	
Dichlorodifluoromethane	21.5500	0.50	0.18	20.0000	108	14 - 181	8.36	20	
Ethylbenzene	20.9000	0.50	0.13	20.0000	104	77 - 118	9.05	20	
Hexachlorobutadiene	21.9100	0.50	0.15	20.0000	110	66 - 125	9.06	20	
Isopropylbenzene	20.5000	0.50	0.10	20.0000	102	68 - 137	8.65	20	
m,p-Xylene	44.4400	1.0	0.19	40.0000	111	78 - 126	9.94	20	
Methylene chloride	20.8900	1.0	0.71	20.0000	104	51 - 149	11.7	20	
n-Butylbenzene	22.3000	0.50	0.11	20.0000	112	63 - 127	9.00	20	
n-Propylbenzene	20.4400	0.50	0.10	20.0000	102	69 - 124	8.15	20	
Naphthalene	20.2200	0.50	0.41	20.0000	101	60 - 126	21.5	20	R
o-Xylene	21.7200	0.50	0.13	20.0000	109	79 - 126	13.0	20	
sec-Butylbenzene	20.7700	0.50	0.09	20.0000	104	69 - 124	8.27	20	
Styrene	23.6000	0.50	0.13	20.0000	118	80 - 127	12.1	20	
tert-Butylbenzene	21.0800	0.50	0.09	20.0000	105	71 - 124	10.7	20	
Tetrachloroethene	20.8800	0.50	0.10	20.0000	104	73 - 129	6.12	20	
Toluene	20.5500	0.50	0.12	20.0000	103	78 - 121	10.6	20	
trans-1,2-Dichloroethene	21.9400	0.50	0.09	20.0000	110	58 - 141	7.47	20	
Trichloroethene	20.2700	0.50	0.10	20.0000	101	73 - 126	13.4	20	
Trichlorofluoromethane	25.2700	0.50	0.23	20.0000	126	62 - 146	9.10	20	
Vinyl chloride	20.5600	0.50	0.13	20.0000	103	61 - 137	8.20	20	
Surrogate: 1,2-Dichloroethane-d4	30.79			25.0000	123	59 - 158			
Surrogate: 4-Bromofluorobenzene	28.72			25.0000	115	71 - 127			
Surrogate: Dibromofluoromethane	27.70			25.0000	111	66 - 147			
Surrogate: Toluene-d8	25.72			25.0000	103	77 - 138			



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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

Batch B0F0019 - MSVOA_LL_W

Blank (B0F0019-BLK1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	0.120000	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13

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Certificate of Analysis

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Reported : 06/04/2020

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 B0F0019 - MSVOA_LL_W (continued)

Blank (B0F0019-BLK1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	32.92	25.0000	132	59 - 158
Surrogate: 4-Bromofluorobenzene	28.18	25.0000	113	71 - 127
Surrogate: Dibromofluoromethane	27.56	25.0000	110	66 - 147
Surrogate: Toluene-d8	25.58	25.0000	102	77 - 138

LCS (B0F0019-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	22.4500	0.50	0.11	20.0000	112	71 - 133	
1,1,1-Trichloroethane	26.1700	0.50	0.21	20.0000	131	62 - 124	L4
1,1,2,2-Tetrachloroethane	16.7500	0.50	0.36	20.0000	83.8	50 - 131	
1,1,2-Trichloroethane	20.9300	0.50	0.25	20.0000	105	77 - 121	
1,1-Dichloroethane	20.7500	0.50	0.09	20.0000	104	52 - 130	
1,1-Dichloroethene	23.9900	0.50	0.13	20.0000	120	61 - 136	
1,1-Dichloropropene	20.7800	0.50	0.13	20.0000	104	80 - 128	
1,2,3-Trichloropropane	21.5700	0.50	0.39	20.0000	108	59 - 126	
1,2,3-Trichlorobenzene	23.1600	0.50	0.18	20.0000	116	69 - 138	
1,2,4-Trichlorobenzene	21.6200	0.50	0.16	20.0000	108	78 - 125	
1,2,4-Trimethylbenzene	22.6400	0.50	0.14	20.0000	113	70 - 126	
1,2-Dibromo-3-chloropropane	16.9900	0.50	0.41	20.0000	85.0	58 - 127	
1,2-Dibromoethane	23.4300	0.50	0.24	20.0000	117	76 - 120	
1,2-Dichlorobenzene	20.5500	0.50	0.20	20.0000	103	82 - 117	
1,2-Dichloroethane	27.3300	0.50	0.20	20.0000	137	66 - 126	L4
1,2-Dichloropropane	19.3900	0.50	0.15	20.0000	97.0	70 - 117	
1,3,5-Trimethylbenzene	21.6200	0.50	0.13	20.0000	108	71 - 125	



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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 : 06/04/2020

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 B0F0019 - MSVOA_LL_W (continued)

LCS (B0F0019-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,3-Dichlorobenzene	20.2400	0.50	0.16	20.0000	101	81 - 116			
1,3-Dichloropropane	21.8500	0.50	0.21	20.0000	109	69 - 124			
1,4-Dichlorobenzene	19.7000	0.50	0.17	20.0000	98.5	80 - 114			
2,2-Dichloropropane	16.9900	0.50	0.38	20.0000	85.0	58 - 132			
2-Chlorotoluene	20.9400	0.50	0.11	20.0000	105	71 - 119			
4-Chlorotoluene	22.1100	0.50	0.12	20.0000	111	72 - 122			
4-Isopropyltoluene	22.5100	0.50	0.11	20.0000	113	69 - 126			
Benzene	19.7600	0.50	0.13	20.0000	98.8	80 - 116			
Bromobenzene	19.8500	0.50	0.21	20.0000	99.2	77 - 118			
Bromodichloromethane	22.6400	0.50	0.14	20.0000	113	73 - 118			
Bromoform	20.2200	0.50	0.20	20.0000	101	65 - 133			
Bromomethane	15.2900	0.50	0.40	20.0000	76.4	7 - 205			
Carbon tetrachloride	26.5700	0.50	0.09	20.0000	133	63 - 133			
Chlorobenzene	19.8700	0.50	0.13	20.0000	99.4	86 - 113			
Chloroethane	23.1500	0.50	0.15	20.0000	116	66 - 141			
Chloroform	22.8800	0.50	0.11	20.0000	114	63 - 127			
Chloromethane	21.2500	0.50	0.12	20.0000	106	0 - 207			
cis-1,2-Dichloroethene	19.0000	0.50	0.14	20.0000	95.0	64 - 126			
cis-1,3-Dichloropropene	19.1100	0.50	0.13	20.0000	95.6	70 - 141			
Dibromochloromethane	22.2600	0.50	0.16	20.0000	111	67 - 135			
Dibromomethane	23.0200	0.50	0.19	20.0000	115	74 - 118			
Dichlorodifluoromethane	22.1300	0.50	0.18	20.0000	111	14 - 181			
Ethylbenzene	21.9600	0.50	0.13	20.0000	110	77 - 118			
Hexachlorobutadiene	22.1000	0.50	0.15	20.0000	110	66 - 125			
Isopropylbenzene	20.8200	0.50	0.10	20.0000	104	68 - 137			
m,p-Xylene	46.5400	1.0	0.19	40.0000	116	78 - 126			
Methylene chloride	20.4900	1.0	0.71	20.0000	102	51 - 149			
n-Butylbenzene	22.3100	0.50	0.11	20.0000	112	63 - 127			
n-Propylbenzene	20.7900	0.50	0.10	20.0000	104	69 - 124			
Naphthalene	20.7400	0.50	0.41	20.0000	104	60 - 126			
o-Xylene	22.3000	0.50	0.13	20.0000	112	79 - 126			
sec-Butylbenzene	20.9900	0.50	0.09	20.0000	105	69 - 124			
Styrene	24.4800	0.50	0.13	20.0000	122	80 - 127			
tert-Butylbenzene	21.2100	0.50	0.09	20.0000	106	71 - 124			
Tetrachloroethene	21.9300	0.50	0.10	20.0000	110	73 - 129			
Toluene	20.3500	0.50	0.12	20.0000	102	78 - 121			
trans-1,2-Dichloroethene	21.4300	0.50	0.09	20.0000	107	58 - 141			
Trichloroethene	22.3500	0.50	0.10	20.0000	112	73 - 126			
Trichlorofluoromethane	25.3400	0.50	0.23	20.0000	127	62 - 146			
Vinyl chloride	20.0100	0.50	0.13	20.0000	100	61 - 137			



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Report To : Steve Netto

Reported : 06/04/2020

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

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

Batch B0F0019 - MSVOA_LL_W (continued)

LCS (B0F0019-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Surrogate: 1,2-Dichloroethane-d4	31.34		25.0000		125	59 - 158			
Surrogate: 4-Bromofluorobenzene	29.26		25.0000		117	71 - 127			
Surrogate: Dibromofluoromethane	28.01		25.0000		112	66 - 147			
Surrogate: Toluene-d8	26.04		25.0000		104	77 - 138			

LCS Dup (B0F0019-BSD1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	20.5400	0.50	0.11	20.0000	103	71 - 133	8.89	20	
1,1,1-Trichloroethane	24.6000	0.50	0.21	20.0000	123	62 - 124	6.18	20	
1,1,2,2-Tetrachloroethane	16.1200	0.50	0.36	20.0000	80.6	50 - 131	3.83	20	
1,1,2-Trichloroethane	20.0900	0.50	0.25	20.0000	100	77 - 121	4.10	20	
1,1-Dichloroethane	20.0600	0.50	0.09	20.0000	100	52 - 130	3.38	20	
1,1-Dichloroethene	23.6700	0.50	0.13	20.0000	118	61 - 136	1.34	20	
1,1-Dichloropropene	21.0700	0.50	0.13	20.0000	105	80 - 128	1.39	20	
1,2,3-Trichloropropane	20.1300	0.50	0.39	20.0000	101	59 - 126	6.91	20	
1,2,3-Trichlorobenzene	21.4100	0.50	0.18	20.0000	107	69 - 138	7.85	20	
1,2,4-Trichlorobenzene	21.0200	0.50	0.16	20.0000	105	78 - 125	2.81	20	
1,2,4-Trimethylbenzene	22.1200	0.50	0.14	20.0000	111	70 - 126	2.32	20	
1,2-Dibromo-3-chloropropane	15.5400	0.50	0.41	20.0000	77.7	58 - 127	8.91	20	
1,2-Dibromoethane	21.6000	0.50	0.24	20.0000	108	76 - 120	8.13	20	
1,2-Dichlorobenzene	19.7700	0.50	0.20	20.0000	98.8	82 - 117	3.87	20	
1,2-Dichloroethane	26.0100	0.50	0.20	20.0000	130	66 - 126	4.95	20	L4
1,2-Dichloropropane	18.4800	0.50	0.15	20.0000	92.4	70 - 117	4.81	20	
1,3,5-Trimethylbenzene	21.6500	0.50	0.13	20.0000	108	71 - 125	0.139	20	
1,3-Dichlorobenzene	19.7200	0.50	0.16	20.0000	98.6	81 - 116	2.60	20	
1,3-Dichloropropane	20.2400	0.50	0.21	20.0000	101	69 - 124	7.65	20	
1,4-Dichlorobenzene	19.3400	0.50	0.17	20.0000	96.7	80 - 114	1.84	20	
2,2-Dichloropropane	16.7000	0.50	0.38	20.0000	83.5	58 - 132	1.72	20	
2-Chlorotoluene	21.2300	0.50	0.11	20.0000	106	71 - 119	1.38	20	
4-Chlorotoluene	21.7300	0.50	0.12	20.0000	109	72 - 122	1.73	20	
4-Isopropyltoluene	22.3000	0.50	0.11	20.0000	112	69 - 126	0.937	20	
Benzene	19.2800	0.50	0.13	20.0000	96.4	80 - 116	2.46	20	
Bromobenzene	19.6300	0.50	0.21	20.0000	98.2	77 - 118	1.11	20	
Bromodichloromethane	21.8800	0.50	0.14	20.0000	109	73 - 118	3.41	20	
Bromoform	19.1500	0.50	0.20	20.0000	95.8	65 - 133	5.44	20	
Bromomethane	16.8800	0.50	0.40	20.0000	84.4	7 - 205	9.88	20	
Carbon tetrachloride	25.5100	0.50	0.09	20.0000	128	63 - 133	4.07	20	
Chlorobenzene	19.0400	0.50	0.13	20.0000	95.2	86 - 113	4.27	20	
Chloroethane	22.7900	0.50	0.15	20.0000	114	66 - 141	1.57	20	
Chloroform	22.2200	0.50	0.11	20.0000	111	63 - 127	2.93	20	
Chloromethane	20.3200	0.50	0.12	20.0000	102	0 - 207	4.47	20	
cis-1,2-Dichloroethene	18.3000	0.50	0.14	20.0000	91.5	64 - 126	3.75	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

Batch B0F0019 - MSVOA_LL_W (continued)

LCS Dup (B0F0019-BSD1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

cis-1,3-Dichloropropene	18.2800	0.50	0.13	20.0000		91.4	70 - 141	4.44	20
Dibromochloromethane	20.6000	0.50	0.16	20.0000		103	67 - 135	7.75	20
Dibromomethane	21.0800	0.50	0.19	20.0000		105	74 - 118	8.80	20
Dichlorodifluoromethane	21.0200	0.50	0.18	20.0000		105	14 - 181	5.14	20
Ethylbenzene	20.9500	0.50	0.13	20.0000		105	77 - 118	4.71	20
Hexachlorobutadiene	21.5900	0.50	0.15	20.0000		108	66 - 125	2.33	20
Isopropylbenzene	20.9600	0.50	0.10	20.0000		105	68 - 137	0.670	20
m,p-Xylene	44.0300	1.0	0.19	40.0000		110	78 - 126	5.54	20
Methylene chloride	19.6200	1.0	0.71	20.0000		98.1	51 - 149	4.34	20
n-Butylbenzene	21.7700	0.50	0.11	20.0000		109	63 - 127	2.45	20
n-Propylbenzene	20.6500	0.50	0.10	20.0000		103	69 - 124	0.676	20
Naphthalene	19.2700	0.50	0.41	20.0000		96.4	60 - 126	7.35	20
o-Xylene	21.2100	0.50	0.13	20.0000		106	79 - 126	5.01	20
sec-Butylbenzene	21.0600	0.50	0.09	20.0000		105	69 - 124	0.333	20
Styrene	23.5500	0.50	0.13	20.0000		118	80 - 127	3.87	20
tert-Butylbenzene	21.0500	0.50	0.09	20.0000		105	71 - 124	0.757	20
Tetrachloroethene	20.7400	0.50	0.10	20.0000		104	73 - 129	5.58	20
Toluene	20.0900	0.50	0.12	20.0000		100	78 - 121	1.29	20
trans-1,2-Dichloroethene	20.6900	0.50	0.09	20.0000		103	58 - 141	3.51	20
Trichloroethene	21.7200	0.50	0.10	20.0000		109	73 - 126	2.86	20
Trichlorofluoromethane	25.7300	0.50	0.23	20.0000		129	62 - 146	1.53	20
Vinyl chloride	19.8500	0.50	0.13	20.0000		99.2	61 - 137	0.803	20
Surrogate: 1,2-Dichloroethane-d4	31.55			25.0000		126	59 - 158		
Surrogate: 4-Bromofluorobenzene	28.35			25.0000		113	71 - 127		
Surrogate: Dibromofluoromethane	27.02			25.0000		108	66 - 147		
Surrogate: Toluene-d8	25.47			25.0000		102	77 - 138		



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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

Batch B0F0030 - MSVOA_LL_W

Blank (B0F0030-BLK1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13



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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 B0F0030 - MSVOA_LL_W (continued)

Blank (B0F0030-BLK1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	28.23		25.0000	113	59 - 158
Surrogate: 4-Bromofluorobenzene	23.28		25.0000	93.1	71 - 127
Surrogate: Dibromofluoromethane	26.14		25.0000	105	66 - 147
Surrogate: Toluene-d8	24.17		25.0000	96.7	77 - 138

LCS (B0F0030-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	21.1400	0.50	0.11	20.0000	106	71 - 133
1,1,1-Trichloroethane	20.3500	0.50	0.21	20.0000	102	62 - 124
1,1,2,2-Tetrachloroethane	19.4000	0.50	0.36	20.0000	97.0	50 - 131
1,1,2-Trichloroethane	21.7600	0.50	0.25	20.0000	109	77 - 121
1,1-Dichloroethane	20.2000	0.50	0.09	20.0000	101	52 - 130
1,1-Dichloroethene	21.3000	0.50	0.13	20.0000	106	61 - 136
1,1-Dichloropropene	21.2000	0.50	0.13	20.0000	106	80 - 128
1,2,3-Trichloropropane	20.5600	0.50	0.39	20.0000	103	59 - 126
1,2,3-Trichlorobenzene	16.8700	0.50	0.18	20.0000	84.4	69 - 138
1,2,4-Trichlorobenzene	17.6800	0.50	0.16	20.0000	88.4	78 - 125
1,2,4-Trimethylbenzene	20.5800	0.50	0.14	20.0000	103	70 - 126
1,2-Dibromo-3-chloropropane	20.4300	0.50	0.41	20.0000	102	58 - 127
1,2-Dibromoethane	21.4300	0.50	0.24	20.0000	107	76 - 120
1,2-Dichlorobenzene	20.4700	0.50	0.20	20.0000	102	82 - 117
1,2-Dichloroethane	21.8600	0.50	0.20	20.0000	109	66 - 126
1,2-Dichloropropane	20.2900	0.50	0.15	20.0000	101	70 - 117
1,3,5-Trimethylbenzene	19.8200	0.50	0.13	20.0000	99.1	71 - 125



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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 B0F0030 - MSVOA_LL_W (continued)

LCS (B0F0030-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,3-Dichlorobenzene	19.6800	0.50	0.16	20.0000		98.4	81 - 116		
1,3-Dichloropropane	20.1500	0.50	0.21	20.0000		101	69 - 124		
1,4-Dichlorobenzene	19.6500	0.50	0.17	20.0000		98.2	80 - 114		
2,2-Dichloropropane	21.7500	0.50	0.38	20.0000		109	58 - 132		
2-Chlorotoluene	18.8400	0.50	0.11	20.0000		94.2	71 - 119		
4-Chlorotoluene	19.6700	0.50	0.12	20.0000		98.4	72 - 122		
4-Isopropyltoluene	21.3200	0.50	0.11	20.0000		107	69 - 126		
Benzene	20.7500	0.50	0.13	20.0000		104	80 - 116		
Bromobenzene	18.6600	0.50	0.21	20.0000		93.3	77 - 118		
Bromodichloromethane	20.7900	0.50	0.14	20.0000		104	73 - 118		
Bromoform	22.5100	0.50	0.20	20.0000		113	65 - 133		
Bromomethane	16.2700	0.50	0.40	20.0000		81.4	7 - 205		
Carbon tetrachloride	22.2500	0.50	0.09	20.0000		111	63 - 133		
Chlorobenzene	20.2700	0.50	0.13	20.0000		101	86 - 113		
Chloroethane	19.8600	0.50	0.15	20.0000		99.3	66 - 141		
Chloroform	20.5800	0.50	0.11	20.0000		103	63 - 127		
Chloromethane	17.4900	0.50	0.12	20.0000		87.4	0 - 207		
cis-1,2-Dichloroethene	20.0100	0.50	0.14	20.0000		100	64 - 126		
cis-1,3-Dichloropropene	21.3300	0.50	0.13	20.0000		107	70 - 141		
Dibromochloromethane	21.6200	0.50	0.16	20.0000		108	67 - 135		
Dibromomethane	21.8400	0.50	0.19	20.0000		109	74 - 118		
Dichlorodifluoromethane	17.9300	0.50	0.18	20.0000		89.6	14 - 181		
Ethylbenzene	20.5700	0.50	0.13	20.0000		103	77 - 118		
Hexachlorobutadiene	19.6900	0.50	0.15	20.0000		98.4	66 - 125		
Isopropylbenzene	18.6800	0.50	0.10	20.0000		93.4	68 - 137		
m,p-Xylene	41.5000	1.0	0.19	40.0000		104	78 - 126		
Methylene chloride	19.0400	1.0	0.71	20.0000		95.2	51 - 149		
n-Butylbenzene	19.3900	0.50	0.11	20.0000		97.0	63 - 127		
n-Propylbenzene	19.5700	0.50	0.10	20.0000		97.8	69 - 124		
Naphthalene	15.2000	0.50	0.41	20.0000		76.0	60 - 126		
o-Xylene	20.7900	0.50	0.13	20.0000		104	79 - 126		
sec-Butylbenzene	19.8500	0.50	0.09	20.0000		99.2	69 - 124		
Styrene	24.1100	0.50	0.13	20.0000		121	80 - 127		
tert-Butylbenzene	18.9200	0.50	0.09	20.0000		94.6	71 - 124		
Tetrachloroethene	20.8200	0.50	0.10	20.0000		104	73 - 129		
Toluene	20.8200	0.50	0.12	20.0000		104	78 - 121		
trans-1,2-Dichloroethene	20.1200	0.50	0.09	20.0000		101	58 - 141		
Trichloroethene	19.6500	0.50	0.10	20.0000		98.2	73 - 126		
Trichlorofluoromethane	19.8700	0.50	0.23	20.0000		99.4	62 - 146		
Vinyl chloride	19.1900	0.50	0.13	20.0000		96.0	61 - 137		



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 : 06/04/2020

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

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

Batch B0F0030 - MSVOA_LL_W (continued)

LCS (B0F0030-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Surrogate: 1,2-Dichloroethane-d4	25.43		25.0000		102	59 - 158			
Surrogate: 4-Bromofluorobenzene	25.19		25.0000		101	71 - 127			
Surrogate: Dibromofluoromethane	24.84		25.0000		99.4	66 - 147			
Surrogate: Toluene-d8	24.92		25.0000		99.7	77 - 138			

LCS Dup (B0F0030-BSD1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	21.8800	0.50	0.11	20.0000	109	71 - 133	3.44	20	
1,1,1-Trichloroethane	21.4500	0.50	0.21	20.0000	107	62 - 124	5.26	20	
1,1,2,2-Tetrachloroethane	19.9700	0.50	0.36	20.0000	99.8	50 - 131	2.90	20	
1,1,2-Trichloroethane	22.6100	0.50	0.25	20.0000	113	77 - 121	3.83	20	
1,1-Dichloroethane	21.6100	0.50	0.09	20.0000	108	52 - 130	6.74	20	
1,1-Dichloroethene	21.9900	0.50	0.13	20.0000	110	61 - 136	3.19	20	
1,1-Dichloropropene	21.6300	0.50	0.13	20.0000	108	80 - 128	2.01	20	
1,2,3-Trichloropropane	22.3100	0.50	0.39	20.0000	112	59 - 126	8.16	20	
1,2,3-Trichlorobenzene	17.5300	0.50	0.18	20.0000	87.6	69 - 138	3.84	20	
1,2,4-Trichlorobenzene	18.1900	0.50	0.16	20.0000	91.0	78 - 125	2.84	20	
1,2,4-Trimethylbenzene	21.6000	0.50	0.14	20.0000	108	70 - 126	4.84	20	
1,2-Dibromo-3-chloropropane	22.3800	0.50	0.41	20.0000	112	58 - 127	9.11	20	
1,2-Dibromoethane	22.8700	0.50	0.24	20.0000	114	76 - 120	6.50	20	
1,2-Dichlorobenzene	21.6600	0.50	0.20	20.0000	108	82 - 117	5.65	20	
1,2-Dichloroethane	23.0300	0.50	0.20	20.0000	115	66 - 126	5.21	20	
1,2-Dichloropropane	21.0900	0.50	0.15	20.0000	105	70 - 117	3.87	20	
1,3,5-Trimethylbenzene	20.4200	0.50	0.13	20.0000	102	71 - 125	2.98	20	
1,3-Dichlorobenzene	20.7200	0.50	0.16	20.0000	104	81 - 116	5.15	20	
1,3-Dichloropropane	21.7300	0.50	0.21	20.0000	109	69 - 124	7.55	20	
1,4-Dichlorobenzene	21.0900	0.50	0.17	20.0000	105	80 - 114	7.07	20	
2,2-Dichloropropane	22.7000	0.50	0.38	20.0000	114	58 - 132	4.27	20	
2-Chlorotoluene	19.6200	0.50	0.11	20.0000	98.1	71 - 119	4.06	20	
4-Chlorotoluene	20.7600	0.50	0.12	20.0000	104	72 - 122	5.39	20	
4-Isopropyltoluene	21.7500	0.50	0.11	20.0000	109	69 - 126	2.00	20	
Benzene	21.6100	0.50	0.13	20.0000	108	80 - 116	4.06	20	
Bromobenzene	20.1800	0.50	0.21	20.0000	101	77 - 118	7.83	20	
Bromodichloromethane	22.3000	0.50	0.14	20.0000	112	73 - 118	7.01	20	
Bromoform	24.2400	0.50	0.20	20.0000	121	65 - 133	7.40	20	
Bromomethane	15.9200	0.50	0.40	20.0000	79.6	7 - 205	2.17	20	
Carbon tetrachloride	23.0200	0.50	0.09	20.0000	115	63 - 133	3.40	20	
Chlorobenzene	20.8300	0.50	0.13	20.0000	104	86 - 113	2.73	20	
Chloroethane	20.5600	0.50	0.15	20.0000	103	66 - 141	3.46	20	
Chloroform	21.5500	0.50	0.11	20.0000	108	63 - 127	4.60	20	
Chloromethane	17.1800	0.50	0.12	20.0000	85.9	0 - 207	1.79	20	
cis-1,2-Dichloroethene	21.0000	0.50	0.14	20.0000	105	64 - 126	4.83	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 : 06/04/2020

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

Batch B0F0030 - MSVOA_LL_W (continued)

LCS Dup (B0F0030-BSD1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

cis-1,3-Dichloropropene	22.9300	0.50	0.13	20.0000	115	70 - 141	7.23	20	
Dibromochloromethane	22.8000	0.50	0.16	20.0000	114	67 - 135	5.31	20	
Dibromomethane	23.6100	0.50	0.19	20.0000	118	74 - 118	7.79	20	
Dichlorodifluoromethane	18.4000	0.50	0.18	20.0000	92.0	14 - 181	2.59	20	
Ethylbenzene	21.3100	0.50	0.13	20.0000	107	77 - 118	3.53	20	
Hexachlorobutadiene	20.8500	0.50	0.15	20.0000	104	66 - 125	5.72	20	
Isopropylbenzene	19.7300	0.50	0.10	20.0000	98.6	68 - 137	5.47	20	
m,p-Xylene	41.9000	1.0	0.19	40.0000	105	78 - 126	0.959	20	
Methylene chloride	20.2100	1.0	0.71	20.0000	101	51 - 149	5.96	20	
n-Butylbenzene	19.7800	0.50	0.11	20.0000	98.9	63 - 127	1.99	20	
n-Propylbenzene	20.4700	0.50	0.10	20.0000	102	69 - 124	4.50	20	
Naphthalene	16.9100	0.50	0.41	20.0000	84.6	60 - 126	10.7	20	
o-Xylene	21.1300	0.50	0.13	20.0000	106	79 - 126	1.62	20	
sec-Butylbenzene	20.3600	0.50	0.09	20.0000	102	69 - 124	2.54	20	
Styrene	24.6100	0.50	0.13	20.0000	123	80 - 127	2.05	20	
tert-Butylbenzene	19.6800	0.50	0.09	20.0000	98.4	71 - 124	3.94	20	
Tetrachloroethene	20.8400	0.50	0.10	20.0000	104	73 - 129	0.0960	20	
Toluene	21.5200	0.50	0.12	20.0000	108	78 - 121	3.31	20	
trans-1,2-Dichloroethene	21.8300	0.50	0.09	20.0000	109	58 - 141	8.15	20	
Trichloroethene	20.0300	0.50	0.10	20.0000	100	73 - 126	1.92	20	
Trichlorofluoromethane	20.5800	0.50	0.23	20.0000	103	62 - 146	3.51	20	
Vinyl chloride	20.2400	0.50	0.13	20.0000	101	61 - 137	5.33	20	
Surrogate: 1,2-Dichloroethane-d4	26.12			25.0000	104	59 - 158			
Surrogate: 4-Bromofluorobenzene	24.96			25.0000	99.8	71 - 127			
Surrogate: Dibromofluoromethane	24.84			25.0000	99.4	66 - 147			
Surrogate: Toluene-d8	24.93			25.0000	99.7	77 - 138			



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 : 06/04/2020

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

Batch B0F0037 - MSSEMI_W

Blank (B0F0037-BLK1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	77.43			100.000		77.4	17 - 119		
Surrogate: 2-Fluorobiphenyl	78.50			100.000		78.5	10 - 133		
Surrogate: 4-Terphenyl-d14	96.54			100.000		96.5	5 - 139		
Surrogate: Nitrobenzene-d5	75.74			100.000		75.7	13 - 150		

LCS (B0F0037-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dioxane	93.1400	2.0	0.84	100.000		93.1	75 - 155		
Surrogate: 1,2-Dichlorobenzene-d	75.47			100.000		75.5	17 - 119		
Surrogate: 2-Fluorobiphenyl	86.54			100.000		86.5	10 - 133		
Surrogate: 4-Terphenyl-d14	96.11			100.000		96.1	5 - 139		
Surrogate: Nitrobenzene-d5	80.44			100.000		80.4	13 - 150		

LCS Dup (B0F0037-BSD1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dioxane	100.260	2.0	0.84	100.000		100	75 - 155	7.36	20
Surrogate: 1,2-Dichlorobenzene-d	73.11			100.000		73.1	17 - 119		
Surrogate: 2-Fluorobiphenyl	86.54			100.000		86.5	10 - 133		
Surrogate: 4-Terphenyl-d14	94.50			100.000		94.5	5 - 139		
Surrogate: Nitrobenzene-d5	79.17			100.000		79.2	13 - 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 : 06/04/2020

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

Batch B0F0077 - MSSEMI_W

Blank (B0F0077-BLK1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dioxane	ND	0.20	0.05						
Surrogate: 1,2-Dichlorobenzene-d	0.7462			1.00000		74.6	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.8353			1.00000		83.5	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8383			1.00000		83.8	5 - 139		
Surrogate: Nitrobenzene-d5	0.6336			1.00000		63.4	13 - 150		

LCS (B0F0077-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dioxane	1.38118	0.20	0.05	1.00000		138	75 - 155		
Surrogate: 1,2-Dichlorobenzene-d	0.6028			1.00000		60.3	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.7437			1.00000		74.4	10 - 133		
Surrogate: 4-Terphenyl-d14	0.7697			1.00000		77.0	5 - 139		
Surrogate: Nitrobenzene-d5	0.5367			1.00000		53.7	13 - 150		

LCS Dup (B0F0077-BSD1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dioxane	1.35971	0.20	0.05	1.00000		136	75 - 155	1.57	20
Surrogate: 1,2-Dichlorobenzene-d	0.6078			1.00000		60.8	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.7361			1.00000		73.6	10 - 133		
Surrogate: 4-Terphenyl-d14	0.7913			1.00000		79.1	5 - 139		
Surrogate: Nitrobenzene-d5	0.5638			1.00000		56.4	13 - 150		



Certificate of Analysis

Hargis & Associates, Inc.

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/04/2020

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
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.

Date: 5/27/20
Page 1 of 2

PROJECT: Raytheon Main

TASK NO.: 532.30

Project Manager Steve Netto
QA Manager Tyler Evans
Phone 858.455.6500
Fax 858.455.6533

Sampled By:				SAMPLE COLLECTION		MATRIX		PRESERVATION		CONTAINERS		ANALYSIS REQUESTED				Expected Concentration Range (ppb) for VOA's				SPECIAL HANDLING				REMARKS		
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)				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		MS/MSD Requested	
2001285-01	TB-052620	5/26/20	1300	X	X					X	3		X				X						X			Report J Flags
-02	EW-01		1325	X	X					X	3		X				X						X			
	↓		↓	X						X		1			X								X			
-03	MW-21		1348	X	X					X	3		X					X					X			
	↓		↓	X						X		1			X								X			
-04	MW-26C	5/27/20	1107	X	X					X	3		X				X						X			
	↓		↓	X						X		1		X			X						X			
-05	MW-28		1144	X	X					X	3		X	X			X						X			
	↓		↓	X						X		1		X									X			
-06	MW-32B		1313	X	X					X	3		X					X					X			
	↓		↓	X						X		1		X									X			
-07	MW-3200B		1315	X	X					X	3		X					X					X			
	↓		↓	X						X		1		X									X			
-08	RB-052720		1330		X	X				X	3		X				X						X			
	↓		↓		X					X		1		X									X			
-09	MW-08		1416	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>ADonnelly / H+A</u>	<u>5/27/20 1700</u>	<u>[Signature] ATL</u>	<u>5/27/20 17:00</u>
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<u>[Signature] ATL</u>	<u>5/27/20 17:28</u>	<u>[Signature] ATL</u>	<u>5/27/20 17:28</u>

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

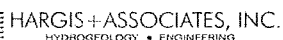
Send Results to:

Steve Netto
9171 Towne Centre Drive
Suite 375
San Diego, CA 92122
Ph: 858.455.5400
snetto@hargis.com

Instructions

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

Temperature on receipt



Fax 858.455.6533

Date: 5/27/20
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 ×
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

June 05, 2020

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

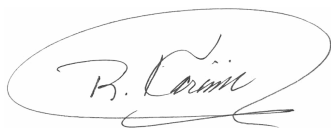
ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2001299
Client Reference : Raytheon Main, 532.30

Enclosed are the results for sample(s) received on May 28, 2020 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,



Dr. Reza Karimi
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 : 06/05/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-052820A	2001299-01	Water	5/28/20 8:00	5/28/20 16:48
MW-31	2001299-02	Water	5/28/20 8:52	5/28/20 16:48
MW-3100	2001299-03	Water	5/28/20 8:59	5/28/20 16:48
MW-41	2001299-04	Water	5/28/20 10:02	5/28/20 16:48
MW-40	2001299-05	Water	5/28/20 12:44	5/28/20 16:48
MW-43	2001299-06	Water	5/28/20 9:20	5/28/20 16:48
MW-42	2001299-07	Water	5/28/20 10:38	5/28/20 16:48
MW-36_2SV	2001299-08	Water	5/28/20 13:15	5/28/20 16:48
MW-36	2001299-09	Water	5/28/20 13:40	5/28/20 16:48
MW-33	2001299-10	Water	5/28/20 15:27	5/28/20 16:48
MW-33_2sv	2001299-11	Water	5/28/20 15:11	5/28/20 16:48



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: TB-052820A

Lab ID: 2001299-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 02:41	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 02:41	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 02:41	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 02:41	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 02:41	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 02:41	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 02:41	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 02:41	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 02:41	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 02:41	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 02:41	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 02:41	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 02:41	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 02:41	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 02:41	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 02:41	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 02:41	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 02:41	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 02:41	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 02:41	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 02:41	
Chloromethane	0.12	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 02:41	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 02:41	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 02:41	



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 : 06/05/2020

Client Sample ID: TB-052820A

Lab ID: 2001299-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 02:41	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 02:41	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 02:41	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 02:41	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 02:41	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 02:41	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 02:41	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 02:41	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 02:41	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 02:41	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 02:41	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 02:41	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 02:41	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 02:41	
Trichloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 02:41	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 02:41	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 02:41	
Surrogate: 1,2-Dichloroethane-d4	111 %		59 - 158		B0F0019	06/02/2020	06/02/20 02:41	
Surrogate: 4-Bromofluorobenzene	106 %		71 - 127		B0F0019	06/02/2020	06/02/20 02:41	
Surrogate: Dibromofluoromethane	102 %		66 - 147		B0F0019	06/02/2020	06/02/20 02:41	
Surrogate: Toluene-d8	101 %		77 - 138		B0F0019	06/02/2020	06/02/20 02:41	



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 : 06/05/2020

Client Sample ID: MW-31

Lab ID: 2001299-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0030	06/02/2020	06/02/20 18:52	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 18:52	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0030	06/02/2020	06/02/20 18:52	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0030	06/02/2020	06/02/20 18:52	
1,1-Dichloroethane	0.25	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:52	J
1,1-Dichloroethene	38	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 18:52	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 18:52	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 18:52	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 18:52	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0030	06/02/2020	06/02/20 18:52	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0030	06/02/2020	06/02/20 18:52	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:52	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 18:52	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:52	
Benzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
Bromobenzene	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 18:52	
Bromodichloromethane	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 18:52	
Bromoform	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 18:52	
Bromomethane	ND	0.50	0.40	1	B0F0030	06/02/2020	06/02/20 18:52	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:52	
Chlorobenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
Chloroethane	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 18:52	
Chloroform	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:52	
Chloromethane	0.26	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 18:52	J
cis-1,2-Dichloroethene	0.51	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 18:52	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
Dibromochloromethane	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 18:52	



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 : 06/05/2020

Client Sample ID: MW-31

Lab ID: 2001299-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0030	06/02/2020	06/02/20 18:52	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0030	06/02/2020	06/02/20 18:52	
Ethylbenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 18:52	
Isopropylbenzene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:52	
m,p-Xylene	ND	1.0	0.19	1	B0F0030	06/02/2020	06/02/20 18:52	
Methylene chloride	ND	1.0	0.71	1	B0F0030	06/02/2020	06/02/20 18:52	
n-Butylbenzene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:52	
n-Propylbenzene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:52	
Naphthalene	ND	0.50	0.41	1	B0F0030	06/02/2020	06/02/20 18:52	
o-Xylene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:52	
Styrene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:52	
Tetrachloroethene	0.20	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:52	J
Toluene	0.17	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 18:52	J
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:52	
Trichloroethene	3.8	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:52	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0030	06/02/2020	06/02/20 18:52	
Vinyl chloride	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:52	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>		<i>59 - 158</i>		B0F0030	06/02/2020	<i>06/02/20 18:52</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90.8 %</i>		<i>71 - 127</i>		B0F0030	06/02/2020	<i>06/02/20 18:52</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>66 - 147</i>		B0F0030	06/02/2020	<i>06/02/20 18:52</i>	
<i>Surrogate: Toluene-d8</i>	<i>96.6 %</i>		<i>77 - 138</i>		B0F0030	06/02/2020	<i>06/02/20 18:52</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 : 06/05/2020

Client Sample ID: MW-31

Lab ID: 2001299-02

1,4-Dioxane by EPA 8270/SIM: 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	2.1	0.20	0.05	1	B0F0081	06/03/2020	06/03/20 17:20	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>69.2 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/03/20 17:20</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>81.9 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/03/20 17:20</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>92.7 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/03/20 17:20</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>82.8 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/03/20 17:20</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-3100

Lab ID: 2001299-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 07:17	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 07:17	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 07:17	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 07:17	
1,1-Dichloroethane	0.22	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 07:17	J
1,1-Dichloroethene	43	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 07:17	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 07:17	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 07:17	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 07:17	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 07:17	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 07:17	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 07:17	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 07:17	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 07:17	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 07:17	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 07:17	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 07:17	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 07:17	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 07:17	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 07:17	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 07:17	
Chloromethane	0.17	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 07:17	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 07:17	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 07:17	



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 : 06/05/2020

Client Sample ID: MW-3100

Lab ID: 2001299-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 07:17	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 07:17	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 07:17	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 07:17	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 07:17	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 07:17	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 07:17	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 07:17	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 07:17	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 07:17	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 07:17	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 07:17	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 07:17	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 07:17	
Trichloroethene	3.5	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 07:17	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 07:17	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 07:17	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>120 %</i>		<i>59 - 158</i>		B0F0019	06/02/2020	<i>06/02/20 07:17</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>		<i>71 - 127</i>		B0F0019	06/02/2020	<i>06/02/20 07:17</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>66 - 147</i>		B0F0019	06/02/2020	<i>06/02/20 07:17</i>	
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>77 - 138</i>		B0F0019	06/02/2020	<i>06/02/20 07:17</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 : 06/05/2020

Client Sample ID: MW-3100

Lab ID: 2001299-03

1,4-Dioxane by EPA 8270/SIM: 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	2.2	0.20	0.05	1	B0F0081	06/03/2020	06/03/20 17:47	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.1 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/03/20 17:47</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>82.8 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/03/20 17:47</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>94.9 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/03/20 17:47</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>82.6 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/03/20 17:47</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-41

Lab ID: 2001299-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 03:04	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:04	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 03:04	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 03:04	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:04	
1,1-Dichloroethene	0.81	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:04	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:04	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:04	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:04	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 03:04	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 03:04	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:04	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:04	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:04	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:04	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:04	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:04	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 03:04	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:04	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:04	
Chloroform	0.61	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:04	
Chloromethane	0.13	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:04	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:04	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:04	



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 : 06/05/2020

Client Sample ID: MW-41

Lab ID: 2001299-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 03:04	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 03:04	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:04	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:04	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 03:04	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 03:04	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:04	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:04	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 03:04	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:04	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:04	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:04	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:04	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:04	
Trichloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:04	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 03:04	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:04	
Surrogate: 1,2-Dichloroethane-d4	117 %		59 - 158		B0F0019	06/02/2020	06/02/20 03:04	
Surrogate: 4-Bromofluorobenzene	106 %		71 - 127		B0F0019	06/02/2020	06/02/20 03:04	
Surrogate: Dibromofluoromethane	103 %		66 - 147		B0F0019	06/02/2020	06/02/20 03:04	
Surrogate: Toluene-d8	103 %		77 - 138		B0F0019	06/02/2020	06/02/20 03:04	



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 : 06/05/2020

Client Sample ID: MW-41

Lab ID: 2001299-04

1,4-Dioxane by EPA 8270/SIM: 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	0.25	0.20	0.05	1	B0F0081	06/03/2020	06/03/20 18:15	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.0 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/03/20 18:15</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88.0 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/03/20 18:15</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>95.7 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/03/20 18:15</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>81.9 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/03/20 18:15</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 : 06/05/2020

Client Sample ID: MW-40

Lab ID: 2001299-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 03:27	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:27	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 03:27	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 03:27	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:27	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:27	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:27	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:27	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:27	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 03:27	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 03:27	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:27	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:27	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:27	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:27	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:27	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:27	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 03:27	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:27	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:27	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:27	
Chloromethane	0.24	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:27	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:27	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:27	



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 : 06/05/2020

Client Sample ID: MW-40

Lab ID: 2001299-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 03:27	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 03:27	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:27	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:27	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 03:27	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 03:27	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:27	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:27	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 03:27	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:27	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:27	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:27	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:27	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:27	
Trichloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:27	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 03:27	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:27	
Surrogate: 1,2-Dichloroethane-d4	114 %		59 - 158		B0F0019	06/02/2020	06/02/20 03:27	
Surrogate: 4-Bromofluorobenzene	106 %		71 - 127		B0F0019	06/02/2020	06/02/20 03:27	
Surrogate: Dibromofluoromethane	106 %		66 - 147		B0F0019	06/02/2020	06/02/20 03:27	
Surrogate: Toluene-d8	99.3 %		77 - 138		B0F0019	06/02/2020	06/02/20 03:27	



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 : 06/05/2020

Client Sample ID: MW-40

Lab ID: 2001299-05

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0081	06/03/2020	06/03/20 18:42	
Surrogate: 1,2-Dichlorobenzene-d4	70.9 %		17 - 119		B0F0081	06/03/2020	06/03/20 18:42	
Surrogate: 2-Fluorobiphenyl	85.0 %		10 - 133		B0F0081	06/03/2020	06/03/20 18:42	
Surrogate: 4-Terphenyl-d14	91.3 %		5 - 139		B0F0081	06/03/2020	06/03/20 18:42	
Surrogate: Nitrobenzene-d5	76.7 %		13 - 150		B0F0081	06/03/2020	06/03/20 18:42	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-43

Lab ID: 2001299-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 03:50	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:50	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 03:50	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 03:50	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:50	
1,1-Dichloroethene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:50	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:50	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:50	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:50	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 03:50	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 03:50	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:50	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:50	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:50	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 03:50	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:50	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 03:50	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 03:50	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:50	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:50	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:50	
Chloromethane	0.28	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:50	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 03:50	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 03:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-43

Lab ID: 2001299-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 03:50	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 03:50	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 03:50	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:50	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 03:50	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 03:50	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 03:50	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:50	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 03:50	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:50	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:50	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:50	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 03:50	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 03:50	
Trichloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 03:50	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 03:50	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 03:50	
Surrogate: 1,2-Dichloroethane-d4	119 %		59 - 158		B0F0019	06/02/2020	06/02/20 03:50	
Surrogate: 4-Bromofluorobenzene	108 %		71 - 127		B0F0019	06/02/2020	06/02/20 03:50	
Surrogate: Dibromofluoromethane	105 %		66 - 147		B0F0019	06/02/2020	06/02/20 03:50	
Surrogate: Toluene-d8	103 %		77 - 138		B0F0019	06/02/2020	06/02/20 03:50	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-43

Lab ID: 2001299-06

1,4-Dioxane by EPA 8270/SIM: 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	0.20	0.05	1	B0F0081	06/03/2020	06/03/20 19:10	
Surrogate: 1,2-Dichlorobenzene-d4	73.1 %		17 - 119		B0F0081	06/03/2020	06/03/20 19:10	
Surrogate: 2-Fluorobiphenyl	87.6 %		10 - 133		B0F0081	06/03/2020	06/03/20 19:10	
Surrogate: 4-Terphenyl-d14	95.4 %		5 - 139		B0F0081	06/03/2020	06/03/20 19:10	
Surrogate: Nitrobenzene-d5	84.3 %		13 - 150		B0F0081	06/03/2020	06/03/20 19:10	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-42

Lab ID: 2001299-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 05:22	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 05:22	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 05:22	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 05:22	
1,1-Dichloroethane	0.41	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:22	J
1,1-Dichloroethene	36	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 05:22	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 05:22	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 05:22	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 05:22	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 05:22	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 05:22	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:22	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 05:22	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:22	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 05:22	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 05:22	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 05:22	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 05:22	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:22	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 05:22	
Chloroform	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:22	
Chloromethane	0.22	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 05:22	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 05:22	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 05:22	



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 : 06/05/2020

Client Sample ID: MW-42

Lab ID: 2001299-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 05:22	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 05:22	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 05:22	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:22	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 05:22	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 05:22	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:22	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:22	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 05:22	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:22	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:22	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:22	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 05:22	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:22	
Trichloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:22	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 05:22	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:22	
Surrogate: 1,2-Dichloroethane-d4	118 %		59 - 158		B0F0019	06/02/2020	06/02/20 05:22	
Surrogate: 4-Bromofluorobenzene	104 %		71 - 127		B0F0019	06/02/2020	06/02/20 05:22	
Surrogate: Dibromofluoromethane	108 %		66 - 147		B0F0019	06/02/2020	06/02/20 05:22	
Surrogate: Toluene-d8	99.4 %		77 - 138		B0F0019	06/02/2020	06/02/20 05:22	



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 : 06/05/2020

Client Sample ID: MW-42

Lab ID: 2001299-07

1,4-Dioxane by EPA 8270/SIM: 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	1.5	0.20	0.05	1	B0F0081	06/03/2020	06/04/20 14:54	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.9 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/04/20 14:54</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>78.7 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/04/20 14:54</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>72.3 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/04/20 14:54</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>82.6 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/04/20 14:54</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 : 06/05/2020

Client Sample ID: MW-36_2SV

Lab ID: 2001299-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 05:45	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 05:45	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 05:45	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 05:45	
1,1-Dichloroethane	0.75	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:45	
1,1-Dichloroethene	100	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 05:45	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 05:45	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 05:45	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 05:45	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 05:45	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 05:45	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:45	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 05:45	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:45	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 05:45	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 05:45	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 05:45	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 05:45	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:45	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 05:45	
Chloroform	0.18	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:45	J
Chloromethane	0.18	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 05:45	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 05:45	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 05:45	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-36_2SV

Lab ID: 2001299-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 05:45	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 05:45	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 05:45	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:45	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 05:45	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 05:45	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 05:45	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:45	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 05:45	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:45	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:45	
Tetrachloroethene	0.46	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:45	J
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 05:45	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 05:45	
Trichloroethene	0.13	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 05:45	J
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 05:45	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 05:45	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>123 %</i>		<i>59 - 158</i>		B0F0019	06/02/2020	<i>06/02/20 05:45</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>110 %</i>		<i>71 - 127</i>		B0F0019	06/02/2020	<i>06/02/20 05:45</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>66 - 147</i>		B0F0019	06/02/2020	<i>06/02/20 05:45</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.4 %</i>		<i>77 - 138</i>		B0F0019	06/02/2020	<i>06/02/20 05:45</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-36_2SV

Lab ID: 2001299-08

1,4-Dioxane by EPA 8270/SIM: 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	9.8	0.20	0.05	1	B0F0081	06/03/2020	06/04/20 15:21	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>85.3 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/04/20 15:21</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>97.6 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/04/20 15:21</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>83.7 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/04/20 15:21</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>92.9 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/04/20 15:21</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-36

Lab ID: 2001299-09

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0019	06/02/2020	06/02/20 04:13	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 04:13	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0019	06/02/2020	06/02/20 04:13	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0019	06/02/2020	06/02/20 04:13	
1,1-Dichloroethane	0.77	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 04:13	
1,1-Dichloroethene	97	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 04:13	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 04:13	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 04:13	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 04:13	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0019	06/02/2020	06/02/20 04:13	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0019	06/02/2020	06/02/20 04:13	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 04:13	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 04:13	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 04:13	
Benzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
Bromobenzene	ND	0.50	0.21	1	B0F0019	06/02/2020	06/02/20 04:13	
Bromodichloromethane	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 04:13	
Bromoform	ND	0.50	0.20	1	B0F0019	06/02/2020	06/02/20 04:13	
Bromomethane	ND	0.50	0.40	1	B0F0019	06/02/2020	06/02/20 04:13	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 04:13	
Chlorobenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
Chloroethane	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 04:13	
Chloroform	0.15	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 04:13	J
Chloromethane	0.16	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 04:13	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0019	06/02/2020	06/02/20 04:13	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
Dibromochloromethane	ND	0.50	0.16	1	B0F0019	06/02/2020	06/02/20 04:13	



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 : 06/05/2020

Client Sample ID: MW-36

Lab ID: 2001299-09

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0019	06/02/2020	06/02/20 04:13	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0019	06/02/2020	06/02/20 04:13	
Ethylbenzene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0019	06/02/2020	06/02/20 04:13	
Isopropylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 04:13	
m,p-Xylene	ND	1.0	0.19	1	B0F0019	06/02/2020	06/02/20 04:13	
Methylene chloride	ND	1.0	0.71	1	B0F0019	06/02/2020	06/02/20 04:13	
n-Butylbenzene	ND	0.50	0.11	1	B0F0019	06/02/2020	06/02/20 04:13	
n-Propylbenzene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 04:13	
Naphthalene	ND	0.50	0.41	1	B0F0019	06/02/2020	06/02/20 04:13	
o-Xylene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 04:13	
Styrene	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 04:13	
Tetrachloroethene	ND	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 04:13	
Toluene	ND	0.50	0.12	1	B0F0019	06/02/2020	06/02/20 04:13	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0019	06/02/2020	06/02/20 04:13	
Trichloroethene	0.15	0.50	0.10	1	B0F0019	06/02/2020	06/02/20 04:13	J
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0019	06/02/2020	06/02/20 04:13	
Vinyl chloride	ND	0.50	0.13	1	B0F0019	06/02/2020	06/02/20 04:13	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>		<i>59 - 158</i>		B0F0019	06/02/2020	<i>06/02/20 04:13</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>		<i>71 - 127</i>		B0F0019	06/02/2020	<i>06/02/20 04:13</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>66 - 147</i>		B0F0019	06/02/2020	<i>06/02/20 04:13</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>77 - 138</i>		B0F0019	06/02/2020	<i>06/02/20 04:13</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 : 06/05/2020

Client Sample ID: MW-36

Lab ID: 2001299-09

1,4-Dioxane by EPA 8270/SIM: 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	9.5	0.20	0.05	1	B0F0081	06/03/2020	06/04/20 15:48	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.9 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/04/20 15:48</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>90.3 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/04/20 15:48</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>84.6 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/04/20 15:48</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>84.0 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/04/20 15:48</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 : 06/05/2020

Client Sample ID: MW-33

Lab ID: 2001299-10

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0030	06/02/2020	06/02/20 17:27	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 17:27	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0030	06/02/2020	06/02/20 17:27	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0030	06/02/2020	06/02/20 17:27	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 17:27	
1,1-Dichloroethene	3.2	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 17:27	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 17:27	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 17:27	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 17:27	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0030	06/02/2020	06/02/20 17:27	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0030	06/02/2020	06/02/20 17:27	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 17:27	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 17:27	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 17:27	
Benzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
Bromobenzene	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 17:27	
Bromodichloromethane	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 17:27	
Bromoform	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 17:27	
Bromomethane	ND	0.50	0.40	1	B0F0030	06/02/2020	06/02/20 17:27	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 17:27	
Chlorobenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
Chloroethane	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 17:27	
Chloroform	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 17:27	
Chloromethane	0.27	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 17:27	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 17:27	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
Dibromochloromethane	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 17:27	



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 : 06/05/2020

Client Sample ID: MW-33

Lab ID: 2001299-10

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0030	06/02/2020	06/02/20 17:27	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0030	06/02/2020	06/02/20 17:27	
Ethylbenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 17:27	
Isopropylbenzene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 17:27	
m,p-Xylene	ND	1.0	0.19	1	B0F0030	06/02/2020	06/02/20 17:27	
Methylene chloride	ND	1.0	0.71	1	B0F0030	06/02/2020	06/02/20 17:27	
n-Butylbenzene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 17:27	
n-Propylbenzene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 17:27	
Naphthalene	ND	0.50	0.41	1	B0F0030	06/02/2020	06/02/20 17:27	
o-Xylene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 17:27	
Styrene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 17:27	
Tetrachloroethene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 17:27	
Toluene	ND	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 17:27	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 17:27	
Trichloroethene	0.51	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 17:27	
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0030	06/02/2020	06/02/20 17:27	
Vinyl chloride	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 17:27	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>59 - 158</i>		B0F0030	06/02/2020	<i>06/02/20 17:27</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90.9 %</i>		<i>71 - 127</i>		B0F0030	06/02/2020	<i>06/02/20 17:27</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>66 - 147</i>		B0F0030	06/02/2020	<i>06/02/20 17:27</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.6 %</i>		<i>77 - 138</i>		B0F0030	06/02/2020	<i>06/02/20 17:27</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 : 06/05/2020

Client Sample ID: MW-33

Lab ID: 2001299-10

1,4-Dioxane by EPA 8270/SIM: 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	0.11	0.20	0.05	1	B0F0081	06/03/2020	06/04/20 16:14	J
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81.1 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/04/20 16:14</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>95.8 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/04/20 16:14</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>79.7 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/04/20 16:14</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>91.6 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/04/20 16:14</i>	



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 : 06/05/2020

Client Sample ID: MW-33_2sv

Lab ID: 2001299-11

Volatile Organic Compounds by EPA 8260B

Analyst: VW

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	0.11	1	B0F0030	06/02/2020	06/02/20 18:10	
1,1,1-Trichloroethane	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 18:10	
1,1,2,2-Tetrachloroethane	ND	0.50	0.36	1	B0F0030	06/02/2020	06/02/20 18:10	
1,1,2-Trichloroethane	ND	0.50	0.25	1	B0F0030	06/02/2020	06/02/20 18:10	
1,1-Dichloroethane	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:10	
1,1-Dichloroethene	2.6	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
1,1-Dichloropropene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2,3-Trichloropropane	ND	0.50	0.39	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2,3-Trichlorobenzene	ND	0.50	0.18	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2,4-Trichlorobenzene	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2,4-Trimethylbenzene	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2-Dibromo-3-chloropropane	ND	0.50	0.41	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2-Dibromoethane	ND	0.50	0.24	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2-Dichlorobenzene	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2-Dichloroethane	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 18:10	
1,2-Dichloropropane	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 18:10	
1,3,5-Trimethylbenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
1,3-Dichlorobenzene	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 18:10	
1,3-Dichloropropane	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 18:10	
1,4-Dichlorobenzene	ND	0.50	0.17	1	B0F0030	06/02/2020	06/02/20 18:10	
2,2-Dichloropropane	ND	0.50	0.38	1	B0F0030	06/02/2020	06/02/20 18:10	
2-Chlorotoluene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:10	
4-Chlorotoluene	ND	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 18:10	
4-Isopropyltoluene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:10	
Benzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
Bromobenzene	ND	0.50	0.21	1	B0F0030	06/02/2020	06/02/20 18:10	
Bromodichloromethane	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 18:10	
Bromoform	ND	0.50	0.20	1	B0F0030	06/02/2020	06/02/20 18:10	
Bromomethane	ND	0.50	0.40	1	B0F0030	06/02/2020	06/02/20 18:10	
Carbon tetrachloride	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:10	
Chlorobenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
Chloroethane	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 18:10	
Chloroform	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:10	
Chloromethane	0.17	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 18:10	J
cis-1,2-Dichloroethene	ND	0.50	0.14	1	B0F0030	06/02/2020	06/02/20 18:10	
cis-1,3-Dichloropropene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
Dibromochloromethane	ND	0.50	0.16	1	B0F0030	06/02/2020	06/02/20 18:10	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-33_ssv

Lab ID: 2001299-11

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	0.19	1	B0F0030	06/02/2020	06/02/20 18:10	
Dichlorodifluoromethane	ND	0.50	0.18	1	B0F0030	06/02/2020	06/02/20 18:10	
Ethylbenzene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
Hexachlorobutadiene	ND	0.50	0.15	1	B0F0030	06/02/2020	06/02/20 18:10	
Isopropylbenzene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:10	
m,p-Xylene	ND	1.0	0.19	1	B0F0030	06/02/2020	06/02/20 18:10	
Methylene chloride	ND	1.0	0.71	1	B0F0030	06/02/2020	06/02/20 18:10	
n-Butylbenzene	ND	0.50	0.11	1	B0F0030	06/02/2020	06/02/20 18:10	
n-Propylbenzene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:10	
Naphthalene	ND	0.50	0.41	1	B0F0030	06/02/2020	06/02/20 18:10	
o-Xylene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
sec-Butylbenzene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:10	
Styrene	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
tert-Butylbenzene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:10	
Tetrachloroethene	ND	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:10	
Toluene	ND	0.50	0.12	1	B0F0030	06/02/2020	06/02/20 18:10	
trans-1,2-Dichloroethene	ND	0.50	0.09	1	B0F0030	06/02/2020	06/02/20 18:10	
Trichloroethene	0.39	0.50	0.10	1	B0F0030	06/02/2020	06/02/20 18:10	J
Trichlorofluoromethane	ND	0.50	0.23	1	B0F0030	06/02/2020	06/02/20 18:10	
Vinyl chloride	ND	0.50	0.13	1	B0F0030	06/02/2020	06/02/20 18:10	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>59 - 158</i>		B0F0030	06/02/2020	<i>06/02/20 18:10</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.3 %</i>		<i>71 - 127</i>		B0F0030	06/02/2020	<i>06/02/20 18:10</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>66 - 147</i>		B0F0030	06/02/2020	<i>06/02/20 18:10</i>	
<i>Surrogate: Toluene-d8</i>	<i>97.2 %</i>		<i>77 - 138</i>		B0F0030	06/02/2020	<i>06/02/20 18:10</i>	



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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

Client Sample ID: MW-33_2sv

Lab ID: 2001299-11

1,4-Dioxane by EPA 8270/SIM: 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	0.10	0.20	0.05	1	B0F0081	06/03/2020	06/04/20 16:41	J
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.9 %</i>		<i>17 - 119</i>		B0F0081	06/03/2020	<i>06/04/20 16:41</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>79.8 %</i>		<i>10 - 133</i>		B0F0081	06/03/2020	<i>06/04/20 16:41</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>76.1 %</i>		<i>5 - 139</i>		B0F0081	06/03/2020	<i>06/04/20 16:41</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>73.3 %</i>		<i>13 - 150</i>		B0F0081	06/03/2020	<i>06/04/20 16:41</i>	



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

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

Batch B0F0019 - MSVOA_LL_W

Blank (B0F0019-BLK1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,1,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	0.120000	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18

J



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Hargis & Associates, Inc.

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San Diego , CA 92122

Project Number : Raytheon Main, 532.30

Report To : Steve Netto

Reported : 06/05/2020

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

Batch B0F0019 - MSVOA_LL_W (continued)

Blank (B0F0019-BLK1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	32.92		25.0000	132	59 - 158
Surrogate: 4-Bromofluorobenzene	28.18		25.0000	113	71 - 127
Surrogate: Dibromofluoromethane	27.56		25.0000	110	66 - 147
Surrogate: Toluene-d8	25.58		25.0000	102	77 - 138

LCS (B0F0019-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	22.4500	0.50	0.11	20.0000	112	71 - 133	
1,1,1-Trichloroethane	26.1700	0.50	0.21	20.0000	131	62 - 124	L4
1,1,2,2-Tetrachloroethane	16.7500	0.50	0.36	20.0000	83.8	50 - 131	
1,1,2-Trichloroethane	20.9300	0.50	0.25	20.0000	105	77 - 121	
1,1-Dichloroethane	20.7500	0.50	0.09	20.0000	104	52 - 130	
1,1-Dichloroethene	23.9900	0.50	0.13	20.0000	120	61 - 136	
1,1-Dichloropropene	20.7800	0.50	0.13	20.0000	104	80 - 128	
1,2,3-Trichloropropane	21.5700	0.50	0.39	20.0000	108	59 - 126	
1,2,3-Trichlorobenzene	23.1600	0.50	0.18	20.0000	116	69 - 138	
1,2,4-Trichlorobenzene	21.6200	0.50	0.16	20.0000	108	78 - 125	
1,2,4-Trimethylbenzene	22.6400	0.50	0.14	20.0000	113	70 - 126	
1,2-Dibromo-3-chloropropane	16.9900	0.50	0.41	20.0000	85.0	58 - 127	
1,2-Dibromoethane	23.4300	0.50	0.24	20.0000	117	76 - 120	
1,2-Dichlorobenzene	20.5500	0.50	0.20	20.0000	103	82 - 117	
1,2-Dichloroethane	27.3300	0.50	0.20	20.0000	137	66 - 126	L4
1,2-Dichloropropane	19.3900	0.50	0.15	20.0000	97.0	70 - 117	
1,3,5-Trimethylbenzene	21.6200	0.50	0.13	20.0000	108	71 - 125	



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Project Number : Raytheon Main, 532.30

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Reported : 06/05/2020

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 B0F0019 - MSVOA_LL_W (continued)

LCS (B0F0019-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,3-Dichlorobenzene	20.2400	0.50	0.16	20.0000		101	81 - 116		
1,3-Dichloropropane	21.8500	0.50	0.21	20.0000		109	69 - 124		
1,4-Dichlorobenzene	19.7000	0.50	0.17	20.0000		98.5	80 - 114		
2,2-Dichloropropane	16.9900	0.50	0.38	20.0000		85.0	58 - 132		
2-Chlorotoluene	20.9400	0.50	0.11	20.0000		105	71 - 119		
4-Chlorotoluene	22.1100	0.50	0.12	20.0000		111	72 - 122		
4-Isopropyltoluene	22.5100	0.50	0.11	20.0000		113	69 - 126		
Benzene	19.7600	0.50	0.13	20.0000		98.8	80 - 116		
Bromobenzene	19.8500	0.50	0.21	20.0000		99.2	77 - 118		
Bromodichloromethane	22.6400	0.50	0.14	20.0000		113	73 - 118		
Bromoform	20.2200	0.50	0.20	20.0000		101	65 - 133		
Bromomethane	15.2900	0.50	0.40	20.0000		76.4	7 - 205		
Carbon tetrachloride	26.5700	0.50	0.09	20.0000		133	63 - 133		
Chlorobenzene	19.8700	0.50	0.13	20.0000		99.4	86 - 113		
Chloroethane	23.1500	0.50	0.15	20.0000		116	66 - 141		
Chloroform	22.8800	0.50	0.11	20.0000		114	63 - 127		
Chloromethane	21.2500	0.50	0.12	20.0000		106	0 - 207		
cis-1,2-Dichloroethene	19.0000	0.50	0.14	20.0000		95.0	64 - 126		
cis-1,3-Dichloropropene	19.1100	0.50	0.13	20.0000		95.6	70 - 141		
Dibromochloromethane	22.2600	0.50	0.16	20.0000		111	67 - 135		
Dibromomethane	23.0200	0.50	0.19	20.0000		115	74 - 118		
Dichlorodifluoromethane	22.1300	0.50	0.18	20.0000		111	14 - 181		
Ethylbenzene	21.9600	0.50	0.13	20.0000		110	77 - 118		
Hexachlorobutadiene	22.1000	0.50	0.15	20.0000		110	66 - 125		
Isopropylbenzene	20.8200	0.50	0.10	20.0000		104	68 - 137		
m,p-Xylene	46.5400	1.0	0.19	40.0000		116	78 - 126		
Methylene chloride	20.4900	1.0	0.71	20.0000		102	51 - 149		
n-Butylbenzene	22.3100	0.50	0.11	20.0000		112	63 - 127		
n-Propylbenzene	20.7900	0.50	0.10	20.0000		104	69 - 124		
Naphthalene	20.7400	0.50	0.41	20.0000		104	60 - 126		
o-Xylene	22.3000	0.50	0.13	20.0000		112	79 - 126		
sec-Butylbenzene	20.9900	0.50	0.09	20.0000		105	69 - 124		
Styrene	24.4800	0.50	0.13	20.0000		122	80 - 127		
tert-Butylbenzene	21.2100	0.50	0.09	20.0000		106	71 - 124		
Tetrachloroethene	21.9300	0.50	0.10	20.0000		110	73 - 129		
Toluene	20.3500	0.50	0.12	20.0000		102	78 - 121		
trans-1,2-Dichloroethene	21.4300	0.50	0.09	20.0000		107	58 - 141		
Trichloroethene	22.3500	0.50	0.10	20.0000		112	73 - 126		
Trichlorofluoromethane	25.3400	0.50	0.23	20.0000		127	62 - 146		
Vinyl chloride	20.0100	0.50	0.13	20.0000		100	61 - 137		

Surrogate: 1,2-Dichloroethane-d4	31.34			25.0000		125	59 - 158		



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 : 06/05/2020

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

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

Batch B0F0019 - MSVOA_LL_W (continued)

LCS (B0F0019-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Surrogate: 4-Bromofluorobenzene	29.26		25.0000		117	71 - 127			
Surrogate: Dibromofluoromethane	28.01		25.0000		112	66 - 147			
Surrogate: Toluene-d8	26.04		25.0000		104	77 - 138			

LCS Dup (B0F0019-BSD1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	20.5400	0.50	0.11	20.0000	103	71 - 133	8.89	20	
1,1,1-Trichloroethane	24.6000	0.50	0.21	20.0000	123	62 - 124	6.18	20	
1,1,2,2-Tetrachloroethane	16.1200	0.50	0.36	20.0000	80.6	50 - 131	3.83	20	
1,1,2-Trichloroethane	20.0900	0.50	0.25	20.0000	100	77 - 121	4.10	20	
1,1-Dichloroethane	20.0600	0.50	0.09	20.0000	100	52 - 130	3.38	20	
1,1-Dichloroethene	23.6700	0.50	0.13	20.0000	118	61 - 136	1.34	20	
1,1-Dichloropropene	21.0700	0.50	0.13	20.0000	105	80 - 128	1.39	20	
1,2,3-Trichloropropane	20.1300	0.50	0.39	20.0000	101	59 - 126	6.91	20	
1,2,3-Trichlorobenzene	21.4100	0.50	0.18	20.0000	107	69 - 138	7.85	20	
1,2,4-Trichlorobenzene	21.0200	0.50	0.16	20.0000	105	78 - 125	2.81	20	
1,2,4-Trimethylbenzene	22.1200	0.50	0.14	20.0000	111	70 - 126	2.32	20	
1,2-Dibromo-3-chloropropane	15.5400	0.50	0.41	20.0000	77.7	58 - 127	8.91	20	
1,2-Dibromoethane	21.6000	0.50	0.24	20.0000	108	76 - 120	8.13	20	
1,2-Dichlorobenzene	19.7700	0.50	0.20	20.0000	98.8	82 - 117	3.87	20	
1,2-Dichloroethane	26.0100	0.50	0.20	20.0000	130	66 - 126	4.95	20	L4
1,2-Dichloropropane	18.4800	0.50	0.15	20.0000	92.4	70 - 117	4.81	20	
1,3,5-Trimethylbenzene	21.6500	0.50	0.13	20.0000	108	71 - 125	0.139	20	
1,3-Dichlorobenzene	19.7200	0.50	0.16	20.0000	98.6	81 - 116	2.60	20	
1,3-Dichloropropane	20.2400	0.50	0.21	20.0000	101	69 - 124	7.65	20	
1,4-Dichlorobenzene	19.3400	0.50	0.17	20.0000	96.7	80 - 114	1.84	20	
2,2-Dichloropropane	16.7000	0.50	0.38	20.0000	83.5	58 - 132	1.72	20	
2-Chlorotoluene	21.2300	0.50	0.11	20.0000	106	71 - 119	1.38	20	
4-Chlorotoluene	21.7300	0.50	0.12	20.0000	109	72 - 122	1.73	20	
4-Isopropyltoluene	22.3000	0.50	0.11	20.0000	112	69 - 126	0.937	20	
Benzene	19.2800	0.50	0.13	20.0000	96.4	80 - 116	2.46	20	
Bromobenzene	19.6300	0.50	0.21	20.0000	98.2	77 - 118	1.11	20	
Bromodichloromethane	21.8800	0.50	0.14	20.0000	109	73 - 118	3.41	20	
Bromoform	19.1500	0.50	0.20	20.0000	95.8	65 - 133	5.44	20	
Bromomethane	16.8800	0.50	0.40	20.0000	84.4	7 - 205	9.88	20	
Carbon tetrachloride	25.5100	0.50	0.09	20.0000	128	63 - 133	4.07	20	
Chlorobenzene	19.0400	0.50	0.13	20.0000	95.2	86 - 113	4.27	20	
Chloroethane	22.7900	0.50	0.15	20.0000	114	66 - 141	1.57	20	
Chloroform	22.2200	0.50	0.11	20.0000	111	63 - 127	2.93	20	
Chloromethane	20.3200	0.50	0.12	20.0000	102	0 - 207	4.47	20	
cis-1,2-Dichloroethene	18.3000	0.50	0.14	20.0000	91.5	64 - 126	3.75	20	
cis-1,3-Dichloropropene	18.2800	0.50	0.13	20.0000	91.4	70 - 141	4.44	20	
Dibromochloromethane	20.6000	0.50	0.16	20.0000	103	67 - 135	7.75	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

Batch B0F0019 - MSVOA_LL_W (continued)

LCS Dup (B0F0019-BSD1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Dibromomethane	21.0800	0.50	0.19	20.0000		105	74 - 118	8.80	20	
Dichlorodifluoromethane	21.0200	0.50	0.18	20.0000		105	14 - 181	5.14	20	
Ethylbenzene	20.9500	0.50	0.13	20.0000		105	77 - 118	4.71	20	
Hexachlorobutadiene	21.5900	0.50	0.15	20.0000		108	66 - 125	2.33	20	
Isopropylbenzene	20.9600	0.50	0.10	20.0000		105	68 - 137	0.670	20	
m,p-Xylene	44.0300	1.0	0.19	40.0000		110	78 - 126	5.54	20	
Methylene chloride	19.6200	1.0	0.71	20.0000		98.1	51 - 149	4.34	20	
n-Butylbenzene	21.7700	0.50	0.11	20.0000		109	63 - 127	2.45	20	
n-Propylbenzene	20.6500	0.50	0.10	20.0000		103	69 - 124	0.676	20	
Naphthalene	19.2700	0.50	0.41	20.0000		96.4	60 - 126	7.35	20	
o-Xylene	21.2100	0.50	0.13	20.0000		106	79 - 126	5.01	20	
sec-Butylbenzene	21.0600	0.50	0.09	20.0000		105	69 - 124	0.333	20	
Styrene	23.5500	0.50	0.13	20.0000		118	80 - 127	3.87	20	
tert-Butylbenzene	21.0500	0.50	0.09	20.0000		105	71 - 124	0.757	20	
Tetrachloroethene	20.7400	0.50	0.10	20.0000		104	73 - 129	5.58	20	
Toluene	20.0900	0.50	0.12	20.0000		100	78 - 121	1.29	20	
trans-1,2-Dichloroethene	20.6900	0.50	0.09	20.0000		103	58 - 141	3.51	20	
Trichloroethene	21.7200	0.50	0.10	20.0000		109	73 - 126	2.86	20	
Trichlorofluoromethane	25.7300	0.50	0.23	20.0000		129	62 - 146	1.53	20	
Vinyl chloride	19.8500	0.50	0.13	20.0000		99.2	61 - 137	0.803	20	
Surrogate: 1,2-Dichloroethane-d4	31.55			25.0000		126	59 - 158			
Surrogate: 4-Bromofluorobenzene	28.35			25.0000		113	71 - 127			
Surrogate: Dibromofluoromethane	27.02			25.0000		108	66 - 147			
Surrogate: Toluene-d8	25.47			25.0000		102	77 - 138			



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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

Batch B0F0030 - MSVOA_LL_W

Blank (B0F0030-BLK1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15



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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

Batch B0F0030 - MSVOA_LL_W (continued)

Blank (B0F0030-BLK1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	28.23		25.0000	113	59 - 158
Surrogate: 4-Bromofluorobenzene	23.28		25.0000	93.1	71 - 127
Surrogate: Dibromofluoromethane	26.14		25.0000	105	66 - 147
Surrogate: Toluene-d8	24.17		25.0000	96.7	77 - 138

LCS (B0F0030-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	21.1400	0.50	0.11	20.0000	106	71 - 133
1,1,1-Trichloroethane	20.3500	0.50	0.21	20.0000	102	62 - 124
1,1,2,2-Tetrachloroethane	19.4000	0.50	0.36	20.0000	97.0	50 - 131
1,1,2-Trichloroethane	21.7600	0.50	0.25	20.0000	109	77 - 121
1,1-Dichloroethane	20.2000	0.50	0.09	20.0000	101	52 - 130
1,1-Dichloroethene	21.3000	0.50	0.13	20.0000	106	61 - 136
1,1-Dichloropropene	21.2000	0.50	0.13	20.0000	106	80 - 128
1,2,3-Trichloropropane	20.5600	0.50	0.39	20.0000	103	59 - 126
1,2,3-Trichlorobenzene	16.8700	0.50	0.18	20.0000	84.4	69 - 138
1,2,4-Trichlorobenzene	17.6800	0.50	0.16	20.0000	88.4	78 - 125
1,2,4-Trimethylbenzene	20.5800	0.50	0.14	20.0000	103	70 - 126
1,2-Dibromo-3-chloropropane	20.4300	0.50	0.41	20.0000	102	58 - 127
1,2-Dibromoethane	21.4300	0.50	0.24	20.0000	107	76 - 120
1,2-Dichlorobenzene	20.4700	0.50	0.20	20.0000	102	82 - 117
1,2-Dichloroethane	21.8600	0.50	0.20	20.0000	109	66 - 126
1,2-Dichloropropane	20.2900	0.50	0.15	20.0000	101	70 - 117
1,3,5-Trimethylbenzene	19.8200	0.50	0.13	20.0000	99.1	71 - 125
1,3-Dichlorobenzene	19.6800	0.50	0.16	20.0000	98.4	81 - 116
1,3-Dichloropropane	20.1500	0.50	0.21	20.0000	101	69 - 124



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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 B0F0030 - MSVOA_LL_W (continued)

LCS (B0F0030-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,4-Dichlorobenzene	19.6500	0.50	0.17	20.0000		98.2	80 - 114		
2,2-Dichloropropane	21.7500	0.50	0.38	20.0000		109	58 - 132		
2-Chlorotoluene	18.8400	0.50	0.11	20.0000		94.2	71 - 119		
4-Chlorotoluene	19.6700	0.50	0.12	20.0000		98.4	72 - 122		
4-Isopropyltoluene	21.3200	0.50	0.11	20.0000		107	69 - 126		
Benzene	20.7500	0.50	0.13	20.0000		104	80 - 116		
Bromobenzene	18.6600	0.50	0.21	20.0000		93.3	77 - 118		
Bromodichloromethane	20.7900	0.50	0.14	20.0000		104	73 - 118		
Bromoform	22.5100	0.50	0.20	20.0000		113	65 - 133		
Bromomethane	16.2700	0.50	0.40	20.0000		81.4	7 - 205		
Carbon tetrachloride	22.2500	0.50	0.09	20.0000		111	63 - 133		
Chlorobenzene	20.2700	0.50	0.13	20.0000		101	86 - 113		
Chloroethane	19.8600	0.50	0.15	20.0000		99.3	66 - 141		
Chloroform	20.5800	0.50	0.11	20.0000		103	63 - 127		
Chloromethane	17.4900	0.50	0.12	20.0000		87.4	0 - 207		
cis-1,2-Dichloroethene	20.0100	0.50	0.14	20.0000		100	64 - 126		
cis-1,3-Dichloropropene	21.3300	0.50	0.13	20.0000		107	70 - 141		
Dibromochloromethane	21.6200	0.50	0.16	20.0000		108	67 - 135		
Dibromomethane	21.8400	0.50	0.19	20.0000		109	74 - 118		
Dichlorodifluoromethane	17.9300	0.50	0.18	20.0000		89.6	14 - 181		
Ethylbenzene	20.5700	0.50	0.13	20.0000		103	77 - 118		
Hexachlorobutadiene	19.6900	0.50	0.15	20.0000		98.4	66 - 125		
Isopropylbenzene	18.6800	0.50	0.10	20.0000		93.4	68 - 137		
m,p-Xylene	41.5000	1.0	0.19	40.0000		104	78 - 126		
Methylene chloride	19.0400	1.0	0.71	20.0000		95.2	51 - 149		
n-Butylbenzene	19.3900	0.50	0.11	20.0000		97.0	63 - 127		
n-Propylbenzene	19.5700	0.50	0.10	20.0000		97.8	69 - 124		
Naphthalene	15.2000	0.50	0.41	20.0000		76.0	60 - 126		
o-Xylene	20.7900	0.50	0.13	20.0000		104	79 - 126		
sec-Butylbenzene	19.8500	0.50	0.09	20.0000		99.2	69 - 124		
Styrene	24.1100	0.50	0.13	20.0000		121	80 - 127		
tert-Butylbenzene	18.9200	0.50	0.09	20.0000		94.6	71 - 124		
Tetrachloroethene	20.8200	0.50	0.10	20.0000		104	73 - 129		
Toluene	20.8200	0.50	0.12	20.0000		104	78 - 121		
trans-1,2-Dichloroethene	20.1200	0.50	0.09	20.0000		101	58 - 141		
Trichloroethene	19.6500	0.50	0.10	20.0000		98.2	73 - 126		
Trichlorofluoromethane	19.8700	0.50	0.23	20.0000		99.4	62 - 146		
Vinyl chloride	19.1900	0.50	0.13	20.0000		96.0	61 - 137		
Surrogate: 1,2-Dichloroethane-d4	25.43			25.0000		102	59 - 158		
Surrogate: 4-Bromofluorobenzene	25.19			25.0000		101	71 - 127		
Surrogate: Dibromofluoromethane	24.84			25.0000		99.4	66 - 147		



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

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

Batch B0F0030 - MSVOA_LL_W (continued)

LCS (B0F0030-BS1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Surrogate: Toluene-d8 24.92 25.0000 99.7 77 - 138

LCS Dup (B0F0030-BS1)

Prepared: 6/2/2020 Analyzed: 6/2/2020

1,1,1,2-Tetrachloroethane	21.8800	0.50	0.11	20.0000	109	71 - 133	3.44	20
1,1,1-Trichloroethane	21.4500	0.50	0.21	20.0000	107	62 - 124	5.26	20
1,1,2,2-Tetrachloroethane	19.9700	0.50	0.36	20.0000	99.8	50 - 131	2.90	20
1,1,2-Trichloroethane	22.6100	0.50	0.25	20.0000	113	77 - 121	3.83	20
1,1-Dichloroethane	21.6100	0.50	0.09	20.0000	108	52 - 130	6.74	20
1,1-Dichloroethene	21.9900	0.50	0.13	20.0000	110	61 - 136	3.19	20
1,1-Dichloropropene	21.6300	0.50	0.13	20.0000	108	80 - 128	2.01	20
1,2,3-Trichloropropane	22.3100	0.50	0.39	20.0000	112	59 - 126	8.16	20
1,2,3-Trichlorobenzene	17.5300	0.50	0.18	20.0000	87.6	69 - 138	3.84	20
1,2,4-Trichlorobenzene	18.1900	0.50	0.16	20.0000	91.0	78 - 125	2.84	20
1,2,4-Trimethylbenzene	21.6000	0.50	0.14	20.0000	108	70 - 126	4.84	20
1,2-Dibromo-3-chloropropane	22.3800	0.50	0.41	20.0000	112	58 - 127	9.11	20
1,2-Dibromoethane	22.8700	0.50	0.24	20.0000	114	76 - 120	6.50	20
1,2-Dichlorobenzene	21.6600	0.50	0.20	20.0000	108	82 - 117	5.65	20
1,2-Dichloroethane	23.0300	0.50	0.20	20.0000	115	66 - 126	5.21	20
1,2-Dichloropropane	21.0900	0.50	0.15	20.0000	105	70 - 117	3.87	20
1,3,5-Trimethylbenzene	20.4200	0.50	0.13	20.0000	102	71 - 125	2.98	20
1,3-Dichlorobenzene	20.7200	0.50	0.16	20.0000	104	81 - 116	5.15	20
1,3-Dichloropropane	21.7300	0.50	0.21	20.0000	109	69 - 124	7.55	20
1,4-Dichlorobenzene	21.0900	0.50	0.17	20.0000	105	80 - 114	7.07	20
2,2-Dichloropropane	22.7000	0.50	0.38	20.0000	114	58 - 132	4.27	20
2-Chlorotoluene	19.6200	0.50	0.11	20.0000	98.1	71 - 119	4.06	20
4-Chlorotoluene	20.7600	0.50	0.12	20.0000	104	72 - 122	5.39	20
4-Isopropyltoluene	21.7500	0.50	0.11	20.0000	109	69 - 126	2.00	20
Benzene	21.6100	0.50	0.13	20.0000	108	80 - 116	4.06	20
Bromobenzene	20.1800	0.50	0.21	20.0000	101	77 - 118	7.83	20
Bromodichloromethane	22.3000	0.50	0.14	20.0000	112	73 - 118	7.01	20
Bromoform	24.2400	0.50	0.20	20.0000	121	65 - 133	7.40	20
Bromomethane	15.9200	0.50	0.40	20.0000	79.6	7 - 205	2.17	20
Carbon tetrachloride	23.0200	0.50	0.09	20.0000	115	63 - 133	3.40	20
Chlorobenzene	20.8300	0.50	0.13	20.0000	104	86 - 113	2.73	20
Chloroethane	20.5600	0.50	0.15	20.0000	103	66 - 141	3.46	20
Chloroform	21.5500	0.50	0.11	20.0000	108	63 - 127	4.60	20
Chloromethane	17.1800	0.50	0.12	20.0000	85.9	0 - 207	1.79	20
cis-1,2-Dichloroethene	21.0000	0.50	0.14	20.0000	105	64 - 126	4.83	20
cis-1,3-Dichloropropene	22.9300	0.50	0.13	20.0000	115	70 - 141	7.23	20
Dibromochloromethane	22.8000	0.50	0.16	20.0000	114	67 - 135	5.31	20
Dibromomethane	23.6100	0.50	0.19	20.0000	118	74 - 118	7.79	20
Dichlorodifluoromethane	18.4000	0.50	0.18	20.0000	92.0	14 - 181	2.59	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 : 06/05/2020

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

Batch B0F0030 - MSVOA_LL_W (continued)

LCS Dup (B0F0030-BSD1) - Continued

Prepared: 6/2/2020 Analyzed: 6/2/2020

Ethylbenzene	21.3100	0.50	0.13	20.0000		107	77 - 118	3.53	20	
Hexachlorobutadiene	20.8500	0.50	0.15	20.0000		104	66 - 125	5.72	20	
Isopropylbenzene	19.7300	0.50	0.10	20.0000		98.6	68 - 137	5.47	20	
m,p-Xylene	41.9000	1.0	0.19	40.0000		105	78 - 126	0.959	20	
Methylene chloride	20.2100	1.0	0.71	20.0000		101	51 - 149	5.96	20	
n-Butylbenzene	19.7800	0.50	0.11	20.0000		98.9	63 - 127	1.99	20	
n-Propylbenzene	20.4700	0.50	0.10	20.0000		102	69 - 124	4.50	20	
Naphthalene	16.9100	0.50	0.41	20.0000		84.6	60 - 126	10.7	20	
o-Xylene	21.1300	0.50	0.13	20.0000		106	79 - 126	1.62	20	
sec-Butylbenzene	20.3600	0.50	0.09	20.0000		102	69 - 124	2.54	20	
Styrene	24.6100	0.50	0.13	20.0000		123	80 - 127	2.05	20	
tert-Butylbenzene	19.6800	0.50	0.09	20.0000		98.4	71 - 124	3.94	20	
Tetrachloroethene	20.8400	0.50	0.10	20.0000		104	73 - 129	0.0960	20	
Toluene	21.5200	0.50	0.12	20.0000		108	78 - 121	3.31	20	
trans-1,2-Dichloroethene	21.8300	0.50	0.09	20.0000		109	58 - 141	8.15	20	
Trichloroethene	20.0300	0.50	0.10	20.0000		100	73 - 126	1.92	20	
Trichlorofluoromethane	20.5800	0.50	0.23	20.0000		103	62 - 146	3.51	20	
Vinyl chloride	20.2400	0.50	0.13	20.0000		101	61 - 137	5.33	20	
Surrogate: 1,2-Dichloroethane-d4	26.12			25.0000		104	59 - 158			
Surrogate: 4-Bromofluorobenzene	24.96			25.0000		99.8	71 - 127			
Surrogate: Dibromofluoromethane	24.84			25.0000		99.4	66 - 147			
Surrogate: Toluene-d8	24.93			25.0000		99.7	77 - 138			



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 : 06/05/2020

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

Batch B0F0081 - MSSEMI_W

Blank (B0F0081-BLK1)

Prepared: 6/3/2020 Analyzed: 6/3/2020

1,4-Dioxane	ND	0.20	0.05						
Surrogate: 1,2-Dichlorobenzene-d	0.7808			1.00000		78.1	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.8934			1.00000		89.3	10 - 133		
Surrogate: 4-Terphenyl-d14	1.039			1.00000		104	5 - 139		
Surrogate: Nitrobenzene-d5	0.8597			1.00000		86.0	13 - 150		

LCS (B0F0081-BS1)

Prepared: 6/3/2020 Analyzed: 6/3/2020

1,4-Dioxane	1.28752	0.20	0.05	1.00000		129	75 - 155		
Surrogate: 1,2-Dichlorobenzene-d	0.6730			1.00000		67.3	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.7414			1.00000		74.1	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8404			1.00000		84.0	5 - 139		
Surrogate: Nitrobenzene-d5	0.7598			1.00000		76.0	13 - 150		

LCS Dup (B0F0081-BSD1)

Prepared: 6/3/2020 Analyzed: 6/3/2020

1,4-Dioxane	1.37468	0.20	0.05	1.00000		137	75 - 155	6.55	20
Surrogate: 1,2-Dichlorobenzene-d	0.6709			1.00000		67.1	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.7502			1.00000		75.0	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8465			1.00000		84.6	5 - 139		
Surrogate: Nitrobenzene-d5	0.7493			1.00000		74.9	13 - 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 : 06/05/2020

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.

A. DONNELLY, T. EVANS

07/28/20	0800

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c. Consult project WA documents for specific instructions.

[No. of containers correct]

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ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-29699-1

Client Project/Site: Raytheon Main / 532.30

For:

Hargis + Associates, Inc.
La Jolla Gateway
9171 Towne Centre Drive
Suite 375
San Diego, California 92122

Attn: Steve Netto

Virendra R Patel

Authorized for release by:
6/12/2020 12:28:53 PM

Virendra Patel, Project Manager I
(714)895-5494
virendrapatel@eurofinsus.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Job ID: 570-29699-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative 570-29699-1

Comments

No additional comments.

Receipt

The samples were received on 6/1/2020 6:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

GC/MS VOA

Method 8260B: The initial calibration curve analyzed in batch 570-73842 was outside method criteria for the following analyte(s): Vinyl acetate. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered an estimated concentration.

Method 8260B: The continuing calibration verification (CCV) associated with batch 570-73842 recovered above the upper control limit for bromomethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260B: The initial calibration verification (ICV) result for batch 570-73842 was above the upper control limit for bromomethane. Sample results were non-detects, and have been reported as qualified data.

Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-73842.

Method 8260B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 570-73842 recovered outside control limits for the following analytes: Bromomethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260B: The method blank for analytical batch 570-73842 contained chloroform above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-74249.

Method 8260B: The method blank for analytical batch 570-74249 contained Chloroform above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Client Sample ID: TB-052820B

Lab Sample ID: 570-29699-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.067	J B	0.50	0.062	ug/L	1		8260B	Total/NA
Methylene Chloride	0.54	J	1.0	0.043	ug/L	1		8260B	Total/NA

Client Sample ID: MW-31

Lab Sample ID: 570-29699-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.54		0.50	0.13	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.25	J	0.50	0.060	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.15	J	0.50	0.11	ug/L	1		8260B	Total/NA
Trichloroethene	3.8		0.50	0.10	ug/L	1		8260B	Total/NA
1,1-Dichloroethene - DL	41		2.0	0.41	ug/L	4		8260B	Total/NA
1,4-Dioxane	2.1		0.50	0.18	ug/L	1		8270C SIM ID	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC

Client Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-052820B
Date Collected: 05/28/20 08:30
Date Received: 06/01/20 18:40

Lab Sample ID: 570-29699-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.070	ug/L			06/07/20 01:11	1
1,1,1-Trichloroethane	ND		0.50	0.084	ug/L			06/07/20 01:11	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.087	ug/L			06/07/20 01:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.13	ug/L			06/07/20 01:11	1
1,1,2-Trichloroethane	ND		0.50	0.069	ug/L			06/07/20 01:11	1
1,1-Dichloroethane	ND		0.50	0.060	ug/L			06/07/20 01:11	1
1,1-Dichloroethene	ND		0.50	0.10	ug/L			06/07/20 01:11	1
1,1-Dichloropropene	ND		0.50	0.070	ug/L			06/07/20 01:11	1
1,2,3-Trichlorobenzene	ND		0.50	0.12	ug/L			06/07/20 01:11	1
1,2,3-Trichloropropane	ND		1.0	0.076	ug/L			06/07/20 01:11	1
1,2,4-Trichlorobenzene	ND		0.50	0.089	ug/L			06/07/20 01:11	1
1,2,4-Trimethylbenzene	ND		0.50	0.068	ug/L			06/07/20 01:11	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.51	ug/L			06/07/20 01:11	1
1,2-Dibromoethane	ND		0.50	0.059	ug/L			06/07/20 01:11	1
1,2-Dichlorobenzene	ND		0.50	0.082	ug/L			06/07/20 01:11	1
1,2-Dichloroethane	ND		0.50	0.075	ug/L			06/07/20 01:11	1
1,2-Dichloropropane	ND		0.50	0.099	ug/L			06/07/20 01:11	1
1,3,5-Trimethylbenzene	ND		0.50	0.079	ug/L			06/07/20 01:11	1
1,3-Dichlorobenzene	ND		0.50	0.098	ug/L			06/07/20 01:11	1
1,3-Dichloropropane	ND		1.0	0.082	ug/L			06/07/20 01:11	1
1,4-Dichlorobenzene	ND		0.50	0.073	ug/L			06/07/20 01:11	1
2,2-Dichloropropane	ND		1.0	0.38	ug/L			06/07/20 01:11	1
2-Butanone	ND		5.0	0.46	ug/L			06/07/20 01:11	1
2-Chlorotoluene	ND		0.50	0.058	ug/L			06/07/20 01:11	1
2-Hexanone	ND		10	0.50	ug/L			06/07/20 01:11	1
4-Chlorotoluene	ND		0.50	0.091	ug/L			06/07/20 01:11	1
4-Methyl-2-pentanone	ND		5.0	0.42	ug/L			06/07/20 01:11	1
Acetone	ND		10	4.0	ug/L			06/07/20 01:11	1
Benzene	ND		0.50	0.072	ug/L			06/07/20 01:11	1
Bromobenzene	ND		0.50	0.061	ug/L			06/07/20 01:11	1
Bromochloromethane	ND		1.0	0.082	ug/L			06/07/20 01:11	1
Bromodichloromethane	ND		0.50	0.053	ug/L			06/07/20 01:11	1
Bromoform	ND		0.50	0.096	ug/L			06/07/20 01:11	1
Bromomethane	ND	*	2.0	0.99	ug/L			06/07/20 01:11	1
cis-1,2-Dichloroethene	ND		0.50	0.11	ug/L			06/07/20 01:11	1
cis-1,3-Dichloropropene	ND		0.50	0.096	ug/L			06/07/20 01:11	1
Carbon disulfide	ND		10	0.39	ug/L			06/07/20 01:11	1
Carbon tetrachloride	ND		0.50	0.057	ug/L			06/07/20 01:11	1
Chlorobenzene	ND		0.50	0.088	ug/L			06/07/20 01:11	1
Chloroethane	ND		0.50	0.12	ug/L			06/07/20 01:11	1
Chloroform	0.067	J B	0.50	0.062	ug/L			06/07/20 01:11	1
Chloromethane	ND		5.0	2.0	ug/L			06/07/20 01:11	1
Dibromochloromethane	ND		0.50	0.064	ug/L			06/07/20 01:11	1
Dibromomethane	ND		0.50	0.13	ug/L			06/07/20 01:11	1
Dichlorodifluoromethane	ND		1.0	0.099	ug/L			06/07/20 01:11	1
Ethylbenzene	ND		0.50	0.087	ug/L			06/07/20 01:11	1
Isopropylbenzene	ND		0.50	0.077	ug/L			06/07/20 01:11	1
Methylene Chloride	0.54	J	1.0	0.043	ug/L			06/07/20 01:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.067	ug/L			06/07/20 01:11	1

Eurofins Calscience LLC

Client Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-052820B
Date Collected: 05/28/20 08:30
Date Received: 06/01/20 18:40

Lab Sample ID: 570-29699-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.097	ug/L			06/07/20 01:11	1
n-Butylbenzene	ND		0.50	0.11	ug/L			06/07/20 01:11	1
N-Propylbenzene	ND		0.50	0.076	ug/L			06/07/20 01:11	1
o-Xylene	ND		0.50	0.086	ug/L			06/07/20 01:11	1
m,p-Xylene	ND		1.0	0.15	ug/L			06/07/20 01:11	1
p-Isopropyltoluene	ND		0.50	0.074	ug/L			06/07/20 01:11	1
sec-Butylbenzene	ND		0.50	0.095	ug/L			06/07/20 01:11	1
Styrene	ND		0.50	0.059	ug/L			06/07/20 01:11	1
trans-1,2-Dichloroethene	ND		0.50	0.082	ug/L			06/07/20 01:11	1
trans-1,3-Dichloropropene	ND		0.50	0.053	ug/L			06/07/20 01:11	1
tert-Butylbenzene	ND		0.50	0.082	ug/L			06/07/20 01:11	1
Tetrachloroethene	ND		0.50	0.24	ug/L			06/07/20 01:11	1
Toluene	ND		0.50	0.093	ug/L			06/07/20 01:11	1
Trichloroethene	ND		0.50	0.10	ug/L			06/07/20 01:11	1
Trichlorofluoromethane	ND		0.50	0.10	ug/L			06/07/20 01:11	1
Vinyl acetate	ND		5.0	0.70	ug/L			06/07/20 01:11	1
Vinyl chloride	ND		0.50	0.078	ug/L			06/07/20 01:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 128		06/07/20 01:11	1
4-Bromofluorobenzene (Surr)	93		68 - 120		06/07/20 01:11	1
Dibromofluoromethane	103		80 - 127		06/07/20 01:11	1
Toluene-d8 (Surr)	100		80 - 120		06/07/20 01:11	1

Client Sample ID: MW-31
Date Collected: 05/28/20 08:55
Date Received: 06/01/20 18:40

Lab Sample ID: 570-29699-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.070	ug/L			06/07/20 02:38	1
1,1,1-Trichloroethane	ND		0.50	0.084	ug/L			06/07/20 02:38	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.087	ug/L			06/07/20 02:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.54		0.50	0.13	ug/L			06/07/20 02:38	1
1,1,2-Trichloroethane	ND		0.50	0.069	ug/L			06/07/20 02:38	1
1,1-Dichloroethane	0.25 J		0.50	0.060	ug/L			06/07/20 02:38	1
1,1-Dichloropropene	ND		0.50	0.070	ug/L			06/07/20 02:38	1
1,2,3-Trichlorobenzene	ND		0.50	0.12	ug/L			06/07/20 02:38	1
1,2,3-Trichloropropane	ND		1.0	0.076	ug/L			06/07/20 02:38	1
1,2,4-Trichlorobenzene	ND		0.50	0.089	ug/L			06/07/20 02:38	1
1,2,4-Trimethylbenzene	ND		0.50	0.068	ug/L			06/07/20 02:38	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.51	ug/L			06/07/20 02:38	1
1,2-Dibromoethane	ND		0.50	0.059	ug/L			06/07/20 02:38	1
1,2-Dichlorobenzene	ND		0.50	0.082	ug/L			06/07/20 02:38	1
1,2-Dichloroethane	ND		0.50	0.075	ug/L			06/07/20 02:38	1
1,2-Dichloropropane	ND		0.50	0.099	ug/L			06/07/20 02:38	1
1,3,5-Trimethylbenzene	ND		0.50	0.079	ug/L			06/07/20 02:38	1
1,3-Dichlorobenzene	ND		0.50	0.098	ug/L			06/07/20 02:38	1
1,3-Dichloropropane	ND		1.0	0.082	ug/L			06/07/20 02:38	1
1,4-Dichlorobenzene	ND		0.50	0.073	ug/L			06/07/20 02:38	1
2,2-Dichloropropane	ND		1.0	0.38	ug/L			06/07/20 02:38	1

Eurofins Calscience LLC

Client Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-31
Date Collected: 05/28/20 08:55
Date Received: 06/01/20 18:40

Lab Sample ID: 570-29699-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone	ND		5.0	0.46	ug/L			06/07/20 02:38	1
2-Chlorotoluene	ND		0.50	0.058	ug/L			06/07/20 02:38	1
2-Hexanone	ND		10	0.50	ug/L			06/07/20 02:38	1
4-Chlorotoluene	ND		0.50	0.091	ug/L			06/07/20 02:38	1
4-Methyl-2-pentanone	ND		5.0	0.42	ug/L			06/07/20 02:38	1
Acetone	ND		10	4.0	ug/L			06/07/20 02:38	1
Benzene	ND		0.50	0.072	ug/L			06/07/20 02:38	1
Bromobenzene	ND		0.50	0.061	ug/L			06/07/20 02:38	1
Bromochloromethane	ND		1.0	0.082	ug/L			06/07/20 02:38	1
Bromodichloromethane	ND		0.50	0.053	ug/L			06/07/20 02:38	1
Bromoform	ND		0.50	0.096	ug/L			06/07/20 02:38	1
Bromomethane	ND	*	2.0	0.99	ug/L			06/07/20 02:38	1
cis-1,2-Dichloroethene	0.15	J	0.50	0.11	ug/L			06/07/20 02:38	1
cis-1,3-Dichloropropene	ND		0.50	0.096	ug/L			06/07/20 02:38	1
Carbon disulfide	ND		10	0.39	ug/L			06/07/20 02:38	1
Carbon tetrachloride	ND		0.50	0.057	ug/L			06/07/20 02:38	1
Chlorobenzene	ND		0.50	0.088	ug/L			06/07/20 02:38	1
Chloroethane	ND		0.50	0.12	ug/L			06/07/20 02:38	1
Chloroform	ND		0.50	0.062	ug/L			06/07/20 02:38	1
Chloromethane	ND		5.0	2.0	ug/L			06/07/20 02:38	1
Dibromochloromethane	ND		0.50	0.064	ug/L			06/07/20 02:38	1
Dibromomethane	ND		0.50	0.13	ug/L			06/07/20 02:38	1
Dichlorodifluoromethane	ND		1.0	0.099	ug/L			06/07/20 02:38	1
Ethylbenzene	ND		0.50	0.087	ug/L			06/07/20 02:38	1
Isopropylbenzene	ND		0.50	0.077	ug/L			06/07/20 02:38	1
Methylene Chloride	ND		1.0	0.043	ug/L			06/07/20 02:38	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.067	ug/L			06/07/20 02:38	1
Naphthalene	ND		1.0	0.097	ug/L			06/07/20 02:38	1
n-Butylbenzene	ND		0.50	0.11	ug/L			06/07/20 02:38	1
N-Propylbenzene	ND		0.50	0.076	ug/L			06/07/20 02:38	1
o-Xylene	ND		0.50	0.086	ug/L			06/07/20 02:38	1
m,p-Xylene	ND		1.0	0.15	ug/L			06/07/20 02:38	1
p-Isopropyltoluene	ND		0.50	0.074	ug/L			06/07/20 02:38	1
sec-Butylbenzene	ND		0.50	0.095	ug/L			06/07/20 02:38	1
Styrene	ND		0.50	0.059	ug/L			06/07/20 02:38	1
trans-1,2-Dichloroethene	ND		0.50	0.082	ug/L			06/07/20 02:38	1
trans-1,3-Dichloropropene	ND		0.50	0.053	ug/L			06/07/20 02:38	1
tert-Butylbenzene	ND		0.50	0.082	ug/L			06/07/20 02:38	1
Tetrachloroethene	ND		0.50	0.24	ug/L			06/07/20 02:38	1
Toluene	ND		0.50	0.093	ug/L			06/07/20 02:38	1
Trichloroethene	3.8		0.50	0.10	ug/L			06/07/20 02:38	1
Trichlorofluoromethane	ND		0.50	0.10	ug/L			06/07/20 02:38	1
Vinyl acetate	ND		5.0	0.70	ug/L			06/07/20 02:38	1
Vinyl chloride	ND		0.50	0.078	ug/L			06/07/20 02:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 128		06/07/20 02:38	1
4-Bromofluorobenzene (Surr)	93		68 - 120		06/07/20 02:38	1
Dibromofluoromethane	104		80 - 127		06/07/20 02:38	1
Toluene-d8 (Surr)	102		80 - 120		06/07/20 02:38	1

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Client Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: MW-31
Date Collected: 05/28/20 08:55
Date Received: 06/01/20 18:40

Lab Sample ID: 570-29699-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	41		2.0	0.41	ug/L			06/09/20 14:41	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 128					06/09/20 14:41	4
4-Bromofluorobenzene (Surr)	96		68 - 120					06/09/20 14:41	4
Dibromofluoromethane	98		80 - 127					06/09/20 14:41	4
Toluene-d8 (Surr)	98		80 - 120					06/09/20 14:41	4

Client Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Client Sample ID: MW-31
Date Collected: 05/28/20 08:55
Date Received: 06/01/20 18:40

Lab Sample ID: 570-29699-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.1		0.50	0.18	ug/L		06/03/20 09:03	06/03/20 23:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	42		15 - 150				06/03/20 09:03	06/03/20 23:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	115		46 - 128				06/03/20 09:03	06/03/20 23:51	1

Surrogate Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (80-128)	BFB (68-120)	DBFM (80-127)	TOL (80-120)
570-29699-1	TB-052820B	103	93	103	100
570-29699-2	MW-31	105	93	104	102
570-29699-2 - DL	MW-31	101	96	98	98
LCS 570-73842/3	Lab Control Sample	96	100	97	102
LCS 570-74249/3	Lab Control Sample	97	99	99	99
LCSD 570-73842/4	Lab Control Sample Dup	99	100	97	100
LCSD 570-74249/4	Lab Control Sample Dup	99	101	100	100
MB 570-73842/6	Method Blank	103	94	98	100
MB 570-74249/6	Method Blank	101	92	98	98

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane

TOL = Toluene-d8 (Surr)

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NBZ (46-128)
570-29487-D-1-A MS	Matrix Spike	108
570-29487-D-1-B MSD	Matrix Spike Duplicate	115
570-29699-2	MW-31	115
LCS 570-73008/2-A	Lab Control Sample	125
LCSD 570-73008/3-A	Lab Control Sample Dup	57
MB 570-73008/1-A	Method Blank	123

Surrogate Legend

NBZ = Nitrobenzene-d5

Isotope Dilution Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DXE (15-150)
570-29487-D-1-A MS	Matrix Spike	50
570-29487-D-1-B MSD	Matrix Spike Duplicate	55
570-29699-2	MW-31	42
LCS 570-73008/2-A	Lab Control Sample	61
LCSD 570-73008/3-A	Lab Control Sample Dup	46
MB 570-73008/1-A	Method Blank	46

Surrogate Legend

DXE = 1,4-Dioxane-d8

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-73842/6

Matrix: Water

Analysis Batch: 73842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.070	ug/L			06/06/20 17:17	1
1,1,1-Trichloroethane	ND		0.50	0.084	ug/L			06/06/20 17:17	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.087	ug/L			06/06/20 17:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.13	ug/L			06/06/20 17:17	1
1,1,2-Trichloroethane	ND		0.50	0.069	ug/L			06/06/20 17:17	1
1,1-Dichloroethane	ND		0.50	0.060	ug/L			06/06/20 17:17	1
1,1-Dichloroethene	ND		0.50	0.10	ug/L			06/06/20 17:17	1
1,1-Dichloropropene	ND		0.50	0.070	ug/L			06/06/20 17:17	1
1,2,3-Trichlorobenzene	ND		0.50	0.12	ug/L			06/06/20 17:17	1
1,2,3-Trichloropropane	ND		1.0	0.076	ug/L			06/06/20 17:17	1
1,2,4-Trichlorobenzene	ND		0.50	0.089	ug/L			06/06/20 17:17	1
1,2,4-Trimethylbenzene	ND		0.50	0.068	ug/L			06/06/20 17:17	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.51	ug/L			06/06/20 17:17	1
1,2-Dibromoethane	ND		0.50	0.059	ug/L			06/06/20 17:17	1
1,2-Dichlorobenzene	ND		0.50	0.082	ug/L			06/06/20 17:17	1
1,2-Dichloroethane	ND		0.50	0.075	ug/L			06/06/20 17:17	1
1,2-Dichloropropane	ND		0.50	0.099	ug/L			06/06/20 17:17	1
1,3,5-Trimethylbenzene	ND		0.50	0.079	ug/L			06/06/20 17:17	1
1,3-Dichlorobenzene	ND		0.50	0.098	ug/L			06/06/20 17:17	1
1,3-Dichloropropane	ND		1.0	0.082	ug/L			06/06/20 17:17	1
1,4-Dichlorobenzene	ND		0.50	0.073	ug/L			06/06/20 17:17	1
2,2-Dichloropropane	ND		1.0	0.38	ug/L			06/06/20 17:17	1
2-Butanone	ND		5.0	0.46	ug/L			06/06/20 17:17	1
2-Chlorotoluene	ND		0.50	0.058	ug/L			06/06/20 17:17	1
2-Hexanone	ND		10	0.50	ug/L			06/06/20 17:17	1
4-Chlorotoluene	ND		0.50	0.091	ug/L			06/06/20 17:17	1
4-Methyl-2-pentanone	ND		5.0	0.42	ug/L			06/06/20 17:17	1
Acetone	ND		10	4.0	ug/L			06/06/20 17:17	1
Benzene	ND		0.50	0.072	ug/L			06/06/20 17:17	1
Bromobenzene	ND		0.50	0.061	ug/L			06/06/20 17:17	1
Bromochloromethane	ND		1.0	0.082	ug/L			06/06/20 17:17	1
Bromodichloromethane	ND		0.50	0.053	ug/L			06/06/20 17:17	1
Bromoform	ND		0.50	0.096	ug/L			06/06/20 17:17	1
Bromomethane	ND		2.0	0.99	ug/L			06/06/20 17:17	1
cis-1,2-Dichloroethene	ND		0.50	0.11	ug/L			06/06/20 17:17	1
cis-1,3-Dichloropropene	ND		0.50	0.096	ug/L			06/06/20 17:17	1
Carbon disulfide	ND		10	0.39	ug/L			06/06/20 17:17	1
Carbon tetrachloride	ND		0.50	0.057	ug/L			06/06/20 17:17	1
Chlorobenzene	ND		0.50	0.088	ug/L			06/06/20 17:17	1
Chloroethane	ND		0.50	0.12	ug/L			06/06/20 17:17	1
Chloroform	0.2292	J	0.50	0.062	ug/L			06/06/20 17:17	1
Chloromethane	ND		5.0	2.0	ug/L			06/06/20 17:17	1
Dibromochloromethane	ND		0.50	0.064	ug/L			06/06/20 17:17	1
Dibromomethane	ND		0.50	0.13	ug/L			06/06/20 17:17	1
Dichlorodifluoromethane	ND		1.0	0.099	ug/L			06/06/20 17:17	1
Ethylbenzene	ND		0.50	0.087	ug/L			06/06/20 17:17	1
Isopropylbenzene	ND		0.50	0.077	ug/L			06/06/20 17:17	1
Methylene Chloride	ND		1.0	0.043	ug/L			06/06/20 17:17	1

Eurofins Calscience LLC

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-73842/6

Matrix: Water

Analysis Batch: 73842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.067	ug/L			06/06/20 17:17	1
Naphthalene	ND		1.0	0.097	ug/L			06/06/20 17:17	1
n-Butylbenzene	ND		0.50	0.11	ug/L			06/06/20 17:17	1
N-Propylbenzene	ND		0.50	0.076	ug/L			06/06/20 17:17	1
o-Xylene	ND		0.50	0.086	ug/L			06/06/20 17:17	1
m,p-Xylene	ND		1.0	0.15	ug/L			06/06/20 17:17	1
p-Isopropyltoluene	ND		0.50	0.074	ug/L			06/06/20 17:17	1
sec-Butylbenzene	ND		0.50	0.095	ug/L			06/06/20 17:17	1
Styrene	ND		0.50	0.059	ug/L			06/06/20 17:17	1
trans-1,2-Dichloroethene	ND		0.50	0.082	ug/L			06/06/20 17:17	1
trans-1,3-Dichloropropene	ND		0.50	0.053	ug/L			06/06/20 17:17	1
tert-Butylbenzene	ND		0.50	0.082	ug/L			06/06/20 17:17	1
Tetrachloroethene	ND		0.50	0.24	ug/L			06/06/20 17:17	1
Toluene	ND		0.50	0.093	ug/L			06/06/20 17:17	1
Trichloroethene	ND		0.50	0.10	ug/L			06/06/20 17:17	1
Trichlorofluoromethane	ND		0.50	0.10	ug/L			06/06/20 17:17	1
Vinyl acetate	ND		5.0	0.70	ug/L			06/06/20 17:17	1
Vinyl chloride	ND		0.50	0.078	ug/L			06/06/20 17:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 128		06/06/20 17:17	1
4-Bromofluorobenzene (Surr)	94		68 - 120		06/06/20 17:17	1
Dibromofluoromethane	98		80 - 127		06/06/20 17:17	1
Toluene-d8 (Surr)	100		80 - 120		06/06/20 17:17	1

Lab Sample ID: LCS 570-73842/3

Matrix: Water

Analysis Batch: 73842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.770		ug/L		98	77 - 120
1,2-Dibromoethane	10.0	10.31		ug/L		103	80 - 120
1,2-Dichlorobenzene	10.0	10.66		ug/L		107	80 - 120
1,2-Dichloroethane	10.0	10.72		ug/L		107	80 - 122
Benzene	10.0	10.77		ug/L		108	80 - 120
Carbon tetrachloride	10.0	8.847		ug/L		88	80 - 129
Chlorobenzene	10.0	10.74		ug/L		107	80 - 120
Ethylbenzene	10.0	10.61		ug/L		106	80 - 120
Methyl-t-Butyl Ether (MTBE)	10.0	7.718		ug/L		77	75 - 123
o-Xylene	10.0	10.72		ug/L		107	80 - 120
m,p-Xylene	20.0	21.56		ug/L		108	80 - 120
Toluene	10.0	10.62		ug/L		106	80 - 120
Trichloroethene	10.0	9.917		ug/L		99	80 - 120
Vinyl chloride	10.0	10.47		ug/L		105	63 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		80 - 128
4-Bromofluorobenzene (Surr)	100		68 - 120

Eurofins Calscience LLC

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-73842/3

Matrix: Water

Analysis Batch: 73842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane	97		80 - 127
Toluene-d8 (Surr)	102		80 - 120

Lab Sample ID: LCSD 570-73842/4

Matrix: Water

Analysis Batch: 73842

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	10.53		ug/L		105	77 - 120	7	26
1,2-Dibromoethane	10.0	10.10		ug/L		101	80 - 120	2	32
1,2-Dichlorobenzene	10.0	10.80		ug/L		108	80 - 120	1	30
1,2-Dichloroethane	10.0	10.62		ug/L		106	80 - 122	1	23
Benzene	10.0	11.14		ug/L		111	80 - 120	3	22
Carbon tetrachloride	10.0	9.769		ug/L		98	80 - 129	10	36
Chlorobenzene	10.0	11.14		ug/L		111	80 - 120	4	29
Ethylbenzene	10.0	11.12		ug/L		111	80 - 120	5	25
Methyl-t-Butyl Ether (MTBE)	10.0	7.895		ug/L		79	75 - 123	2	27
o-Xylene	10.0	11.15		ug/L		111	80 - 120	4	30
m,p-Xylene	20.0	22.52		ug/L		113	80 - 120	4	30
Toluene	10.0	10.98		ug/L		110	80 - 120	3	28
Trichloroethene	10.0	10.59		ug/L		106	80 - 120	7	25
Vinyl chloride	10.0	11.34		ug/L		113	63 - 135	8	30

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 128
4-Bromofluorobenzene (Surr)	100		68 - 120
Dibromofluoromethane	97		80 - 127
Toluene-d8 (Surr)	100		80 - 120

Lab Sample ID: MB 570-74249/6

Matrix: Water

Analysis Batch: 74249

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.070	ug/L			06/09/20 10:18	1
1,1,1-Trichloroethane	ND		0.50	0.084	ug/L			06/09/20 10:18	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.087	ug/L			06/09/20 10:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.13	ug/L			06/09/20 10:18	1
1,1,2-Trichloroethane	ND		0.50	0.069	ug/L			06/09/20 10:18	1
1,1-Dichloroethane	ND		0.50	0.060	ug/L			06/09/20 10:18	1
1,1-Dichloroethene	ND		0.50	0.10	ug/L			06/09/20 10:18	1
1,1-Dichloropropene	ND		0.50	0.070	ug/L			06/09/20 10:18	1
1,2,3-Trichlorobenzene	ND		0.50	0.12	ug/L			06/09/20 10:18	1
1,2,3-Trichloropropane	ND		1.0	0.076	ug/L			06/09/20 10:18	1
1,2,4-Trichlorobenzene	ND		0.50	0.089	ug/L			06/09/20 10:18	1
1,2,4-Trimethylbenzene	ND		0.50	0.068	ug/L			06/09/20 10:18	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.51	ug/L			06/09/20 10:18	1
1,2-Dibromoethane	ND		0.50	0.059	ug/L			06/09/20 10:18	1

Eurofins Calscience LLC

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-74249/6

Matrix: Water

Analysis Batch: 74249

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.50	0.082	ug/L			06/09/20 10:18	1
1,2-Dichloroethane	ND		0.50	0.075	ug/L			06/09/20 10:18	1
1,2-Dichloropropane	ND		0.50	0.099	ug/L			06/09/20 10:18	1
1,3,5-Trimethylbenzene	ND		0.50	0.079	ug/L			06/09/20 10:18	1
1,3-Dichlorobenzene	ND		0.50	0.098	ug/L			06/09/20 10:18	1
1,3-Dichloropropane	ND		1.0	0.082	ug/L			06/09/20 10:18	1
1,4-Dichlorobenzene	ND		0.50	0.073	ug/L			06/09/20 10:18	1
2,2-Dichloropropane	ND		1.0	0.38	ug/L			06/09/20 10:18	1
2-Butanone	ND		5.0	0.46	ug/L			06/09/20 10:18	1
2-Chlorotoluene	ND		0.50	0.058	ug/L			06/09/20 10:18	1
2-Hexanone	ND		10	0.50	ug/L			06/09/20 10:18	1
4-Chlorotoluene	ND		0.50	0.091	ug/L			06/09/20 10:18	1
4-Methyl-2-pentanone	ND		5.0	0.42	ug/L			06/09/20 10:18	1
Acetone	ND		10	4.0	ug/L			06/09/20 10:18	1
Benzene	ND		0.50	0.072	ug/L			06/09/20 10:18	1
Bromobenzene	ND		0.50	0.061	ug/L			06/09/20 10:18	1
Bromochloromethane	ND		1.0	0.082	ug/L			06/09/20 10:18	1
Bromodichloromethane	ND		0.50	0.053	ug/L			06/09/20 10:18	1
Bromoform	ND		0.50	0.096	ug/L			06/09/20 10:18	1
Bromomethane	ND		2.0	0.99	ug/L			06/09/20 10:18	1
cis-1,2-Dichloroethene	ND		0.50	0.11	ug/L			06/09/20 10:18	1
cis-1,3-Dichloropropene	ND		0.50	0.096	ug/L			06/09/20 10:18	1
Carbon disulfide	ND		10	0.39	ug/L			06/09/20 10:18	1
Carbon tetrachloride	ND		0.50	0.057	ug/L			06/09/20 10:18	1
Chlorobenzene	ND		0.50	0.088	ug/L			06/09/20 10:18	1
Chloroethane	ND		0.50	0.12	ug/L			06/09/20 10:18	1
Chloroform	0.07724	J	0.50	0.062	ug/L			06/09/20 10:18	1
Chloromethane	ND		5.0	2.0	ug/L			06/09/20 10:18	1
Dibromochloromethane	ND		0.50	0.064	ug/L			06/09/20 10:18	1
Dibromomethane	ND		0.50	0.13	ug/L			06/09/20 10:18	1
Dichlorodifluoromethane	ND		1.0	0.099	ug/L			06/09/20 10:18	1
Ethylbenzene	ND		0.50	0.087	ug/L			06/09/20 10:18	1
Isopropylbenzene	ND		0.50	0.077	ug/L			06/09/20 10:18	1
Methylene Chloride	ND		1.0	0.043	ug/L			06/09/20 10:18	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.067	ug/L			06/09/20 10:18	1
Naphthalene	ND		1.0	0.097	ug/L			06/09/20 10:18	1
n-Butylbenzene	ND		0.50	0.11	ug/L			06/09/20 10:18	1
N-Propylbenzene	ND		0.50	0.076	ug/L			06/09/20 10:18	1
o-Xylene	ND		0.50	0.086	ug/L			06/09/20 10:18	1
m,p-Xylene	ND		1.0	0.15	ug/L			06/09/20 10:18	1
p-Isopropyltoluene	ND		0.50	0.074	ug/L			06/09/20 10:18	1
sec-Butylbenzene	ND		0.50	0.095	ug/L			06/09/20 10:18	1
Styrene	ND		0.50	0.059	ug/L			06/09/20 10:18	1
trans-1,2-Dichloroethene	ND		0.50	0.082	ug/L			06/09/20 10:18	1
trans-1,3-Dichloropropene	ND		0.50	0.053	ug/L			06/09/20 10:18	1
tert-Butylbenzene	ND		0.50	0.082	ug/L			06/09/20 10:18	1
Tetrachloroethene	ND		0.50	0.24	ug/L			06/09/20 10:18	1
Toluene	ND		0.50	0.093	ug/L			06/09/20 10:18	1
Trichloroethene	ND		0.50	0.10	ug/L			06/09/20 10:18	1

Eurofins Calscience LLC

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-74249/6

Matrix: Water

Analysis Batch: 74249

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND		0.50	0.10	ug/L			06/09/20 10:18	1
Vinyl acetate	ND		5.0	0.70	ug/L			06/09/20 10:18	1
Vinyl chloride	ND		0.50	0.078	ug/L			06/09/20 10:18	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 128					06/09/20 10:18	1
4-Bromofluorobenzene (Surr)	92		68 - 120					06/09/20 10:18	1
Dibromofluoromethane	98		80 - 127					06/09/20 10:18	1
Toluene-d8 (Surr)	98		80 - 120					06/09/20 10:18	1

Lab Sample ID: LCS 570-74249/3

Matrix: Water

Analysis Batch: 74249

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.273		ug/L		93	77 - 120
1,2-Dibromoethane	10.0	10.34		ug/L		103	80 - 120
1,2-Dichlorobenzene	10.0	11.19		ug/L		112	80 - 120
1,2-Dichloroethane	10.0	10.31		ug/L		103	80 - 122
Benzene	10.0	10.75		ug/L		107	80 - 120
Carbon tetrachloride	10.0	10.90		ug/L		109	80 - 129
Chlorobenzene	10.0	10.86		ug/L		109	80 - 120
Ethylbenzene	10.0	11.31		ug/L		113	80 - 120
Methyl-t-Butyl Ether (MTBE)	10.0	8.969		ug/L		90	75 - 123
o-Xylene	10.0	11.76		ug/L		118	80 - 120
m,p-Xylene	20.0	23.68		ug/L		118	80 - 120
Toluene	10.0	10.77		ug/L		108	80 - 120
Trichloroethene	10.0	10.39		ug/L		104	80 - 120
Vinyl chloride	10.0	10.06		ug/L		101	63 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		80 - 128				
4-Bromofluorobenzene (Surr)	99		68 - 120				
Dibromofluoromethane	99		80 - 127				
Toluene-d8 (Surr)	99		80 - 120				

Lab Sample ID: LCSD 570-74249/4

Matrix: Water

Analysis Batch: 74249

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	8.889		ug/L		89	77 - 120	4	26
1,2-Dibromoethane	10.0	10.34		ug/L		103	80 - 120	0	32
1,2-Dichlorobenzene	10.0	10.70		ug/L		107	80 - 120	4	30
1,2-Dichloroethane	10.0	10.12		ug/L		101	80 - 122	2	23
Benzene	10.0	10.40		ug/L		104	80 - 120	3	22
Carbon tetrachloride	10.0	10.13		ug/L		101	80 - 129	7	36
Chlorobenzene	10.0	10.52		ug/L		105	80 - 120	3	29

Eurofins Calscience LLC

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-74249/4

Matrix: Water

Analysis Batch: 74249

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	10.0	10.77		ug/L		108	80 - 120	5	25
Methyl-t-Butyl Ether (MTBE)	10.0	9.292		ug/L		93	75 - 123	4	27
o-Xylene	10.0	11.16		ug/L		112	80 - 120	5	30
m,p-Xylene	20.0	22.73		ug/L		114	80 - 120	4	30
Toluene	10.0	10.42		ug/L		104	80 - 120	3	28
Trichloroethene	10.0	10.23		ug/L		102	80 - 120	2	25
Vinyl chloride	10.0	9.459		ug/L		95	63 - 135	6	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 128
4-Bromofluorobenzene (Surr)	101		68 - 120
Dibromofluoromethane	100		80 - 127
Toluene-d8 (Surr)	100		80 - 120

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 570-73008/1-A

Matrix: Water

Analysis Batch: 73083

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 73008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.50	0.18	ug/L	-	06/03/20 09:03	06/03/20 18:55	1
Isotope Dilution	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	46		15 - 150				06/03/20 09:03	06/03/20 18:55	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	123		46 - 128				06/03/20 09:03	06/03/20 18:55	1

Lab Sample ID: LCS 570-73008/2-A

Matrix: Water

Analysis Batch: 73317

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 73008

Top Datum: 100%									
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane			20.0	20.81		ug/L	-	104	57 - 136
	LCS	LCS							
Isotope Dilution	%Recovery	Qualifier	Limits						
1,4-Dioxane-d8	61		15 - 150						
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
Nitrobenzene-d5	125		46 - 128						

Lab Sample ID: LCSD 570-73008/3-A

Matrix: Water

Analysis Batch: 73083

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 73008

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	20.0	22.01		ug/L		110	57 - 136	6	20

Eurofins Calscience LLC

QC Sample Results

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution) (Continued)

		LCSD	LCSD										
Isotope Dilution		%Recovery	Qualifier	Limits									
1,4-Dioxane-d8		46		15 - 150									
		LCSD	LCSD										
Surrogate		%Recovery	Qualifier	Limits									
Nitrobenzene-d5		57		46 - 128									
Lab Sample ID: 570-29487-D-1-A MS Matrix: Water Analysis Batch: 73083										Client Sample ID: Matrix Spike Prep Type: Total/NA Prep Batch: 73008			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits				
1,4-Dioxane	ND		20.0	20.60		ug/L		103	45 - 139				
	MS	MS											
Isotope Dilution	%Recovery	Qualifier	Limits										
1,4-Dioxane-d8	50		15 - 150										
	MS	MS											
Surrogate	%Recovery	Qualifier	Limits										
Nitrobenzene-d5	108		46 - 128										
Lab Sample ID: 570-29487-D-1-B MSD Matrix: Water Analysis Batch: 73083										Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA Prep Batch: 73008			
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit		
1,4-Dioxane	ND		20.0	21.69		ug/L		108	45 - 139	5	17		
	MSD	MSD											
Isotope Dilution	%Recovery	Qualifier	Limits										
1,4-Dioxane-d8	55		15 - 150										
	MSD	MSD											
Surrogate	%Recovery	Qualifier	Limits										
Nitrobenzene-d5	115		46 - 128										

QC Association Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

GC/MS VOA

Analysis Batch: 73842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-29699-1	TB-052820B	Total/NA	Water	8260B	
570-29699-2	MW-31	Total/NA	Water	8260B	
MB 570-73842/6	Method Blank	Total/NA	Water	8260B	
LCS 570-73842/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 570-73842/4	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 74249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-29699-2 - DL	MW-31	Total/NA	Water	8260B	
MB 570-74249/6	Method Blank	Total/NA	Water	8260B	
LCS 570-74249/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 570-74249/4	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 73008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-29699-2	MW-31	Total/NA	Water	3510C	
MB 570-73008/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-73008/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-73008/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
570-29487-D-1-A MS	Matrix Spike	Total/NA	Water	3510C	
570-29487-D-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	3510C	

Analysis Batch: 73083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-29699-2	MW-31	Total/NA	Water	8270C SIM ID	73008
MB 570-73008/1-A	Method Blank	Total/NA	Water	8270C SIM ID	73008
LCSD 570-73008/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM ID	73008
570-29487-D-1-A MS	Matrix Spike	Total/NA	Water	8270C SIM ID	73008
570-29487-D-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	8270C SIM ID	73008

Analysis Batch: 73317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-73008/2-A	Lab Control Sample	Total/NA	Water	8270C SIM ID	73008

Lab Chronicle

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Client Sample ID: TB-052820B

Lab Sample ID: 570-29699-1

Date Collected: 05/28/20 08:30

Matrix: Water

Date Received: 06/01/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	73842	06/07/20 01:11	UJHB	ECL 2
Instrument ID: GCMSL										

Client Sample ID: MW-31

Lab Sample ID: 570-29699-2

Date Collected: 05/28/20 08:55

Matrix: Water

Date Received: 06/01/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	73842	06/07/20 02:38	UJHB	ECL 2
Instrument ID: GCMSL										
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	74249	06/09/20 14:41	UJHB	ECL 2
Instrument ID: GCMSUU										
Total/NA	Prep	3510C			100 mL	10 mL	73008	06/03/20 09:03	UWEZ	ECL 1
Total/NA	Analysis	8270C SIM ID		1			73083	06/03/20 23:51	ULLI	ECL 1
Instrument ID: GCMSDDD										

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 2 = Eurofins Calscience LLC Lampson, 7445 Lampson Ave, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-29-20
California	SCAQMD LAP	17LA0919	11-30-20
California	State	2944	09-29-20
Guam	State	20-003R	10-31-20
Nevada	State	CA00111	07-31-20
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-20

Method Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	ECL 2
8270C SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	ECL 1
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ECL 1
5030C	Purge and Trap	SW846	ECL 2

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 2 = Eurofins Calscience LLC Lampson, 7445 Lampson Ave, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Hargis + Associates, Inc.
Project/Site: Raytheon Main / 532.30

Job ID: 570-29699-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-29699-1	TB-052820B	Water	05/28/20 08:30	06/01/20 18:40	
570-29699-2	MW-31	Water	05/28/20 08:55	06/01/20 18:40	



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING



570-29699 Chain of Custody

Date: 06-01-20
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		Concentration Range (ppb) for VOA's		HANDLING		REMARKS								
LAB ID	SAMPLE ID	Date	Time	Groundwater	Lab prepared water	Hydrochloric Acid (HCl)		Ice	40-ml VOA	500ml Amber 1 L 29.45	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	MS/MSD Requested	
1	TB-052820B	05-28-20	0830		X	X		X	3		X				X						X			Report J Flags
2	MW-31	↓	0855	X				X	3		X				X						X			
	MW-31		0855	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
Duron Service H+H	06/11/20	EG	06/01/2020 1832
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
EG	06/01/2020	1840	6/1/2020 1840

- ☐ 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

Send Results to:
Steve Netto

9171 Towne Centre Drive
Suite 375
San Diego, CA 92122
Ph: 858.455.5400
snetto@hargis.com

Login Sample Receipt Checklist

Client: Hargis + Associates, Inc.

Job Number: 570-29699-1

Login Number: 29699

List Source: Eurofins Calscience

List Number: 1

Creator: Liao, Gineyau

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANALYTICAL RESULTS



April 10, 2020

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 : 2000551

Client Reference : Raytheon Main GETS Quarterly, 532.15

Enclosed are the results for sample(s) received on March 05, 2020 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 blue ink, appearing to read "R. Karimi", enclosed within a hand-drawn oval.

Dr. Reza Karimi
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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San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CEFF	2000551-01	Groundwater	3/05/20 12:00	3/05/20 16:04
POX	2000551-02	Groundwater	3/05/20 12:25	3/05/20 16:04
INF	2000551-03	Groundwater	3/05/20 12:45	3/05/20 16:04
EW-02	2000551-04	Groundwater	3/05/20 13:25	3/05/20 16:04
MW-29	2000551-05	Groundwater	3/05/20 14:05	3/05/20 16:04



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: CEFF

Lab ID: 2000551-01

Total Dissolved Solids (Residue, Filterable) by SM 2540C

Analyst: SD

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Dissolved	630	10	1	B0C0238	03/10/2020	03/10/20 16:04	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: POX

Lab ID: 2000551-02

Anions Scan by Ion Chromatography EPA 300.0

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	100	5.0	10	B0C0165	03/06/2020	03/06/20 15:27	
Nitrate, as N	3.9	0.10	1	B0C0165	03/06/2020	03/06/20 12:23	
Nitrite, as N	ND	0.10	1	B0C0165	03/06/2020	03/06/20 12:23	
ortho-Phosphate, as P	ND	0.05	1	B0C0165	03/06/2020	03/06/20 12:23	
Sulfate	130	10	10	B0C0165	03/06/2020	03/06/20 15:27	

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0C0131	03/06/2020	03/06/20 14:49	

Total Dissolved Solids (Residue, Filterable) by SM 2540C

Analyst: SD

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Dissolved	610	10	1	B0C0238	03/10/2020	03/10/20 16:06	

Chemical Oxygen Demand by EPA 410.4

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B0C0181	03/09/2020	03/09/20 04:32	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: INF

Lab ID: 2000551-03

Anions Scan by Ion Chromatography EPA 300.0

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	100	5.0	10	B0C0165	03/06/2020	03/06/20 15:36	
Nitrate, as N	4.0	0.10	1	B0C0165	03/06/2020	03/06/20 12:41	
Nitrite, as N	ND	0.10	1	B0C0165	03/06/2020	03/06/20 12:41	
ortho-Phosphate, as P	ND	0.05	1	B0C0165	03/06/2020	03/06/20 12:41	
Sulfate	130	10	10	B0C0165	03/06/2020	03/06/20 15:36	

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0C0131	03/06/2020	03/06/20 14:49	

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Total (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	

Total Dissolved Solids (Residue, Filterable) by SM 2540C

Analyst: SD

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Dissolved	460	10	1	B0C0238	03/10/2020	03/10/20 16:08	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0C0197	03/09/2020	03/09/20 14:27	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: INF

Lab ID: 2000551-03

Chemical Oxygen Demand by EPA 410.4

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B0C0181	03/09/2020	03/09/20 04:32	

Total Metals by ICP-AES EPA 6010B

Analyst: VL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Selenium	ND	0.010	1	B0C0207	03/10/2020	03/10/20 15:21	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: VL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	78	0.50	1	B0C0203	03/10/2020	03/11/20 15:30	
Iron	ND	0.50	1	B0C0203	03/10/2020	03/11/20 15:30	
Magnesium	24	0.10	1	B0C0203	03/10/2020	03/11/20 15:30	
Manganese	ND	0.50	1	B0C0203	03/10/2020	03/11/20 15:30	
Selenium	ND	0.010	1	B0C0203	03/10/2020	03/11/20 15:30	
Sodium	67	1.0	1	B0C0203	03/10/2020	03/11/20 15:30	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: EW-02

Lab ID: 2000551-04

Anions Scan by Ion Chromatography EPA 300.0

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	84	5.0	10	B0C0165	03/06/2020	03/06/20 15:46	
Nitrate, as N	3.5	0.10	1	B0C0165	03/06/2020	03/06/20 12:51	
Nitrite, as N	ND	0.10	1	B0C0165	03/06/2020	03/06/20 12:51	
ortho-Phosphate, as P	ND	0.05	1	B0C0165	03/06/2020	03/06/20 12:51	
Sulfate	140	10	10	B0C0165	03/06/2020	03/06/20 15:46	

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0C0131	03/06/2020	03/06/20 14:49	

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Total (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	

Total Dissolved Solids (Residue, Filterable) by SM 2540C

Analyst: SD

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Dissolved	570	10	1	B0C0238	03/10/2020	03/10/20 16:10	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0C0197	03/09/2020	03/09/20 14:44	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: EW-02

Lab ID: 2000551-04

Chemical Oxygen Demand by EPA 410.4

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B0C0181	03/09/2020	03/09/20 04:32	

Total Metals by ICP-AES EPA 6010B

Analyst: VL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Selenium	ND	0.010	1	B0C0207	03/10/2020	03/10/20 15:26	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: VL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	74	0.50	1	B0C0203	03/10/2020	03/11/20 15:32	
Iron	ND	0.50	1	B0C0203	03/10/2020	03/11/20 15:32	
Magnesium	23	0.10	1	B0C0203	03/10/2020	03/11/20 15:32	
Manganese	ND	0.50	1	B0C0203	03/10/2020	03/11/20 15:32	
Selenium	ND	0.010	1	B0C0203	03/10/2020	03/11/20 15:32	
Sodium	61	1.0	1	B0C0203	03/10/2020	03/11/20 15:32	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: MW-29

Lab ID: 2000551-05

Anions Scan by Ion Chromatography EPA 300.0

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloride	150	5.0	10	B0C0165	03/06/2020	03/06/20 15:55	
Nitrate, as N	5.6	0.10	1	B0C0165	03/06/2020	03/06/20 13:00	
Nitrite, as N	ND	0.10	1	B0C0165	03/06/2020	03/06/20 13:00	
ortho-Phosphate, as P	ND	0.05	1	B0C0165	03/06/2020	03/06/20 13:00	
Sulfate	130	10	10	B0C0165	03/06/2020	03/06/20 15:55	

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0C0131	03/06/2020	03/06/20 14:49	

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	230	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Total (as CaCO ₃)	230	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	

Total Dissolved Solids (Residue, Filterable) by SM 2540C

Analyst: SD

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Dissolved	690	20	1	B0C0238	03/10/2020	03/10/20 16:12	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0C0197	03/09/2020	03/09/20 15:02	



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: MW-29

Lab ID: 2000551-05

Chemical Oxygen Demand by EPA 410.4

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chemical Oxygen Demand	ND	5.0	1	B0C0226	03/10/2020	03/10/20 05:10	

Total Metals by ICP-AES EPA 6010B

Analyst: VL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Selenium	ND	0.010	1	B0C0207	03/10/2020	03/10/20 15:27	

Dissolved Metals by ICP-AES EPA 6010B

Analyst: VL

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Calcium	89	0.50	1	B0C0203	03/10/2020	03/11/20 15:34	
Iron	ND	0.50	1	B0C0203	03/10/2020	03/11/20 15:34	
Magnesium	27	0.10	1	B0C0203	03/10/2020	03/11/20 15:34	
Manganese	ND	0.50	1	B0C0203	03/10/2020	03/11/20 15:34	
Selenium	ND	0.010	1	B0C0203	03/10/2020	03/11/20 15:34	
Sodium	82	1.0	1	B0C0203	03/10/2020	03/11/20 15:34	



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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

Batch B0C0247 - No_Prep_WC1_W

Blank (B0C0247-BLK1)

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	3.4							
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	3.4							
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	3.4							
Alkalinity, Total (as CaCO ₃)	ND	5.0	3.4							

LCS (B0C0247-BS1)

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Total (as CaCO ₃)	88.3500	5.0	3.4	99.9580		88.4	80 - 120			

Matrix Spike (B0C0247-MS1)

Source: 2000555-01

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Total (as CaCO ₃)	257.520	5.0	3.4	99.9580	208.650	48.9	80 - 120			M2

Matrix Spike Dup (B0C0247-MSD1)

Source: 2000555-01

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Total (as CaCO ₃)	255.640	5.0	3.4	99.9580	208.650	47.0	80 - 120	0.733	20	M2



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Total Dissolved Solids (Residue, Filterable) by SM 2540C - 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

Batch B0C0238 - No_Prep_WC1_W

Blank (B0C0238-BLK1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Residue, Dissolved ND 10 10

LCS (B0C0238-BS1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Residue, Dissolved 973.000 10 10 980.000 99.3 80 - 120

Duplicate (B0C0238-DUP1)

Source: 2000551-05

Prepared: 3/10/2020 Analyzed: 3/10/2020

Residue, Dissolved 355.000 10 10 690.000 64.1 10



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0165 - No_Prep_IC1_W

Blank (B0C0165-BLK1)

Prepared: 3/6/2020 Analyzed: 3/6/2020

Chloride	ND	0.50	0.07							
Nitrate, as N	ND	0.10	0.05							
Nitrite, as N	ND	0.10	0.006							
ortho-Phosphate, as P	ND	0.05	0.05							
Sulfate	ND	1.0	0.06							

LCS (B0C0165-BS1)

Prepared: 3/6/2020 Analyzed: 3/6/2020

Chloride	0.980500	0.50	0.07	1.00000		98.0	90 - 110			
Nitrate, as N	0.908700	0.10	0.05	1.00000		90.9	90 - 110			
Nitrite, as N	0.976300	0.10	0.006	1.00000		97.6	90 - 110			
ortho-Phosphate, as P	1.01070	0.05	0.05	1.00000		101	90 - 110			
Sulfate	2.12870	1.0	0.06	2.00000		106	90 - 110			

Duplicate (B0C0165-DUP1)

Source: 2000551-02

Prepared: 3/6/2020 Analyzed: 3/6/2020

Chloride	133.612	0.50	0.07		100.735			28.1	20	E
Nitrate, as N	4.04530	0.10	0.05		3.94490			2.51	20	
Nitrite, as N	ND	0.10	0.006		ND				20	
ortho-Phosphate, as P	ND	0.05	0.05		ND				20	
Sulfate	170.523	1.0	0.06		134.227			23.8	20	E

Matrix Spike (B0C0165-MS1)

Source: 2000551-02

Prepared: 3/6/2020 Analyzed: 3/6/2020

Chloride	135.622	0.50	0.07	2.50000	100.735	1400	80 - 120			M2, E
Nitrate, as N	6.35330	0.10	0.05	2.50000	3.94490	96.3	80 - 120			M2
Nitrite, as N	3.15840	0.10	0.006	2.50000	ND	126	80 - 120			M2
ortho-Phosphate, as P	2.70950	0.05	0.05	2.50000	ND	108	80 - 120			M2
Sulfate	178.970	1.0	0.06	5.00000	134.227	895	80 - 120			E, M2

Matrix Spike Dup (B0C0165-MSD1)

Source: 2000551-02

Prepared: 3/6/2020 Analyzed: 3/6/2020

Chloride	136.026	0.50	0.07	2.50000	100.735	1410	80 - 120	0.298	20	E, M2
Nitrate, as N	6.49540	0.10	0.05	2.50000	3.94490	102	80 - 120	2.21	20	M2
Nitrite, as N	2.93200	0.10	0.006	2.50000	ND	117	80 - 120	7.43	20	M2
ortho-Phosphate, as P	3.28490	0.05	0.05	2.50000	ND	131	80 - 120	19.2	20	M2
Sulfate	171.115	1.0	0.06	5.00000	134.227	738	80 - 120	4.49	20	E, M2



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San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0131 - No_Prep_II_W

Duplicate (B0C0131-DUP1)

Source: 2000551-02

Prepared: 3/6/2020 Analyzed: 3/6/2020

UV Absorption	ND	0.01	0.01	ND				20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0197 - No_Prep_II_W

Blank (B0C0197-BLK1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total ND 3.0 0.28

LCS (B0C0197-BS1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total 23.6900 3.0 0.28 24.8826 95.2 80 - 120

Matrix Spike (B0C0197-MS1)

Source: 2000553-05

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total 32.6000 3.0 0.28 24.8826 2.32000 122 80 - 120 M2

Matrix Spike Dup (B0C0197-MSD1)

Source: 2000553-05

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total 34.9180 3.0 0.28 24.8826 2.32000 131 80 - 120 6.87 20 M2



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San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0181 - Prep_WC1_W

Blank (B0C0181-BLK1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

Chemical Oxygen Demand ND 5.0 4.2

LCS (B0C0181-BS1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

Chemical Oxygen Demand 458.801 5.0 4.2 501.500 91.5 80 - 120

Matrix Spike (B0C0181-MS1)

Source: 2000551-02

Prepared: 3/9/2020 Analyzed: 3/9/2020

Chemical Oxygen Demand 456.683 5.0 4.2 501.500 ND 91.1 80 - 120

Matrix Spike Dup (B0C0181-MSD1)

Source: 2000551-02

Prepared: 3/9/2020 Analyzed: 3/9/2020

Chemical Oxygen Demand 457.559 5.0 4.2 501.500 ND 91.2 80 - 120 0.192 20



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0226 - Prep_WC1_W

Blank (B0C0226-BLK1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Chemical Oxygen Demand ND 5.0 4.2

LCS (B0C0226-BS1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Chemical Oxygen Demand 441.826 5.0 4.2 501.500 88.1 80 - 120

Matrix Spike (B0C0226-MS1)

Source: 2000551-05

Prepared: 3/10/2020 Analyzed: 3/10/2020

Chemical Oxygen Demand 552.513 5.0 4.2 501.500 ND 110 80 - 120

Matrix Spike Dup (B0C0226-MSD1)

Source: 2000551-05

Prepared: 3/10/2020 Analyzed: 3/10/2020

Chemical Oxygen Demand 552.713 5.0 4.2 501.500 ND 110 80 - 120 0.0362 20



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0207 - EPA 3010A_W

Blank (B0C0207-BLK1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Selenium ND 0.010 0.0093

LCS (B0C0207-BS1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Selenium 0.526552 0.010 0.0093 0.500000 105 80 - 120

Matrix Spike (B0C0207-MS1)

Source: 2000551-03

Prepared: 3/10/2020 Analyzed: 3/10/2020

Selenium 0.519525 0.010 0.0093 0.500000 ND 104 59 - 135

Matrix Spike Dup (B0C0207-MSD1)

Source: 2000551-03

Prepared: 3/10/2020 Analyzed: 3/10/2020

Selenium 0.521747 0.010 0.0093 0.500000 ND 104 59 - 135 0.427 20



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Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0203 - EPA 3010A_W

Blank (B0C0203-BLK1)

Prepared: 3/10/2020 Analyzed: 3/11/2020

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	1.0	0.12	

LCS (B0C0203-BS1)

Prepared: 3/10/2020 Analyzed: 3/11/2020

Calcium	4.76283	0.50	0.12	5.00000	95.3	80 - 120
Iron	5.20222	0.50	0.011	5.00000	104	80 - 120
Magnesium	5.08762	0.10	0.021	5.00000	102	80 - 120
Manganese	0.550596	0.50	0.0046	0.500000	110	80 - 120
Selenium	0.556078	0.010	0.0093	0.500000	111	80 - 120
Sodium	4.42780	1.0	0.12	5.00000	88.6	80 - 120

Duplicate (B0C0203-DUP1)

Source: 2000540-35

Prepared: 3/10/2020 Analyzed: 3/11/2020

Calcium	ND	0.50	0.12	ND		NR	20
Iron	0.012523	0.50	0.011	ND		NR	20
Magnesium	ND	0.10	0.021	ND		NR	20
Manganese	ND	0.50	0.0046	ND		NR	20
Selenium	ND	0.010	0.0093	ND		NR	20
Sodium	ND	1.0	0.12	ND		NR	20

Matrix Spike (B0C0203-MS1)

Source: 2000540-35

Prepared: 3/10/2020 Analyzed: 3/11/2020

Calcium	4.12566	0.50	0.12	5.00000	ND	82.5	10 - 167
Iron	4.42277	0.50	0.011	5.00000	ND	88.5	39 - 130
Magnesium	4.31705	0.10	0.021	5.00000	ND	86.3	31 - 139
Manganese	0.464713	0.50	0.0046	0.500000	ND	92.9	44 - 125
Selenium	0.461561	0.010	0.0093	0.500000	ND	92.3	59 - 135
Sodium	3.84541	1.0	0.12	5.00000	ND	76.9	18 - 173

Matrix Spike Dup (B0C0203-MSD1)

Source: 2000540-35

Prepared: 3/10/2020 Analyzed: 3/11/2020

Calcium	4.27643	0.50	0.12	5.00000	ND	85.5	10 - 167	3.59	20
Iron	4.49143	0.50	0.011	5.00000	ND	89.8	39 - 130	1.54	20
Magnesium	4.40106	0.10	0.021	5.00000	ND	88.0	31 - 139	1.93	20
Manganese	0.461626	0.50	0.0046	0.500000	ND	92.3	44 - 125	0.666	20
Selenium	0.460305	0.010	0.0093	0.500000	ND	92.1	59 - 135	0.272	20
Sodium	3.87494	1.0	0.12	5.00000	ND	77.5	18 - 173	0.765	20



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9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Quarterly, 532.15

Report To : Steve Netto

Reported : 04/10/2020

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
E	Result value is above quantitation range and therefore, estimated.
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 Quarterly Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Ross Horton

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	500 mL Poly	250 mL Glass	Alkalinity by SM2320B	Anions by EPA 300	COD by EPA 410.4	Dissolved Metals by EPA 6010B	Total Dissolved Solids by SM2540C	Total Organic Carbon by SM5310B	Total Se by EPA 6010B	UV Absorption EPA 415.3 @254 nm	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				
2000SS1-01	CEFF	3/5/20	12:00	X					X	1									X																
-02	POX	3/5/20	12:25	X				X	X	3			1			X	X		X		X													Lab to filter dissolved	
-03	INF	3/5/20	12:45	X		X		X	X	3	3	1	2	1	X	X	X	X	X	X	X	X													metals, and anions
-04	EW-02	3/5/20	13:25	X		X		X	X	3	3	1	2	1	X	X	X	X	X	X	X	X													
-05	MW-29	3/5/20	14:05	X		X		X	X	3	3	1	2	1	X	X	X	X	X	X	X	X													

Total number of containers per analysis:

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>[Signature]</i> HFA	3-5-20 1500	<i>[Signature]</i> HFA	3-5-2020 15:00
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>[Signature]</i> HFA	3-5-20 16:03	<i>[Signature]</i>	3-5-20 16:04

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

Send Results to:
Steve Netto & Ross Horton
 9171 Towne Centre Drive
 Suite 375
 San Diego, CA 92122
 Ph: 858.455.6500
snetto@hargis.com
rhorton@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 x

Note applicable preservatives, special instructions, and deviations from typical environmental samples.

Consult project QA documents for specific instructions.

Temperature on receipt



April 10, 2020

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 : 2000553

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on March 05, 2020 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 blue ink, appearing to read 'R. Karimi', enclosed within a large, loopy oval.

Dr. Reza Karimi
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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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 : 04/10/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-030520	2000553-01	Lab prepared water	3/05/20 8:00	3/05/20 16:04
CEFF	2000553-02	Groundwater	3/05/20 12:00	3/05/20 16:04
CBT	2000553-03	Groundwater	3/05/20 12:15	3/05/20 16:04
POX	2000553-04	Groundwater	3/05/20 12:25	3/05/20 16:04
PF	2000553-05	Groundwater	3/05/20 12:40	3/05/20 16:04
INF	2000553-06	Groundwater	3/05/20 12:45	3/05/20 16:04
EW-02	2000553-07	Groundwater	3/05/20 13:25	3/05/20 16:04
MW-29	2000553-08	Groundwater	3/05/20 14:05	3/05/20 16:04

CASE NARRATIVE

Samples for Bromate by IC-MS/MS was subcontracted to Element Materials Technology with CA-ELAP Cert. 2652.



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 : 04/10/2020

Client Sample ID: TB-030520

Lab ID: 2000553-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,1,2-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,1-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,1-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	



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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 : 04/10/2020

Client Sample ID: TB-030520

Lab ID: 2000553-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 16:24	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 16:24	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Tetrachloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Trichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Trichlorofluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:24	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>116 %</i>	<i>59 - 158</i>		B0C0163	03/09/2020	<i>03/09/20 16:24</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>71 - 127</i>		B0C0163	03/09/2020	<i>03/09/20 16:24</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>	<i>66 - 147</i>		B0C0163	03/09/2020	<i>03/09/20 16:24</i>	
<i>Surrogate: Toluene-d8</i>	<i>99.7 %</i>	<i>77 - 138</i>		B0C0163	03/09/2020	<i>03/09/20 16:24</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 : 04/10/2020

Client Sample ID: CEFF

Lab ID: 2000553-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,1,2-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,1-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,1-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	



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 : 04/10/2020

Client Sample ID: CEFF

Lab ID: 2000553-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 17:09	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 17:09	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Tetrachloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Trichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Trichlorofluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:09	
Surrogate: 1,2-Dichloroethane-d4	122 %	59 - 158		B0C0163	03/09/2020	03/09/20 17:09	
Surrogate: 4-Bromofluorobenzene	101 %	71 - 127		B0C0163	03/09/2020	03/09/20 17:09	
Surrogate: Dibromofluoromethane	106 %	66 - 147		B0C0163	03/09/2020	03/09/20 17:09	
Surrogate: Toluene-d8	100 %	77 - 138		B0C0163	03/09/2020	03/09/20 17:09	



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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 : 04/10/2020

Client Sample ID: CEFF

Lab ID: 2000553-02

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	B0C0205	03/10/2020	03/10/20 14:38	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>89.5 %</i>	<i>17 - 119</i>		B0C0205	03/10/2020	<i>03/10/20 14:38</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>103 %</i>	<i>10 - 133</i>		B0C0205	03/10/2020	<i>03/10/20 14:38</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>94.8 %</i>	<i>5 - 139</i>		B0C0205	03/10/2020	<i>03/10/20 14:38</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>89.3 %</i>	<i>13 - 150</i>		B0C0205	03/10/2020	<i>03/10/20 14:38</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 : 04/10/2020

Client Sample ID: CBT

Lab ID: 2000553-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,1,2-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,1-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,1-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	



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 : 04/10/2020

Client Sample ID: CBT

Lab ID: 2000553-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 17:32	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 17:32	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Tetrachloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Trichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Trichlorofluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:32	
Surrogate: 1,2-Dichloroethane-d4	123 %	59 - 158		B0C0163	03/09/2020	03/09/20 17:32	
Surrogate: 4-Bromofluorobenzene	103 %	71 - 127		B0C0163	03/09/2020	03/09/20 17:32	
Surrogate: Dibromofluoromethane	106 %	66 - 147		B0C0163	03/09/2020	03/09/20 17:32	
Surrogate: Toluene-d8	102 %	77 - 138		B0C0163	03/09/2020	03/09/20 17:32	



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 : 04/10/2020

Client Sample ID: CBT

Lab ID: 2000553-03

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	B0C0205	03/10/2020	03/10/20 15:05	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>86.5 %</i>	<i>17 - 119</i>		B0C0205	03/10/2020	<i>03/10/20 15:05</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>101 %</i>	<i>10 - 133</i>		B0C0205	03/10/2020	<i>03/10/20 15:05</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>92.5 %</i>	<i>5 - 139</i>		B0C0205	03/10/2020	<i>03/10/20 15:05</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>83.4 %</i>	<i>13 - 150</i>		B0C0205	03/10/2020	<i>03/10/20 15:05</i>	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: POX

Lab ID: 2000553-04

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Total (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0C0197	03/09/2020	03/09/20 15:20	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,1,2-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,1-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,1-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	



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 : 04/10/2020

Client Sample ID: POX

Lab ID: 2000553-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 16:46	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 16:46	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Tetrachloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Trichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Trichlorofluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 16:46	



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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 : 04/10/2020

Client Sample ID: POX

Lab ID: 2000553-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: 1,2-Dichloroethane-d4	119 %	59 - 158		B0C0163	03/09/2020	03/09/20 16:46	
Surrogate: 4-Bromofluorobenzene	105 %	71 - 127		B0C0163	03/09/2020	03/09/20 16:46	
Surrogate: Dibromofluoromethane	105 %	66 - 147		B0C0163	03/09/2020	03/09/20 16:46	
Surrogate: Toluene-d8	102 %	77 - 138		B0C0163	03/09/2020	03/09/20 16:46	

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	B0C0205	03/10/2020	03/10/20 15:31	
Surrogate: 1,2-Dichlorobenzene-d4	90.2 %	17 - 119		B0C0205	03/10/2020	03/10/20 15:31	
Surrogate: 2-Fluorobiphenyl	107 %	10 - 133		B0C0205	03/10/2020	03/10/20 15:31	
Surrogate: 4-Terphenyl-d14	96.8 %	5 - 139		B0C0205	03/10/2020	03/10/20 15:31	
Surrogate: Nitrobenzene-d5	87.1 %	13 - 150		B0C0205	03/10/2020	03/10/20 15:31	



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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 : 04/10/2020

Client Sample ID: PF

Lab ID: 2000553-05

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0C0131	03/06/2020	03/06/20 14:49	

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	
Alkalinity, Total (as CaCO ₃)	200	5.0	1	B0C0247	03/11/2020	03/11/20 16:39	

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

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	2.0	1	B0C0227	03/10/2020	03/10/20 16:30	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0C0197	03/09/2020	03/09/20 15:41	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

Client Sample ID: INF

Lab ID: 2000553-06

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.25	0.05	1	B0C0165	03/06/2020	03/06/20 13:10	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,1,2-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,1-Dichloroethane	0.50	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,1-Dichloroethene	55	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	



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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 : 04/10/2020

Client Sample ID: INF

Lab ID: 2000553-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 18:17	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 18:17	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Tetrachloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Trichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Trichlorofluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 18:17	
Surrogate: 1,2-Dichloroethane-d4	124 %	59 - 158		B0C0163	03/09/2020	03/09/20 18:17	
Surrogate: 4-Bromofluorobenzene	104 %	71 - 127		B0C0163	03/09/2020	03/09/20 18:17	
Surrogate: Dibromofluoromethane	105 %	66 - 147		B0C0163	03/09/2020	03/09/20 18:17	
Surrogate: Toluene-d8	101 %	77 - 138		B0C0163	03/09/2020	03/09/20 18:17	



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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 : 04/10/2020

Client Sample ID: INF

Lab ID: 2000553-06

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	33	2.0	1	B0C0142	03/06/2020	03/06/20 22:23	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.7 %</i>	<i>17 - 119</i>		B0C0142	03/06/2020	<i>03/06/20 22:23</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>74.3 %</i>	<i>10 - 133</i>		B0C0142	03/06/2020	<i>03/06/20 22:23</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>75.1 %</i>	<i>5 - 139</i>		B0C0142	03/06/2020	<i>03/06/20 22:23</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>77.4 %</i>	<i>13 - 150</i>		B0C0142	03/06/2020	<i>03/06/20 22:23</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 : 04/10/2020

Client Sample ID: EW-02

Lab ID: 2000553-07

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.29	0.05	1	B0C0165	03/06/2020	03/06/20 13:19	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,1,2-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,1-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,1-Dichloroethene	14	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	



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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 : 04/10/2020

Client Sample ID: EW-02

Lab ID: 2000553-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 17:55	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 17:55	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Tetrachloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Trichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Trichlorofluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 17:55	
Surrogate: 1,2-Dichloroethane-d4	122 %	59 - 158		B0C0163	03/09/2020	03/09/20 17:55	
Surrogate: 4-Bromofluorobenzene	105 %	71 - 127		B0C0163	03/09/2020	03/09/20 17:55	
Surrogate: Dibromofluoromethane	104 %	66 - 147		B0C0163	03/09/2020	03/09/20 17:55	
Surrogate: Toluene-d8	102 %	77 - 138		B0C0163	03/09/2020	03/09/20 17:55	



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 : 04/10/2020

Client Sample ID: EW-02

Lab ID: 2000553-07

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	7.1	2.0	1	B0C0142	03/06/2020	03/06/20 22:54	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.9 %</i>	<i>17 - 119</i>		<i>B0C0142</i>	<i>03/06/2020</i>	<i>03/06/20 22:54</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>73.5 %</i>	<i>10 - 133</i>		<i>B0C0142</i>	<i>03/06/2020</i>	<i>03/06/20 22:54</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>71.7 %</i>	<i>5 - 139</i>		<i>B0C0142</i>	<i>03/06/2020</i>	<i>03/06/20 22:54</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>72.7 %</i>	<i>13 - 150</i>		<i>B0C0142</i>	<i>03/06/2020</i>	<i>03/06/20 22:54</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 : 04/10/2020

Client Sample ID: MW-29

Lab ID: 2000553-08

Bromide by Ion Chromatography EPA 300

Analyst: uyen

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.41	0.05	1	B0C0402	03/17/2020	03/17/20 14:11	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,1,1-Trichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,1,2-Trichloroethane	0.64	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,1-Dichloroethane	1.6	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,1-Dichloroethene	160	5.0	10	B0C0163	03/09/2020	03/09/20 19:02	
1,1-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2,3-Trichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2-Dibromoethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2-Dichloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,3-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,3-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
1,4-Dichlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
2,2-Dichloropropane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
2-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
4-Chlorotoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
4-Isopropyltoluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Benzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Bromobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Bromodichloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Bromoform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Bromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Carbon tetrachloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	



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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 : 04/10/2020

Client Sample ID: MW-29

Lab ID: 2000553-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Chloroethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Chloroform	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Chloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Dibromochloromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Dibromomethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Dichlorodifluoromethane	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Ethylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Hexachlorobutadiene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Isopropylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
m,p-Xylene	ND	1.0	1	B0C0163	03/09/2020	03/09/20 19:25	
Methylene chloride	ND	1.0	1	B0C0163	03/09/2020	03/09/20 19:25	
n-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
n-Propylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Naphthalene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
o-Xylene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
sec-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Styrene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
tert-Butylbenzene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Tetrachloroethene	0.62	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Toluene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Trichloroethene	1.8	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
Trichlorofluoromethane	1.2	0.50	1	B0C0193	03/10/2020	03/10/20 10:24	
Vinyl chloride	ND	0.50	1	B0C0163	03/09/2020	03/09/20 19:25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>116 %</i>	<i>59 - 158</i>		B0C0193	03/10/2020	<i>03/10/20 10:24</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>124 %</i>	<i>59 - 158</i>		B0C0163	03/09/2020	<i>03/09/20 19:02</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>125 %</i>	<i>59 - 158</i>		B0C0163	03/09/2020	<i>03/09/20 19:25</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>71 - 127</i>		B0C0193	03/10/2020	<i>03/10/20 10:24</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>71 - 127</i>		B0C0163	03/09/2020	<i>03/09/20 19:02</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>71 - 127</i>		B0C0163	03/09/2020	<i>03/09/20 19:25</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>	<i>66 - 147</i>		B0C0193	03/10/2020	<i>03/10/20 10:24</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>	<i>66 - 147</i>		B0C0163	03/09/2020	<i>03/09/20 19:02</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>	<i>66 - 147</i>		B0C0163	03/09/2020	<i>03/09/20 19:25</i>	
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>	<i>77 - 138</i>		B0C0193	03/10/2020	<i>03/10/20 10:24</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 : 04/10/2020

Client Sample ID: MW-29

Lab ID: 2000553-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Toluene-d8	103 %	77 - 138		B0C0163	03/09/2020	03/09/20 19:25	
Surrogate: Toluene-d8	103 %	77 - 138		B0C0163	03/09/2020	03/09/20 19:02	

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	120	2.0	1	B0C0142	03/06/2020	03/06/20 23:24	
Surrogate: 1,2-Dichlorobenzene-d4	70.1 %	17 - 119		B0C0142	03/06/2020	03/06/20 23:24	
Surrogate: 2-Fluorobiphenyl	75.6 %	10 - 133		B0C0142	03/06/2020	03/06/20 23:24	
Surrogate: 4-Terphenyl-d14	76.1 %	5 - 139		B0C0142	03/06/2020	03/06/20 23:24	
Surrogate: Nitrobenzene-d5	71.5 %	13 - 150		B0C0142	03/06/2020	03/06/20 23:24	



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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

Batch B0C0247 - No_Prep_WC1_W

Blank (B0C0247-BLK1)

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	3.4							
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	3.4							
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	3.4							
Alkalinity, Total (as CaCO ₃)	ND	5.0	3.4							

LCS (B0C0247-BS1)

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Total (as CaCO ₃)	88.3500	5.0	3.4	99.9580		88.4	80 - 120			

Matrix Spike (B0C0247-MS1)

Source: 2000555-01

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Total (as CaCO ₃)	257.520	5.0	3.4	99.9580	208.650	48.9	80 - 120			M2

Matrix Spike Dup (B0C0247-MSD1)

Source: 2000555-01

Prepared: 3/11/2020 Analyzed: 3/11/2020

Alkalinity, Total (as CaCO ₃)	255.640	5.0	3.4	99.9580	208.650	47.0	80 - 120	0.733	20	M2



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0227 - No_Prep_WC1_W

Blank (B0C0227-BLK1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Residue, Suspended ND 1.0 1.0

LCS (B0C0227-BS1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

Residue, Suspended 89.0000 10 10 93.4000 95.3 80 - 120

Duplicate (B0C0227-DUP1)

Source: 2000570-01

Prepared: 3/10/2020 Analyzed: 3/10/2020

Residue, Suspended 98.6667 6.7 6.7 90.0000 9.19 10



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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
Batch B0C0165 - No_Prep_IC1_W										
Blank (B0C0165-BLK1)					Prepared: 3/6/2020 Analyzed: 3/6/2020					
Bromide	ND	0.05	0.02							
LCS (B0C0165-BS1)					Prepared: 3/6/2020 Analyzed: 3/6/2020					
Bromide	1.05070	0.05	0.02	1.00000		105	90 - 110			
Duplicate (B0C0165-DUP1)					Source: 2000551-02 Prepared: 3/6/2020 Analyzed: 3/6/2020					
Bromide	0.403400	0.05	0.02		0.236200			52.3	20	
Matrix Spike (B0C0165-MS1)					Source: 2000551-02 Prepared: 3/6/2020 Analyzed: 3/6/2020					
Bromide	3.16200	0.05	0.02	2.50000	0.236200	117	80 - 120			M2
Matrix Spike Dup (B0C0165-MSD1)					Source: 2000551-02 Prepared: 3/6/2020 Analyzed: 3/6/2020					
Bromide	0.295700	0.05	0.02	2.50000	0.236200	2.38	80 - 120	166	20	M2



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

Bromide by Ion Chromatography EPA 300 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD RPD	RPD Limit	Notes
Batch B0C0402 - No_Prep_IC1_W									
Blank (B0C0402-BLK1)					Prepared: 3/17/2020 Analyzed: 3/17/2020				
Bromide	ND	0.05	0.02						
LCS (B0C0402-BS1)					Prepared: 3/17/2020 Analyzed: 3/17/2020				
Bromide	1.05470	0.05	0.02	1.00000		105	90 - 110		
Duplicate (B0C0402-DUP1)					Source: 2000721-01 Prepared: 3/17/2020 Analyzed: 3/17/2020				
Bromide	ND	0.05	0.02					20	
Matrix Spike (B0C0402-MS1)					Source: 2000721-01 Prepared: 3/17/2020 Analyzed: 3/17/2020				
Bromide	2.80000	0.05	0.02	2.50000		112	80 - 120		
Matrix Spike Dup (B0C0402-MSD1)					Source: 2000721-01 Prepared: 3/17/2020 Analyzed: 3/17/2020				
Bromide	3.57950	0.05	0.02	2.50000		143	80 - 120	24.4	20



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Reported : 04/10/2020

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

Batch B0C0131 - No_Prep_II_W

Duplicate (B0C0131-DUP1)

Source: 2000551-02

Prepared: 3/6/2020 Analyzed: 3/6/2020

UV Absorption	ND	0.01	0.01	ND				20	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0197 - No_Prep_II_W

Blank (B0C0197-BLK1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total ND 3.0 0.28

LCS (B0C0197-BS1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total 23.6900 3.0 0.28 24.8826 95.2 80 - 120

Matrix Spike (B0C0197-MS1)

Source: 2000553-05

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total 32.6000 3.0 0.28 24.8826 2.32000 122 80 - 120 M2

Matrix Spike Dup (B0C0197-MSD1)

Source: 2000553-05

Prepared: 3/9/2020 Analyzed: 3/9/2020

Organic Carbon, Total 34.9180 3.0 0.28 24.8826 2.32000 131 80 - 120 6.87 20 M2



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W

Blank (B0C0163-BLK1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

Blank (B0C0163-BLK1) - Continued

Prepared: 3/9/2020 Analyzed: 3/9/2020

Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	28.22	25.0000	113	59 - 158
Surrogate: 4-Bromofluorobenzene	25.03	25.0000	100	71 - 127
Surrogate: Dibromofluoromethane	25.26	25.0000	101	66 - 147
Surrogate: Toluene-d8	24.84	25.0000	99.4	77 - 138

LCS (B0C0163-BS1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	20.8400	0.50	0.11	20.0000	104	71 - 133
1,1,1-Trichloroethane	21.6000	0.50	0.21	20.0000	108	62 - 124
1,1,2,2-Tetrachloroethane	18.9200	0.50	0.36	20.0000	94.6	50 - 131
1,1,2-Trichloroethane	19.3300	0.50	0.25	20.0000	96.6	77 - 121
1,1-Dichloroethane	18.1000	0.50	0.09	20.0000	90.5	52 - 130
1,1-Dichloroethene	18.6900	0.50	0.13	20.0000	93.4	61 - 136
1,1-Dichloropropene	20.6300	0.50	0.13	20.0000	103	80 - 128
1,2,3-Trichloropropane	19.8200	0.50	0.39	20.0000	99.1	59 - 126
1,2,3-Trichlorobenzene	20.5900	0.50	0.18	20.0000	103	69 - 138
1,2,4-Trichlorobenzene	20.3200	0.50	0.16	20.0000	102	78 - 125
1,2,4-Trimethylbenzene	21.4900	0.50	0.14	20.0000	107	70 - 126
1,2-Dibromo-3-chloropropane	18.5800	0.50	0.41	20.0000	92.9	58 - 127
1,2-Dibromoethane	20.3700	0.50	0.24	20.0000	102	76 - 120
1,2-Dichlorobenzene	20.0500	0.50	0.20	20.0000	100	82 - 117
1,2-Dichloroethane	22.1600	0.50	0.20	20.0000	111	66 - 126
1,2-Dichloropropane	18.7300	0.50	0.15	20.0000	93.6	70 - 117
1,3,5-Trimethylbenzene	21.4700	0.50	0.13	20.0000	107	71 - 125



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 : 04/10/2020

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 B0C0163 - MSVOA_LL_W (continued)

LCS (B0C0163-BS1) - Continued

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,3-Dichlorobenzene	19.7200	0.50	0.16	20.0000		98.6	81 - 116		
1,3-Dichloropropane	19.0700	0.50	0.21	20.0000		95.4	69 - 124		
1,4-Dichlorobenzene	21.3300	0.50	0.17	20.0000		107	80 - 114		
2,2-Dichloropropane	22.6400	0.50	0.38	20.0000		113	58 - 132		
2-Chlorotoluene	20.0000	0.50	0.11	20.0000		100	71 - 119		
4-Chlorotoluene	20.1300	0.50	0.12	20.0000		101	72 - 122		
4-Isopropyltoluene	21.8700	0.50	0.11	20.0000		109	69 - 126		
Benzene	19.8100	0.50	0.13	20.0000		99.0	80 - 116		
Bromobenzene	19.5300	0.50	0.21	20.0000		97.6	77 - 118		
Bromodichloromethane	22.4900	0.50	0.14	20.0000		112	73 - 118		
Bromoform	20.7200	0.50	0.20	20.0000		104	65 - 133		
Bromomethane	19.7300	0.50	0.40	20.0000		98.6	7 - 205		
Carbon tetrachloride	22.7500	0.50	0.09	20.0000		114	63 - 133		
Chlorobenzene	19.2500	0.50	0.13	20.0000		96.2	86 - 113		
Chloroethane	24.2200	0.50	0.15	20.0000		121	66 - 141		
Chloroform	19.8200	0.50	0.11	20.0000		99.1	63 - 127		
Chloromethane	12.8500	0.50	0.12	20.0000		64.2	0 - 207		
cis-1,2-Dichloroethene	17.7600	0.50	0.14	20.0000		88.8	64 - 126		
cis-1,3-Dichloropropene	18.2900	0.50	0.13	20.0000		91.4	70 - 141		
Dibromochloromethane	21.6600	0.50	0.16	20.0000		108	67 - 135		
Dibromomethane	20.0400	0.50	0.19	20.0000		100	74 - 118		
Dichlorodifluoromethane	10.3100	0.50	0.18	20.0000		51.6	14 - 181		
Ethylbenzene	20.8800	0.50	0.13	20.0000		104	77 - 118		
Hexachlorobutadiene	22.5100	0.50	0.15	20.0000		113	66 - 125		
Isopropylbenzene	19.2100	0.50	0.10	20.0000		96.0	68 - 137		
m,p-Xylene	42.3700	1.0	0.19	40.0000		106	78 - 126		
Methylene chloride	19.0300	1.0	0.71	20.0000		95.2	51 - 149		
n-Butylbenzene	20.9900	0.50	0.11	20.0000		105	63 - 127		
n-Propylbenzene	20.7500	0.50	0.10	20.0000		104	69 - 124		
Naphthalene	21.1200	0.50	0.41	20.0000		106	60 - 126		
o-Xylene	21.1000	0.50	0.13	20.0000		106	79 - 126		
sec-Butylbenzene	20.8200	0.50	0.09	20.0000		104	69 - 124		
Styrene	20.9800	0.50	0.13	20.0000		105	80 - 127		
tert-Butylbenzene	21.1700	0.50	0.09	20.0000		106	71 - 124		
Tetrachloroethene	19.4000	0.50	0.10	20.0000		97.0	73 - 129		
Toluene	19.1400	0.50	0.12	20.0000		95.7	78 - 121		
trans-1,2-Dichloroethene	18.0800	0.50	0.09	20.0000		90.4	58 - 141		
Trichloroethene	19.3600	0.50	0.10	20.0000		96.8	73 - 126		
Trichlorofluoromethane	21.2000	0.50	0.23	20.0000		106	62 - 146		
Vinyl chloride	14.7400	0.50	0.13	20.0000		73.7	61 - 137		



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

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

Batch B0C0163 - MSVOA_LL_W (continued)

LCS (B0C0163-BS1) - Continued

Prepared: 3/9/2020 Analyzed: 3/9/2020

Surrogate: 1,2-Dichloroethane-d4	28.14		25.0000		113	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.68		25.0000		107	71 - 127			
Surrogate: Dibromofluoromethane	25.38		25.0000		102	66 - 147			
Surrogate: Toluene-d8	25.32		25.0000		101	77 - 138			

LCS Dup (B0C0163-BSD1)

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	20.8900	0.50	0.11	20.0000	104	71 - 133	0.240	20	
1,1,1-Trichloroethane	21.9100	0.50	0.21	20.0000	110	62 - 124	1.42	20	
1,1,2,2-Tetrachloroethane	19.3900	0.50	0.36	20.0000	97.0	50 - 131	2.45	20	
1,1,2-Trichloroethane	20.2500	0.50	0.25	20.0000	101	77 - 121	4.65	20	
1,1-Dichloroethane	18.4900	0.50	0.09	20.0000	92.4	52 - 130	2.13	20	
1,1-Dichloroethene	19.4500	0.50	0.13	20.0000	97.2	61 - 136	3.99	20	
1,1-Dichloropropene	21.0900	0.50	0.13	20.0000	105	80 - 128	2.21	20	
1,2,3-Trichloropropane	20.1700	0.50	0.39	20.0000	101	59 - 126	1.75	20	
1,2,3-Trichlorobenzene	20.9500	0.50	0.18	20.0000	105	69 - 138	1.73	20	
1,2,4-Trichlorobenzene	20.6100	0.50	0.16	20.0000	103	78 - 125	1.42	20	
1,2,4-Trimethylbenzene	21.4200	0.50	0.14	20.0000	107	70 - 126	0.326	20	
1,2-Dibromo-3-chloropropane	19.0500	0.50	0.41	20.0000	95.2	58 - 127	2.50	20	
1,2-Dibromoethane	21.1400	0.50	0.24	20.0000	106	76 - 120	3.71	20	
1,2-Dichlorobenzene	20.2200	0.50	0.20	20.0000	101	82 - 117	0.844	20	
1,2-Dichloroethane	22.3700	0.50	0.20	20.0000	112	66 - 126	0.943	20	
1,2-Dichloropropane	19.5100	0.50	0.15	20.0000	97.6	70 - 117	4.08	20	
1,3,5-Trimethylbenzene	21.4600	0.50	0.13	20.0000	107	71 - 125	0.0466	20	
1,3-Dichlorobenzene	20.0200	0.50	0.16	20.0000	100	81 - 116	1.51	20	
1,3-Dichloropropane	19.7400	0.50	0.21	20.0000	98.7	69 - 124	3.45	20	
1,4-Dichlorobenzene	21.4500	0.50	0.17	20.0000	107	80 - 114	0.561	20	
2,2-Dichloropropane	22.9400	0.50	0.38	20.0000	115	58 - 132	1.32	20	
2-Chlorotoluene	19.9300	0.50	0.11	20.0000	99.6	71 - 119	0.351	20	
4-Chlorotoluene	20.2500	0.50	0.12	20.0000	101	72 - 122	0.594	20	
4-Isopropyltoluene	21.5100	0.50	0.11	20.0000	108	69 - 126	1.66	20	
Benzene	20.3400	0.50	0.13	20.0000	102	80 - 116	2.64	20	
Bromobenzene	19.8300	0.50	0.21	20.0000	99.2	77 - 118	1.52	20	
Bromodichloromethane	22.7900	0.50	0.14	20.0000	114	73 - 118	1.33	20	
Bromoform	21.2100	0.50	0.20	20.0000	106	65 - 133	2.34	20	
Bromomethane	17.1000	0.50	0.40	20.0000	85.5	7 - 205	14.3	20	
Carbon tetrachloride	22.9500	0.50	0.09	20.0000	115	63 - 133	0.875	20	
Chlorobenzene	19.6900	0.50	0.13	20.0000	98.4	86 - 113	2.26	20	
Chloroethane	22.4000	0.50	0.15	20.0000	112	66 - 141	7.81	20	
Chloroform	20.4100	0.50	0.11	20.0000	102	63 - 127	2.93	20	
Chloromethane	13.3700	0.50	0.12	20.0000	66.8	0 - 207	3.97	20	
cis-1,2-Dichloroethene	18.5500	0.50	0.14	20.0000	92.8	64 - 126	4.35	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 : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

LCS Dup (B0C0163-BSD1) - Continued

Prepared: 3/9/2020 Analyzed: 3/9/2020

cis-1,3-Dichloropropene	19.2400	0.50	0.13	20.0000		96.2	70 - 141	5.06	20	
Dibromochloromethane	22.1900	0.50	0.16	20.0000		111	67 - 135	2.42	20	
Dibromomethane	20.4800	0.50	0.19	20.0000		102	74 - 118	2.17	20	
Dichlorodifluoromethane	10.5200	0.50	0.18	20.0000		52.6	14 - 181	2.02	20	
Ethylbenzene	21.0900	0.50	0.13	20.0000		105	77 - 118	1.00	20	
Hexachlorobutadiene	22.7000	0.50	0.15	20.0000		114	66 - 125	0.841	20	
Isopropylbenzene	19.4500	0.50	0.10	20.0000		97.2	68 - 137	1.24	20	
m,p-Xylene	42.6100	1.0	0.19	40.0000		107	78 - 126	0.565	20	
Methylene chloride	19.9300	1.0	0.71	20.0000		99.6	51 - 149	4.62	20	
n-Butylbenzene	20.9900	0.50	0.11	20.0000		105	63 - 127	0.00	20	
n-Propylbenzene	20.5600	0.50	0.10	20.0000		103	69 - 124	0.920	20	
Naphthalene	21.8600	0.50	0.41	20.0000		109	60 - 126	3.44	20	
o-Xylene	21.4900	0.50	0.13	20.0000		107	79 - 126	1.83	20	
sec-Butylbenzene	21.0000	0.50	0.09	20.0000		105	69 - 124	0.861	20	
Styrene	21.2300	0.50	0.13	20.0000		106	80 - 127	1.18	20	
tert-Butylbenzene	21.1600	0.50	0.09	20.0000		106	71 - 124	0.0472	20	
Tetrachloroethene	19.7900	0.50	0.10	20.0000		99.0	73 - 129	1.99	20	
Toluene	19.7200	0.50	0.12	20.0000		98.6	78 - 121	2.99	20	
trans-1,2-Dichloroethene	18.7000	0.50	0.09	20.0000		93.5	58 - 141	3.37	20	
Trichloroethene	19.8400	0.50	0.10	20.0000		99.2	73 - 126	2.45	20	
Trichlorofluoromethane	21.4900	0.50	0.23	20.0000		107	62 - 146	1.36	20	
Vinyl chloride	14.9600	0.50	0.13	20.0000		74.8	61 - 137	1.48	20	

Surrogate: 1,2-Dichloroethane-d4	27.67			25.0000		111	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.06			25.0000		104	71 - 127			
Surrogate: Dibromofluoromethane	25.72			25.0000		103	66 - 147			
Surrogate: Toluene-d8	25.48			25.0000		102	77 - 138			

Matrix Spike (B0C0163-MS1)

Source: 2000553-04

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	22.1000	0.50	0.11	20.0000	ND	110	71 - 133			
1,1,1-Trichloroethane	24.5300	0.50	0.21	20.0000	ND	123	62 - 124			
1,1,2,2-Tetrachloroethane	19.9200	0.50	0.36	20.0000	ND	99.6	50 - 131			
1,1,2-Trichloroethane	20.9700	0.50	0.25	20.0000	ND	105	77 - 121			
1,1-Dichloroethane	19.4900	0.50	0.09	20.0000	ND	97.4	52 - 130			
1,1-Dichloroethene	20.6300	0.50	0.13	20.0000	ND	103	61 - 136			
1,1-Dichloropropene	22.8500	0.50	0.13	20.0000	ND	114	80 - 128			
1,2,3-Trichloropropane	20.4000	0.50	0.39	20.0000	ND	102	59 - 126			
1,2,3-Trichlorobenzene	19.3100	0.50	0.18	20.0000	ND	96.6	69 - 138			
1,2,4-Trichlorobenzene	19.0500	0.50	0.16	20.0000	ND	95.2	78 - 125			
1,2,4-Trimethylbenzene	13.0800	0.50	0.14	20.0000	ND	65.4	70 - 126			M2
1,2-Dibromo-3-chloropropane	19.7200	0.50	0.41	20.0000	ND	98.6	58 - 127			



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

Matrix Spike (B0C0163-MS1) - Continued

Source: 2000553-04

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,2-Dibromoethane	21.9900	0.50	0.24	20.0000	ND	110	76 - 120			
1,2-Dichlorobenzene	19.9100	0.50	0.20	20.0000	ND	99.6	82 - 117			
1,2-Dichloroethane	23.6900	0.50	0.20	20.0000	ND	118	66 - 126			
1,2-Dichloropropane	20.0400	0.50	0.15	20.0000	ND	100	70 - 117			
1,3,5-Trimethylbenzene	19.0500	0.50	0.13	20.0000	ND	95.2	71 - 125			
1,3-Dichlorobenzene	19.8500	0.50	0.16	20.0000	ND	99.2	81 - 116			
1,3-Dichloropropane	20.1800	0.50	0.21	20.0000	ND	101	69 - 124			
1,4-Dichlorobenzene	21.2600	0.50	0.17	20.0000	ND	106	80 - 114			
2,2-Dichloropropane	24.3200	0.50	0.38	20.0000	ND	122	58 - 132			
2-Chlorotoluene	20.2800	0.50	0.11	20.0000	ND	101	71 - 119			
4-Chlorotoluene	20.2600	0.50	0.12	20.0000	ND	101	72 - 122			
4-Isopropyltoluene	20.3200	0.50	0.11	20.0000	ND	102	69 - 126			
Benzene	21.5000	0.50	0.13	20.0000	ND	108	80 - 116			
Bromobenzene	19.7200	0.50	0.21	20.0000	ND	98.6	77 - 118			
Bromodichloromethane	24.3000	0.50	0.14	20.0000	ND	122	73 - 118			M2
Bromoform	22.4300	0.50	0.20	20.0000	ND	112	65 - 133			
Bromomethane	24.4500	0.50	0.40	20.0000	ND	122	7 - 205			
Carbon tetrachloride	27.8700	0.50	0.09	20.0000	ND	139	63 - 133			M2
Chlorobenzene	20.2000	0.50	0.13	20.0000	ND	101	81 - 115			
Chloroethane	39.9300	0.50	0.15	20.0000	ND	200	66 - 141			M2
Chloroform	21.1000	0.50	0.11	20.0000	ND	106	63 - 127			
Chloromethane	13.5300	0.50	0.12	20.0000	ND	67.6	0 - 207			
cis-1,2-Dichloroethene	19.3000	0.50	0.14	20.0000	ND	96.5	64 - 126			
cis-1,3-Dichloropropene	19.6500	0.50	0.13	20.0000	ND	98.2	70 - 141			
Dibromochloromethane	22.8600	0.50	0.16	20.0000	ND	114	67 - 135			
Dibromomethane	21.6300	0.50	0.19	20.0000	ND	108	74 - 118			
Dichlorodifluoromethane	12.6900	0.50	0.18	20.0000	ND	63.4	14 - 181			
Ethylbenzene	21.7600	0.50	0.13	20.0000	ND	109	77 - 118			
Hexachlorobutadiene	21.1500	0.50	0.15	20.0000	0.170000	105	66 - 125			
Isopropylbenzene	19.9700	0.50	0.10	20.0000	ND	99.8	68 - 137			
m,p-Xylene	42.2600	1.0	0.19	40.0000	ND	106	78 - 126			
Methylene chloride	19.2700	1.0	0.71	20.0000	ND	96.4	51 - 149			
n-Butylbenzene	20.2800	0.50	0.11	20.0000	0.120000	101	63 - 127			
n-Propylbenzene	21.1600	0.50	0.10	20.0000	ND	106	69 - 124			
Naphthalene	16.3900	0.50	0.41	20.0000	ND	82.0	60 - 126			
o-Xylene	21.8400	0.50	0.13	20.0000	ND	109	79 - 126			
sec-Butylbenzene	21.4700	0.50	0.09	20.0000	ND	107	69 - 124			
Styrene	8.99000	0.50	0.13	20.0000	ND	45.0	80 - 127			M2
tert-Butylbenzene	22.2800	0.50	0.09	20.0000	ND	111	71 - 124			
Tetrachloroethene	21.4200	0.50	0.10	20.0000	ND	107	73 - 129			



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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

Batch B0C0163 - MSVOA_LL_W (continued)

Matrix Spike (B0C0163-MS1) - Continued

Source: 2000553-04

Prepared: 3/9/2020 Analyzed: 3/9/2020

Toluene	20.5300	0.50	0.12	20.0000	ND	103	78 - 121
trans-1,2-Dichloroethene	18.6800	0.50	0.09	20.0000	ND	93.4	58 - 141
Trichloroethene	20.7300	0.50	0.10	20.0000	ND	104	73 - 126
Trichlorofluoromethane	25.7300	0.50	0.23	20.0000	0.280000	127	62 - 146
Vinyl chloride	16.5200	0.50	0.13	20.0000	ND	82.6	61 - 137
Surrogate: 1,2-Dichloroethane-d4	29.62			25.0000		118	59 - 158
Surrogate: 4-Bromofluorobenzene	27.41			25.0000		110	71 - 127
Surrogate: Dibromofluoromethane	26.45			25.0000		106	66 - 147
Surrogate: Toluene-d8	25.89			25.0000		104	77 - 138

Matrix Spike (B0C0163-MS2)

Source: 2000563-02

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	19.7400	0.50	0.11	20.0000	ND	98.7	71 - 133
1,1,1-Trichloroethane	22.4800	0.50	0.21	20.0000	ND	112	62 - 124
1,1,2,2-Tetrachloroethane	18.2800	0.50	0.36	20.0000	ND	91.4	50 - 131
1,1,2-Trichloroethane	19.1500	0.50	0.25	20.0000	ND	95.8	77 - 121
1,1-Dichloroethane	16.9200	0.50	0.09	20.0000	ND	84.6	52 - 130
1,1-Dichloroethene	19.5400	0.50	0.13	20.0000	ND	97.7	61 - 136
1,1-Dichloropropene	21.3200	0.50	0.13	20.0000	ND	107	80 - 128
1,2,3-Trichloropropane	19.1900	0.50	0.39	20.0000	ND	96.0	59 - 126
1,2,3-Trichlorobenzene	17.0700	0.50	0.18	20.0000	ND	85.4	69 - 138
1,2,4-Trichlorobenzene	16.1200	0.50	0.16	20.0000	0.200000	79.6	78 - 125
1,2,4-Trimethylbenzene	17.3400	0.50	0.14	20.0000	ND	86.7	70 - 126
1,2-Dibromo-3-chloropropane	18.3100	0.50	0.41	20.0000	ND	91.6	58 - 127
1,2-Dibromoethane	20.6700	0.50	0.24	20.0000	ND	103	76 - 120
1,2-Dichlorobenzene	18.0300	0.50	0.20	20.0000	ND	90.2	82 - 117
1,2-Dichloroethane	21.9700	0.50	0.20	20.0000	ND	110	66 - 126
1,2-Dichloropropane	17.5300	0.50	0.15	20.0000	ND	87.6	70 - 117
1,3,5-Trimethylbenzene	18.7800	0.50	0.13	20.0000	ND	93.9	71 - 125
1,3-Dichlorobenzene	17.4500	0.50	0.16	20.0000	ND	87.2	81 - 116
1,3-Dichloropropane	18.3200	0.50	0.21	20.0000	ND	91.6	69 - 124
1,4-Dichlorobenzene	18.5900	0.50	0.17	20.0000	ND	93.0	80 - 114
2,2-Dichloropropane	18.9800	0.50	0.38	20.0000	ND	94.9	58 - 132
2-Chlorotoluene	17.9500	0.50	0.11	20.0000	ND	89.8	71 - 119
4-Chlorotoluene	17.9000	0.50	0.12	20.0000	ND	89.5	72 - 122
4-Isopropyltoluene	18.9500	0.50	0.11	20.0000	ND	94.8	69 - 126
Benzene	18.8400	0.50	0.13	20.0000	ND	94.2	80 - 116
Bromobenzene	17.5800	0.50	0.21	20.0000	ND	87.9	77 - 118
Bromodichloromethane	21.5200	0.50	0.14	20.0000	ND	108	73 - 118
Bromoform	20.7000	0.50	0.20	20.0000	ND	104	65 - 133
Bromomethane	25.2700	0.50	0.40	20.0000	ND	126	7 - 205



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 : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

Matrix Spike (B0C0163-MS2) - Continued

Source: 2000563-02

Prepared: 3/9/2020 Analyzed: 3/9/2020

Carbon tetrachloride	25.7800	0.50	0.09	20.0000	ND	129	63 - 133			
Chlorobenzene	17.8400	0.50	0.13	20.0000	ND	89.2	81 - 115			
Chloroethane	36.1300	0.50	0.15	20.0000	ND	181	66 - 141			M2
Chloroform	18.7100	0.50	0.11	20.0000	0.430000	91.4	63 - 127			
Chloromethane	11.8600	0.50	0.12	20.0000	ND	59.3	0 - 207			
cis-1,2-Dichloroethene	16.4100	0.50	0.14	20.0000	ND	82.0	64 - 126			
cis-1,3-Dichloropropene	16.6500	0.50	0.13	20.0000	ND	83.2	70 - 141			
Dibromochloromethane	20.5000	0.50	0.16	20.0000	ND	102	67 - 135			
Dibromomethane	19.9500	0.50	0.19	20.0000	ND	99.8	74 - 118			
Dichlorodifluoromethane	13.3100	0.50	0.18	20.0000	ND	66.6	14 - 181			
Ethylbenzene	19.7900	0.50	0.13	20.0000	ND	99.0	77 - 118			
Hexachlorobutadiene	16.7000	0.50	0.15	20.0000	0.480000	81.1	66 - 125			
Isopropylbenzene	17.7900	0.50	0.10	20.0000	ND	89.0	68 - 137			
m,p-Xylene	39.6600	1.0	0.19	40.0000	ND	99.2	78 - 126			
Methylene chloride	16.9700	1.0	0.71	20.0000	ND	84.8	51 - 149			
n-Butylbenzene	17.1700	0.50	0.11	20.0000	0.230000	84.7	63 - 127			
n-Propylbenzene	18.7700	0.50	0.10	20.0000	ND	93.8	69 - 124			
Naphthalene	17.4700	0.50	0.41	20.0000	ND	87.4	60 - 126			
o-Xylene	19.6700	0.50	0.13	20.0000	ND	98.4	79 - 126			
sec-Butylbenzene	19.3900	0.50	0.09	20.0000	ND	97.0	69 - 124			
Styrene	7.60000	0.50	0.13	20.0000	ND	38.0	80 - 127			M2
tert-Butylbenzene	19.8600	0.50	0.09	20.0000	ND	99.3	71 - 124			
Tetrachloroethene	19.5700	0.50	0.10	20.0000	0.290000	96.4	73 - 129			
Toluene	18.4300	0.50	0.12	20.0000	ND	92.2	78 - 121			
trans-1,2-Dichloroethene	16.6700	0.50	0.09	20.0000	ND	83.4	58 - 141			
Trichloroethene	18.5600	0.50	0.10	20.0000	ND	92.8	73 - 126			
Trichlorofluoromethane	24.6700	0.50	0.23	20.0000	ND	123	62 - 146			
Vinyl chloride	14.9500	0.50	0.13	20.0000	ND	74.8	61 - 137			
Surrogate: 1,2-Dichloroethane-d4	31.68			25.0000		127	59 - 158			
Surrogate: 4-Bromofluorobenzene	27.39			25.0000		110	71 - 127			
Surrogate: Dibromofluoromethane	26.56			25.0000		106	66 - 147			
Surrogate: Toluene-d8	26.11			25.0000		104	77 - 138			

Matrix Spike Dup (B0C0163-MSD1)

Source: 2000553-04

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	21.8600	0.50	0.11	20.0000	ND	109	71 - 133	1.09	20
1,1,1-Trichloroethane	23.8000	0.50	0.21	20.0000	ND	119	62 - 124	3.02	20
1,1,2,2-Tetrachloroethane	19.8400	0.50	0.36	20.0000	ND	99.2	50 - 131	0.402	20
1,1,2-Trichloroethane	20.2000	0.50	0.25	20.0000	ND	101	77 - 121	3.74	20
1,1-Dichloroethane	19.5700	0.50	0.09	20.0000	ND	97.8	52 - 130	0.410	20
1,1-Dichloroethene	21.0400	0.50	0.13	20.0000	ND	105	61 - 136	1.97	20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

Matrix Spike Dup (B0C0163-MSD1) - Continued

Source: 2000553-04

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1-Dichloropropene	23.0000	0.50	0.13	20.0000	ND	115	80 - 128	0.654	20	
1,2,3-Trichloropropane	20.2800	0.50	0.39	20.0000	ND	101	59 - 126	0.590	20	
1,2,3-Trichlorobenzene	20.2800	0.50	0.18	20.0000	ND	101	69 - 138	4.90	20	
1,2,4-Trichlorobenzene	19.9200	0.50	0.16	20.0000	ND	99.6	78 - 125	4.46	20	
1,2,4-Trimethylbenzene	13.9100	0.50	0.14	20.0000	ND	69.6	70 - 126	6.15	20	M2
1,2-Dibromo-3-chloropropane	20.0000	0.50	0.41	20.0000	ND	100	58 - 127	1.41	20	
1,2-Dibromoethane	21.4200	0.50	0.24	20.0000	ND	107	76 - 120	2.63	20	
1,2-Dichlorobenzene	20.4000	0.50	0.20	20.0000	ND	102	82 - 117	2.43	20	
1,2-Dichloroethane	22.6900	0.50	0.20	20.0000	ND	113	66 - 126	4.31	20	
1,2-Dichloropropane	19.4900	0.50	0.15	20.0000	ND	97.4	70 - 117	2.78	20	
1,3,5-Trimethylbenzene	19.3800	0.50	0.13	20.0000	ND	96.9	71 - 125	1.72	20	
1,3-Dichlorobenzene	20.1300	0.50	0.16	20.0000	ND	101	81 - 116	1.40	20	
1,3-Dichloropropane	19.9200	0.50	0.21	20.0000	ND	99.6	69 - 124	1.30	20	
1,4-Dichlorobenzene	21.4500	0.50	0.17	20.0000	ND	107	80 - 114	0.890	20	
2,2-Dichloropropane	23.9800	0.50	0.38	20.0000	ND	120	58 - 132	1.41	20	
2-Chlorotoluene	20.6500	0.50	0.11	20.0000	ND	103	71 - 119	1.81	20	
4-Chlorotoluene	20.4900	0.50	0.12	20.0000	ND	102	72 - 122	1.13	20	
4-Isopropyltoluene	21.1000	0.50	0.11	20.0000	ND	106	69 - 126	3.77	20	
Benzene	20.9300	0.50	0.13	20.0000	ND	105	80 - 116	2.69	20	
Bromobenzene	19.9500	0.50	0.21	20.0000	ND	99.8	77 - 118	1.16	20	
Bromodichloromethane	23.3800	0.50	0.14	20.0000	ND	117	73 - 118	3.86	20	
Bromoform	21.8600	0.50	0.20	20.0000	ND	109	65 - 133	2.57	20	
Bromomethane	24.3700	0.50	0.40	20.0000	ND	122	7 - 205	0.328	20	
Carbon tetrachloride	26.0100	0.50	0.09	20.0000	ND	130	63 - 133	6.90	20	
Chlorobenzene	20.1600	0.50	0.13	20.0000	ND	101	81 - 115	0.198	20	
Chloroethane	39.8800	0.50	0.15	20.0000	ND	199	66 - 141	0.125	20	M2
Chloroform	20.8100	0.50	0.11	20.0000	ND	104	63 - 127	1.38	20	
Chloromethane	14.1300	0.50	0.12	20.0000	ND	70.6	0 - 207	4.34	20	
cis-1,2-Dichloroethene	18.9400	0.50	0.14	20.0000	ND	94.7	64 - 126	1.88	20	
cis-1,3-Dichloropropene	19.3000	0.50	0.13	20.0000	ND	96.5	70 - 141	1.80	20	
Dibromochloromethane	22.8400	0.50	0.16	20.0000	ND	114	67 - 135	0.0875	20	
Dibromomethane	21.2600	0.50	0.19	20.0000	ND	106	74 - 118	1.73	20	
Dichlorodifluoromethane	12.3100	0.50	0.18	20.0000	ND	61.6	14 - 181	3.04	20	
Ethylbenzene	21.8300	0.50	0.13	20.0000	ND	109	77 - 118	0.321	20	
Hexachlorobutadiene	21.9000	0.50	0.15	20.0000	0.170000	109	66 - 125	3.48	20	
Isopropylbenzene	20.1300	0.50	0.10	20.0000	ND	101	68 - 137	0.798	20	
m,p-Xylene	42.1200	1.0	0.19	40.0000	ND	105	78 - 126	0.332	20	
Methylene chloride	19.2500	1.0	0.71	20.0000	ND	96.2	51 - 149	0.104	20	
n-Butylbenzene	21.0200	0.50	0.11	20.0000	0.120000	104	63 - 127	3.58	20	
n-Propylbenzene	21.4400	0.50	0.10	20.0000	ND	107	69 - 124	1.31	20	



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

Matrix Spike Dup (B0C0163-MSD1) - Continued

Source: 2000553-04

Prepared: 3/9/2020 Analyzed: 3/9/2020

Naphthalene	18.2000	0.50	0.41	20.0000	ND	91.0	60 - 126	10.5	20
o-Xylene	21.5300	0.50	0.13	20.0000	ND	108	79 - 126	1.43	20
sec-Butylbenzene	22.1100	0.50	0.09	20.0000	ND	111	69 - 124	2.94	20
Styrene	9.82000	0.50	0.13	20.0000	ND	49.1	80 - 127	8.83	20
tert-Butylbenzene	22.4700	0.50	0.09	20.0000	ND	112	71 - 124	0.849	20
Tetrachloroethene	21.4600	0.50	0.10	20.0000	ND	107	73 - 129	0.187	20
Toluene	20.1700	0.50	0.12	20.0000	ND	101	78 - 121	1.77	20
trans-1,2-Dichloroethene	18.7600	0.50	0.09	20.0000	ND	93.8	58 - 141	0.427	20
Trichloroethene	20.4500	0.50	0.10	20.0000	ND	102	73 - 126	1.36	20
Trichlorofluoromethane	24.8900	0.50	0.23	20.0000	0.280000	123	62 - 146	3.32	20
Vinyl chloride	17.0400	0.50	0.13	20.0000	ND	85.2	61 - 137	3.10	20
Surrogate: 1,2-Dichloroethane-d4	28.55			25.0000		114	59 - 158		
Surrogate: 4-Bromofluorobenzene	26.95			25.0000		108	71 - 127		
Surrogate: Dibromofluoromethane	26.37			25.0000		105	66 - 147		
Surrogate: Toluene-d8	25.67			25.0000		103	77 - 138		

Matrix Spike Dup (B0C0163-MSD2)

Source: 2000563-02

Prepared: 3/9/2020 Analyzed: 3/9/2020

1,1,1,2-Tetrachloroethane	19.1200	0.50	0.11	20.0000	ND	95.6	71 - 133	3.19	20
1,1,1-Trichloroethane	21.6700	0.50	0.21	20.0000	ND	108	62 - 124	3.67	20
1,1,2,2-Tetrachloroethane	18.5400	0.50	0.36	20.0000	ND	92.7	50 - 131	1.41	20
1,1,2-Trichloroethane	18.8400	0.50	0.25	20.0000	ND	94.2	77 - 121	1.63	20
1,1-Dichloroethane	16.6400	0.50	0.09	20.0000	ND	83.2	52 - 130	1.67	20
1,1-Dichloroethene	19.4900	0.50	0.13	20.0000	ND	97.4	61 - 136	0.256	20
1,1-Dichloropropene	21.0000	0.50	0.13	20.0000	ND	105	80 - 128	1.51	20
1,2,3-Trichloropropane	19.0200	0.50	0.39	20.0000	ND	95.1	59 - 126	0.890	20
1,2,3-Trichlorobenzene	17.6000	0.50	0.18	20.0000	ND	88.0	69 - 138	3.06	20
1,2,4-Trichlorobenzene	16.8500	0.50	0.16	20.0000	0.200000	83.2	78 - 125	4.43	20
1,2,4-Trimethylbenzene	17.2100	0.50	0.14	20.0000	ND	86.0	70 - 126	0.753	20
1,2-Dibromo-3-chloropropane	18.8600	0.50	0.41	20.0000	ND	94.3	58 - 127	2.96	20
1,2-Dibromoethane	19.9000	0.50	0.24	20.0000	ND	99.5	76 - 120	3.80	20
1,2-Dichlorobenzene	17.6400	0.50	0.20	20.0000	ND	88.2	82 - 117	2.19	20
1,2-Dichloroethane	20.6400	0.50	0.20	20.0000	ND	103	66 - 126	6.24	20
1,2-Dichloropropane	17.1700	0.50	0.15	20.0000	ND	85.8	70 - 117	2.07	20
1,3,5-Trimethylbenzene	18.6900	0.50	0.13	20.0000	ND	93.4	71 - 125	0.480	20
1,3-Dichlorobenzene	17.5500	0.50	0.16	20.0000	ND	87.8	81 - 116	0.571	20
1,3-Dichloropropane	17.6200	0.50	0.21	20.0000	ND	88.1	69 - 124	3.90	20
1,4-Dichlorobenzene	18.4400	0.50	0.17	20.0000	ND	92.2	80 - 114	0.810	20
2,2-Dichloropropane	18.8300	0.50	0.38	20.0000	ND	94.2	58 - 132	0.793	20
2-Chlorotoluene	17.6900	0.50	0.11	20.0000	ND	88.4	71 - 119	1.46	20
4-Chlorotoluene	17.7900	0.50	0.12	20.0000	ND	89.0	72 - 122	0.616	20



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Reported : 04/10/2020

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

Batch B0C0163 - MSVOA_LL_W (continued)

Matrix Spike Dup (B0C0163-MSD2) - Continued

Source: 2000563-02

Prepared: 3/9/2020 Analyzed: 3/9/2020

4-Isopropyltoluene	19.1000	0.50	0.11	20.0000	ND	95.5	69 - 126	0.788	20	
Benzene	18.3700	0.50	0.13	20.0000	ND	91.8	80 - 116	2.53	20	
Bromobenzene	17.4800	0.50	0.21	20.0000	ND	87.4	77 - 118	0.570	20	
Bromodichloromethane	20.7400	0.50	0.14	20.0000	ND	104	73 - 118	3.69	20	
Bromoform	19.6700	0.50	0.20	20.0000	ND	98.4	65 - 133	5.10	20	
Bromomethane	21.5600	0.50	0.40	20.0000	ND	108	7 - 205	15.8	20	
Carbon tetrachloride	24.6900	0.50	0.09	20.0000	ND	123	63 - 133	4.32	20	
Chlorobenzene	17.2100	0.50	0.13	20.0000	ND	86.0	81 - 115	3.59	20	
Chloroethane	36.5200	0.50	0.15	20.0000	ND	183	66 - 141	1.07	20	M2
Chloroform	18.2700	0.50	0.11	20.0000	0.430000	89.2	63 - 127	2.38	20	
Chloromethane	12.2800	0.50	0.12	20.0000	ND	61.4	0 - 207	3.48	20	
cis-1,2-Dichloroethene	16.1400	0.50	0.14	20.0000	ND	80.7	64 - 126	1.66	20	
cis-1,3-Dichloropropene	16.5200	0.50	0.13	20.0000	ND	82.6	70 - 141	0.784	20	
Dibromochloromethane	19.8500	0.50	0.16	20.0000	ND	99.2	67 - 135	3.22	20	
Dibromomethane	18.9200	0.50	0.19	20.0000	ND	94.6	74 - 118	5.30	20	
Dichlorodifluoromethane	12.8800	0.50	0.18	20.0000	ND	64.4	14 - 181	3.28	20	
Ethylbenzene	19.1500	0.50	0.13	20.0000	ND	95.8	77 - 118	3.29	20	
Hexachlorobutadiene	18.1100	0.50	0.15	20.0000	0.480000	88.2	66 - 125	8.10	20	
Isopropylbenzene	17.9900	0.50	0.10	20.0000	ND	90.0	68 - 137	1.12	20	
m,p-Xylene	38.0900	1.0	0.19	40.0000	ND	95.2	78 - 126	4.04	20	
Methylene chloride	16.6300	1.0	0.71	20.0000	ND	83.2	51 - 149	2.02	20	
n-Butylbenzene	17.9300	0.50	0.11	20.0000	0.230000	88.5	63 - 127	4.33	20	
n-Propylbenzene	18.9600	0.50	0.10	20.0000	ND	94.8	69 - 124	1.01	20	
Naphthalene	18.6800	0.50	0.41	20.0000	ND	93.4	60 - 126	6.69	20	
o-Xylene	18.8100	0.50	0.13	20.0000	ND	94.0	79 - 126	4.47	20	
sec-Butylbenzene	19.6000	0.50	0.09	20.0000	ND	98.0	69 - 124	1.08	20	
Styrene	7.28000	0.50	0.13	20.0000	ND	36.4	80 - 127	4.30	20	M2
tert-Butylbenzene	19.8200	0.50	0.09	20.0000	ND	99.1	71 - 124	0.202	20	
Tetrachloroethene	18.9900	0.50	0.10	20.0000	0.290000	93.5	73 - 129	3.01	20	
Toluene	18.0500	0.50	0.12	20.0000	ND	90.2	78 - 121	2.08	20	
trans-1,2-Dichloroethene	16.7900	0.50	0.09	20.0000	ND	84.0	58 - 141	0.717	20	
Trichloroethene	18.4700	0.50	0.10	20.0000	ND	92.4	73 - 126	0.486	20	
Trichlorofluoromethane	24.3000	0.50	0.23	20.0000	ND	122	62 - 146	1.51	20	
Vinyl chloride	15.7200	0.50	0.13	20.0000	ND	78.6	61 - 137	5.02	20	
Surrogate: 1,2-Dichloroethane-d4	30.90			25.0000		124	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.81			25.0000		107	71 - 127			
Surrogate: Dibromofluoromethane	26.45			25.0000		106	66 - 147			
Surrogate: Toluene-d8	25.53			25.0000		102	77 - 138			



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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

Batch B0C0193 - MSVOA_LL_W

Blank (B0C0193-BLK1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0193 - MSVOA_LL_W (continued)

Blank (B0C0193-BLK1) - Continued

Prepared: 3/10/2020 Analyzed: 3/10/2020

Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	28.51	25.0000	114	59 - 158
Surrogate: 4-Bromofluorobenzene	25.25	25.0000	101	71 - 127
Surrogate: Dibromofluoromethane	25.73	25.0000	103	66 - 147
Surrogate: Toluene-d8	25.12	25.0000	100	77 - 138

LCS (B0C0193-BS1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,1,1,2-Tetrachloroethane	20.3600	0.50	0.11	20.0000	102	71 - 133
1,1,1-Trichloroethane	21.8200	0.50	0.21	20.0000	109	62 - 124
1,1,2,2-Tetrachloroethane	18.2400	0.50	0.36	20.0000	91.2	50 - 131
1,1,2-Trichloroethane	18.7900	0.50	0.25	20.0000	94.0	77 - 121
1,1-Dichloroethane	17.6200	0.50	0.09	20.0000	88.1	52 - 130
1,1-Dichloroethene	20.1200	0.50	0.13	20.0000	101	61 - 136
1,1-Dichloropropene	21.8200	0.50	0.13	20.0000	109	80 - 128
1,2,3-Trichloropropane	18.6000	0.50	0.39	20.0000	93.0	59 - 126
1,2,3-Trichlorobenzene	19.3600	0.50	0.18	20.0000	96.8	69 - 138
1,2,4-Trichlorobenzene	19.4700	0.50	0.16	20.0000	97.4	78 - 125
1,2,4-Trimethylbenzene	20.9200	0.50	0.14	20.0000	105	70 - 126
1,2-Dibromo-3-chloropropane	16.6600	0.50	0.41	20.0000	83.3	58 - 127
1,2-Dibromoethane	20.0600	0.50	0.24	20.0000	100	76 - 120
1,2-Dichlorobenzene	19.3300	0.50	0.20	20.0000	96.6	82 - 117
1,2-Dichloroethane	21.3600	0.50	0.20	20.0000	107	66 - 126
1,2-Dichloropropane	18.6100	0.50	0.15	20.0000	93.0	70 - 117
1,3,5-Trimethylbenzene	21.0800	0.50	0.13	20.0000	105	71 - 125



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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 B0C0193 - MSVOA_LL_W (continued)

LCS (B0C0193-BS1) - Continued

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,3-Dichlorobenzene	19.3000	0.50	0.16	20.0000		96.5	81 - 116		
1,3-Dichloropropane	18.6800	0.50	0.21	20.0000		93.4	69 - 124		
1,4-Dichlorobenzene	20.4600	0.50	0.17	20.0000		102	80 - 114		
2,2-Dichloropropane	23.3000	0.50	0.38	20.0000		116	58 - 132		
2-Chlorotoluene	19.5000	0.50	0.11	20.0000		97.5	71 - 119		
4-Chlorotoluene	19.6200	0.50	0.12	20.0000		98.1	72 - 122		
4-Isopropyltoluene	21.6700	0.50	0.11	20.0000		108	69 - 126		
Benzene	19.8700	0.50	0.13	20.0000		99.4	80 - 116		
Bromobenzene	19.1900	0.50	0.21	20.0000		96.0	77 - 118		
Bromodichloromethane	21.7700	0.50	0.14	20.0000		109	73 - 118		
Bromoform	19.7700	0.50	0.20	20.0000		98.8	65 - 133		
Bromomethane	23.3400	0.50	0.40	20.0000		117	7 - 205		
Carbon tetrachloride	24.0800	0.50	0.09	20.0000		120	63 - 133		
Chlorobenzene	19.0500	0.50	0.13	20.0000		95.2	86 - 113		
Chloroethane	27.8800	0.50	0.15	20.0000		139	66 - 141		
Chloroform	19.2200	0.50	0.11	20.0000		96.1	63 - 127		
Chloromethane	16.6000	0.50	0.12	20.0000		83.0	0 - 207		
cis-1,2-Dichloroethene	17.7700	0.50	0.14	20.0000		88.8	64 - 126		
cis-1,3-Dichloropropene	18.7700	0.50	0.13	20.0000		93.8	70 - 141		
Dibromochloromethane	20.8700	0.50	0.16	20.0000		104	67 - 135		
Dibromomethane	19.8000	0.50	0.19	20.0000		99.0	74 - 118		
Dichlorodifluoromethane	21.1300	0.50	0.18	20.0000		106	14 - 181		
Ethylbenzene	20.5800	0.50	0.13	20.0000		103	77 - 118		
Hexachlorobutadiene	23.4300	0.50	0.15	20.0000		117	66 - 125		
Isopropylbenzene	19.2400	0.50	0.10	20.0000		96.2	68 - 137		
m,p-Xylene	41.7700	1.0	0.19	40.0000		104	78 - 126		
Methylene chloride	19.0000	1.0	0.71	20.0000		95.0	51 - 149		
n-Butylbenzene	20.6900	0.50	0.11	20.0000		103	63 - 127		
n-Propylbenzene	20.6000	0.50	0.10	20.0000		103	69 - 124		
Naphthalene	19.2300	0.50	0.41	20.0000		96.2	60 - 126		
o-Xylene	20.8900	0.50	0.13	20.0000		104	79 - 126		
sec-Butylbenzene	21.1100	0.50	0.09	20.0000		106	69 - 124		
Styrene	20.2700	0.50	0.13	20.0000		101	80 - 127		
tert-Butylbenzene	21.1400	0.50	0.09	20.0000		106	71 - 124		
Tetrachloroethene	20.3800	0.50	0.10	20.0000		102	73 - 129		
Toluene	19.0300	0.50	0.12	20.0000		95.2	78 - 121		
trans-1,2-Dichloroethene	18.3900	0.50	0.09	20.0000		92.0	58 - 141		
Trichloroethene	19.6500	0.50	0.10	20.0000		98.2	73 - 126		
Trichlorofluoromethane	24.2000	0.50	0.23	20.0000		121	62 - 146		
Vinyl chloride	17.9700	0.50	0.13	20.0000		89.8	61 - 137		



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Hargis & Associates, Inc.

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

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

Batch B0C0193 - MSVOA_LL_W (continued)

LCS (B0C0193-BS1) - Continued

Prepared: 3/10/2020 Analyzed: 3/10/2020

Surrogate: 1,2-Dichloroethane-d4	27.72		25.0000		111	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.68		25.0000		107	71 - 127			
Surrogate: Dibromofluoromethane	25.71		25.0000		103	66 - 147			
Surrogate: Toluene-d8	25.65		25.0000		103	77 - 138			

LCS Dup (B0C0193-BSD1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,1,1,2-Tetrachloroethane	20.5700	0.50	0.11	20.0000	103	71 - 133	1.03	20	
1,1,1-Trichloroethane	20.7400	0.50	0.21	20.0000	104	62 - 124	5.08	20	
1,1,2,2-Tetrachloroethane	18.6400	0.50	0.36	20.0000	93.2	50 - 131	2.17	20	
1,1,2-Trichloroethane	19.2500	0.50	0.25	20.0000	96.2	77 - 121	2.42	20	
1,1-Dichloroethane	18.2800	0.50	0.09	20.0000	91.4	52 - 130	3.68	20	
1,1-Dichloroethene	18.4300	0.50	0.13	20.0000	92.2	61 - 136	8.77	20	
1,1-Dichloropropene	20.1400	0.50	0.13	20.0000	101	80 - 128	8.01	20	
1,2,3-Trichloropropane	19.4900	0.50	0.39	20.0000	97.4	59 - 126	4.67	20	
1,2,3-Trichlorobenzene	20.2900	0.50	0.18	20.0000	101	69 - 138	4.69	20	
1,2,4-Trichlorobenzene	19.9400	0.50	0.16	20.0000	99.7	78 - 125	2.39	20	
1,2,4-Trimethylbenzene	20.8700	0.50	0.14	20.0000	104	70 - 126	0.239	20	
1,2-Dibromo-3-chloropropane	19.2000	0.50	0.41	20.0000	96.0	58 - 127	14.2	20	
1,2-Dibromoethane	20.5200	0.50	0.24	20.0000	103	76 - 120	2.27	20	
1,2-Dichlorobenzene	19.7700	0.50	0.20	20.0000	98.8	82 - 117	2.25	20	
1,2-Dichloroethane	21.6600	0.50	0.20	20.0000	108	66 - 126	1.39	20	
1,2-Dichloropropane	18.9900	0.50	0.15	20.0000	95.0	70 - 117	2.02	20	
1,3,5-Trimethylbenzene	20.8600	0.50	0.13	20.0000	104	71 - 125	1.05	20	
1,3-Dichlorobenzene	19.6700	0.50	0.16	20.0000	98.4	81 - 116	1.90	20	
1,3-Dichloropropane	19.1100	0.50	0.21	20.0000	95.6	69 - 124	2.28	20	
1,4-Dichlorobenzene	20.9200	0.50	0.17	20.0000	105	80 - 114	2.22	20	
2,2-Dichloropropane	22.2900	0.50	0.38	20.0000	111	58 - 132	4.43	20	
2-Chlorotoluene	19.7300	0.50	0.11	20.0000	98.6	71 - 119	1.17	20	
4-Chlorotoluene	19.8000	0.50	0.12	20.0000	99.0	72 - 122	0.913	20	
4-Isopropyltoluene	20.5400	0.50	0.11	20.0000	103	69 - 126	5.35	20	
Benzene	20.1100	0.50	0.13	20.0000	101	80 - 116	1.20	20	
Bromobenzene	19.6400	0.50	0.21	20.0000	98.2	77 - 118	2.32	20	
Bromodichloromethane	22.1900	0.50	0.14	20.0000	111	73 - 118	1.91	20	
Bromoform	20.1500	0.50	0.20	20.0000	101	65 - 133	1.90	20	
Bromomethane	19.2300	0.50	0.40	20.0000	96.2	7 - 205	19.3	20	
Carbon tetrachloride	21.4900	0.50	0.09	20.0000	107	63 - 133	11.4	20	
Chlorobenzene	19.3500	0.50	0.13	20.0000	96.8	86 - 113	1.56	20	
Chloroethane	24.9400	0.50	0.15	20.0000	125	66 - 141	11.1	20	
Chloroform	19.6400	0.50	0.11	20.0000	98.2	63 - 127	2.16	20	
Chloromethane	17.3500	0.50	0.12	20.0000	86.8	0 - 207	4.42	20	
cis-1,2-Dichloroethene	18.0300	0.50	0.14	20.0000	90.2	64 - 126	1.45	20	



Certificate of Analysis

Hargis & Associates, Inc.

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0193 - MSVOA_LL_W (continued)

LCS Dup (B0C0193-BSD1) - Continued

Prepared: 3/10/2020 Analyzed: 3/10/2020

cis-1,3-Dichloropropene	19.1300	0.50	0.13	20.0000		95.6	70 - 141	1.90	20	
Dibromochloromethane	21.2200	0.50	0.16	20.0000		106	67 - 135	1.66	20	
Dibromomethane	20.0000	0.50	0.19	20.0000		100	74 - 118	1.01	20	
Dichlorodifluoromethane	17.2300	0.50	0.18	20.0000		86.2	14 - 181	20.3	20	R
Ethylbenzene	20.6100	0.50	0.13	20.0000		103	77 - 118	0.146	20	
Hexachlorobutadiene	21.1600	0.50	0.15	20.0000		106	66 - 125	10.2	20	
Isopropylbenzene	18.7100	0.50	0.10	20.0000		93.6	68 - 137	2.79	20	
m,p-Xylene	41.7400	1.0	0.19	40.0000		104	78 - 126	0.0718	20	
Methylene chloride	19.7900	1.0	0.71	20.0000		99.0	51 - 149	4.07	20	
n-Butylbenzene	19.5100	0.50	0.11	20.0000		97.6	63 - 127	5.87	20	
n-Propylbenzene	19.9100	0.50	0.10	20.0000		99.6	69 - 124	3.41	20	
Naphthalene	20.7900	0.50	0.41	20.0000		104	60 - 126	7.80	20	
o-Xylene	20.9600	0.50	0.13	20.0000		105	79 - 126	0.335	20	
sec-Butylbenzene	19.8300	0.50	0.09	20.0000		99.2	69 - 124	6.25	20	
Styrene	20.6900	0.50	0.13	20.0000		103	80 - 127	2.05	20	
tert-Butylbenzene	20.4600	0.50	0.09	20.0000		102	71 - 124	3.27	20	
Tetrachloroethene	19.0600	0.50	0.10	20.0000		95.3	73 - 129	6.69	20	
Toluene	19.2900	0.50	0.12	20.0000		96.4	78 - 121	1.36	20	
trans-1,2-Dichloroethene	18.4700	0.50	0.09	20.0000		92.4	58 - 141	0.434	20	
Trichloroethene	19.4800	0.50	0.10	20.0000		97.4	73 - 126	0.869	20	
Trichlorofluoromethane	20.0600	0.50	0.23	20.0000		100	62 - 146	18.7	20	
Vinyl chloride	17.2600	0.50	0.13	20.0000		86.3	61 - 137	4.03	20	
Surrogate: 1,2-Dichloroethane-d4	27.02			25.0000		108	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.45			25.0000		106	71 - 127			
Surrogate: Dibromofluoromethane	25.04			25.0000		100	66 - 147			
Surrogate: Toluene-d8	25.33			25.0000		101	77 - 138			



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0142 - MSSEMI_W

Blank (B0C0142-BLK1)

Prepared: 3/6/2020 Analyzed: 3/6/2020

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	68.01			100.000	68.0	17 - 119			
Surrogate: 2-Fluorobiphenyl	68.02			100.000	68.0	10 - 133			
Surrogate: 4-Terphenyl-d14	70.62			100.000	70.6	5 - 139			
Surrogate: Nitrobenzene-d5	72.59			100.000	72.6	13 - 150			

LCS (B0C0142-BS1)

Prepared: 3/6/2020 Analyzed: 3/6/2020

1,4-Dioxane	113.620	2.0	0.84	100.000	114	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	61.49			100.000	61.5	17 - 119			
Surrogate: 2-Fluorobiphenyl	70.81			100.000	70.8	10 - 133			
Surrogate: 4-Terphenyl-d14	84.64			100.000	84.6	5 - 139			
Surrogate: Nitrobenzene-d5	78.10			100.000	78.1	13 - 150			

LCS Dup (B0C0142-BSD1)

Prepared: 3/6/2020 Analyzed: 3/6/2020

1,4-Dioxane	113.410	2.0	0.84	100.000	113	75 - 155	0.185	20	
Surrogate: 1,2-Dichlorobenzene-d	61.50			100.000	61.5	17 - 119			
Surrogate: 2-Fluorobiphenyl	70.35			100.000	70.4	10 - 133			
Surrogate: 4-Terphenyl-d14	84.10			100.000	84.1	5 - 139			
Surrogate: Nitrobenzene-d5	78.20			100.000	78.2	13 - 150			



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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

Batch B0C0205 - MSSEMI_W

Blank (B0C0205-BLK1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,4-Dioxane	ND	0.20	0.05						
Surrogate: 1,2-Dichlorobenzene-d	0.6894			1.00000	68.9	17 - 119			
Surrogate: 2-Fluorobiphenyl	0.8079			1.00000	80.8	10 - 133			
Surrogate: 4-Terphenyl-d14	0.8537			1.00000	85.4	5 - 139			
Surrogate: Nitrobenzene-d5	0.7618			1.00000	76.2	13 - 150			

LCS (B0C0205-BS1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,4-Dioxane	1.22209	0.20	0.05	1.00000	122	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	0.5526			1.00000	55.3	17 - 119			
Surrogate: 2-Fluorobiphenyl	0.6453			1.00000	64.5	10 - 133			
Surrogate: 4-Terphenyl-d14	0.7061			1.00000	70.6	5 - 139			
Surrogate: Nitrobenzene-d5	0.6152			1.00000	61.5	13 - 150			

LCS Dup (B0C0205-BSD1)

Prepared: 3/10/2020 Analyzed: 3/10/2020

1,4-Dioxane	1.22010	0.20	0.05	1.00000	122	75 - 155	0.163	20	
Surrogate: 1,2-Dichlorobenzene-d	0.5416			1.00000	54.2	17 - 119			
Surrogate: 2-Fluorobiphenyl	0.6388			1.00000	63.9	10 - 133			
Surrogate: 4-Terphenyl-d14	0.7075			1.00000	70.8	5 - 139			
Surrogate: Nitrobenzene-d5	0.6248			1.00000	62.5	13 - 150			



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/10/2020

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 GETS Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto
QA Manager Ross Horton
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			
2000553 -01	TB-030520	3/5/20	8:00		X	X			X	2						X																					
-02	CEFF	3/5/20	12:00	X	X				X	3					1	X								X	X												
-03	CBT	3/5/20	12:15	X	X				X	3					1	X								X	X												
-04	POX	3/5/20	12:25	X	X			X	X	5	1	1			1	X	X		X	X				X	X												
-05	PF	3/5/20	12:40	X				X	X	2		1	1	1					X	X	X	X															
-06	INF	3/5/20	12:45	X	X				X	3	2				1	X	X	X					X				X										
-07	EW-02	3/5/20	13:25	X	X				X	3	1				1	X		X					X			X											
-08	MW-29	3/5/20	14:05	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: 39											

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>[Signature]</i> H+H	3-5-20 15:00	<i>[Signature]</i> H+H	3-5-2020 15:00
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>[Signature]</i> H+H	3-5-20 16:03	<i>[Signature]</i>	3-5-2020 16:04

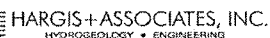
- ☐ No. of containers correct
☐ Received in good condition
☐ Custody seals secure
☐ Conforms to COC document

Send Results to:
Steve Netto & Ross Horton
 9171 Towne Centre Drive
 Suite 375
 San Diego, CA 92122
 Ph: 858.455.6500
snetto@hargis.com
rhorton@hargis.com

Instructions

1. Fill out form completely and sign only after verified for completeness

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



Raytheon Main GETS Lab Requested QC

Fax 858.455.6533

Page 1 of 1

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

Send Results to:
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snetto@hargis.com
rhorton@hargis.com

allpoint pen. Draw
Indicate the
Note applicable
Consult project QA documents for specific instructions.

Temperature on receipt

Laboratory Report

March 20, 2020

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

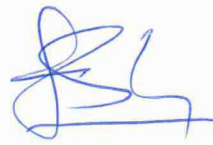
Attn: Tina Nguyen

Element Job No: 237786
Purchase Order: COD - CC
Project Name: 2000553 / Groundwater
Samples Received: 2
Date Received: 03-06-2020

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 sample was spiked with internal standard (bromate-¹⁸O₃), and diluted with water. The sample solutions were analyzed using IC-MS/MS.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 2000553-04 / POX	ND
ATL Lab#: 2000553-06 / INF	ND
Method Blank	ND
Detection Limit	0.5
Date Analyzed: 03-19-2020	

Quality Control Summary

Sample ID: ATL Lab#: 2000553-04 / POX

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate</u>	<u>Duplicate % Rec</u>	<u>RPD</u>
Bromate	ND	10.0	10.1	101	9.72	97	4
QC Guidelines				80-120		80-120	NMT 15

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 2000553

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Tina Nguyen
(Tina.Nguyen@atlglobal.com)

RECEIVING LABORATORY:

Element Materials Technology
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC14552- STANDARD TAT

Sampler: Ruben Sanchez

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

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 2000553-04 ¹ / POX Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	03/20/20 17:00	04/02/20 12:25	03/05/20 12:25	
ATL Lab#: 2000553-06 ² / INF Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	03/20/20 17:00	04/02/20 12:45	03/05/20 12:45	

03062020 CL: Also has:

① K ② G

237786

Approved by:

ATL Project Manager

Date

Released By ATL Sample Control

Date

Received By Courier

Date

Released By Courier

Date

Received By Subcontract Laboratory

Date

Released By

Date

Received By

Date



March 26, 2020

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 : 2000754

Client Reference : Raytheon Main GETS Mid Month Sample, 532.15

Enclosed are the results for sample(s) received on March 19, 2020 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 'R. Karimi', enclosed within a large, loopy oval.

Dr. Reza Karimi
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 : 03/26/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-031920	2000754-01	Water	3/19/20 8:00	3/19/20 16:21
CEFF	2000754-02	Water	3/19/20 10:45	3/19/20 16:21
CBT	2000754-03	Water	3/19/20 10:50	3/19/20 16:21
POX	2000754-04	Water	3/19/20 10:55	3/19/20 16:21
INF	2000754-05	Water	3/19/20 11:10	3/19/20 16:21
EW-02	2000754-06	Water	3/19/20 11:50	3/19/20 16:21
MW-29	2000754-07	Water	3/19/20 12:15	3/19/20 16:21



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 : 03/26/2020

Client Sample ID: TB-031920

Lab ID: 2000754-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,1,2-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,1-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,1-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	



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 : 03/26/2020

Client Sample ID: TB-031920

Lab ID: 2000754-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 14:30	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 14:30	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Tetrachloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Trichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Trichlorofluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:30	
Surrogate: 1,2-Dichloroethane-d4	112 %	59 - 158		B0C0476	03/23/2020	03/23/20 14:30	
Surrogate: 4-Bromofluorobenzene	97.7 %	71 - 127		B0C0476	03/23/2020	03/23/20 14:30	
Surrogate: Dibromofluoromethane	104 %	66 - 147		B0C0476	03/23/2020	03/23/20 14:30	
Surrogate: Toluene-d8	101 %	77 - 138		B0C0476	03/23/2020	03/23/20 14:30	



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 : 03/26/2020

Client Sample ID: CEFF

Lab ID: 2000754-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,1,2-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,1-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,1-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: CEFF

Lab ID: 2000754-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 14:52	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 14:52	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Tetrachloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Trichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Trichlorofluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 14:52	
Surrogate: 1,2-Dichloroethane-d4	114 %	59 - 158		B0C0476	03/23/2020	03/23/20 14:52	
Surrogate: 4-Bromofluorobenzene	97.6 %	71 - 127		B0C0476	03/23/2020	03/23/20 14:52	
Surrogate: Dibromofluoromethane	105 %	66 - 147		B0C0476	03/23/2020	03/23/20 14:52	
Surrogate: Toluene-d8	102 %	77 - 138		B0C0476	03/23/2020	03/23/20 14:52	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: CEFF

Lab ID: 2000754-02

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	B0C0529	03/24/2020	03/24/20 14:07	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.6 %</i>	<i>17 - 119</i>		B0C0529	03/24/2020	<i>03/24/20 14:07</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>94.1 %</i>	<i>10 - 133</i>		B0C0529	03/24/2020	<i>03/24/20 14:07</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>74.3 %</i>	<i>5 - 139</i>		B0C0529	03/24/2020	<i>03/24/20 14:07</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>85.9 %</i>	<i>13 - 150</i>		B0C0529	03/24/2020	<i>03/24/20 14:07</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 : 03/26/2020

Client Sample ID: CBT

Lab ID: 2000754-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,1,2-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,1-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,1-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: CBT

Lab ID: 2000754-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 15:15	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 15:15	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Tetrachloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Trichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Trichlorofluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:15	
Surrogate: 1,2-Dichloroethane-d4	118 %	59 - 158		B0C0476	03/23/2020	03/23/20 15:15	
Surrogate: 4-Bromofluorobenzene	102 %	71 - 127		B0C0476	03/23/2020	03/23/20 15:15	
Surrogate: Dibromofluoromethane	109 %	66 - 147		B0C0476	03/23/2020	03/23/20 15:15	
Surrogate: Toluene-d8	105 %	77 - 138		B0C0476	03/23/2020	03/23/20 15:15	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: CBT

Lab ID: 2000754-03

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	B0C0529	03/24/2020	03/24/20 14:33	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>72.5 %</i>	<i>17 - 119</i>		B0C0529	03/24/2020	<i>03/24/20 14:33</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>91.1 %</i>	<i>10 - 133</i>		B0C0529	03/24/2020	<i>03/24/20 14:33</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>71.4 %</i>	<i>5 - 139</i>		B0C0529	03/24/2020	<i>03/24/20 14:33</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>90.6 %</i>	<i>13 - 150</i>		B0C0529	03/24/2020	<i>03/24/20 14:33</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: POX

Lab ID: 2000754-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,1,2-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,1-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,1-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	



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 : 03/26/2020

Client Sample ID: POX

Lab ID: 2000754-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 15:38	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 15:38	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Tetrachloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Trichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Trichlorofluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 15:38	
Surrogate: 1,2-Dichloroethane-d4	117 %	59 - 158		B0C0476	03/23/2020	03/23/20 15:38	
Surrogate: 4-Bromofluorobenzene	101 %	71 - 127		B0C0476	03/23/2020	03/23/20 15:38	
Surrogate: Dibromofluoromethane	108 %	66 - 147		B0C0476	03/23/2020	03/23/20 15:38	
Surrogate: Toluene-d8	104 %	77 - 138		B0C0476	03/23/2020	03/23/20 15:38	



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 : 03/26/2020

Client Sample ID: POX

Lab ID: 2000754-04

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	B0C0529	03/24/2020	03/24/20 15:00	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>85.3 %</i>	<i>17 - 119</i>		B0C0529	03/24/2020	<i>03/24/20 15:00</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>99.7 %</i>	<i>10 - 133</i>		B0C0529	03/24/2020	<i>03/24/20 15:00</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>81.8 %</i>	<i>5 - 139</i>		B0C0529	03/24/2020	<i>03/24/20 15:00</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>95.5 %</i>	<i>13 - 150</i>		B0C0529	03/24/2020	<i>03/24/20 15:00</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 : 03/26/2020

Client Sample ID: INF

Lab ID: 2000754-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,1,2-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,1-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,1-Dichloroethene	49	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: INF

Lab ID: 2000754-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 16:23	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 16:23	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Tetrachloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Trichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Trichlorofluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:23	
Surrogate: 1,2-Dichloroethane-d4	117 %	59 - 158		B0C0476	03/23/2020	03/23/20 16:23	
Surrogate: 4-Bromofluorobenzene	97.2 %	71 - 127		B0C0476	03/23/2020	03/23/20 16:23	
Surrogate: Dibromofluoromethane	108 %	66 - 147		B0C0476	03/23/2020	03/23/20 16:23	
Surrogate: Toluene-d8	103 %	77 - 138		B0C0476	03/23/2020	03/23/20 16:23	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: INF

Lab ID: 2000754-05

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	30	2.0	1	B0C0523	03/23/2020	03/24/20 15:38	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>61.3 %</i>	<i>17 - 119</i>		B0C0523	03/23/2020	<i>03/24/20 15:38</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>66.3 %</i>	<i>10 - 133</i>		B0C0523	03/23/2020	<i>03/24/20 15:38</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>147 %</i>	<i>5 - 139</i>		B0C0523	03/23/2020	<i>03/24/20 15:38</i>	S15
<i>Surrogate: Nitrobenzene-d5</i>	<i>83.6 %</i>	<i>13 - 150</i>		B0C0523	03/23/2020	<i>03/24/20 15:38</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 : 03/26/2020

Client Sample ID: EW-02

Lab ID: 2000754-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,1,2-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,1-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,1-Dichloroethene	15	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

Client Sample ID: EW-02

Lab ID: 2000754-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 16:00	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 16:00	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Tetrachloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Trichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Trichlorofluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 16:00	
Surrogate: 1,2-Dichloroethane-d4	115 %	59 - 158		B0C0476	03/23/2020	03/23/20 16:00	
Surrogate: 4-Bromofluorobenzene	97.1 %	71 - 127		B0C0476	03/23/2020	03/23/20 16:00	
Surrogate: Dibromofluoromethane	107 %	66 - 147		B0C0476	03/23/2020	03/23/20 16:00	
Surrogate: Toluene-d8	102 %	77 - 138		B0C0476	03/23/2020	03/23/20 16:00	



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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 : 03/26/2020

Client Sample ID: EW-02

Lab ID: 2000754-06

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	6.8	2.0	1	B0C0523	03/23/2020	03/24/20 16:03	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>67.7 %</i>	<i>17 - 119</i>		B0C0523	03/23/2020	03/24/20 16:03	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>75.1 %</i>	<i>10 - 133</i>		B0C0523	03/23/2020	03/24/20 16:03	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>133 %</i>	<i>5 - 139</i>		B0C0523	03/23/2020	03/24/20 16:03	
<i>Surrogate: Nitrobenzene-d5</i>	<i>90.8 %</i>	<i>13 - 150</i>		B0C0523	03/23/2020	03/24/20 16:03	



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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 : 03/26/2020

Client Sample ID: MW-29

Lab ID: 2000754-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,1,1-Trichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,1,2-Trichloroethane	0.56	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,1-Dichloroethane	1.6	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,1-Dichloroethene	170	2.5	5	B0C0476	03/23/2020	03/23/20 17:08	
1,1-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2,3-Trichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2,3-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2,4-Trichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2,4-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2-Dibromoethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2-Dichloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,3,5-Trimethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,3-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,3-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
1,4-Dichlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
2,2-Dichloropropane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
2-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
4-Chlorotoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
4-Isopropyltoluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Benzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Bromobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Bromodichloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Bromoform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Bromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Carbon tetrachloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Chlorobenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Chloroethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Chloroform	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Chloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
cis-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
cis-1,3-Dichloropropene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Dibromochloromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	



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 : 03/26/2020

Client Sample ID: MW-29

Lab ID: 2000754-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Dichlorodifluoromethane	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Ethylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Hexachlorobutadiene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Isopropylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
m,p-Xylene	ND	1.0	1	B0C0476	03/23/2020	03/23/20 17:30	
Methylene chloride	ND	1.0	1	B0C0476	03/23/2020	03/23/20 17:30	
n-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
n-Propylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Naphthalene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
o-Xylene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
sec-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Styrene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
tert-Butylbenzene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Tetrachloroethene	0.52	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Toluene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
trans-1,2-Dichloroethene	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
Trichloroethene	1.6	0.50	1	B0C0517	03/24/2020	03/24/20 13:45	
Trichlorofluoromethane	1.1	0.50	1	B0C0517	03/24/2020	03/24/20 13:45	
Vinyl chloride	ND	0.50	1	B0C0476	03/23/2020	03/23/20 17:30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>	<i>59 - 158</i>		B0C0476	03/23/2020	<i>03/23/20 17:08</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>	<i>59 - 158</i>		B0C0476	03/23/2020	<i>03/23/20 17:30</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>	<i>59 - 158</i>		B0C0517	03/24/2020	<i>03/24/20 13:45</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.2 %</i>	<i>71 - 127</i>		B0C0476	03/23/2020	<i>03/23/20 17:30</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.4 %</i>	<i>71 - 127</i>		B0C0476	03/23/2020	<i>03/23/20 17:08</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>71 - 127</i>		B0C0517	03/24/2020	<i>03/24/20 13:45</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>	<i>66 - 147</i>		B0C0476	03/23/2020	<i>03/23/20 17:30</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>109 %</i>	<i>66 - 147</i>		B0C0476	03/23/2020	<i>03/23/20 17:08</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>110 %</i>	<i>66 - 147</i>		B0C0517	03/24/2020	<i>03/24/20 13:45</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>77 - 138</i>		B0C0476	03/23/2020	<i>03/23/20 17:08</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>77 - 138</i>		B0C0476	03/23/2020	<i>03/23/20 17:30</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>77 - 138</i>		B0C0517	03/24/2020	<i>03/24/20 13:45</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 : 03/26/2020

Client Sample ID: MW-29

Lab ID: 2000754-07

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	110	2.0	1	B0C0523	03/23/2020	03/24/20 16:29	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.6 %</i>	<i>17 - 119</i>		<i>B0C0523</i>	<i>03/23/2020</i>	<i>03/24/20 16:29</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>73.2 %</i>	<i>10 - 133</i>		<i>B0C0523</i>	<i>03/23/2020</i>	<i>03/24/20 16:29</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>126 %</i>	<i>5 - 139</i>		<i>B0C0523</i>	<i>03/23/2020</i>	<i>03/24/20 16:29</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>94.5 %</i>	<i>13 - 150</i>		<i>B0C0523</i>	<i>03/23/2020</i>	<i>03/24/20 16:29</i>	



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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

Batch B0C0476 - MSVOA_LL_W

Blank (B0C0476-BLK1)

Prepared: 3/23/2020 Analyzed: 3/23/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,1,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18



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

Batch B0C0476 - MSVOA_LL_W (continued)

Blank (B0C0476-BLK1) - Continued

Prepared: 3/23/2020 Analyzed: 3/23/2020

Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	27.12		25.0000	108	59 - 158
Surrogate: 4-Bromofluorobenzene	24.16		25.0000	96.6	71 - 127
Surrogate: Dibromofluoromethane	26.16		25.0000	105	66 - 147
Surrogate: Toluene-d8	25.22		25.0000	101	77 - 138

LCS (B0C0476-BS1)

Prepared: 3/23/2020 Analyzed: 3/23/2020

1,1,1,2-Tetrachloroethane	20.1500	0.50	0.11	20.0000	101	71 - 133
1,1,1-Trichloroethane	21.3500	0.50	0.21	20.0000	107	62 - 124
1,1,2,2-Tetrachloroethane	18.6000	0.50	0.36	20.0000	93.0	50 - 131
1,1,2-Trichloroethane	18.8800	0.50	0.25	20.0000	94.4	77 - 121
1,1-Dichloroethane	19.2500	0.50	0.09	20.0000	96.2	52 - 130
1,1-Dichloroethene	22.9400	0.50	0.13	20.0000	115	61 - 136
1,1-Dichloropropene	23.0300	0.50	0.13	20.0000	115	80 - 128
1,2,3-Trichloropropane	18.4400	0.50	0.39	20.0000	92.2	59 - 126
1,2,3-Trichlorobenzene	19.8400	0.50	0.18	20.0000	99.2	69 - 138
1,2,4-Trichlorobenzene	19.8400	0.50	0.16	20.0000	99.2	78 - 125
1,2,4-Trimethylbenzene	21.4600	0.50	0.14	20.0000	107	70 - 126
1,2-Dibromo-3-chloropropane	17.3300	0.50	0.41	20.0000	86.6	58 - 127
1,2-Dibromoethane	19.2800	0.50	0.24	20.0000	96.4	76 - 120
1,2-Dichlorobenzene	19.4200	0.50	0.20	20.0000	97.1	82 - 117
1,2-Dichloroethane	19.5600	0.50	0.20	20.0000	97.8	66 - 126
1,2-Dichloropropane	19.6600	0.50	0.15	20.0000	98.3	70 - 117
1,3,5-Trimethylbenzene	22.2000	0.50	0.13	20.0000	111	71 - 125



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Project Number : Raytheon Main GETS Mid Month Sample

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

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

Batch B0C0476 - MSVOA_LL_W (continued)

LCS (B0C0476-BS1) - Continued

Prepared: 3/23/2020 Analyzed: 3/23/2020

1,3-Dichlorobenzene	19.9100	0.50	0.16	20.0000		99.6	81 - 116		
1,3-Dichloropropane	18.5500	0.50	0.21	20.0000		92.8	69 - 124		
1,4-Dichlorobenzene	21.2800	0.50	0.17	20.0000		106	80 - 114		
2,2-Dichloropropane	24.1700	0.50	0.38	20.0000		121	58 - 132		
2-Chlorotoluene	20.2900	0.50	0.11	20.0000		101	71 - 119		
4-Chlorotoluene	20.1500	0.50	0.12	20.0000		101	72 - 122		
4-Isopropyltoluene	23.1500	0.50	0.11	20.0000		116	69 - 126		
Benzene	21.1000	0.50	0.13	20.0000		106	80 - 116		
Bromobenzene	19.7500	0.50	0.21	20.0000		98.8	77 - 118		
Bromodichloromethane	21.1600	0.50	0.14	20.0000		106	73 - 118		
Bromoform	18.7800	0.50	0.20	20.0000		93.9	65 - 133		
Bromomethane	22.1600	0.50	0.40	20.0000		111	7 - 205		
Carbon tetrachloride	22.8900	0.50	0.09	20.0000		114	63 - 133		
Chlorobenzene	19.6400	0.50	0.13	20.0000		98.2	86 - 113		
Chloroethane	33.2900	0.50	0.15	20.0000		166	66 - 141		L5
Chloroform	19.7100	0.50	0.11	20.0000		98.6	63 - 127		
Chloromethane	16.7800	0.50	0.12	20.0000		83.9	0 - 207		
cis-1,2-Dichloroethene	18.7100	0.50	0.14	20.0000		93.6	64 - 126		
cis-1,3-Dichloropropene	18.5500	0.50	0.13	20.0000		92.8	70 - 141		
Dibromochloromethane	20.4600	0.50	0.16	20.0000		102	67 - 135		
Dibromomethane	19.1900	0.50	0.19	20.0000		96.0	74 - 118		
Dichlorodifluoromethane	16.9900	0.50	0.18	20.0000		85.0	14 - 181		
Ethylbenzene	20.9600	0.50	0.13	20.0000		105	77 - 118		
Hexachlorobutadiene	24.4800	0.50	0.15	20.0000		122	66 - 125		
Isopropylbenzene	20.8000	0.50	0.10	20.0000		104	68 - 137		
m,p-Xylene	41.6900	1.0	0.19	40.0000		104	78 - 126		
Methylene chloride	20.6600	1.0	0.71	20.0000		103	51 - 149		
n-Butylbenzene	21.5700	0.50	0.11	20.0000		108	63 - 127		
n-Propylbenzene	21.5900	0.50	0.10	20.0000		108	69 - 124		
Naphthalene	19.2100	0.50	0.41	20.0000		96.0	60 - 126		
o-Xylene	20.5500	0.50	0.13	20.0000		103	79 - 126		
sec-Butylbenzene	23.1700	0.50	0.09	20.0000		116	69 - 124		
Styrene	20.1200	0.50	0.13	20.0000		101	80 - 127		
tert-Butylbenzene	22.4900	0.50	0.09	20.0000		112	71 - 124		
Tetrachloroethene	21.0100	0.50	0.10	20.0000		105	73 - 129		
Toluene	19.7200	0.50	0.12	20.0000		98.6	78 - 121		
trans-1,2-Dichloroethene	20.5100	0.50	0.09	20.0000		103	58 - 141		
Trichloroethene	20.1200	0.50	0.10	20.0000		101	73 - 126		
Trichlorofluoromethane	24.2200	0.50	0.23	20.0000		121	62 - 146		
Vinyl chloride	18.9000	0.50	0.13	20.0000		94.5	61 - 137		
Surrogate: 1,2-Dichloroethane-d4	25.70			25.0000		103	59 - 158		



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 03/26/2020

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

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

Batch B0C0476 - MSVOA_LL_W (continued)

LCS (B0C0476-BS1) - Continued

Prepared: 3/23/2020 Analyzed: 3/23/2020

Surrogate: 4-Bromofluorobenzene	25.35		25.0000		101	71 - 127			
Surrogate: Dibromofluoromethane	25.72		25.0000		103	66 - 147			
Surrogate: Toluene-d8	26.02		25.0000		104	77 - 138			

LCS Dup (B0C0476-BS1)

Prepared: 3/23/2020 Analyzed: 3/23/2020

1,1,1,2-Tetrachloroethane	19.8900	0.50	0.11	20.0000	99.4	71 - 133	1.30	20	
1,1,1-Trichloroethane	20.1700	0.50	0.21	20.0000	101	62 - 124	5.68	20	
1,1,2,2-Tetrachloroethane	19.4800	0.50	0.36	20.0000	97.4	50 - 131	4.62	20	
1,1,2-Trichloroethane	19.0900	0.50	0.25	20.0000	95.4	77 - 121	1.11	20	
1,1-Dichloroethane	18.9400	0.50	0.09	20.0000	94.7	52 - 130	1.62	20	
1,1-Dichloroethene	21.2200	0.50	0.13	20.0000	106	61 - 136	7.79	20	
1,1-Dichloropropene	20.9200	0.50	0.13	20.0000	105	80 - 128	9.60	20	
1,2,3-Trichloropropane	19.5100	0.50	0.39	20.0000	97.6	59 - 126	5.64	20	
1,2,3-Trichlorobenzene	19.5000	0.50	0.18	20.0000	97.5	69 - 138	1.73	20	
1,2,4-Trichlorobenzene	19.3100	0.50	0.16	20.0000	96.6	78 - 125	2.71	20	
1,2,4-Trimethylbenzene	20.3100	0.50	0.14	20.0000	102	70 - 126	5.51	20	
1,2-Dibromo-3-chloropropane	17.4600	0.50	0.41	20.0000	87.3	58 - 127	0.747	20	
1,2-Dibromoethane	19.4200	0.50	0.24	20.0000	97.1	76 - 120	0.724	20	
1,2-Dichlorobenzene	19.3200	0.50	0.20	20.0000	96.6	82 - 117	0.516	20	
1,2-Dichloroethane	19.5900	0.50	0.20	20.0000	98.0	66 - 126	0.153	20	
1,2-Dichloropropane	19.2100	0.50	0.15	20.0000	96.0	70 - 117	2.32	20	
1,3,5-Trimethylbenzene	21.3400	0.50	0.13	20.0000	107	71 - 125	3.95	20	
1,3-Dichlorobenzene	19.6600	0.50	0.16	20.0000	98.3	81 - 116	1.26	20	
1,3-Dichloropropane	19.0500	0.50	0.21	20.0000	95.2	69 - 124	2.66	20	
1,4-Dichlorobenzene	20.7000	0.50	0.17	20.0000	104	80 - 114	2.76	20	
2,2-Dichloropropane	22.7500	0.50	0.38	20.0000	114	58 - 132	6.05	20	
2-Chlorotoluene	19.8500	0.50	0.11	20.0000	99.2	71 - 119	2.19	20	
4-Chlorotoluene	19.3300	0.50	0.12	20.0000	96.6	72 - 122	4.15	20	
4-Isopropyltoluene	21.5900	0.50	0.11	20.0000	108	69 - 126	6.97	20	
Benzene	20.6500	0.50	0.13	20.0000	103	80 - 116	2.16	20	
Bromobenzene	19.7600	0.50	0.21	20.0000	98.8	77 - 118	0.0506	20	
Bromodichloromethane	20.9100	0.50	0.14	20.0000	105	73 - 118	1.19	20	
Bromoform	19.0200	0.50	0.20	20.0000	95.1	65 - 133	1.27	20	
Bromomethane	19.4200	0.50	0.40	20.0000	97.1	7 - 205	13.2	20	
Carbon tetrachloride	20.6900	0.50	0.09	20.0000	103	63 - 133	10.1	20	
Chlorobenzene	19.4000	0.50	0.13	20.0000	97.0	86 - 113	1.23	20	
Chloroethane	30.1700	0.50	0.15	20.0000	151	66 - 141	9.83	20	L5
Chloroform	19.4100	0.50	0.11	20.0000	97.0	63 - 127	1.53	20	
Chloromethane	17.4000	0.50	0.12	20.0000	87.0	0 - 207	3.63	20	
cis-1,2-Dichloroethene	18.5700	0.50	0.14	20.0000	92.8	64 - 126	0.751	20	
cis-1,3-Dichloropropene	18.2100	0.50	0.13	20.0000	91.0	70 - 141	1.85	20	
Dibromochloromethane	20.1800	0.50	0.16	20.0000	101	67 - 135	1.38	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

Batch B0C0476 - MSVOA_LL_W (continued)

LCS Dup (B0C0476-BSD1) - Continued

Prepared: 3/23/2020 Analyzed: 3/23/2020

Dibromomethane	19.2500	0.50	0.19	20.0000		96.2	74 - 118	0.312	20
Dichlorodifluoromethane	14.1500	0.50	0.18	20.0000		70.8	14 - 181	18.2	20
Ethylbenzene	20.3400	0.50	0.13	20.0000		102	77 - 118	3.00	20
Hexachlorobutadiene	21.6800	0.50	0.15	20.0000		108	66 - 125	12.1	20
Isopropylbenzene	19.7900	0.50	0.10	20.0000		99.0	68 - 137	4.98	20
m,p-Xylene	40.4900	1.0	0.19	40.0000		101	78 - 126	2.92	20
Methylene chloride	20.7300	1.0	0.71	20.0000		104	51 - 149	0.338	20
n-Butylbenzene	19.8200	0.50	0.11	20.0000		99.1	63 - 127	8.46	20
n-Propylbenzene	20.5800	0.50	0.10	20.0000		103	69 - 124	4.79	20
Naphthalene	20.0900	0.50	0.41	20.0000		100	60 - 126	4.48	20
o-Xylene	19.9500	0.50	0.13	20.0000		99.8	79 - 126	2.96	20
sec-Butylbenzene	21.2800	0.50	0.09	20.0000		106	69 - 124	8.50	20
Styrene	19.8700	0.50	0.13	20.0000		99.4	80 - 127	1.25	20
tert-Butylbenzene	21.3800	0.50	0.09	20.0000		107	71 - 124	5.06	20
Tetrachloroethene	19.6500	0.50	0.10	20.0000		98.2	73 - 129	6.69	20
Toluene	19.2100	0.50	0.12	20.0000		96.0	78 - 121	2.62	20
trans-1,2-Dichloroethene	19.6800	0.50	0.09	20.0000		98.4	58 - 141	4.13	20
Trichloroethene	19.4400	0.50	0.10	20.0000		97.2	73 - 126	3.44	20
Trichlorofluoromethane	20.9500	0.50	0.23	20.0000		105	62 - 146	14.5	20
Vinyl chloride	18.2300	0.50	0.13	20.0000		91.2	61 - 137	3.61	20
Surrogate: 1,2-Dichloroethane-d4	25.22			25.0000		101	59 - 158		
Surrogate: 4-Bromofluorobenzene	25.38			25.0000		102	71 - 127		
Surrogate: Dibromofluoromethane	25.15			25.0000		101	66 - 147		
Surrogate: Toluene-d8	25.59			25.0000		102	77 - 138		



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Reported : 03/26/2020

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

Batch B0C0517 - MSVOA_LL_W

Blank (B0C0517-BLK1)

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

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	RPD Limit	Notes

Batch B0C0517 - MSVOA_LL_W (continued)

Blank (B0C0517-BLK1) - Continued

Prepared: 3/24/2020 Analyzed: 3/24/2020

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	27.60	25.0000	110	59 - 158
Surrogate: 4-Bromofluorobenzene	23.51	25.0000	94.0	71 - 127
Surrogate: Dibromofluoromethane	26.51	25.0000	106	66 - 147
Surrogate: Toluene-d8	24.82	25.0000	99.3	77 - 138

LCS (B0C0517-BS1)

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,1,1,2-Tetrachloroethane	19.0000	0.50	0.11	20.0000	95.0	71 - 133
1,1,1-Trichloroethane	21.1700	0.50	0.21	20.0000	106	62 - 124
1,1,2,2-Tetrachloroethane	18.2100	0.50	0.36	20.0000	91.0	50 - 131
1,1,2-Trichloroethane	17.8200	0.50	0.25	20.0000	89.1	77 - 121
1,1-Dichloroethane	19.2200	0.50	0.09	20.0000	96.1	52 - 130
1,1-Dichloroethene	22.7100	0.50	0.13	20.0000	114	61 - 136
1,1-Dichloropropene	21.9000	0.50	0.13	20.0000	110	80 - 128
1,2,3-Trichloropropane	18.4000	0.50	0.39	20.0000	92.0	59 - 126
1,2,3-Trichlorobenzene	18.3500	0.50	0.18	20.0000	91.8	69 - 138
1,2,4-Trichlorobenzene	18.2300	0.50	0.16	20.0000	91.2	78 - 125
1,2,4-Trimethylbenzene	20.3300	0.50	0.14	20.0000	102	70 - 126
1,2-Dibromo-3-chloropropane	15.7000	0.50	0.41	20.0000	78.5	58 - 127
1,2-Dibromoethane	18.6500	0.50	0.24	20.0000	93.2	76 - 120
1,2-Dichlorobenzene	18.3600	0.50	0.20	20.0000	91.8	82 - 117
1,2-Dichloroethane	19.6600	0.50	0.20	20.0000	98.3	66 - 126
1,2-Dichloropropane	19.0600	0.50	0.15	20.0000	95.3	70 - 117
1,3,5-Trimethylbenzene	20.9700	0.50	0.13	20.0000	105	71 - 125
1,3-Dichlorobenzene	18.8000	0.50	0.16	20.0000	94.0	81 - 116
1,3-Dichloropropane	18.0300	0.50	0.21	20.0000	90.2	69 - 124



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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 B0C0517 - MSVOA_LL_W (continued)

LCS (B0C0517-BS1) - Continued

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,4-Dichlorobenzene	19.9900	0.50	0.17	20.0000		100	80 - 114		
2,2-Dichloropropane	23.6400	0.50	0.38	20.0000		118	58 - 132		
2-Chlorotoluene	19.3400	0.50	0.11	20.0000		96.7	71 - 119		
4-Chlorotoluene	19.4300	0.50	0.12	20.0000		97.2	72 - 122		
4-Isopropyltoluene	21.4500	0.50	0.11	20.0000		107	69 - 126		
Benzene	20.5000	0.50	0.13	20.0000		102	80 - 116		
Bromobenzene	18.7800	0.50	0.21	20.0000		93.9	77 - 118		
Bromodichloromethane	20.2100	0.50	0.14	20.0000		101	73 - 118		
Bromoform	17.4300	0.50	0.20	20.0000		87.2	65 - 133		
Bromomethane	22.1500	0.50	0.40	20.0000		111	7 - 205		
Carbon tetrachloride	22.4300	0.50	0.09	20.0000		112	63 - 133		
Chlorobenzene	18.7500	0.50	0.13	20.0000		93.8	86 - 113		
Chloroethane	30.1000	0.50	0.15	20.0000		150	66 - 141		L4
Chloroform	18.9500	0.50	0.11	20.0000		94.8	63 - 127		
Chloromethane	17.1400	0.50	0.12	20.0000		85.7	0 - 207		
cis-1,2-Dichloroethene	18.5700	0.50	0.14	20.0000		92.8	64 - 126		
cis-1,3-Dichloropropene	17.6000	0.50	0.13	20.0000		88.0	70 - 141		
Dibromochloromethane	19.3000	0.50	0.16	20.0000		96.5	67 - 135		
Dibromomethane	18.5900	0.50	0.19	20.0000		93.0	74 - 118		
Dichlorodifluoromethane	16.1200	0.50	0.18	20.0000		80.6	14 - 181		
Ethylbenzene	20.2600	0.50	0.13	20.0000		101	77 - 118		
Hexachlorobutadiene	22.5700	0.50	0.15	20.0000		113	66 - 125		
Isopropylbenzene	19.5400	0.50	0.10	20.0000		97.7	68 - 137		
m,p-Xylene	40.4700	1.0	0.19	40.0000		101	78 - 126		
Methylene chloride	21.0900	1.0	0.71	20.0000		105	51 - 149		
n-Butylbenzene	19.9000	0.50	0.11	20.0000		99.5	63 - 127		
n-Propylbenzene	20.7100	0.50	0.10	20.0000		104	69 - 124		
Naphthalene	18.0100	0.50	0.41	20.0000		90.0	60 - 126		
o-Xylene	19.8200	0.50	0.13	20.0000		99.1	79 - 126		
sec-Butylbenzene	21.9000	0.50	0.09	20.0000		110	69 - 124		
Styrene	19.5300	0.50	0.13	20.0000		97.6	80 - 127		
tert-Butylbenzene	21.0600	0.50	0.09	20.0000		105	71 - 124		
Tetrachloroethene	19.8500	0.50	0.10	20.0000		99.2	73 - 129		
Toluene	18.9600	0.50	0.12	20.0000		94.8	78 - 121		
trans-1,2-Dichloroethene	19.8400	0.50	0.09	20.0000		99.2	58 - 141		
Trichloroethene	19.4100	0.50	0.10	20.0000		97.0	73 - 126		
Trichlorofluoromethane	23.6500	0.50	0.23	20.0000		118	62 - 146		
Vinyl chloride	19.0300	0.50	0.13	20.0000		95.2	61 - 137		
Surrogate: 1,2-Dichloroethane-d4	27.14			25.0000		109	59 - 158		
Surrogate: 4-Bromofluorobenzene	25.65			25.0000		103	71 - 127		
Surrogate: Dibromofluoromethane	26.40			25.0000		106	66 - 147		



Certificate of Analysis

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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

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

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

Batch B0C0517 - MSVOA_LL_W (continued)

LCS (B0C0517-BS1) - Continued

Prepared: 3/24/2020 Analyzed: 3/24/2020

Surrogate: Toluene-d8 25.91 25.0000 104 77 - 138

LCS Dup (B0C0517-BSD1)

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,1,1,2-Tetrachloroethane	20.0300	0.50	0.11	20.0000	100	71 - 133	5.28	20
1,1,1-Trichloroethane	20.8700	0.50	0.21	20.0000	104	62 - 124	1.43	20
1,1,2,2-Tetrachloroethane	19.7400	0.50	0.36	20.0000	98.7	50 - 131	8.06	20
1,1,2-Trichloroethane	19.8900	0.50	0.25	20.0000	99.4	77 - 121	11.0	20
1,1-Dichloroethane	20.0500	0.50	0.09	20.0000	100	52 - 130	4.23	20
1,1-Dichloroethene	22.0400	0.50	0.13	20.0000	110	61 - 136	2.99	20
1,1-Dichloropropene	21.4800	0.50	0.13	20.0000	107	80 - 128	1.94	20
1,2,3-Trichloropropane	19.4600	0.50	0.39	20.0000	97.3	59 - 126	5.60	20
1,2,3-Trichlorobenzene	19.8100	0.50	0.18	20.0000	99.0	69 - 138	7.65	20
1,2,4-Trichlorobenzene	19.1200	0.50	0.16	20.0000	95.6	78 - 125	4.77	20
1,2,4-Trimethylbenzene	20.8900	0.50	0.14	20.0000	104	70 - 126	2.72	20
1,2-Dibromo-3-chloropropane	18.6800	0.50	0.41	20.0000	93.4	58 - 127	17.3	20
1,2-Dibromoethane	19.8400	0.50	0.24	20.0000	99.2	76 - 120	6.18	20
1,2-Dichlorobenzene	19.3600	0.50	0.20	20.0000	96.8	82 - 117	5.30	20
1,2-Dichloroethane	20.6800	0.50	0.20	20.0000	103	66 - 126	5.06	20
1,2-Dichloropropane	20.1800	0.50	0.15	20.0000	101	70 - 117	5.71	20
1,3,5-Trimethylbenzene	21.4500	0.50	0.13	20.0000	107	71 - 125	2.26	20
1,3-Dichlorobenzene	19.2200	0.50	0.16	20.0000	96.1	81 - 116	2.21	20
1,3-Dichloropropane	19.1900	0.50	0.21	20.0000	96.0	69 - 124	6.23	20
1,4-Dichlorobenzene	20.4700	0.50	0.17	20.0000	102	80 - 114	2.37	20
2,2-Dichloropropane	23.8800	0.50	0.38	20.0000	119	58 - 132	1.01	20
2-Chlorotoluene	20.2200	0.50	0.11	20.0000	101	71 - 119	4.45	20
4-Chlorotoluene	19.7800	0.50	0.12	20.0000	98.9	72 - 122	1.79	20
4-Isopropyltoluene	21.0800	0.50	0.11	20.0000	105	69 - 126	1.74	20
Benzene	21.3300	0.50	0.13	20.0000	107	80 - 116	3.97	20
Bromobenzene	19.6300	0.50	0.21	20.0000	98.2	77 - 118	4.43	20
Bromodichloromethane	21.5300	0.50	0.14	20.0000	108	73 - 118	6.32	20
Bromoform	19.3000	0.50	0.20	20.0000	96.5	65 - 133	10.2	20
Bromomethane	23.3900	0.50	0.40	20.0000	117	7 - 205	5.45	20
Carbon tetrachloride	21.1700	0.50	0.09	20.0000	106	63 - 133	5.78	20
Chlorobenzene	19.2300	0.50	0.13	20.0000	96.2	86 - 113	2.53	20
Chloroethane	25.9300	0.50	0.15	20.0000	130	66 - 141	14.9	20
Chloroform	20.0800	0.50	0.11	20.0000	100	63 - 127	5.79	20
Chloromethane	17.2000	0.50	0.12	20.0000	86.0	0 - 207	0.349	20
cis-1,2-Dichloroethene	19.5100	0.50	0.14	20.0000	97.6	64 - 126	4.94	20
cis-1,3-Dichloropropene	19.0000	0.50	0.13	20.0000	95.0	70 - 141	7.65	20
Dibromochloromethane	20.4900	0.50	0.16	20.0000	102	67 - 135	5.98	20
Dibromomethane	20.4100	0.50	0.19	20.0000	102	74 - 118	9.33	20
Dichlorodifluoromethane	13.7700	0.50	0.18	20.0000	68.8	14 - 181	15.7	20



Certificate of Analysis

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Project Number : Raytheon Main GETS Mid Month Sample

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Reported : 03/26/2020

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 B0C0517 - MSVOA_LL_W (continued)

LCS Dup (B0C0517-BSD1) - Continued

Prepared: 3/24/2020 Analyzed: 3/24/2020

Ethylbenzene	20.6900	0.50	0.13	20.0000		103	77 - 118	2.10	20
Hexachlorobutadiene	21.0600	0.50	0.15	20.0000		105	66 - 125	6.92	20
Isopropylbenzene	19.8400	0.50	0.10	20.0000		99.2	68 - 137	1.52	20
m,p-Xylene	40.9800	1.0	0.19	40.0000		102	78 - 126	1.25	20
Methylene chloride	22.2500	1.0	0.71	20.0000		111	51 - 149	5.35	20
n-Butylbenzene	19.8400	0.50	0.11	20.0000		99.2	63 - 127	0.302	20
n-Propylbenzene	20.7900	0.50	0.10	20.0000		104	69 - 124	0.386	20
Naphthalene	20.0300	0.50	0.41	20.0000		100	60 - 126	10.6	20
o-Xylene	20.6300	0.50	0.13	20.0000		103	79 - 126	4.00	20
sec-Butylbenzene	20.9000	0.50	0.09	20.0000		104	69 - 124	4.67	20
Styrene	20.4700	0.50	0.13	20.0000		102	80 - 127	4.70	20
tert-Butylbenzene	21.0100	0.50	0.09	20.0000		105	71 - 124	0.238	20
Tetrachloroethene	19.1900	0.50	0.10	20.0000		96.0	73 - 129	3.38	20
Toluene	19.6700	0.50	0.12	20.0000		98.4	78 - 121	3.68	20
trans-1,2-Dichloroethene	20.1700	0.50	0.09	20.0000		101	58 - 141	1.65	20
Trichloroethene	19.6800	0.50	0.10	20.0000		98.4	73 - 126	1.38	20
Trichlorofluoromethane	20.9200	0.50	0.23	20.0000		105	62 - 146	12.3	20
Vinyl chloride	18.2700	0.50	0.13	20.0000		91.4	61 - 137	4.08	20
Surrogate: 1,2-Dichloroethane-d4	26.76			25.0000		107	59 - 158		
Surrogate: 4-Bromofluorobenzene	25.28			25.0000		101	71 - 127		
Surrogate: Dibromofluoromethane	25.94			25.0000		104	66 - 147		
Surrogate: Toluene-d8	25.87			25.0000		103	77 - 138		



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

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 Limits	RPD	RPD Limit	Notes

Batch B0C0523 - MSSEMI_W

Blank (B0C0523-BLK1)

Prepared: 3/23/2020 Analyzed: 3/24/2020

1,4-Dioxane	ND	2.0	0.84							
Surrogate: 1,2-Dichlorobenzene-d	73.99			100.000		74.0	17 - 119			
Surrogate: 2-Fluorobiphenyl	82.11			100.000		82.1	10 - 133			
Surrogate: 4-Terphenyl-d14	96.42			100.000		96.4	5 - 139			
Surrogate: Nitrobenzene-d5	98.59			100.000		98.6	13 - 150			

LCS (B0C0523-BS1)

Prepared: 3/23/2020 Analyzed: 3/24/2020

1,4-Dioxane	114.290	2.0	0.84	100.000		114	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	50.30			100.000		50.3	17 - 119			
Surrogate: 2-Fluorobiphenyl	66.18			100.000		66.2	10 - 133			
Surrogate: 4-Terphenyl-d14	133.7			100.000		134	5 - 139			
Surrogate: Nitrobenzene-d5	82.25			100.000		82.2	13 - 150			

LCS Dup (B0C0523-BSD1)

Prepared: 3/23/2020 Analyzed: 3/24/2020

1,4-Dioxane	110.280	2.0	0.84	100.000		110	75 - 155	3.57	20	
Surrogate: 1,2-Dichlorobenzene-d	53.28			100.000		53.3	17 - 119			
Surrogate: 2-Fluorobiphenyl	68.91			100.000		68.9	10 - 133			
Surrogate: 4-Terphenyl-d14	141.4			100.000		141	5 - 139			S15
Surrogate: Nitrobenzene-d5	84.26			100.000		84.3	13 - 150			



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Project Number : Raytheon Main GETS Mid Month Sample

Report To : Steve Netto

Reported : 03/26/2020

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

Batch B0C0529 - MSSEMI_W

Blank (B0C0529-BLK1)

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,4-Dioxane	ND	0.20	0.05						
Surrogate: 1,2-Dichlorobenzene-d	0.6984			1.00000		69.8	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.8463			1.00000		84.6	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8687			1.00000		86.9	5 - 139		
Surrogate: Nitrobenzene-d5	0.7106			1.00000		71.1	13 - 150		

LCS (B0C0529-BS1)

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,4-Dioxane	1.20894	0.20	0.05	1.00000		121	75 - 155		
Surrogate: 1,2-Dichlorobenzene-d	0.5281			1.00000		52.8	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.6145			1.00000		61.4	10 - 133		
Surrogate: 4-Terphenyl-d14	0.7186			1.00000		71.9	5 - 139		
Surrogate: Nitrobenzene-d5	0.5442			1.00000		54.4	13 - 150		

LCS Dup (B0C0529-BSD1)

Prepared: 3/24/2020 Analyzed: 3/24/2020

1,4-Dioxane	1.23815	0.20	0.05	1.00000		124	75 - 155	2.39	20
Surrogate: 1,2-Dichlorobenzene-d	0.5450			1.00000		54.5	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.6439			1.00000		64.4	10 - 133		
Surrogate: 4-Terphenyl-d14	0.7223			1.00000		72.2	5 - 139		
Surrogate: Nitrobenzene-d5	0.5480			1.00000		54.8	13 - 150		



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Reported : 03/26/2020

Notes and Definitions

S15	Surrogate recovery outside laboratory acceptance limit. However, the surrogate is not associated with the target analyte.
L5	Laboratory Control Sample high biased. Sample result/s was non-detect (ND) for the target analyte; therefore reanalysis was not necessary.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

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 Manager Steve Netto
QA Manager Ross Horton
Phone 858.455.6500
Fax 858.455.6533

[illegible]

Total number of containers per analysis:

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
<i>[Signature]</i> H&A	3-19-20 12:21	<i>[Signature]</i> ATL	3.19.2020 10:21
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

Send Results to:
Steve Netto & Ross Horton
 9171 Towne Centre Drive
 Suite 375
 San Diego, CA 92122
 Ph: 858.455.6500
snetto@hargis.com
rhorton@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.

1.6°C Temperature on receipt



April 24, 2020

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 : 2000838

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on April 02, 2020 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 "R. Karimi", enclosed within a hand-drawn oval.

Dr. Reza Karimi
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 : 04/24/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-040220	2000838-01	Lab prepared water	4/02/20 8:00	4/02/20 15:08
CEFF	2000838-02	Groundwater	4/02/20 9:00	4/02/20 15:08
CBT	2000838-03	Groundwater	4/02/20 9:15	4/02/20 15:08
POX	2000838-04	Groundwater	4/02/20 9:35	4/02/20 15:08
PF	2000838-05	Groundwater	4/02/20 10:05	4/02/20 15:08
INF	2000838-06	Groundwater	4/02/20 10:25	4/02/20 15:08
EW-02	2000838-07	Groundwater	4/02/20 12:05	4/02/20 15:08
MW-29	2000838-08	Groundwater	4/02/20 12:45	4/02/20 15:08



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 : 04/24/2020

Client Sample ID: TB-040220

Lab ID: 2000838-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,1-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,1-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	



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 : 04/24/2020

Client Sample ID: TB-040220

Lab ID: 2000838-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 12:24	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 12:24	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Tetrachloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Trichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Trichlorofluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:24	
Surrogate: 1,2-Dichloroethane-d4	91.7 %	59 - 158		B0D0104	04/07/2020	04/07/20 12:24	
Surrogate: 4-Bromofluorobenzene	100 %	71 - 127		B0D0104	04/07/2020	04/07/20 12:24	
Surrogate: Dibromofluoromethane	98.9 %	66 - 147		B0D0104	04/07/2020	04/07/20 12:24	
Surrogate: Toluene-d8	103 %	77 - 138		B0D0104	04/07/2020	04/07/20 12:24	



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 : 04/24/2020

Client Sample ID: CEFF

Lab ID: 2000838-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,1-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,1-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	



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 : 04/24/2020

Client Sample ID: CEFF

Lab ID: 2000838-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 13:09	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 13:09	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Tetrachloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Trichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Trichlorofluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:09	
Surrogate: 1,2-Dichloroethane-d4	95.4 %	59 - 158		B0D0104	04/07/2020	04/07/20 13:09	
Surrogate: 4-Bromofluorobenzene	98.7 %	71 - 127		B0D0104	04/07/2020	04/07/20 13:09	
Surrogate: Dibromofluoromethane	99.0 %	66 - 147		B0D0104	04/07/2020	04/07/20 13:09	
Surrogate: Toluene-d8	103 %	77 - 138		B0D0104	04/07/2020	04/07/20 13:09	



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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 : 04/24/2020

Client Sample ID: CEFF

Lab ID: 2000838-02

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	B0D0120	04/07/2020	04/07/20 15:02	
Surrogate: 1,2-Dichlorobenzene-d4	75.6 %	17 - 119		B0D0120	04/07/2020	04/07/20 15:02	
Surrogate: 2-Fluorobiphenyl	93.0 %	10 - 133		B0D0120	04/07/2020	04/07/20 15:02	
Surrogate: 4-Terphenyl-d14	91.5 %	5 - 139		B0D0120	04/07/2020	04/07/20 15:02	
Surrogate: Nitrobenzene-d5	86.3 %	13 - 150		B0D0120	04/07/2020	04/07/20 15:02	



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 : 04/24/2020

Client Sample ID: CBT

Lab ID: 2000838-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,1-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,1-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	



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 : 04/24/2020

Client Sample ID: CBT

Lab ID: 2000838-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 13:32	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 13:32	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Tetrachloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Trichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Trichlorofluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:32	
Surrogate: 1,2-Dichloroethane-d4	97.6 %	59 - 158		B0D0104	04/07/2020	04/07/20 13:32	
Surrogate: 4-Bromofluorobenzene	99.8 %	71 - 127		B0D0104	04/07/2020	04/07/20 13:32	
Surrogate: Dibromofluoromethane	100 %	66 - 147		B0D0104	04/07/2020	04/07/20 13:32	
Surrogate: Toluene-d8	104 %	77 - 138		B0D0104	04/07/2020	04/07/20 13:32	



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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 : 04/24/2020

Client Sample ID: CBT

Lab ID: 2000838-03

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	B0D0120	04/07/2020	04/07/20 13:43	
Surrogate: 1,2-Dichlorobenzene-d4	84.4 %	17 - 119		B0D0120	04/07/2020	04/07/20 13:43	
Surrogate: 2-Fluorobiphenyl	100 %	10 - 133		B0D0120	04/07/2020	04/07/20 13:43	
Surrogate: 4-Terphenyl-d14	89.3 %	5 - 139		B0D0120	04/07/2020	04/07/20 13:43	
Surrogate: Nitrobenzene-d5	84.9 %	13 - 150		B0D0120	04/07/2020	04/07/20 13:43	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

Client Sample ID: POX

Lab ID: 2000838-04

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0D0090	04/03/2020	04/03/20 13:10	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,1-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,1-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

Client Sample ID: POX

Lab ID: 2000838-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 12:47	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 12:47	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Tetrachloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Trichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Trichlorofluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 12:47	

Surrogate: 1,2-Dichloroethane-d4 92.3 % 59 - 158 B0D0104 04/07/2020 04/07/20 12:47

Surrogate: 4-Bromofluorobenzene 98.3 % 71 - 127 B0D0104 04/07/2020 04/07/20 12:47



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

Client Sample ID: POX

Lab ID: 2000838-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
<i>Surrogate: Dibromofluoromethane</i>	98.6 %	66 - 147		B0D0104	04/07/2020	04/07/20 12:47	
<i>Surrogate: Toluene-d8</i>	102 %	77 - 138		B0D0104	04/07/2020	04/07/20 12:47	

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	B0D0120	04/07/2020	04/07/20 14:09	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	85.1 %	17 - 119		B0D0120	04/07/2020	04/07/20 14:09	
<i>Surrogate: 2-Fluorobiphenyl</i>	99.3 %	10 - 133		B0D0120	04/07/2020	04/07/20 14:09	
<i>Surrogate: 4-Terphenyl-d14</i>	90.8 %	5 - 139		B0D0120	04/07/2020	04/07/20 14:09	
<i>Surrogate: Nitrobenzene-d5</i>	64.1 %	13 - 150		B0D0120	04/07/2020	04/07/20 14:09	



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Report To : Steve Netto

Reported : 04/24/2020

Client Sample ID: PF

Lab ID: 2000838-05

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0D0076	04/03/2020	04/03/20 16:45	

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B0D0060	04/02/2020	04/02/20 19:45	

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

Analyst: AH

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B0D0059	04/02/2020	04/03/20 13:00	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0D0090	04/03/2020	04/03/20 13:33	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

Client Sample ID: INF

Lab ID: 2000838-06

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.31	0.05	1	B0D0075	04/03/2020	04/03/20 11:15	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,1-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,1-Dichloroethene	40	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

Client Sample ID: INF

Lab ID: 2000838-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 14:17	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 14:17	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Tetrachloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Trichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Trichlorofluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 14:17	
Surrogate: 1,2-Dichloroethane-d4	101 %	59 - 158		B0D0104	04/07/2020	04/07/20 14:17	
Surrogate: 4-Bromofluorobenzene	101 %	71 - 127		B0D0104	04/07/2020	04/07/20 14:17	
Surrogate: Dibromofluoromethane	102 %	66 - 147		B0D0104	04/07/2020	04/07/20 14:17	
Surrogate: Toluene-d8	105 %	77 - 138		B0D0104	04/07/2020	04/07/20 14:17	



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 : 04/24/2020

Client Sample ID: INF

Lab ID: 2000838-06

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	21	2.0	1	B0D0119	04/07/2020	04/08/20 15:47	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>67.5 %</i>	<i>17 - 119</i>		B0D0119	04/07/2020	<i>04/08/20 15:47</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>75.0 %</i>	<i>10 - 133</i>		B0D0119	04/07/2020	<i>04/08/20 15:47</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>88.6 %</i>	<i>5 - 139</i>		B0D0119	04/07/2020	<i>04/08/20 15:47</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>71.8 %</i>	<i>13 - 150</i>		B0D0119	04/07/2020	<i>04/08/20 15:47</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 : 04/24/2020

Client Sample ID: EW-02

Lab ID: 2000838-07

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.29	0.05	1	B0D0075	04/03/2020	04/03/20 11:24	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,1-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,1-Dichloroethene	11	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	



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 : 04/24/2020

Client Sample ID: EW-02

Lab ID: 2000838-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 13:55	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 13:55	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Tetrachloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Trichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Trichlorofluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 13:55	
Surrogate: 1,2-Dichloroethane-d4	95.6 %	59 - 158		B0D0104	04/07/2020	04/07/20 13:55	
Surrogate: 4-Bromofluorobenzene	97.0 %	71 - 127		B0D0104	04/07/2020	04/07/20 13:55	
Surrogate: Dibromofluoromethane	98.5 %	66 - 147		B0D0104	04/07/2020	04/07/20 13:55	
Surrogate: Toluene-d8	101 %	77 - 138		B0D0104	04/07/2020	04/07/20 13:55	



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 : 04/24/2020

Client Sample ID: EW-02

Lab ID: 2000838-07

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	5.8	2.0	1	B0D0119	04/07/2020	04/08/20 16:39	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.2 %</i>	<i>17 - 119</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 16:39</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>76.5 %</i>	<i>10 - 133</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 16:39</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>88.7 %</i>	<i>5 - 139</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 16:39</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>75.5 %</i>	<i>13 - 150</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 16:39</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 : 04/24/2020

Client Sample ID: MW-29

Lab ID: 2000838-08

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.57	0.05	1	B0D0075	04/03/2020	04/03/20 11:34	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,1,1-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,1,2-Trichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,1-Dichloroethane	1.4	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,1-Dichloroethene	130	2.5	5	B0D0104	04/07/2020	04/07/20 15:02	
1,1-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2,3-Trichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2-Dibromoethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2-Dichloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,3-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,3-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
1,4-Dichlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
2,2-Dichloropropane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
2-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
4-Chlorotoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
4-Isopropyltoluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Benzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Bromobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Bromodichloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Bromoform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Bromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Carbon tetrachloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Chlorobenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	



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 : 04/24/2020

Client Sample ID: MW-29

Lab ID: 2000838-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloroethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Chloroform	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Chloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Dibromochloromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Dibromomethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Dichlorodifluoromethane	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Ethylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Hexachlorobutadiene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Isopropylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
m,p-Xylene	ND	1.0	1	B0D0104	04/07/2020	04/07/20 15:25	
Methylene chloride	ND	1.0	1	B0D0104	04/07/2020	04/07/20 15:25	
n-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
n-Propylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Naphthalene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
o-Xylene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
sec-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Styrene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
tert-Butylbenzene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Tetrachloroethene	0.53	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Toluene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Trichloroethene	1.4	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Trichlorofluoromethane	0.61	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
Vinyl chloride	ND	0.50	1	B0D0104	04/07/2020	04/07/20 15:25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>59 - 158</i>		B0D0104	04/07/2020	<i>04/07/20 15:02</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>	<i>59 - 158</i>		B0D0104	04/07/2020	<i>04/07/20 15:25</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.2 %</i>	<i>71 - 127</i>		B0D0104	04/07/2020	<i>04/07/20 15:25</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>71 - 127</i>		B0D0104	04/07/2020	<i>04/07/20 15:02</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>66 - 147</i>		B0D0104	04/07/2020	<i>04/07/20 15:02</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>	<i>66 - 147</i>		B0D0104	04/07/2020	<i>04/07/20 15:25</i>	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>77 - 138</i>		B0D0104	04/07/2020	<i>04/07/20 15:02</i>	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>77 - 138</i>		B0D0104	04/07/2020	<i>04/07/20 15:25</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 : 04/24/2020

Client Sample ID: MW-29

Lab ID: 2000838-08

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	75	2.0	1	B0D0119	04/07/2020	04/08/20 17:05	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>67.2 %</i>	<i>17 - 119</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 17:05</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>75.4 %</i>	<i>10 - 133</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 17:05</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>89.4 %</i>	<i>5 - 139</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 17:05</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>73.6 %</i>	<i>13 - 150</i>		<i>B0D0119</i>	<i>04/07/2020</i>	<i>04/08/20 17:05</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

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

Batch B0D0060 - No_Prep_WC1_W

Blank (B0D0060-BLK1)

Prepared: 4/2/2020 Analyzed: 4/2/2020

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	3.4
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	3.4
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	3.4
Alkalinity, Total (as CaCO ₃)	ND	5.0	3.4

LCS (B0D0060-BS1)

Prepared: 4/2/2020 Analyzed: 4/2/2020

Alkalinity, Total (as CaCO ₃)	101.280	5.0	3.4	99.9580	101	80 - 120

Matrix Spike (B0D0060-MS1)

Source: 2000838-04

Prepared: 4/2/2020 Analyzed: 4/2/2020

Alkalinity, Total (as CaCO ₃)	322.550	5.0	3.4	99.9580	221.060	102	80 - 120

Matrix Spike Dup (B0D0060-MSD1)

Source: 2000838-04

Prepared: 4/2/2020 Analyzed: 4/2/2020

Alkalinity, Total (as CaCO ₃)	323.620	5.0	3.4	99.9580	221.060	103	80 - 120	0.331	20



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

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

Batch B0D0059 - No_Prep_WC1_W

Blank (B0D0059-BLK1)

Prepared: 4/2/2020 Analyzed: 4/3/2020

Residue, Suspended ND 1.0 1.0

LCS (B0D0059-BS1)

Prepared: 4/2/2020 Analyzed: 4/3/2020

Residue, Suspended 92.0000 10 10 93.4000 98.5 80 - 120

Duplicate (B0D0059-DUP1)

Source: 2000836-01

Prepared: 4/2/2020 Analyzed: 4/3/2020

Residue, Suspended 3.66667 3.3 3.3 4.00000 8.70 10



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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

Batch B0D0075 - No_Prep_IC1_W

Blank (B0D0075-BLK1)

Prepared: 4/3/2020 Analyzed: 4/3/2020

Bromide ND 0.05 0.02

LCS (B0D0075-BS1)

Prepared: 4/3/2020 Analyzed: 4/3/2020

Bromide 1.03440 0.05 0.02 1.00000 103 90 - 110

Duplicate (B0D0075-DUP1)

Source: 2000838-06

Prepared: 4/3/2020 Analyzed: 4/3/2020

Bromide 0.358300 0.05 0.02 0.309800 14.5 20

Matrix Spike (B0D0075-MS1)

Source: 2000838-06

Prepared: 4/3/2020 Analyzed: 4/3/2020

Bromide 2.98470 0.05 0.02 2.50000 0.309800 107 80 - 120

Matrix Spike Dup (B0D0075-MSD1)

Source: 2000838-06

Prepared: 4/3/2020 Analyzed: 4/3/2020

Bromide 2.86600 0.05 0.02 2.50000 0.309800 102 80 - 120 4.06 20



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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 % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes

Batch B0D0076 - No_Prep_II_W

Duplicate (B0D0076-DUP1)

Source: 2000838-05

Prepared: 4/3/2020 Analyzed: 4/3/2020

UV Absorption	ND	0.01	0.01		ND				20	



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Reported : 04/24/2020

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

Batch B0D0090 - No_Prep_II_W

Blank (B0D0090-BLK1)

Prepared: 4/3/2020 Analyzed: 4/3/2020

Organic Carbon, Total ND 3.0 0.28

LCS (B0D0090-BS1)

Prepared: 4/3/2020 Analyzed: 4/3/2020

Organic Carbon, Total 22.9500 3.0 0.28 25.0000 91.8 80 - 120

Matrix Spike (B0D0090-MS1)

Source: 2000838-04

Prepared: 4/3/2020 Analyzed: 4/3/2020

Organic Carbon, Total 39.1170 3.0 0.28 25.0000 ND 156 80 - 120 M2

Matrix Spike Dup (B0D0090-MSD1)

Source: 2000838-04

Prepared: 4/3/2020 Analyzed: 4/3/2020

Organic Carbon, Total 40.6850 3.0 0.28 25.0000 ND 163 80 - 120 3.93 20 M2



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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

Batch B0D0104 - MSVOA_LL_W

Blank (B0D0104-BLK1)

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15



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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

Batch B0D0104 - MSVOA_LL_W (continued)

Blank (B0D0104-BLK1) - Continued

Prepared: 4/7/2020 Analyzed: 4/7/2020

Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	22.23		25.0000	88.9	59 - 158
Surrogate: 4-Bromofluorobenzene	23.74		25.0000	95.0	71 - 127
Surrogate: Dibromofluoromethane	24.38		25.0000	97.5	66 - 147
Surrogate: Toluene-d8	25.56		25.0000	102	77 - 138

LCS (B0D0104-BS1)

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,1,1,2-Tetrachloroethane	19.3900	0.50	0.11	20.0000	97.0	71 - 133
1,1,1-Trichloroethane	19.5900	0.50	0.21	20.0000	98.0	62 - 124
1,1,2,2-Tetrachloroethane	21.3700	0.50	0.36	20.0000	107	50 - 131
1,1,2-Trichloroethane	19.4300	0.50	0.25	20.0000	97.2	77 - 121
1,1-Dichloroethane	19.7100	0.50	0.09	20.0000	98.6	52 - 130
1,1-Dichloroethene	20.5000	0.50	0.13	20.0000	102	61 - 136
1,1-Dichloropropene	21.2300	0.50	0.13	20.0000	106	80 - 128
1,2,3-Trichloropropane	19.7800	0.50	0.39	20.0000	98.9	59 - 126
1,2,3-Trichlorobenzene	22.7100	0.50	0.18	20.0000	114	69 - 138
1,2,4-Trichlorobenzene	23.0300	0.50	0.16	20.0000	115	78 - 125
1,2,4-Trimethylbenzene	23.3300	0.50	0.14	20.0000	117	70 - 126
1,2-Dibromo-3-chloropropane	20.6500	0.50	0.41	20.0000	103	58 - 127
1,2-Dibromoethane	19.8100	0.50	0.24	20.0000	99.0	76 - 120
1,2-Dichlorobenzene	20.9100	0.50	0.20	20.0000	105	82 - 117
1,2-Dichloroethane	17.6300	0.50	0.20	20.0000	88.2	66 - 126
1,2-Dichloropropane	20.3300	0.50	0.15	20.0000	102	70 - 117
1,3,5-Trimethylbenzene	22.7500	0.50	0.13	20.0000	114	71 - 125
1,3-Dichlorobenzene	20.3500	0.50	0.16	20.0000	102	81 - 116
1,3-Dichloropropane	20.2400	0.50	0.21	20.0000	101	69 - 124



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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 B0D0104 - MSVOA_LL_W (continued)

LCS (B0D0104-BS1) - Continued

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,4-Dichlorobenzene	19.6000	0.50	0.17	20.0000		98.0	80 - 114		
2,2-Dichloropropane	22.0300	0.50	0.38	20.0000		110	58 - 132		
2-Chlorotoluene	21.8600	0.50	0.11	20.0000		109	71 - 119		
4-Chlorotoluene	21.0600	0.50	0.12	20.0000		105	72 - 122		
4-Isopropyltoluene	24.6200	0.50	0.11	20.0000		123	69 - 126		
Benzene	20.5800	0.50	0.13	20.0000		103	80 - 116		
Bromobenzene	20.0900	0.50	0.21	20.0000		100	77 - 118		
Bromodichloromethane	19.2900	0.50	0.14	20.0000		96.4	73 - 118		
Bromoform	20.8600	0.50	0.20	20.0000		104	65 - 133		
Bromomethane	21.1100	0.50	0.40	20.0000		106	7 - 205		
Carbon tetrachloride	18.0000	0.50	0.09	20.0000		90.0	63 - 133		
Chlorobenzene	19.3100	0.50	0.13	20.0000		96.6	86 - 113		
Chloroethane	17.2800	0.50	0.15	20.0000		86.4	66 - 141		
Chloroform	18.5500	0.50	0.11	20.0000		92.8	63 - 127		
Chloromethane	19.7300	0.50	0.12	20.0000		98.6	0 - 207		
cis-1,2-Dichloroethene	20.6900	0.50	0.14	20.0000		103	64 - 126		
cis-1,3-Dichloropropene	20.7300	0.50	0.13	20.0000		104	70 - 141		
Dibromochloromethane	20.7400	0.50	0.16	20.0000		104	67 - 135		
Dibromomethane	18.9600	0.50	0.19	20.0000		94.8	74 - 118		
Dichlorodifluoromethane	19.5300	0.50	0.18	20.0000		97.6	14 - 181		
Ethylbenzene	20.4300	0.50	0.13	20.0000		102	77 - 118		
Hexachlorobutadiene	21.8600	0.50	0.15	20.0000		109	66 - 125		
Isopropylbenzene	23.3300	0.50	0.10	20.0000		117	68 - 137		
m,p-Xylene	41.3900	1.0	0.19	40.0000		103	78 - 126		
Methylene chloride	21.5900	1.0	0.71	20.0000		108	51 - 149		
n-Butylbenzene	23.1600	0.50	0.11	20.0000		116	63 - 127		
n-Propylbenzene	23.4100	0.50	0.10	20.0000		117	69 - 124		
Naphthalene	21.8600	0.50	0.41	20.0000		109	60 - 126		
o-Xylene	21.7100	0.50	0.13	20.0000		109	79 - 126		
sec-Butylbenzene	23.7400	0.50	0.09	20.0000		119	69 - 124		
Styrene	17.7400	0.50	0.13	20.0000		88.7	80 - 127		
tert-Butylbenzene	22.4400	0.50	0.09	20.0000		112	71 - 124		
Tetrachloroethene	20.2400	0.50	0.10	20.0000		101	73 - 129		
Toluene	20.4100	0.50	0.12	20.0000		102	78 - 121		
trans-1,2-Dichloroethene	20.5500	0.50	0.09	20.0000		103	58 - 141		
Trichloroethene	19.7800	0.50	0.10	20.0000		98.9	73 - 126		
Trichlorofluoromethane	16.7500	0.50	0.23	20.0000		83.8	62 - 146		
Vinyl chloride	20.1500	0.50	0.13	20.0000		101	61 - 137		
Surrogate: 1,2-Dichloroethane-d4	22.04			25.0000		88.2	59 - 158		
Surrogate: 4-Bromofluorobenzene	25.12			25.0000		100	71 - 127		
Surrogate: Dibromofluoromethane	24.22			25.0000		96.9	66 - 147		



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

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

Batch B0D0104 - MSVOA_LL_W (continued)

LCS (B0D0104-BS1) - Continued

Prepared: 4/7/2020 Analyzed: 4/7/2020

Surrogate: Toluene-d8 25.52 25.0000 102 77 - 138

LCS Dup (B0D0104-BS1)

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,1,1,2-Tetrachloroethane	19.8700	0.50	0.11	20.0000	99.4	71 - 133	2.45	20	
1,1,1-Trichloroethane	19.5800	0.50	0.21	20.0000	97.9	62 - 124	0.0511	20	
1,1,2,2-Tetrachloroethane	22.0800	0.50	0.36	20.0000	110	50 - 131	3.27	20	
1,1,2-Trichloroethane	20.2800	0.50	0.25	20.0000	101	77 - 121	4.28	20	
1,1-Dichloroethane	20.1800	0.50	0.09	20.0000	101	52 - 130	2.36	20	
1,1-Dichloroethene	20.1200	0.50	0.13	20.0000	101	61 - 136	1.87	20	
1,1-Dichloropropene	21.9300	0.50	0.13	20.0000	110	80 - 128	3.24	20	
1,2,3-Trichloropropane	20.7900	0.50	0.39	20.0000	104	59 - 126	4.98	20	
1,2,3-Trichlorobenzene	23.7500	0.50	0.18	20.0000	119	69 - 138	4.48	20	
1,2,4-Trichlorobenzene	23.9000	0.50	0.16	20.0000	120	78 - 125	3.71	20	
1,2,4-Trimethylbenzene	24.1200	0.50	0.14	20.0000	121	70 - 126	3.33	20	
1,2-Dibromo-3-chloropropane	20.8300	0.50	0.41	20.0000	104	58 - 127	0.868	20	
1,2-Dibromoethane	20.2600	0.50	0.24	20.0000	101	76 - 120	2.25	20	
1,2-Dichlorobenzene	21.9700	0.50	0.20	20.0000	110	82 - 117	4.94	20	
1,2-Dichloroethane	17.9900	0.50	0.20	20.0000	90.0	66 - 126	2.02	20	
1,2-Dichloropropane	21.1500	0.50	0.15	20.0000	106	70 - 117	3.95	20	
1,3,5-Trimethylbenzene	23.5400	0.50	0.13	20.0000	118	71 - 125	3.41	20	
1,3-Dichlorobenzene	21.4500	0.50	0.16	20.0000	107	81 - 116	5.26	20	
1,3-Dichloropropane	20.6900	0.50	0.21	20.0000	103	69 - 124	2.20	20	
1,4-Dichlorobenzene	20.4100	0.50	0.17	20.0000	102	80 - 114	4.05	20	
2,2-Dichloropropane	21.9800	0.50	0.38	20.0000	110	58 - 132	0.227	20	
2-Chlorotoluene	22.6900	0.50	0.11	20.0000	113	71 - 119	3.73	20	
4-Chlorotoluene	21.8900	0.50	0.12	20.0000	109	72 - 122	3.86	20	
4-Isopropyltoluene	25.3600	0.50	0.11	20.0000	127	69 - 126	2.96	20	L4
Benzene	21.2700	0.50	0.13	20.0000	106	80 - 116	3.30	20	
Bromobenzene	21.2700	0.50	0.21	20.0000	106	77 - 118	5.71	20	
Bromodichloromethane	19.7400	0.50	0.14	20.0000	98.7	73 - 118	2.31	20	
Bromoform	20.6000	0.50	0.20	20.0000	103	65 - 133	1.25	20	
Bromomethane	20.3600	0.50	0.40	20.0000	102	7 - 205	3.62	20	
Carbon tetrachloride	17.9400	0.50	0.09	20.0000	89.7	63 - 133	0.334	20	
Chlorobenzene	20.0000	0.50	0.13	20.0000	100	86 - 113	3.51	20	
Chloroethane	18.8800	0.50	0.15	20.0000	94.4	66 - 141	8.85	20	
Chloroform	19.3000	0.50	0.11	20.0000	96.5	63 - 127	3.96	20	
Chloromethane	21.3900	0.50	0.12	20.0000	107	0 - 207	8.07	20	
cis-1,2-Dichloroethene	21.2800	0.50	0.14	20.0000	106	64 - 126	2.81	20	
cis-1,3-Dichloropropene	21.0900	0.50	0.13	20.0000	105	70 - 141	1.72	20	
Dibromochloromethane	20.9300	0.50	0.16	20.0000	105	67 - 135	0.912	20	
Dibromomethane	19.7100	0.50	0.19	20.0000	98.6	74 - 118	3.88	20	
Dichlorodifluoromethane	19.2600	0.50	0.18	20.0000	96.3	14 - 181	1.39	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

Batch B0D0104 - MSVOA_LL_W (continued)

LCS Dup (B0D0104-BSD1) - Continued

Prepared: 4/7/2020 Analyzed: 4/7/2020

Ethylbenzene	20.9100	0.50	0.13	20.0000		105	77 - 118	2.32	20
Hexachlorobutadiene	21.9500	0.50	0.15	20.0000		110	66 - 125	0.411	20
Isopropylbenzene	24.1800	0.50	0.10	20.0000		121	68 - 137	3.58	20
m,p-Xylene	42.5300	1.0	0.19	40.0000		106	78 - 126	2.72	20
Methylene chloride	22.2500	1.0	0.71	20.0000		111	51 - 149	3.01	20
n-Butylbenzene	23.4600	0.50	0.11	20.0000		117	63 - 127	1.29	20
n-Propylbenzene	24.2900	0.50	0.10	20.0000		121	69 - 124	3.69	20
Naphthalene	22.8300	0.50	0.41	20.0000		114	60 - 126	4.34	20
o-Xylene	22.2600	0.50	0.13	20.0000		111	79 - 126	2.50	20
sec-Butylbenzene	24.3900	0.50	0.09	20.0000		122	69 - 124	2.70	20
Styrene	18.1600	0.50	0.13	20.0000		90.8	80 - 127	2.34	20
tert-Butylbenzene	23.3000	0.50	0.09	20.0000		116	71 - 124	3.76	20
Tetrachloroethene	20.6400	0.50	0.10	20.0000		103	73 - 129	1.96	20
Toluene	21.0200	0.50	0.12	20.0000		105	78 - 121	2.94	20
trans-1,2-Dichloroethene	21.1600	0.50	0.09	20.0000		106	58 - 141	2.92	20
Trichloroethene	20.3600	0.50	0.10	20.0000		102	73 - 126	2.89	20
Trichlorofluoromethane	16.5400	0.50	0.23	20.0000		82.7	62 - 146	1.26	20
Vinyl chloride	20.4200	0.50	0.13	20.0000		102	61 - 137	1.33	20
Surrogate: 1,2-Dichloroethane-d4	21.80			25.0000		87.2	59 - 158		
Surrogate: 4-Bromofluorobenzene	25.42			25.0000		102	71 - 127		
Surrogate: Dibromofluoromethane	23.94			25.0000		95.8	66 - 147		
Surrogate: Toluene-d8	25.79			25.0000		103	77 - 138		

Matrix Spike (B0D0104-MS1)

Source: 2000838-04

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,1,1,2-Tetrachloroethane	20.0100	0.50	0.11	20.0000	ND	100	71 - 133		
1,1,1-Trichloroethane	21.3400	0.50	0.21	20.0000	ND	107	62 - 124		
1,1,2,2-Tetrachloroethane	22.8600	0.50	0.36	20.0000	ND	114	50 - 131		
1,1,2-Trichloroethane	20.7700	0.50	0.25	20.0000	ND	104	77 - 121		
1,1-Dichloroethane	20.9300	0.50	0.09	20.0000	ND	105	52 - 130		
1,1-Dichloroethene	21.9500	0.50	0.13	20.0000	ND	110	61 - 136		
1,1-Dichloropropene	24.1300	0.50	0.13	20.0000	ND	121	80 - 128		
1,2,3-Trichloropropane	21.1300	0.50	0.39	20.0000	ND	106	59 - 126		
1,2,3-Trichlorobenzene	22.5700	0.50	0.18	20.0000	ND	113	69 - 138		
1,2,4-Trichlorobenzene	23.2900	0.50	0.16	20.0000	0.160000	116	78 - 125		
1,2,4-Trimethylbenzene	10.9800	0.50	0.14	20.0000	ND	54.9	70 - 126		M2
1,2-Dibromo-3-chloropropane	21.3800	0.50	0.41	20.0000	ND	107	58 - 127		
1,2-Dibromoethane	20.7300	0.50	0.24	20.0000	ND	104	76 - 120		
1,2-Dichlorobenzene	21.7100	0.50	0.20	20.0000	ND	109	82 - 117		
1,2-Dichloroethane	18.5000	0.50	0.20	20.0000	ND	92.5	66 - 126		
1,2-Dichloropropane	21.5500	0.50	0.15	20.0000	ND	108	70 - 117		
1,3,5-Trimethylbenzene	17.8700	0.50	0.13	20.0000	ND	89.4	71 - 125		



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 : 04/24/2020

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

Batch B0D0104 - MSVOA_LL_W (continued)

Matrix Spike (B0D0104-MS1) - Continued

Source: 2000838-04

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,3-Dichlorobenzene	21.1400	0.50	0.16	20.0000	ND	106	81 - 116			
1,3-Dichloropropane	21.2800	0.50	0.21	20.0000	ND	106	69 - 124			
1,4-Dichlorobenzene	20.0300	0.50	0.17	20.0000	ND	100	80 - 114			
2,2-Dichloropropane	24.6000	0.50	0.38	20.0000	ND	123	58 - 132			
2-Chlorotoluene	22.8400	0.50	0.11	20.0000	ND	114	71 - 119			
4-Chlorotoluene	21.6800	0.50	0.12	20.0000	ND	108	72 - 122			
4-Isopropyltoluene	23.0600	0.50	0.11	20.0000	ND	115	69 - 126			
Benzene	21.7100	0.50	0.13	20.0000	ND	109	80 - 116			
Bromobenzene	21.1700	0.50	0.21	20.0000	ND	106	77 - 118			
Bromodichloromethane	19.6600	0.50	0.14	20.0000	ND	98.3	73 - 118			
Bromoform	21.0300	0.50	0.20	20.0000	ND	105	65 - 133			
Bromomethane	20.9500	0.50	0.40	20.0000	ND	105	7 - 205			
Carbon tetrachloride	20.9100	0.50	0.09	20.0000	ND	105	63 - 133			
Chlorobenzene	20.3000	0.50	0.13	20.0000	ND	102	81 - 115			
Chloroethane	20.4100	0.50	0.15	20.0000	ND	102	66 - 141			
Chloroform	19.0200	0.50	0.11	20.0000	ND	95.1	63 - 127			
Chloromethane	22.9400	0.50	0.12	20.0000	ND	115	0 - 207			
cis-1,2-Dichloroethene	22.6300	0.50	0.14	20.0000	ND	113	64 - 126			
cis-1,3-Dichloropropene	21.7800	0.50	0.13	20.0000	ND	109	70 - 141			
Dibromochloromethane	21.0400	0.50	0.16	20.0000	ND	105	67 - 135			
Dibromomethane	20.2500	0.50	0.19	20.0000	ND	101	74 - 118			
Dichlorodifluoromethane	25.2900	0.50	0.18	20.0000	ND	126	14 - 181			
Ethylbenzene	21.1200	0.50	0.13	20.0000	ND	106	77 - 118			
Hexachlorobutadiene	21.5200	0.50	0.15	20.0000	ND	108	66 - 125			
Isopropylbenzene	24.7100	0.50	0.10	20.0000	ND	124	68 - 137			
m,p-Xylene	38.6900	1.0	0.19	40.0000	ND	96.7	78 - 126			
Methylene chloride	21.0200	1.0	0.71	20.0000	ND	105	51 - 149			
n-Butylbenzene	23.3300	0.50	0.11	20.0000	ND	117	63 - 127			
n-Propylbenzene	24.6700	0.50	0.10	20.0000	ND	123	69 - 124			
Naphthalene	16.8300	0.50	0.41	20.0000	ND	84.2	60 - 126			
o-Xylene	21.3300	0.50	0.13	20.0000	ND	107	79 - 126			
sec-Butylbenzene	25.3200	0.50	0.09	20.0000	ND	127	69 - 124			M2
Styrene	4.74000	0.50	0.13	20.0000	ND	23.7	80 - 127			M2
tert-Butylbenzene	24.3300	0.50	0.09	20.0000	ND	122	71 - 124			
Tetrachloroethene	22.8700	0.50	0.10	20.0000	ND	114	73 - 129			
Toluene	21.1200	0.50	0.12	20.0000	ND	106	78 - 121			
trans-1,2-Dichloroethene	20.9100	0.50	0.09	20.0000	ND	105	58 - 141			
Trichloroethene	21.4200	0.50	0.10	20.0000	ND	107	73 - 126			
Trichlorofluoromethane	20.8400	0.50	0.23	20.0000	ND	104	62 - 146			
Vinyl chloride	23.4000	0.50	0.13	20.0000	ND	117	61 - 137			

Surrogate: 1,2-Dichloroethane-d4	22.59			25.0000		90.4	59 - 158			



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 : 04/24/2020

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

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

Batch B0D0104 - MSVOA_LL_W (continued)

Matrix Spike (B0D0104-MS1) - Continued

Source: 2000838-04

Prepared: 4/7/2020 Analyzed: 4/7/2020

Surrogate: 4-Bromofluorobenzene	25.70		25.0000		103	71 - 127			
Surrogate: Dibromofluoromethane	24.57		25.0000		98.3	66 - 147			
Surrogate: Toluene-d8	26.03		25.0000		104	77 - 138			

Matrix Spike Dup (B0D0104-MSD1)

Source: 2000838-04

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,1,1,2-Tetrachloroethane	19.4800	0.50	0.11	20.0000	ND	97.4	71 - 133	2.68	20	
1,1,1-Trichloroethane	20.9600	0.50	0.21	20.0000	ND	105	62 - 124	1.80	20	
1,1,2,2-Tetrachloroethane	22.1600	0.50	0.36	20.0000	ND	111	50 - 131	3.11	20	
1,1,2-Trichloroethane	20.1100	0.50	0.25	20.0000	ND	101	77 - 121	3.23	20	
1,1-Dichloroethane	20.4700	0.50	0.09	20.0000	ND	102	52 - 130	2.22	20	
1,1-Dichloroethene	21.6300	0.50	0.13	20.0000	ND	108	61 - 136	1.47	20	
1,1-Dichloropropene	22.8700	0.50	0.13	20.0000	ND	114	80 - 128	5.36	20	
1,2,3-Trichloropropane	20.3700	0.50	0.39	20.0000	ND	102	59 - 126	3.66	20	
1,2,3-Trichlorobenzene	22.3400	0.50	0.18	20.0000	ND	112	69 - 138	1.02	20	
1,2,4-Trichlorobenzene	22.7600	0.50	0.16	20.0000	0.160000	113	78 - 125	2.30	20	
1,2,4-Trimethylbenzene	14.6700	0.50	0.14	20.0000	ND	73.4	70 - 126	28.8	20	R
1,2-Dibromo-3-chloropropane	20.5000	0.50	0.41	20.0000	ND	102	58 - 127	4.20	20	
1,2-Dibromoethane	19.9500	0.50	0.24	20.0000	ND	99.8	76 - 120	3.83	20	
1,2-Dichlorobenzene	21.2300	0.50	0.20	20.0000	ND	106	82 - 117	2.24	20	
1,2-Dichloroethane	17.5900	0.50	0.20	20.0000	ND	88.0	66 - 126	5.04	20	
1,2-Dichloropropane	20.8900	0.50	0.15	20.0000	ND	104	70 - 117	3.11	20	
1,3,5-Trimethylbenzene	19.6100	0.50	0.13	20.0000	ND	98.0	71 - 125	9.28	20	
1,3-Dichlorobenzene	20.4300	0.50	0.16	20.0000	ND	102	81 - 116	3.42	20	
1,3-Dichloropropane	20.5300	0.50	0.21	20.0000	ND	103	69 - 124	3.59	20	
1,4-Dichlorobenzene	19.6400	0.50	0.17	20.0000	ND	98.2	80 - 114	1.97	20	
2,2-Dichloropropane	23.8700	0.50	0.38	20.0000	ND	119	58 - 132	3.01	20	
2-Chlorotoluene	21.9900	0.50	0.11	20.0000	ND	110	71 - 119	3.79	20	
4-Chlorotoluene	21.0200	0.50	0.12	20.0000	ND	105	72 - 122	3.09	20	
4-Isopropyltoluene	23.4100	0.50	0.11	20.0000	ND	117	69 - 126	1.51	20	
Benzene	21.0600	0.50	0.13	20.0000	ND	105	80 - 116	3.04	20	
Bromobenzene	20.5900	0.50	0.21	20.0000	ND	103	77 - 118	2.78	20	
Bromodichloromethane	18.9600	0.50	0.14	20.0000	ND	94.8	73 - 118	3.63	20	
Bromoform	20.2800	0.50	0.20	20.0000	ND	101	65 - 133	3.63	20	
Bromomethane	23.0200	0.50	0.40	20.0000	ND	115	7 - 205	9.42	20	
Carbon tetrachloride	19.8100	0.50	0.09	20.0000	ND	99.0	63 - 133	5.40	20	
Chlorobenzene	19.4300	0.50	0.13	20.0000	ND	97.2	81 - 115	4.38	20	
Chloroethane	18.2700	0.50	0.15	20.0000	ND	91.4	66 - 141	11.1	20	
Chloroform	18.6500	0.50	0.11	20.0000	ND	93.2	63 - 127	1.96	20	
Chloromethane	21.4800	0.50	0.12	20.0000	ND	107	0 - 207	6.57	20	
cis-1,2-Dichloroethene	21.6300	0.50	0.14	20.0000	ND	108	64 - 126	4.52	20	
cis-1,3-Dichloropropene	21.0800	0.50	0.13	20.0000	ND	105	70 - 141	3.27	20	
Dibromochloromethane	20.4400	0.50	0.16	20.0000	ND	102	67 - 135	2.89	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 : 04/24/2020

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

Batch B0D0104 - MSVOA_LL_W (continued)

Matrix Spike Dup (B0D0104-MSD1) - Continued

Source: 2000838-04

Prepared: 4/7/2020 Analyzed: 4/7/2020

Dibromomethane	19.2800	0.50	0.19	20.0000	ND	96.4	74 - 118	4.91	20	
Dichlorodifluoromethane	23.7200	0.50	0.18	20.0000	ND	119	14 - 181	6.41	20	
Ethylbenzene	20.3700	0.50	0.13	20.0000	ND	102	77 - 118	3.62	20	
Hexachlorobutadiene	21.1600	0.50	0.15	20.0000	ND	106	66 - 125	1.69	20	
Isopropylbenzene	24.2600	0.50	0.10	20.0000	ND	121	68 - 137	1.84	20	
m,p-Xylene	38.7300	1.0	0.19	40.0000	ND	96.8	78 - 126	0.103	20	
Methylene chloride	20.3200	1.0	0.71	20.0000	ND	102	51 - 149	3.39	20	
n-Butylbenzene	23.0300	0.50	0.11	20.0000	ND	115	63 - 127	1.29	20	
n-Propylbenzene	24.3000	0.50	0.10	20.0000	ND	122	69 - 124	1.51	20	
Naphthalene	17.4400	0.50	0.41	20.0000	ND	87.2	60 - 126	3.56	20	
o-Xylene	20.8600	0.50	0.13	20.0000	ND	104	79 - 126	2.23	20	
sec-Butylbenzene	24.8200	0.50	0.09	20.0000	ND	124	69 - 124	1.99	20	
Styrene	7.82000	0.50	0.13	20.0000	ND	39.1	80 - 127	49.0	20	M2, R
tert-Butylbenzene	23.6600	0.50	0.09	20.0000	ND	118	71 - 124	2.79	20	
Tetrachloroethene	21.5100	0.50	0.10	20.0000	ND	108	73 - 129	6.13	20	
Toluene	20.2500	0.50	0.12	20.0000	ND	101	78 - 121	4.21	20	
trans-1,2-Dichloroethene	20.8800	0.50	0.09	20.0000	ND	104	58 - 141	0.144	20	
Trichloroethene	20.5600	0.50	0.10	20.0000	ND	103	73 - 126	4.10	20	
Trichlorofluoromethane	19.6300	0.50	0.23	20.0000	ND	98.2	62 - 146	5.98	20	
Vinyl chloride	21.9300	0.50	0.13	20.0000	ND	110	61 - 137	6.49	20	
Surrogate: 1,2-Dichloroethane-d4	23.09			25.0000		92.4	59 - 158			
Surrogate: 4-Bromofluorobenzene	25.58			25.0000		102	71 - 127			
Surrogate: Dibromofluoromethane	24.91			25.0000		99.6	66 - 147			
Surrogate: Toluene-d8	25.61			25.0000		102	77 - 138			



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 : 04/24/2020

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

Batch B0D0119 - MSSEMI_W

Blank (B0D0119-BLK1)

Prepared: 4/7/2020 Analyzed: 4/8/2020

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	63.73			100.000	63.7	17 - 119			
Surrogate: 2-Fluorobiphenyl	75.86			100.000	75.9	10 - 133			
Surrogate: 4-Terphenyl-d14	97.11			100.000	97.1	5 - 139			
Surrogate: Nitrobenzene-d5	70.74			100.000	70.7	13 - 150			

LCS (B0D0119-BS1)

Prepared: 4/7/2020 Analyzed: 4/8/2020

1,4-Dioxane	109.420	2.0	0.84	100.000	109	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	70.38			100.000	70.4	17 - 119			
Surrogate: 2-Fluorobiphenyl	80.38			100.000	80.4	10 - 133			
Surrogate: 4-Terphenyl-d14	82.20			100.000	82.2	5 - 139			
Surrogate: Nitrobenzene-d5	78.59			100.000	78.6	13 - 150			

LCS Dup (B0D0119-BSD1)

Prepared: 4/7/2020 Analyzed: 4/8/2020

1,4-Dioxane	113.400	2.0	0.84	100.000	113	75 - 155	3.57	20	
Surrogate: 1,2-Dichlorobenzene-d	72.35			100.000	72.4	17 - 119			
Surrogate: 2-Fluorobiphenyl	82.74			100.000	82.7	10 - 133			
Surrogate: 4-Terphenyl-d14	86.07			100.000	86.1	5 - 139			
Surrogate: Nitrobenzene-d5	80.47			100.000	80.5	13 - 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 : 04/24/2020

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 B0D0120 - MSSEMI_W

Blank (B0D0120-BLK1)

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,4-Dioxane	ND	0.20	0.05							
Surrogate: 1,2-Dichlorobenzene-d	0.7000			1.00000		70.0	17 - 119			
Surrogate: 2-Fluorobiphenyl	0.8689			1.00000		86.9	10 - 133			
Surrogate: 4-Terphenyl-d14	0.8760			1.00000		87.6	5 - 139			
Surrogate: Nitrobenzene-d5	0.7417			1.00000		74.2	13 - 150			

LCS (B0D0120-BS1)

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,4-Dioxane	1.26024	0.20	0.05	1.00000		126	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	0.5384			1.00000		53.8	17 - 119			
Surrogate: 2-Fluorobiphenyl	0.6313			1.00000		63.1	10 - 133			
Surrogate: 4-Terphenyl-d14	0.7490			1.00000		74.9	5 - 139			
Surrogate: Nitrobenzene-d5	0.5980			1.00000		59.8	13 - 150			

LCS Dup (B0D0120-BSD1)

Prepared: 4/7/2020 Analyzed: 4/7/2020

1,4-Dioxane	1.25398	0.20	0.05	1.00000		125	75 - 155	0.498	20	
Surrogate: 1,2-Dichlorobenzene-d	0.5434			1.00000		54.3	17 - 119			
Surrogate: 2-Fluorobiphenyl	0.6495			1.00000		65.0	10 - 133			
Surrogate: 4-Terphenyl-d14	0.7441			1.00000		74.4	5 - 139			
Surrogate: Nitrobenzene-d5	0.5819			1.00000		58.2	13 - 150			



Certificate of Analysis

Hargis & Associates, Inc.

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/24/2020

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.
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.

PROJECT: Raytheon Main GETS Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Ross Horton

Phone 858.455.6500

Fax 858.455.6533

Sampled By: <u>Ruben Sanchez</u>				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 SM2540L	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				
<u>2000538-01</u>	TB-040220	4/2/2020	8:00		X	X			X	2						X																					
<u>02</u>	CEFF	4/2/2020	<u>9:00</u>	X		X			X	3					1	X								X	X												
<u>03</u>	CBT	4/2/2020	<u>9:15</u>	X		X			X	3					1	X							X	X													
<u>04</u>	POX	4/2/2020	<u>9:35</u>	X		X		X	X	5	1	1			1	X	X		X	X				X	X												
<u>05</u>	PF	4/2/2020	<u>10:05</u>	X				X	X	2		1	1	1						X	X	X															
<u>06</u>	INF	4/2/2020	<u>10:25</u>	X		X			X	3	2				1	X	X	X					X				X										
<u>07</u>	EW-02	4/2/2020	<u>12:05</u>	X		X			X	3	1				1	X		X					X			X											
<u>08</u>	MW-29	4/2/2020	<u>12:45</u>	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: 39

Relinquished By: / Company:

Date / Time

Received By: / Company

Date / Time

R/S H+A

4-2-20
13:20

R/S H+A

4-2-20
13:30

Relinquished By: / Company:

Date / Time

Received By: / Company

Date / Time

R/S H+A

4-2-2020
15:06

R/S ATL

4-2-2020
15:08

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

2.6

Temperature on receipt

Send Results to:
Steve Netto & Ross Horton
9171 Towne Centre Drive
Suite 375
San Diego, CA 92122
Ph: 858.455.6500
snetto@hargis.com
rhorton@hargis.com

Laboratory Report

April 22, 2020

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

Attn: Tina Nguyen

Element Job No: 238405
Purchase Order: PAID – CREDIT CARD
Project Name: 2000838 / Groundwater
Samples Received: 2
Date Received: 04-03-2020

Analysis	Page
Bromate by SOP 5600, Rev 3	2



Michael Shelton
Technical Director



Robert Stead
Senior Chemist

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

Sample preparation: An aliquot of sample was spiked with internal standard (bromate-¹⁸O₃), and diluted with water. The sample solutions were analyzed using IC-MS/MS.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 2000838-04 / POX	ND
ATL Lab#: 2000838-06 / INF	ND
Method Blank	ND
Detection Limit	0.5
Date Analyzed: 04-17-2020	

Quality Control Summary

Sample ID: ATL Lab#: 2000838-04 / POX

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate</u>	<u>Duplicate % Rec</u>	<u>RPD</u>
Bromate	ND	10.0	10.7	107	10.9	109	2
QC Guidelines				80-120		80-120	NMT 15

ADVANCED TECHNOLOGY
LABORATORIES

SUBCONTRACT ORDER

Work Order: 2000838

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Tina Nguyen
(Tina.Nguyen@atlglobal.com)

Sampler: Ruben Sanchez

RECEIVING LABORATORY:

Element Materials Technology
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC14588 - STANDARD TAT

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

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 2000838-04 ^① / POX Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1- Poly Unpres - 125mL	04/17/20 17:00	Groundwater 04/30/20 09:35	04/02/20 09:35	
ATL Lab#: 2000838-06 ^② / INF Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1 - Poly Unpres - 125mL	04/17/20 17:00	Groundwater 04/30/20 10:25	04/02/20 10:25	

04.03.2020 CA: Also has ① - k
② - G

238405

Approved by:

ATL Project Manager

Date

4.3.2020

Received By Courier

Date

4.3.20

Released By ATL Sample Control

Date

4.3.20

Received By Subcontract Laboratory

Date

04.03.2020 12:08 PM

Released By Courier

Date

Released By

Date

Received By

Date



April 23, 2020

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 : 2000973

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on April 16, 2020 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 "Dr. Reza Karimi", with a small mark below it.

Dr. Reza Karimi
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 : 04/23/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-041620	2000973-01	Lab prepared water	4/16/20 8:00	4/16/20 15:35
CEFF	2000973-02	Groundwater	4/16/20 9:55	4/16/20 15:35
CBT	2000973-03	Groundwater	4/16/20 10:00	4/16/20 15:35
POX	2000973-04	Groundwater	4/16/20 10:10	4/16/20 15:35
INF	2000973-05	Groundwater	4/16/20 10:20	4/16/20 15:35
EW-02	2000973-06	Groundwater	4/16/20 10:45	4/16/20 15:35
MW-29	2000973-07	Groundwater	4/16/20 10:58	4/16/20 15:35



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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 : 04/23/2020

Client Sample ID: TB-041620

Lab ID: 2000973-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,1-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,1-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	



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 : 04/23/2020

Client Sample ID: TB-041620

Lab ID: 2000973-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 17:33	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 17:33	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Trichlorofluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:33	
Surrogate: 1,2-Dichloroethane-d4	107 %	59 - 158		B0D0306	04/17/2020	04/17/20 17:33	
Surrogate: 4-Bromofluorobenzene	104 %	71 - 127		B0D0306	04/17/2020	04/17/20 17:33	
Surrogate: Dibromofluoromethane	105 %	66 - 147		B0D0306	04/17/2020	04/17/20 17:33	
Surrogate: Toluene-d8	107 %	77 - 138		B0D0306	04/17/2020	04/17/20 17:33	



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 : 04/23/2020

Client Sample ID: CEFF

Lab ID: 2000973-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,1-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,1-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	



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 : 04/23/2020

Client Sample ID: CEFF

Lab ID: 2000973-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 17:56	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 17:56	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Trichlorofluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 17:56	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>	<i>59 - 158</i>		B0D0306	04/17/2020	<i>04/17/20 17:56</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>71 - 127</i>		B0D0306	04/17/2020	<i>04/17/20 17:56</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>	<i>66 - 147</i>		B0D0306	04/17/2020	<i>04/17/20 17:56</i>	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>77 - 138</i>		B0D0306	04/17/2020	<i>04/17/20 17:56</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 : 04/23/2020

Client Sample ID: CEFF

Lab ID: 2000973-02

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	B0D0398	04/21/2020	04/21/20 14:33	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>79.4 %</i>	<i>17 - 119</i>		B0D0398	04/21/2020	<i>04/21/20 14:33</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>98.9 %</i>	<i>10 - 133</i>		B0D0398	04/21/2020	<i>04/21/20 14:33</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>74.0 %</i>	<i>5 - 139</i>		B0D0398	04/21/2020	<i>04/21/20 14:33</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>102 %</i>	<i>13 - 150</i>		B0D0398	04/21/2020	<i>04/21/20 14:33</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 : 04/23/2020

Client Sample ID: CBT

Lab ID: 2000973-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,1-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,1-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	



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 : 04/23/2020

Client Sample ID: CBT

Lab ID: 2000973-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 18:19	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 18:19	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Trichlorofluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:19	
Surrogate: 1,2-Dichloroethane-d4	109 %	59 - 158		B0D0306	04/17/2020	04/17/20 18:19	
Surrogate: 4-Bromofluorobenzene	102 %	71 - 127		B0D0306	04/17/2020	04/17/20 18:19	
Surrogate: Dibromofluoromethane	106 %	66 - 147		B0D0306	04/17/2020	04/17/20 18:19	
Surrogate: Toluene-d8	104 %	77 - 138		B0D0306	04/17/2020	04/17/20 18:19	



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 : 04/23/2020

Client Sample ID: CBT

Lab ID: 2000973-03

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	B0D0398	04/21/2020	04/21/20 15:00	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.8 %</i>	<i>17 - 119</i>		B0D0398	04/21/2020	<i>04/21/20 15:00</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>97.6 %</i>	<i>10 - 133</i>		B0D0398	04/21/2020	<i>04/21/20 15:00</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>70.4 %</i>	<i>5 - 139</i>		B0D0398	04/21/2020	<i>04/21/20 15:00</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>105 %</i>	<i>13 - 150</i>		B0D0398	04/21/2020	<i>04/21/20 15:00</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 : 04/23/2020

Client Sample ID: POX

Lab ID: 2000973-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,1-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,1-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	



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 : 04/23/2020

Client Sample ID: POX

Lab ID: 2000973-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 18:41	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 18:41	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Trichlorofluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 18:41	
Surrogate: 1,2-Dichloroethane-d4	113 %	59 - 158		B0D0306	04/17/2020	04/17/20 18:41	
Surrogate: 4-Bromofluorobenzene	103 %	71 - 127		B0D0306	04/17/2020	04/17/20 18:41	
Surrogate: Dibromofluoromethane	106 %	66 - 147		B0D0306	04/17/2020	04/17/20 18:41	
Surrogate: Toluene-d8	105 %	77 - 138		B0D0306	04/17/2020	04/17/20 18:41	



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 : 04/23/2020

Client Sample ID: POX

Lab ID: 2000973-04

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	B0D0398	04/21/2020	04/21/20 15:27	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>77.8 %</i>	<i>17 - 119</i>		B0D0398	04/21/2020	<i>04/21/20 15:27</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>99.3 %</i>	<i>10 - 133</i>		B0D0398	04/21/2020	<i>04/21/20 15:27</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>83.1 %</i>	<i>5 - 139</i>		B0D0398	04/21/2020	<i>04/21/20 15:27</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>113 %</i>	<i>13 - 150</i>		B0D0398	04/21/2020	<i>04/21/20 15:27</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 : 04/23/2020

Client Sample ID: INF

Lab ID: 2000973-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,1-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,1-Dichloroethene	43	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	



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 : 04/23/2020

Client Sample ID: INF

Lab ID: 2000973-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 19:27	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 19:27	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Trichlorofluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:27	
Surrogate: 1,2-Dichloroethane-d4	115 %	59 - 158		B0D0306	04/17/2020	04/17/20 19:27	
Surrogate: 4-Bromofluorobenzene	102 %	71 - 127		B0D0306	04/17/2020	04/17/20 19:27	
Surrogate: Dibromofluoromethane	108 %	66 - 147		B0D0306	04/17/2020	04/17/20 19:27	
Surrogate: Toluene-d8	105 %	77 - 138		B0D0306	04/17/2020	04/17/20 19:27	



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 : 04/23/2020

Client Sample ID: INF

Lab ID: 2000973-05

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	23	2.0	1	B0D0399	04/21/2020	04/21/20 14:08	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	72.5 %	17 - 119		B0D0399	04/21/2020	04/21/20 14:08	
<i>Surrogate: 2-Fluorobiphenyl</i>	83.6 %	10 - 133		B0D0399	04/21/2020	04/21/20 14:08	
<i>Surrogate: 4-Terphenyl-d14</i>	106 %	5 - 139		B0D0399	04/21/2020	04/21/20 14:08	
<i>Surrogate: Nitrobenzene-d5</i>	59.4 %	13 - 150		B0D0399	04/21/2020	04/21/20 14:08	



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 : 04/23/2020

Client Sample ID: EW-02

Lab ID: 2000973-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,1-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,1-Dichloroethene	12	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/23/2020

Client Sample ID: EW-02

Lab ID: 2000973-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 19:04	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 19:04	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Trichlorofluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 19:04	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>	<i>59 - 158</i>		B0D0306	04/17/2020	<i>04/17/20 19:04</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>	<i>71 - 127</i>		B0D0306	04/17/2020	<i>04/17/20 19:04</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>	<i>66 - 147</i>		B0D0306	04/17/2020	<i>04/17/20 19:04</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>77 - 138</i>		B0D0306	04/17/2020	<i>04/17/20 19:04</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 : 04/23/2020

Client Sample ID: EW-02

Lab ID: 2000973-06

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	5.4	2.0	1	B0D0399	04/21/2020	04/21/20 14:34	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>65.6 %</i>	<i>17 - 119</i>		<i>B0D0399</i>	<i>04/21/2020</i>	<i>04/21/20 14:34</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>76.2 %</i>	<i>10 - 133</i>		<i>B0D0399</i>	<i>04/21/2020</i>	<i>04/21/20 14:34</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>90.2 %</i>	<i>5 - 139</i>		<i>B0D0399</i>	<i>04/21/2020</i>	<i>04/21/20 14:34</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>53.2 %</i>	<i>13 - 150</i>		<i>B0D0399</i>	<i>04/21/2020</i>	<i>04/21/20 14:34</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 : 04/23/2020

Client Sample ID: MW-29

Lab ID: 2000973-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,1,1-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,1,2-Trichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,1-Dichloroethane	1.4	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,1-Dichloroethene	130	2.5	5	B0D0306	04/17/2020	04/17/20 20:12	
1,1-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2,3-Trichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2,3-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2,4-Trichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2,4-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2-Dibromoethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2-Dichloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,3,5-Trimethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,3-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,3-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
1,4-Dichlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
2,2-Dichloropropane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
2-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
4-Chlorotoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
4-Isopropyltoluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Benzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Bromobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Bromodichloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Bromoform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Bromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Carbon tetrachloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Chlorobenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Chloroethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Chloroform	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Chloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
cis-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
cis-1,3-Dichloropropene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 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 : 04/23/2020

Client Sample ID: MW-29

Lab ID: 2000973-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Dibromomethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Dichlorodifluoromethane	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Ethylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Hexachlorobutadiene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Isopropylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
m,p-Xylene	ND	1.0	1	B0D0306	04/17/2020	04/17/20 20:34	
Methylene chloride	ND	1.0	1	B0D0306	04/17/2020	04/17/20 20:34	
n-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
n-Propylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Naphthalene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
o-Xylene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
sec-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Styrene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
tert-Butylbenzene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Tetrachloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Toluene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
trans-1,2-Dichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Trichloroethene	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Trichlorofluoromethane	0.57	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
Vinyl chloride	ND	0.50	1	B0D0306	04/17/2020	04/17/20 20:34	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>	<i>59 - 158</i>		B0D0306	04/17/2020	<i>04/17/20 20:12</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115 %</i>	<i>59 - 158</i>		B0D0306	04/17/2020	<i>04/17/20 20:34</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>71 - 127</i>		B0D0306	04/17/2020	<i>04/17/20 20:34</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>	<i>71 - 127</i>		B0D0306	04/17/2020	<i>04/17/20 20:12</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>	<i>66 - 147</i>		B0D0306	04/17/2020	<i>04/17/20 20:34</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>109 %</i>	<i>66 - 147</i>		B0D0306	04/17/2020	<i>04/17/20 20:12</i>	
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>	<i>77 - 138</i>		B0D0306	04/17/2020	<i>04/17/20 20:34</i>	
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>	<i>77 - 138</i>		B0D0306	04/17/2020	<i>04/17/20 20:12</i>	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/23/2020

Client Sample ID: MW-29

Lab ID: 2000973-07

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	81	2.0	1	B0D0399	04/21/2020	04/21/20 15:00	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	70.8 %	17 - 119		B0D0399	04/21/2020	04/21/20 15:00	
<i>Surrogate: 2-Fluorobiphenyl</i>	79.4 %	10 - 133		B0D0399	04/21/2020	04/21/20 15:00	
<i>Surrogate: 4-Terphenyl-d14</i>	98.7 %	5 - 139		B0D0399	04/21/2020	04/21/20 15:00	
<i>Surrogate: Nitrobenzene-d5</i>	57.8 %	13 - 150		B0D0399	04/21/2020	04/21/20 15:00	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/23/2020

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

Batch B0D0306 - MSVOA_LL_W

Blank (B0D0306-BLK1)

Prepared: 4/17/2020 Analyzed: 4/17/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19



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 : 04/23/2020

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	RPD Limit	Notes

Batch B0D0306 - MSVOA_LL_W (continued)

Blank (B0D0306-BLK1) - Continued

Prepared: 4/17/2020 Analyzed: 4/17/2020

Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	25.98	25.0000	104	59 - 158
Surrogate: 4-Bromofluorobenzene	25.00	25.0000	100	71 - 127
Surrogate: Dibromofluoromethane	26.12	25.0000	104	66 - 147
Surrogate: Toluene-d8	26.19	25.0000	105	77 - 138

LCS (B0D0306-BS1)

Prepared: 4/17/2020 Analyzed: 4/17/2020

1,1,1,2-Tetrachloroethane	18.9800	0.50	0.11	20.0000	94.9	71 - 133
1,1,1-Trichloroethane	20.5000	0.50	0.21	20.0000	102	62 - 124
1,1,2,2-Tetrachloroethane	21.8400	0.50	0.36	20.0000	109	50 - 131
1,1,2-Trichloroethane	20.7200	0.50	0.25	20.0000	104	77 - 121
1,1-Dichloroethane	21.2200	0.50	0.09	20.0000	106	52 - 130
1,1-Dichloroethene	21.7600	0.50	0.13	20.0000	109	61 - 136
1,1-Dichloropropene	21.7000	0.50	0.13	20.0000	108	80 - 128
1,2,3-Trichloropropane	20.7100	0.50	0.39	20.0000	104	59 - 126
1,2,3-Trichlorobenzene	21.1800	0.50	0.18	20.0000	106	69 - 138
1,2,4-Trichlorobenzene	21.4200	0.50	0.16	20.0000	107	78 - 125
1,2,4-Trimethylbenzene	22.5000	0.50	0.14	20.0000	112	70 - 126
1,2-Dibromo-3-chloropropane	18.2300	0.50	0.41	20.0000	91.2	58 - 127
1,2-Dibromoethane	20.4200	0.50	0.24	20.0000	102	76 - 120
1,2-Dichlorobenzene	21.0000	0.50	0.20	20.0000	105	82 - 117
1,2-Dichloroethane	19.7200	0.50	0.20	20.0000	98.6	66 - 126



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/23/2020

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 B0D0306 - MSVOA_LL_W (continued)

LCS (B0D0306-BS1) - Continued

Prepared: 4/17/2020 Analyzed: 4/17/2020

1,2-Dichloropropane	21.1500	0.50	0.15	20.0000	106	70 - 117
1,3,5-Trimethylbenzene	22.2100	0.50	0.13	20.0000	111	71 - 125
1,3-Dichlorobenzene	20.6000	0.50	0.16	20.0000	103	81 - 116
1,3-Dichloropropane	20.7600	0.50	0.21	20.0000	104	69 - 124
1,4-Dichlorobenzene	19.6900	0.50	0.17	20.0000	98.4	80 - 114
2,2-Dichloropropane	22.3600	0.50	0.38	20.0000	112	58 - 132
2-Chlorotoluene	21.8700	0.50	0.11	20.0000	109	71 - 119
4-Chlorotoluene	21.5900	0.50	0.12	20.0000	108	72 - 122
4-Isopropyltoluene	22.7200	0.50	0.11	20.0000	114	69 - 126
Benzene	21.2100	0.50	0.13	20.0000	106	80 - 116
Bromobenzene	20.1600	0.50	0.21	20.0000	101	77 - 118
Bromodichloromethane	19.6900	0.50	0.14	20.0000	98.4	73 - 118
Bromoform	18.1900	0.50	0.20	20.0000	91.0	65 - 133
Bromomethane	22.8300	0.50	0.40	20.0000	114	7 - 205
Carbon tetrachloride	18.7900	0.50	0.09	20.0000	94.0	63 - 133
Chlorobenzene	19.3200	0.50	0.13	20.0000	96.6	86 - 113
Chloroethane	21.2900	0.50	0.15	20.0000	106	66 - 141
Chloroform	19.9900	0.50	0.11	20.0000	100	63 - 127
Chloromethane	23.9500	0.50	0.12	20.0000	120	0 - 207
cis-1,2-Dichloroethene	20.9400	0.50	0.14	20.0000	105	64 - 126
cis-1,3-Dichloropropene	20.6900	0.50	0.13	20.0000	103	70 - 141
Dibromochloromethane	18.9200	0.50	0.16	20.0000	94.6	67 - 135
Dibromomethane	20.1200	0.50	0.19	20.0000	101	74 - 118
Dichlorodifluoromethane	22.0900	0.50	0.18	20.0000	110	14 - 181
Ethylbenzene	20.4500	0.50	0.13	20.0000	102	77 - 118
Hexachlorobutadiene	19.4200	0.50	0.15	20.0000	97.1	66 - 125
Isopropylbenzene	22.7700	0.50	0.10	20.0000	114	68 - 137
m,p-Xylene	42.0600	1.0	0.19	40.0000	105	78 - 126
Methylene chloride	21.8800	1.0	0.71	20.0000	109	51 - 149
n-Butylbenzene	20.5800	0.50	0.11	20.0000	103	63 - 127
n-Propylbenzene	23.1700	0.50	0.10	20.0000	116	69 - 124
Naphthalene	20.2500	0.50	0.41	20.0000	101	60 - 126
o-Xylene	21.4100	0.50	0.13	20.0000	107	79 - 126
sec-Butylbenzene	22.4800	0.50	0.09	20.0000	112	69 - 124
Styrene	17.7800	0.50	0.13	20.0000	88.9	80 - 127
tert-Butylbenzene	21.9900	0.50	0.09	20.0000	110	71 - 124
Tetrachloroethene	18.9800	0.50	0.10	20.0000	94.9	73 - 129
Toluene	20.6500	0.50	0.12	20.0000	103	78 - 121
trans-1,2-Dichloroethene	21.0300	0.50	0.09	20.0000	105	58 - 141
Trichloroethene	19.4000	0.50	0.10	20.0000	97.0	73 - 126



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 : 04/23/2020

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 B0D0306 - MSVOA_LL_W (continued)

LCS (B0D0306-BS1) - Continued

Prepared: 4/17/2020 Analyzed: 4/17/2020

Trichlorofluoromethane	18.7500	0.50	0.23	20.0000	93.8	62 - 146			
Vinyl chloride	21.8900	0.50	0.13	20.0000	109	61 - 137			
Surrogate: 1,2-Dichloroethane-d4	25.63			25.0000	103	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.36			25.0000	105	71 - 127			
Surrogate: Dibromofluoromethane	26.15			25.0000	105	66 - 147			
Surrogate: Toluene-d8	26.71			25.0000	107	77 - 138			

LCS Dup (B0D0306-BS1)

Prepared: 4/17/2020 Analyzed: 4/17/2020

1,1,1,2-Tetrachloroethane	18.7500	0.50	0.11	20.0000	93.8	71 - 133	1.22	20
1,1,1-Trichloroethane	20.5700	0.50	0.21	20.0000	103	62 - 124	0.341	20
1,1,2,2-Tetrachloroethane	21.0400	0.50	0.36	20.0000	105	50 - 131	3.73	20
1,1,2-Trichloroethane	20.3200	0.50	0.25	20.0000	102	77 - 121	1.95	20
1,1-Dichloroethane	20.9400	0.50	0.09	20.0000	105	52 - 130	1.33	20
1,1-Dichloroethene	21.8900	0.50	0.13	20.0000	109	61 - 136	0.596	20
1,1-Dichloropropene	21.1600	0.50	0.13	20.0000	106	80 - 128	2.52	20
1,2,3-Trichloropropane	20.5300	0.50	0.39	20.0000	103	59 - 126	0.873	20
1,2,3-Trichlorobenzene	20.9600	0.50	0.18	20.0000	105	69 - 138	1.04	20
1,2,4-Trichlorobenzene	21.1700	0.50	0.16	20.0000	106	78 - 125	1.17	20
1,2,4-Trimethylbenzene	22.3900	0.50	0.14	20.0000	112	70 - 126	0.490	20
1,2-Dibromo-3-chloropropane	17.5400	0.50	0.41	20.0000	87.7	58 - 127	3.86	20
1,2-Dibromoethane	19.6400	0.50	0.24	20.0000	98.2	76 - 120	3.89	20
1,2-Dichlorobenzene	20.7100	0.50	0.20	20.0000	104	82 - 117	1.39	20
1,2-Dichloroethane	19.2900	0.50	0.20	20.0000	96.4	66 - 126	2.20	20
1,2-Dichloropropane	20.8500	0.50	0.15	20.0000	104	70 - 117	1.43	20
1,3,5-Trimethylbenzene	21.9600	0.50	0.13	20.0000	110	71 - 125	1.13	20
1,3-Dichlorobenzene	20.3700	0.50	0.16	20.0000	102	81 - 116	1.12	20
1,3-Dichloropropane	20.3700	0.50	0.21	20.0000	102	69 - 124	1.90	20
1,4-Dichlorobenzene	19.3900	0.50	0.17	20.0000	97.0	80 - 114	1.54	20
2,2-Dichloropropane	21.7800	0.50	0.38	20.0000	109	58 - 132	2.63	20
2-Chlorotoluene	21.8800	0.50	0.11	20.0000	109	71 - 119	0.0457	20
4-Chlorotoluene	21.2200	0.50	0.12	20.0000	106	72 - 122	1.73	20
4-Isopropyltoluene	22.5600	0.50	0.11	20.0000	113	69 - 126	0.707	20
Benzene	20.8100	0.50	0.13	20.0000	104	80 - 116	1.90	20
Bromobenzene	19.7000	0.50	0.21	20.0000	98.5	77 - 118	2.31	20
Bromodichloromethane	19.2200	0.50	0.14	20.0000	96.1	73 - 118	2.42	20
Bromoform	17.7300	0.50	0.20	20.0000	88.6	65 - 133	2.56	20
Bromomethane	22.4800	0.50	0.40	20.0000	112	7 - 205	1.54	20
Carbon tetrachloride	18.1200	0.50	0.09	20.0000	90.6	63 - 133	3.63	20
Chlorobenzene	19.0300	0.50	0.13	20.0000	95.2	86 - 113	1.51	20
Chloroethane	20.4100	0.50	0.15	20.0000	102	66 - 141	4.22	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 : 04/23/2020

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 B0D0306 - MSVOA_LL_W (continued)

LCS Dup (B0D0306-BSD1) - Continued

Prepared: 4/17/2020 Analyzed: 4/17/2020

Chloroform	19.6100	0.50	0.11	20.0000	98.0	63 - 127	1.92	20	
Chloromethane	23.9500	0.50	0.12	20.0000	120	0 - 207	0.00	20	
cis-1,2-Dichloroethene	20.8800	0.50	0.14	20.0000	104	64 - 126	0.287	20	
cis-1,3-Dichloropropene	20.4300	0.50	0.13	20.0000	102	70 - 141	1.26	20	
Dibromochloromethane	19.0400	0.50	0.16	20.0000	95.2	67 - 135	0.632	20	
Dibromomethane	19.4200	0.50	0.19	20.0000	97.1	74 - 118	3.54	20	
Dichlorodifluoromethane	21.9100	0.50	0.18	20.0000	110	14 - 181	0.818	20	
Ethylbenzene	20.3600	0.50	0.13	20.0000	102	77 - 118	0.441	20	
Hexachlorobutadiene	18.9100	0.50	0.15	20.0000	94.6	66 - 125	2.66	20	
Isopropylbenzene	22.7100	0.50	0.10	20.0000	114	68 - 137	0.264	20	
m,p-Xylene	41.7300	1.0	0.19	40.0000	104	78 - 126	0.788	20	
Methylene chloride	21.4400	1.0	0.71	20.0000	107	51 - 149	2.03	20	
n-Butylbenzene	20.7900	0.50	0.11	20.0000	104	63 - 127	1.02	20	
n-Propylbenzene	22.9400	0.50	0.10	20.0000	115	69 - 124	0.998	20	
Naphthalene	20.3800	0.50	0.41	20.0000	102	60 - 126	0.640	20	
o-Xylene	21.3200	0.50	0.13	20.0000	107	79 - 126	0.421	20	
sec-Butylbenzene	22.4600	0.50	0.09	20.0000	112	69 - 124	0.0890	20	
Styrene	17.4600	0.50	0.13	20.0000	87.3	80 - 127	1.82	20	
tert-Butylbenzene	21.8400	0.50	0.09	20.0000	109	71 - 124	0.684	20	
Tetrachloroethene	18.9200	0.50	0.10	20.0000	94.6	73 - 129	0.317	20	
Toluene	20.4100	0.50	0.12	20.0000	102	78 - 121	1.17	20	
trans-1,2-Dichloroethene	20.9700	0.50	0.09	20.0000	105	58 - 141	0.286	20	
Trichloroethene	19.4500	0.50	0.10	20.0000	97.2	73 - 126	0.257	20	
Trichlorofluoromethane	18.7300	0.50	0.23	20.0000	93.6	62 - 146	0.107	20	
Vinyl chloride	21.4800	0.50	0.13	20.0000	107	61 - 137	1.89	20	
Surrogate: 1,2-Dichloroethane-d4	24.99			25.0000	100	59 - 158			
Surrogate: 4-Bromofluorobenzene	25.87			25.0000	103	71 - 127			
Surrogate: Dibromofluoromethane	25.76			25.0000	103	66 - 147			
Surrogate: Toluene-d8	26.16			25.0000	105	77 - 138			



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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 : 04/23/2020

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 Limits	RPD	RPD Limit	Notes

Batch B0D0399 - MSSEMI_W

Blank (B0D0399-BLK1)

Prepared: 4/21/2020 Analyzed: 4/21/2020

1,4-Dioxane	ND	2.0	0.84							
Surrogate: 1,2-Dichlorobenzene-d	60.27			100.000		60.3	17 - 119			
Surrogate: 2-Fluorobiphenyl	71.07			100.000		71.1	10 - 133			
Surrogate: 4-Terphenyl-d14	99.79			100.000		99.8	5 - 139			
Surrogate: Nitrobenzene-d5	48.62			100.000		48.6	13 - 150			

LCS (B0D0399-BS1)

Prepared: 4/21/2020 Analyzed: 4/21/2020

1,4-Dioxane	112.930	2.0	0.84	100.000		113	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	69.95			100.000		70.0	17 - 119			
Surrogate: 2-Fluorobiphenyl	79.86			100.000		79.9	10 - 133			
Surrogate: 4-Terphenyl-d14	88.71			100.000		88.7	5 - 139			
Surrogate: Nitrobenzene-d5	55.15			100.000		55.2	13 - 150			

LCS Dup (B0D0399-BSD1)

Prepared: 4/21/2020 Analyzed: 4/21/2020

1,4-Dioxane	118.330	2.0	0.84	100.000		118	75 - 155	4.67	20	
Surrogate: 1,2-Dichlorobenzene-d	68.84			100.000		68.8	17 - 119			
Surrogate: 2-Fluorobiphenyl	83.38			100.000		83.4	10 - 133			
Surrogate: 4-Terphenyl-d14	95.33			100.000		95.3	5 - 139			
Surrogate: Nitrobenzene-d5	56.42			100.000		56.4	13 - 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 : 04/23/2020

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

Batch B0D0398 - MSSEMI_W

Blank (B0D0398-BLK1)

Prepared: 4/21/2020 Analyzed: 4/21/2020

1,4-Dioxane	ND	0.20	0.05						
Surrogate: 1,2-Dichlorobenzene-d	0.7014			1.00000		70.1	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.8655			1.00000		86.5	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8349			1.00000		83.5	5 - 139		
Surrogate: Nitrobenzene-d5	0.9568			1.00000		95.7	13 - 150		

LCS (B0D0398-BS1)

Prepared: 4/21/2020 Analyzed: 4/21/2020

1,4-Dioxane	1.22235	0.20	0.05	1.00000		122	75 - 155		
Surrogate: 1,2-Dichlorobenzene-d	0.5330			1.00000		53.3	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.6552			1.00000		65.5	10 - 133		
Surrogate: 4-Terphenyl-d14	0.7515			1.00000		75.2	5 - 139		
Surrogate: Nitrobenzene-d5	0.6010			1.00000		60.1	13 - 150		

LCS Dup (B0D0398-BSD1)

Prepared: 4/21/2020 Analyzed: 4/21/2020

1,4-Dioxane	1.21848	0.20	0.05	1.00000		122	75 - 155	0.317	20
Surrogate: 1,2-Dichlorobenzene-d	0.5391			1.00000		53.9	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.6441			1.00000		64.4	10 - 133		
Surrogate: 4-Terphenyl-d14	0.7638			1.00000		76.4	5 - 139		
Surrogate: Nitrobenzene-d5	0.6311			1.00000		63.1	13 - 150		



Certificate of Analysis

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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 04/23/2020

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 Ross Horton

Phone 858.455.6500

Fax 858.455.6533

Sampled By:

Ruben Sanchez

SAMPLE COLLECTION

PROJECT:	Raytheon Main GETS: Mid Month Sample		TASK NO.: 532.15		Project Manager Steve Netto QA Manager Ross Horton Phone 858.455.6500 Fax 858.455.6533		Sampled By: <i>Ruben Sanchez</i>		LAB ID	SAMPLE ID	Date	Time	SAMPLE COLLECTION		REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
MATRIX	PRESERVATION	CONTAINERS	ANALYSIS REQUESTED	Expected Concentration Range (ppb) for VOAs	SPECIAL HANDLING	Laboratory	Advanced Technology Laboratories 3275 Walnut Ave Attn: Rachelle Arada (562) 989-4045	MSMSD Requested	Level IV Data Validation Requested	5 Day TAT	48 Hour TAT	24 hr TAT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

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

Relinquished By: / Company:	Date / Time	Received By: / Company:	Date / Time
Relinquished By: / Company:	4-16-20 11:40	Received By: / Company:	4-16-20 11:40
Relinquished By: / Company:	4-16-20 15:32	Received By: / Company:	4-16-20 15:32

Temperature on receipt 1.4°C

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.

Send Results to:
Steve Netto & Ross Horton
9171 Towne Centre Drive
Suite 375
San Diego, CA 92122
Ph: 858.455.6500
snetto@hargis.com
rhorton@hargis.com



May 20, 2020

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 : 2001130

Client Reference : Raytheon Main GETS Monthly Sample, 532.15

Enclosed are the results for sample(s) received on May 07, 2020 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 "R. Karimi", enclosed within a hand-drawn oval.

Dr. Reza Karimi
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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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 : 05/20/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-050720	2001130-01	Lab prepared water	5/07/20 8:00	5/07/20 17:27
CEFF	2001130-02	Groundwater	5/07/20 9:05	5/07/20 17:27
CBT	2001130-03	Groundwater	5/07/20 9:20	5/07/20 17:27
POX	2001130-04	Groundwater	5/07/20 9:30	5/07/20 17:27
PF	2001130-05	Groundwater	5/07/20 10:00	5/07/20 17:27
INF	2001130-06	Groundwater	5/07/20 10:10	5/07/20 17:27
EW-02	2001130-07	Groundwater	5/07/20 11:20	5/07/20 17:27
MW-29	2001130-08	Groundwater	5/07/20 11:40	5/07/20 17:27

CASE NARRATIVE

Samples for Bromate by IC-MS/MS was subcontracted to Element Materials Technology with CA-ELAP Cert. 2652.



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 : 05/20/2020

Client Sample ID: TB-050720

Lab ID: 2001130-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,1,2-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,1-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,1-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	



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 : 05/20/2020

Client Sample ID: TB-050720

Lab ID: 2001130-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 14:42	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 14:42	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Trichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Trichlorofluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 14:42	
Surrogate: 1,2-Dichloroethane-d4	120 %	59 - 158		B0E0244	05/12/2020	05/12/20 14:42	
Surrogate: 4-Bromofluorobenzene	103 %	71 - 127		B0E0244	05/12/2020	05/12/20 14:42	
Surrogate: Dibromofluoromethane	115 %	66 - 147		B0E0244	05/12/2020	05/12/20 14:42	
Surrogate: Toluene-d8	108 %	77 - 138		B0E0244	05/12/2020	05/12/20 14:42	



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 : 05/20/2020

Client Sample ID: CEFF

Lab ID: 2001130-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,1,2-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,1-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,1-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	



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 : 05/20/2020

Client Sample ID: CEFF

Lab ID: 2001130-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 15:05	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 15:05	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Trichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Trichlorofluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:05	
Surrogate: 1,2-Dichloroethane-d4	122 %	59 - 158		B0E0244	05/12/2020	05/12/20 15:05	
Surrogate: 4-Bromofluorobenzene	104 %	71 - 127		B0E0244	05/12/2020	05/12/20 15:05	
Surrogate: Dibromofluoromethane	114 %	66 - 147		B0E0244	05/12/2020	05/12/20 15:05	
Surrogate: Toluene-d8	106 %	77 - 138		B0E0244	05/12/2020	05/12/20 15:05	



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 : 05/20/2020

Client Sample ID: CEFF

Lab ID: 2001130-02

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	1.0	0.20	1	B0E0280	05/13/2020	05/13/20 15:54	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>64.8 %</i>	<i>17 - 119</i>		B0E0280	05/13/2020	<i>05/13/20 15:54</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>123 %</i>	<i>10 - 133</i>		B0E0280	05/13/2020	<i>05/13/20 15:54</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>74.8 %</i>	<i>5 - 139</i>		B0E0280	05/13/2020	<i>05/13/20 15:54</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>113 %</i>	<i>13 - 150</i>		B0E0280	05/13/2020	<i>05/13/20 15:54</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 : 05/20/2020

Client Sample ID: CBT

Lab ID: 2001130-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,1,2-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,1-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,1-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	



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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 : 05/20/2020

Client Sample ID: CBT

Lab ID: 2001130-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 15:27	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 15:27	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Trichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Trichlorofluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:27	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>123 %</i>	<i>59 - 158</i>		B0E0244	05/12/2020	<i>05/12/20 15:27</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>71 - 127</i>		B0E0244	05/12/2020	<i>05/12/20 15:27</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>116 %</i>	<i>66 - 147</i>		B0E0244	05/12/2020	<i>05/12/20 15:27</i>	
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>	<i>77 - 138</i>		B0E0244	05/12/2020	<i>05/12/20 15:27</i>	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 05/20/2020

Client Sample ID: CBT

Lab ID: 2001130-03

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	1.1	0.20	1	B0E0280	05/13/2020	05/13/20 16:21	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>74.9 %</i>	<i>17 - 119</i>		B0E0280	05/13/2020	<i>05/13/20 16:21</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>127 %</i>	<i>10 - 133</i>		B0E0280	05/13/2020	<i>05/13/20 16:21</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>72.1 %</i>	<i>5 - 139</i>		B0E0280	05/13/2020	<i>05/13/20 16:21</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>116 %</i>	<i>13 - 150</i>		B0E0280	05/13/2020	<i>05/13/20 16:21</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 : 05/20/2020

Client Sample ID: POX

Lab ID: 2001130-04

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	220	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0E0309	05/13/2020	05/13/20 19:07	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,1,2-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,1-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,1-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	



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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 : 05/20/2020

Client Sample ID: POX

Lab ID: 2001130-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 15:50	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 15:50	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Trichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Trichlorofluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 15:50	



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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 : 05/20/2020

Client Sample ID: POX

Lab ID: 2001130-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: 1,2-Dichloroethane-d4	125 %	59 - 158		B0E0244	05/12/2020	05/12/20 15:50	
Surrogate: 4-Bromofluorobenzene	103 %	71 - 127		B0E0244	05/12/2020	05/12/20 15:50	
Surrogate: Dibromofluoromethane	116 %	66 - 147		B0E0244	05/12/2020	05/12/20 15:50	
Surrogate: Toluene-d8	106 %	77 - 138		B0E0244	05/12/2020	05/12/20 15:50	

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	0.72	0.20	1	B0E0280	05/13/2020	05/13/20 16:48	
Surrogate: 1,2-Dichlorobenzene-d4	69.9 %	17 - 119		B0E0280	05/13/2020	05/13/20 16:48	
Surrogate: 2-Fluorobiphenyl	122 %	10 - 133		B0E0280	05/13/2020	05/13/20 16:48	
Surrogate: 4-Terphenyl-d14	81.7 %	5 - 139		B0E0280	05/13/2020	05/13/20 16:48	
Surrogate: Nitrobenzene-d5	109 %	13 - 150		B0E0280	05/13/2020	05/13/20 16:48	



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Project Number : Raytheon Main GETS Monthly Sample, 5

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Reported : 05/20/2020

Client Sample ID: PF

Lab ID: 2001130-05

UV Absorption by EPA 415.3

Analyst: SDC

Analyte	Result (1/cm)	PQL (1/cm)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
UV Absorption	ND	0.01	1	B0E0197	05/08/2020	05/08/20 17:57	

Alkalinity, Speciated by SM 2320B

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Alkalinity, Bicarbonate (as CaCO ₃)	14	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	
Alkalinity, Carbonate (as CaCO ₃)	210	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	
Alkalinity, Total (as CaCO ₃)	220	5.0	1	B0E0282	05/13/2020	05/13/20 14:27	

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

Analyst: AH

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	ND	1.0	1	B0E0199	05/08/2020	05/11/20 11:05	

Total Organic Carbon by SM 5310B

Analyst: Sammy

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Organic Carbon, Total	ND	3.0	1	B0E0309	05/13/2020	05/13/20 19:24	



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Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 05/20/2020

Client Sample ID: INF

Lab ID: 2001130-06

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.23	0.05	1	B0E0325	05/14/2020	05/14/20 11:31	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,1,2-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,1-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,1-Dichloroethene	45	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 05/20/2020

Client Sample ID: INF

Lab ID: 2001130-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 16:36	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 16:36	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Trichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Trichlorofluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:36	
Surrogate: 1,2-Dichloroethane-d4	128 %	59 - 158		B0E0244	05/12/2020	05/12/20 16:36	
Surrogate: 4-Bromofluorobenzene	107 %	71 - 127		B0E0244	05/12/2020	05/12/20 16:36	
Surrogate: Dibromofluoromethane	117 %	66 - 147		B0E0244	05/12/2020	05/12/20 16:36	
Surrogate: Toluene-d8	108 %	77 - 138		B0E0244	05/12/2020	05/12/20 16:36	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 05/20/2020

Client Sample ID: INF

Lab ID: 2001130-06

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	24	2.0	1	B0E0258	05/12/2020	05/12/20 20:17	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>69.3 %</i>	<i>17 - 119</i>		B0E0258	05/12/2020	<i>05/12/20 20:17</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>81.3 %</i>	<i>10 - 133</i>		B0E0258	05/12/2020	<i>05/12/20 20:17</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>92.8 %</i>	<i>5 - 139</i>		B0E0258	05/12/2020	<i>05/12/20 20:17</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>82.4 %</i>	<i>13 - 150</i>		B0E0258	05/12/2020	<i>05/12/20 20:17</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 : 05/20/2020

Client Sample ID: EW-02

Lab ID: 2001130-07

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.20	0.05	1	B0E0325	05/14/2020	05/14/20 11:43	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,1,2-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,1-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,1-Dichloroethene	13	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 05/20/2020

Client Sample ID: EW-02

Lab ID: 2001130-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 16:13	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 16:13	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Trichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Trichlorofluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 16:13	
Surrogate: 1,2-Dichloroethane-d4	124 %	59 - 158		B0E0244	05/12/2020	05/12/20 16:13	
Surrogate: 4-Bromofluorobenzene	103 %	71 - 127		B0E0244	05/12/2020	05/12/20 16:13	
Surrogate: Dibromofluoromethane	115 %	66 - 147		B0E0244	05/12/2020	05/12/20 16:13	
Surrogate: Toluene-d8	105 %	77 - 138		B0E0244	05/12/2020	05/12/20 16:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Monthly Sample, 5

Report To : Steve Netto

Reported : 05/20/2020

Client Sample ID: EW-02

Lab ID: 2001130-07

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	2.5	2.0	1	B0E0258	05/12/2020	05/12/20 20:43	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.4 %</i>	<i>17 - 119</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 20:43</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>79.2 %</i>	<i>10 - 133</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 20:43</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>92.0 %</i>	<i>5 - 139</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 20:43</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>82.4 %</i>	<i>13 - 150</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 20:43</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 : 05/20/2020

Client Sample ID: MW-29

Lab ID: 2001130-08

Bromide by Ion Chromatography EPA 300

Analyst: SDC

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromide	0.34	0.05	1	B0E0325	05/14/2020	05/14/20 11:54	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,1,1-Trichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,1,2-Trichloroethane	0.50	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,1-Dichloroethane	1.6	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,1-Dichloroethene	140	5.0	10	B0E0244	05/12/2020	05/12/20 17:21	
1,1-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2,3-Trichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2-Dibromoethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2-Dichloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,3-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,3-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
1,4-Dichlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
2,2-Dichloropropane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
2-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
4-Chlorotoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
4-Isopropyltoluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Benzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Bromobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Bromodichloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Bromoform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Bromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Carbon tetrachloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	



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 : 05/20/2020

Client Sample ID: MW-29

Lab ID: 2001130-08

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Chloroethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Chloroform	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Chloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Dibromochloromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Dibromomethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Dichlorodifluoromethane	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Ethylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Hexachlorobutadiene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Isopropylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
m,p-Xylene	ND	1.0	1	B0E0244	05/12/2020	05/12/20 17:43	
Methylene chloride	ND	1.0	1	B0E0244	05/12/2020	05/12/20 17:43	
n-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
n-Propylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Naphthalene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
o-Xylene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
sec-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Styrene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
tert-Butylbenzene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Tetrachloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Toluene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Trichloroethene	1.3	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Trichlorofluoromethane	0.69	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
Vinyl chloride	ND	0.50	1	B0E0244	05/12/2020	05/12/20 17:43	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>124 %</i>	<i>59 - 158</i>		B0E0244	05/12/2020	<i>05/12/20 17:21</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>127 %</i>	<i>59 - 158</i>		B0E0244	05/12/2020	<i>05/12/20 17:43</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>	<i>71 - 127</i>		B0E0244	05/12/2020	<i>05/12/20 17:43</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>71 - 127</i>		B0E0244	05/12/2020	<i>05/12/20 17:21</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>	<i>66 - 147</i>		B0E0244	05/12/2020	<i>05/12/20 17:43</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>117 %</i>	<i>66 - 147</i>		B0E0244	05/12/2020	<i>05/12/20 17:21</i>	
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>	<i>77 - 138</i>		B0E0244	05/12/2020	<i>05/12/20 17:21</i>	
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>	<i>77 - 138</i>		B0E0244	05/12/2020	<i>05/12/20 17:43</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 : 05/20/2020

Client Sample ID: MW-29

Lab ID: 2001130-08

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	95	2.0	1	B0E0258	05/12/2020	05/12/20 21:09	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>73.3 %</i>	<i>17 - 119</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 21:09</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>84.7 %</i>	<i>10 - 133</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 21:09</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>102 %</i>	<i>5 - 139</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 21:09</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>87.2 %</i>	<i>13 - 150</i>		<i>B0E0258</i>	<i>05/12/2020</i>	<i>05/12/20 21:09</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 : 05/20/2020

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

Batch B0E0282 - No_Prep_WC1_W

Blank (B0E0282-BLK1)

Prepared: 5/13/2020 Analyzed: 5/13/2020

Alkalinity, Bicarbonate (as CaCO ₃)	ND	5.0	3.4
Alkalinity, Carbonate (as CaCO ₃)	ND	5.0	3.4
Alkalinity, Hydroxide (as CaCO ₃)	ND	5.0	3.4
Alkalinity, Total (as CaCO ₃)	ND	5.0	3.4

LCS (B0E0282-BS1)

Prepared: 5/13/2020 Analyzed: 5/13/2020

Alkalinity, Total (as CaCO ₃)	102.610	5.0	3.4	99.9580	103	80 - 120

Matrix Spike (B0E0282-MS1)

Source: 2001130-04

Prepared: 5/13/2020 Analyzed: 5/13/2020

Alkalinity, Total (as CaCO ₃)	322.540	5.0	3.4	99.9580	221.190	101	80 - 120

Matrix Spike Dup (B0E0282-MSD1)

Source: 2001130-04

Prepared: 5/13/2020 Analyzed: 5/13/2020

Alkalinity, Total (as CaCO ₃)	322.120	5.0	3.4	99.9580	221.190	101	80 - 120	0.130	20



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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

Batch B0E0199 - No_Prep_WC1_W

Blank (B0E0199-BLK1)

Prepared: 5/8/2020 Analyzed: 5/11/2020

Residue, Suspended ND 1.0 1.0

LCS (B0E0199-BS1)

Prepared: 5/8/2020 Analyzed: 5/11/2020

Residue, Suspended 89.0000 10 10 93.4000 95.3 80 - 120

Duplicate (B0E0199-DUP1)

Source: 2001112-01

Prepared: 5/8/2020 Analyzed: 5/11/2020

Residue, Suspended 26.0000 4.0 4.0 25.6000 1.55 10



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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

Batch B0E0325 - No_Prep_IC1_W

Blank (B0E0325-BLK1)

Prepared: 5/14/2020 Analyzed: 5/14/2020

Bromide ND 0.05 0.02

LCS (B0E0325-BS1)

Prepared: 5/14/2020 Analyzed: 5/14/2020

Bromide 0.933800 0.05 0.02 1.00000 93.4 90 - 110

Duplicate (B0E0325-DUP1)

Source: 2001130-06

Prepared: 5/14/2020 Analyzed: 5/14/2020

Bromide 0.235900 0.05 0.02 0.234200 0.723 20

Matrix Spike (B0E0325-MS1)

Source: 2001130-06

Prepared: 5/14/2020 Analyzed: 5/14/2020

Bromide 2.43970 0.05 0.02 2.50000 0.234200 88.2 80 - 120

Matrix Spike Dup (B0E0325-MSD1)

Source: 2001130-06

Prepared: 5/14/2020 Analyzed: 5/14/2020

Bromide 2.55240 0.05 0.02 2.50000 0.234200 92.7 80 - 120 4.52 20



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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

Batch B0E0197 - No_Prep_II_W

Duplicate (B0E0197-DUP1)

Source: 2001130-05

Prepared: 5/8/2020 Analyzed: 5/8/2020

UV Absorption	ND	0.01	0.01	ND				20	



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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 Limits	RPD RPD	RPD Limit	Notes
Batch B0E0309 - No_Prep_II_W									
Blank (B0E0309-BLK1)					Prepared: 5/13/2020 Analyzed: 5/13/2020				
Organic Carbon, Total	ND	3.0	1.3						
LCS (B0E0309-BS1)					Prepared: 5/13/2020 Analyzed: 5/13/2020				
Organic Carbon, Total	22.4700	3.0	1.3	25.0000		89.9	80 - 120		
Duplicate (B0E0309-DUP1)					Source: 2001130-04 Prepared: 5/13/2020 Analyzed: 5/13/2020				
Organic Carbon, Total	ND	3.0	1.3		ND		NR	20	
Matrix Spike (B0E0309-MS1)					Source: 2001130-04 Prepared: 5/13/2020 Analyzed: 5/13/2020				
Organic Carbon, Total	24.5300	3.0	1.3	25.0000	ND	98.1	80 - 120		
Matrix Spike Dup (B0E0309-MSD1)					Source: 2001130-04 Prepared: 5/13/2020 Analyzed: 5/13/2020				
Organic Carbon, Total	45.4600	3.0	1.3	25.0000	ND	182	80 - 120	59.8	20 M2



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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

Batch B0E0244 - MSVOA_LL_W

Blank (B0E0244-BLK1)

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19
Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13



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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

Batch B0E0244 - MSVOA_LL_W (continued)

Blank (B0E0244-BLK1) - Continued

Prepared: 5/12/2020 Analyzed: 5/12/2020

Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	29.25	25.0000	117	59 - 158
Surrogate: 4-Bromofluorobenzene	25.07	25.0000	100	71 - 127
Surrogate: Dibromofluoromethane	27.89	25.0000	112	66 - 147
Surrogate: Toluene-d8	26.05	25.0000	104	77 - 138

LCS (B0E0244-BS1)

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,1,1,2-Tetrachloroethane	19.0100	0.50	0.11	20.0000	95.0	71 - 133
1,1,1-Trichloroethane	23.2000	0.50	0.21	20.0000	116	62 - 124
1,1,2,2-Tetrachloroethane	20.4300	0.50	0.36	20.0000	102	50 - 131
1,1,2-Trichloroethane	20.5800	0.50	0.25	20.0000	103	77 - 121
1,1-Dichloroethane	22.7300	0.50	0.09	20.0000	114	52 - 130
1,1-Dichloroethene	24.9700	0.50	0.13	20.0000	125	61 - 136
1,1-Dichloropropene	23.2700	0.50	0.13	20.0000	116	80 - 128
1,2,3-Trichloropropane	20.1900	0.50	0.39	20.0000	101	59 - 126
1,2,3-Trichlorobenzene	20.2300	0.50	0.18	20.0000	101	69 - 138
1,2,4-Trichlorobenzene	21.0500	0.50	0.16	20.0000	105	78 - 125
1,2,4-Trimethylbenzene	22.2500	0.50	0.14	20.0000	111	70 - 126
1,2-Dibromo-3-chloropropane	16.0400	0.50	0.41	20.0000	80.2	58 - 127
1,2-Dibromoethane	19.9000	0.50	0.24	20.0000	99.5	76 - 120
1,2-Dichlorobenzene	20.2900	0.50	0.20	20.0000	101	82 - 117
1,2-Dichloroethane	20.7800	0.50	0.20	20.0000	104	66 - 126
1,2-Dichloropropane	21.3700	0.50	0.15	20.0000	107	70 - 117
1,3,5-Trimethylbenzene	22.2800	0.50	0.13	20.0000	111	71 - 125



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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 B0E0244 - MSVOA_LL_W (continued)

LCS (B0E0244-BS1) - Continued

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,3-Dichlorobenzene	20.3700	0.50	0.16	20.0000	102	81 - 116
1,3-Dichloropropane	20.9200	0.50	0.21	20.0000	105	69 - 124
1,4-Dichlorobenzene	19.6100	0.50	0.17	20.0000	98.0	80 - 114
2,2-Dichloropropane	24.8100	0.50	0.38	20.0000	124	58 - 132
2-Chlorotoluene	21.9700	0.50	0.11	20.0000	110	71 - 119
4-Chlorotoluene	21.7200	0.50	0.12	20.0000	109	72 - 122
4-Isopropyltoluene	22.8400	0.50	0.11	20.0000	114	69 - 126
Benzene	21.5900	0.50	0.13	20.0000	108	80 - 116
Bromobenzene	19.5300	0.50	0.21	20.0000	97.6	77 - 118
Bromodichloromethane	20.4000	0.50	0.14	20.0000	102	73 - 118
Bromoform	18.0800	0.50	0.20	20.0000	90.4	65 - 133
Bromomethane	27.5900	0.50	0.40	20.0000	138	7 - 205
Carbon tetrachloride	21.1300	0.50	0.09	20.0000	106	63 - 133
Chlorobenzene	19.5500	0.50	0.13	20.0000	97.8	86 - 113
Chloroethane	22.4800	0.50	0.15	20.0000	112	66 - 141
Chloroform	21.6100	0.50	0.11	20.0000	108	63 - 127
Chloromethane	25.0500	0.50	0.12	20.0000	125	0 - 207
cis-1,2-Dichloroethene	22.0200	0.50	0.14	20.0000	110	64 - 126
cis-1,3-Dichloropropene	20.5700	0.50	0.13	20.0000	103	70 - 141
Dibromochloromethane	19.2300	0.50	0.16	20.0000	96.2	67 - 135
Dibromomethane	20.2200	0.50	0.19	20.0000	101	74 - 118
Dichlorodifluoromethane	29.7100	0.50	0.18	20.0000	149	14 - 181
Ethylbenzene	21.2100	0.50	0.13	20.0000	106	77 - 118
Hexachlorobutadiene	20.6500	0.50	0.15	20.0000	103	66 - 125
Isopropylbenzene	22.9700	0.50	0.10	20.0000	115	68 - 137
m,p-Xylene	43.5600	1.0	0.19	40.0000	109	78 - 126
Methylene chloride	23.3600	1.0	0.71	20.0000	117	51 - 149
n-Butylbenzene	21.8600	0.50	0.11	20.0000	109	63 - 127
n-Propylbenzene	24.0400	0.50	0.10	20.0000	120	69 - 124
Naphthalene	18.5000	0.50	0.41	20.0000	92.5	60 - 126
o-Xylene	21.9500	0.50	0.13	20.0000	110	79 - 126
sec-Butylbenzene	23.5300	0.50	0.09	20.0000	118	69 - 124
Styrene	17.7600	0.50	0.13	20.0000	88.8	80 - 127
tert-Butylbenzene	22.0200	0.50	0.09	20.0000	110	71 - 124
Tetrachloroethene	20.3800	0.50	0.10	20.0000	102	73 - 129
Toluene	20.9900	0.50	0.12	20.0000	105	78 - 121
trans-1,2-Dichloroethene	23.0800	0.50	0.09	20.0000	115	58 - 141
Trichloroethene	20.2800	0.50	0.10	20.0000	101	73 - 126
Trichlorofluoromethane	22.7000	0.50	0.23	20.0000	114	62 - 146
Vinyl chloride	24.3700	0.50	0.13	20.0000	122	61 - 137



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

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

Batch B0E0244 - MSVOA_LL_W (continued)

LCS (B0E0244-BS1) - Continued

Prepared: 5/12/2020 Analyzed: 5/12/2020

Surrogate: 1,2-Dichloroethane-d4	28.18		25.0000		113	59 - 158			
Surrogate: 4-Bromofluorobenzene	27.00		25.0000		108	71 - 127			
Surrogate: Dibromofluoromethane	27.91		25.0000		112	66 - 147			
Surrogate: Toluene-d8	27.14		25.0000		109	77 - 138			

LCS Dup (B0E0244-BSD1)

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,1,1,2-Tetrachloroethane	19.8300	0.50	0.11	20.0000	99.2	71 - 133	4.22	20	
1,1,1-Trichloroethane	22.9800	0.50	0.21	20.0000	115	62 - 124	0.953	20	
1,1,2,2-Tetrachloroethane	21.6500	0.50	0.36	20.0000	108	50 - 131	5.80	20	
1,1,2-Trichloroethane	21.4900	0.50	0.25	20.0000	107	77 - 121	4.33	20	
1,1-Dichloroethane	23.5300	0.50	0.09	20.0000	118	52 - 130	3.46	20	
1,1-Dichloroethene	24.3500	0.50	0.13	20.0000	122	61 - 136	2.51	20	
1,1-Dichloropropene	22.7200	0.50	0.13	20.0000	114	80 - 128	2.39	20	
1,2,3-Trichloropropane	21.1300	0.50	0.39	20.0000	106	59 - 126	4.55	20	
1,2,3-Trichlorobenzene	20.7900	0.50	0.18	20.0000	104	69 - 138	2.73	20	
1,2,4-Trichlorobenzene	21.4700	0.50	0.16	20.0000	107	78 - 125	1.98	20	
1,2,4-Trimethylbenzene	22.6500	0.50	0.14	20.0000	113	70 - 126	1.78	20	
1,2-Dibromo-3-chloropropane	17.3100	0.50	0.41	20.0000	86.6	58 - 127	7.62	20	
1,2-Dibromoethane	21.0800	0.50	0.24	20.0000	105	76 - 120	5.76	20	
1,2-Dichlorobenzene	20.8400	0.50	0.20	20.0000	104	82 - 117	2.67	20	
1,2-Dichloroethane	21.1200	0.50	0.20	20.0000	106	66 - 126	1.62	20	
1,2-Dichloropropane	22.1000	0.50	0.15	20.0000	110	70 - 117	3.36	20	
1,3,5-Trimethylbenzene	22.3400	0.50	0.13	20.0000	112	71 - 125	0.269	20	
1,3-Dichlorobenzene	20.5100	0.50	0.16	20.0000	103	81 - 116	0.685	20	
1,3-Dichloropropane	21.5800	0.50	0.21	20.0000	108	69 - 124	3.11	20	
1,4-Dichlorobenzene	19.9500	0.50	0.17	20.0000	99.8	80 - 114	1.72	20	
2,2-Dichloropropane	25.0200	0.50	0.38	20.0000	125	58 - 132	0.843	20	
2-Chlorotoluene	22.4200	0.50	0.11	20.0000	112	71 - 119	2.03	20	
4-Chlorotoluene	21.9900	0.50	0.12	20.0000	110	72 - 122	1.24	20	
4-Isopropyltoluene	22.8200	0.50	0.11	20.0000	114	69 - 126	0.0876	20	
Benzene	22.3200	0.50	0.13	20.0000	112	80 - 116	3.32	20	
Bromobenzene	19.9000	0.50	0.21	20.0000	99.5	77 - 118	1.88	20	
Bromodichloromethane	21.1100	0.50	0.14	20.0000	106	73 - 118	3.42	20	
Bromoform	18.7700	0.50	0.20	20.0000	93.8	65 - 133	3.74	20	
Bromomethane	27.1000	0.50	0.40	20.0000	136	7 - 205	1.79	20	
Carbon tetrachloride	20.2100	0.50	0.09	20.0000	101	63 - 133	4.45	20	
Chlorobenzene	20.0800	0.50	0.13	20.0000	100	86 - 113	2.67	20	
Chloroethane	22.2000	0.50	0.15	20.0000	111	66 - 141	1.25	20	
Chloroform	22.0300	0.50	0.11	20.0000	110	63 - 127	1.92	20	
Chloromethane	25.6000	0.50	0.12	20.0000	128	0 - 207	2.17	20	
cis-1,2-Dichloroethene	22.9800	0.50	0.14	20.0000	115	64 - 126	4.27	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

Batch B0E0244 - MSVOA_LL_W (continued)

LCS Dup (B0E0244-BSD1) - Continued

Prepared: 5/12/2020 Analyzed: 5/12/2020

cis-1,3-Dichloropropene	21.4800	0.50	0.13	20.0000	107	70 - 141	4.33	20	
Dibromochloromethane	19.9200	0.50	0.16	20.0000	99.6	67 - 135	3.52	20	
Dibromomethane	20.8800	0.50	0.19	20.0000	104	74 - 118	3.21	20	
Dichlorodifluoromethane	25.6600	0.50	0.18	20.0000	128	14 - 181	14.6	20	
Ethylbenzene	21.5800	0.50	0.13	20.0000	108	77 - 118	1.73	20	
Hexachlorobutadiene	18.9800	0.50	0.15	20.0000	94.9	66 - 125	8.43	20	
Isopropylbenzene	23.0400	0.50	0.10	20.0000	115	68 - 137	0.304	20	
m,p-Xylene	44.0700	1.0	0.19	40.0000	110	78 - 126	1.16	20	
Methylene chloride	23.9900	1.0	0.71	20.0000	120	51 - 149	2.66	20	
n-Butylbenzene	21.4800	0.50	0.11	20.0000	107	63 - 127	1.75	20	
n-Propylbenzene	23.6900	0.50	0.10	20.0000	118	69 - 124	1.47	20	
Naphthalene	19.4800	0.50	0.41	20.0000	97.4	60 - 126	5.16	20	
o-Xylene	22.6700	0.50	0.13	20.0000	113	79 - 126	3.23	20	
sec-Butylbenzene	22.8300	0.50	0.09	20.0000	114	69 - 124	3.02	20	
Styrene	18.1900	0.50	0.13	20.0000	91.0	80 - 127	2.39	20	
tert-Butylbenzene	21.6900	0.50	0.09	20.0000	108	71 - 124	1.51	20	
Tetrachloroethene	20.0400	0.50	0.10	20.0000	100	73 - 129	1.68	20	
Toluene	21.5500	0.50	0.12	20.0000	108	78 - 121	2.63	20	
trans-1,2-Dichloroethene	23.5000	0.50	0.09	20.0000	118	58 - 141	1.80	20	
Trichloroethene	20.3500	0.50	0.10	20.0000	102	73 - 126	0.345	20	
Trichlorofluoromethane	20.7000	0.50	0.23	20.0000	104	62 - 146	9.22	20	
Vinyl chloride	24.0200	0.50	0.13	20.0000	120	61 - 137	1.45	20	
Surrogate: 1,2-Dichloroethane-d4	27.15			25.0000	109	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.35			25.0000	105	71 - 127			
Surrogate: Dibromofluoromethane	27.07			25.0000	108	66 - 147			
Surrogate: Toluene-d8	26.54			25.0000	106	77 - 138			



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 : 05/20/2020

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

Batch B0E0258 - MSSEMI_W

Blank (B0E0258-BLK1)

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	72.19			100.000	72.2	17 - 119			
Surrogate: 2-Fluorobiphenyl	82.94			100.000	82.9	10 - 133			
Surrogate: 4-Terphenyl-d14	96.60			100.000	96.6	5 - 139			
Surrogate: Nitrobenzene-d5	84.06			100.000	84.1	13 - 150			

LCS (B0E0258-BS1)

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,4-Dioxane	118.280	2.0	0.84	100.000	118	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	68.84			100.000	68.8	17 - 119			
Surrogate: 2-Fluorobiphenyl	84.87			100.000	84.9	10 - 133			
Surrogate: 4-Terphenyl-d14	94.08			100.000	94.1	5 - 139			
Surrogate: Nitrobenzene-d5	88.40			100.000	88.4	13 - 150			

LCS Dup (B0E0258-BSD1)

Prepared: 5/12/2020 Analyzed: 5/12/2020

1,4-Dioxane	111.390	2.0	0.84	100.000	111	75 - 155	6.00	20	
Surrogate: 1,2-Dichlorobenzene-d	74.53			100.000	74.5	17 - 119			
Surrogate: 2-Fluorobiphenyl	89.07			100.000	89.1	10 - 133			
Surrogate: 4-Terphenyl-d14	99.39			100.000	99.4	5 - 139			
Surrogate: Nitrobenzene-d5	92.46			100.000	92.5	13 - 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 : 05/20/2020

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 B0E0280 - MSSEMI_W

Blank (B0E0280-BLK1)

Prepared: 5/13/2020 Analyzed: 5/13/2020

1,4-Dioxane	ND	0.20	0.05							
Surrogate: 1,2-Dichlorobenzene-d	0.7608			1.00000		76.1	17 - 119			
Surrogate: 2-Fluorobiphenyl	1.229			1.00000		123	10 - 133			
Surrogate: 4-Terphenyl-d14	0.9725			1.00000		97.2	5 - 139			
Surrogate: Nitrobenzene-d5	0.9304			1.00000		93.0	13 - 150			

LCS (B0E0280-BS1)

Prepared: 5/13/2020 Analyzed: 5/13/2020

1,4-Dioxane	1.22768	0.20	0.05	1.00000		123	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	0.6886			1.00000		68.9	17 - 119			
Surrogate: 2-Fluorobiphenyl	1.088			1.00000		109	10 - 133			
Surrogate: 4-Terphenyl-d14	0.7693			1.00000		76.9	5 - 139			
Surrogate: Nitrobenzene-d5	0.8880			1.00000		88.8	13 - 150			

LCS Dup (B0E0280-BSD1)

Prepared: 5/13/2020 Analyzed: 5/13/2020

1,4-Dioxane	1.21562	0.20	0.05	1.00000		122	75 - 155	0.987	20	
Surrogate: 1,2-Dichlorobenzene-d	0.6648			1.00000		66.5	17 - 119			
Surrogate: 2-Fluorobiphenyl	1.095			1.00000		110	10 - 133			
Surrogate: 4-Terphenyl-d14	0.7496			1.00000		75.0	5 - 139			
Surrogate: Nitrobenzene-d5	0.8840			1.00000		88.4	13 - 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 : 05/20/2020

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
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 Monthly Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Ross Horton

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	
2001120-01	TB-050720	5/7/2020	8:00	X	X				X	2					X	
-02	CEFF	5/7/2020	9:05	X	X				X	3					X	
-03	CBT	5/7/2020	9:20	X	X				X	3					X	
-04	POX	5/7/2020	9:30	X	X			X	X	5	1	1			X	
-05	PF	5/7/2020	10:00	X				X	X	2	1	1	1		X	
-06	INF	5/7/2020	10:10	X	X			X	X	3	2				X	
-07	EW-02	5/7/2020	11:20	X	X			X	X	3	1				X	
-08	MW-29	5/7/2020	11:40	X	X			X	X	3	1				X	
Total number of containers per analysis:										24	5	2	1	1	6	Total No. of Containers: 39

Relinquished By: / Company:	Date / Time	Received By: / Company:	Date / Time
H+A	5-7-2020 15:04	Steve Netto	5-7-2020 15:04
Relinquished By: / Company:	Date / Time	Received By: / Company:	Date / Time
Steve Netto	5-7-2020 16:47	Ross Horton	5/7/20 15:04

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

Send Results to:
Steve Netto & Ross Horton
 9171 Towne Centre Drive
 Suite 375
 San Diego, CA 92122
 Ph: 858.455.6500
snetto@hargis.com
rhorton@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.

24

Temperature on receipt

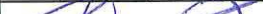


Page 1 of 1

Project Manager Steve Netto
QA Manager Ross Horton
Phone 858.455.6500
Fax 858.455.6533

[illegible]

Total number of containers per analysis:

Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
 H-4	5-7-20 15:04	 H-4	5-7-2020 15:09
Relinquished By: / Company:	Date / Time	Received By: / Company	Date / Time
 H-4	11:47	 H-4	6/7/20 11:09

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

Send Results to:
Steve Netto & Ross Horton
 9171 Towne Centre Drive
 Suite 375
 San Diego, CA 92122
 Ph: 858.455.6500
snetto@hargis.com
rhorton@hargis.com

Instructions
completely and sign

3. Indicate the
4. Note applicable
5. Consult project QA documents for specific instructions.

Temperature on receipt

Laboratory Report

May 20, 2020

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

Attn: Tina Nguyen

Element Job No: 239187
Purchase Order: PAID-CREDIT CARD
Project Name: 2001130 / Groundwater
Samples Received: 2
Date Received: 05-08-2020

Analysis	Page
Bromate by SOP 5600, Rev 3	2


Michael Shelton
Technical Director
Robert Stead
Senior Chemist

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

Sample preparation: An aliquot of sample was spiked with internal standard (bromate-¹⁸O₃), and diluted with water. The sample solutions were analyzed using IC-MS/MS.

Parts Per Billion (µg/L)

<u>Sample ID</u>	<u>Result</u>
ATL Lab#: 2001130-04 / POX	ND
ATL Lab#: 2001130-06 / INF	ND
Method Blank	ND
Detection Limit	0.5
Date Analyzed: 05-14-2020	

Quality Control Summary

Sample ID: ATL Lab#: 2001130-06 / INF

<u>Analyte</u>	<u>Sample Result</u>	<u>Spike Conc</u>	<u>Spike Result</u>	<u>Spike % Rec</u>	<u>Spike Duplicate</u>	<u>Duplicate % Rec</u>	<u>RPD</u>
Bromate	ND	10.0	10.2	102	10.2	102	1
QC Guidelines				80-120		80-120	NMT 15

SUBCONTRACT ORDER

Work Order: 2001130

SENDING LABORATORY:

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Phone: 562.989.4045
Fax: 562.989.6348
Project Manager: Tina Nguyen
(Tina.Nguyen@atlglobal.com)

RECEIVING LABORATORY:

Element Materials Technology
9240 Santa Fe Springs Road
Santa Fe Springs, CA 90670
Phone : (562) 948-2225
Fax: (562) 948-5850
PO#: SC14649- STANDARD TAT

Sampler: Ruben Sanchez

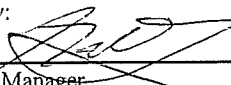
IMPORTANT : Please include Work Order # and PO # in your invoice.

Analysis	Due	Expires	Sampled	Comments
ATL Lab#: 2001130-04 ¹⁶ / POX Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	05/15/20 17:00	06/04/20 09:30	05/07/20 09:30	
ATL Lab#: 2001130-06 ² / INF Bromate_ICMS/MS_SUB [Bromate by IC-MS/MS] 1-Poly Unpres - 125mL	05/15/20 17:00	06/04/20 10:10	05/07/20 10:10	

05-08-2020 cf. Also has ① - K
② - KF

239187

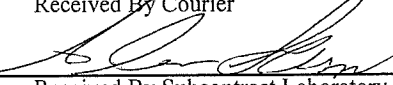
Approved by:

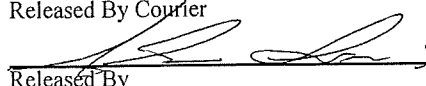
 5/18/20
ATL Project Manager Date

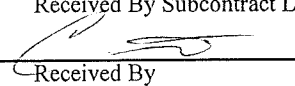
Released By ATL Sample Control Date

 Date

Released By Courier Date

 5/18/20 Date

 5/18/20 Date

 05-08-2020 3:25 PM Date



June 01, 2020

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 : 2001230

Client Reference : Raytheon Main GETS Mid Monthly Sample, 532.15

Enclosed are the results for sample(s) received on May 21, 2020 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 'R. Karimi', enclosed within a large, loopy oval.

Dr. Reza Karimi
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 Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-052120	2001230-01	Lab prepared water	5/21/20 8:00	5/21/20 14:57
CEFF	2001230-02	Groundwater	5/21/20 9:10	5/21/20 14:57
CBT	2001230-03	Groundwater	5/21/20 9:25	5/21/20 14:57
POX	2001230-04	Groundwater	5/21/20 9:45	5/21/20 14:57
INF	2001230-05	Groundwater	5/21/20 10:00	5/21/20 14:57
EW-02	2001230-06	Groundwater	5/21/20 11:05	5/21/20 14:57
MW-29	2001230-07	Groundwater	5/21/20 11:20	5/21/20 14:57



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: TB-052120

Lab ID: 2001230-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,1-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,1-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Benzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Bromobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Bromodichloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Bromoform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Bromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Chlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Chloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Chloroform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Chloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: TB-052120

Lab ID: 2001230-01

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Dibromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Ethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Isopropylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
m,p-Xylene	ND	1.0	1	B0E0702	05/30/2020	05/30/20 21:10	
Methylene chloride	ND	1.0	1	B0E0702	05/30/2020	05/30/20 21:10	
n-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
n-Propylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Naphthalene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
o-Xylene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Styrene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Tetrachloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Toluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Trichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Trichlorofluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Vinyl chloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:10	
Surrogate: 1,2-Dichloroethane-d4	113 %	59 - 158		B0E0702	05/30/2020	05/30/20 21:10	
Surrogate: 4-Bromofluorobenzene	102 %	71 - 127		B0E0702	05/30/2020	05/30/20 21:10	
Surrogate: Dibromofluoromethane	99.6 %	66 - 147		B0E0702	05/30/2020	05/30/20 21:10	
Surrogate: Toluene-d8	101 %	77 - 138		B0E0702	05/30/2020	05/30/20 21:10	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: CEFF

Lab ID: 2001230-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,1-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,1-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Benzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Bromobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Bromodichloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Bromoform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Bromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Chlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Chloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Chloroform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Chloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: CEFF

Lab ID: 2001230-02

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Dibromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Ethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Isopropylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
m,p-Xylene	ND	1.0	1	B0E0702	05/30/2020	05/30/20 21:33	
Methylene chloride	ND	1.0	1	B0E0702	05/30/2020	05/30/20 21:33	
n-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
n-Propylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Naphthalene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
o-Xylene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Styrene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Tetrachloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Toluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Trichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Trichlorofluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
Vinyl chloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:33	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115 %</i>	<i>59 - 158</i>		B0E0702	05/30/2020	<i>05/30/20 21:33</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>71 - 127</i>		B0E0702	05/30/2020	<i>05/30/20 21:33</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>	<i>66 - 147</i>		B0E0702	05/30/2020	<i>05/30/20 21:33</i>	
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>	<i>77 - 138</i>		B0E0702	05/30/2020	<i>05/30/20 21:33</i>	



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: CEFF

Lab ID: 2001230-02

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	B0E0602	05/27/2020	05/27/20 17:09	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>65.8 %</i>	<i>17 - 119</i>		B0E0602	05/27/2020	05/27/20 17:09	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80.4 %</i>	<i>10 - 133</i>		B0E0602	05/27/2020	05/27/20 17:09	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>71.3 %</i>	<i>5 - 139</i>		B0E0602	05/27/2020	05/27/20 17:09	
<i>Surrogate: Nitrobenzene-d5</i>	<i>71.4 %</i>	<i>13 - 150</i>		B0E0602	05/27/2020	05/27/20 17:09	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: CBT

Lab ID: 2001230-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,1-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,1-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Benzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Bromobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Bromodichloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Bromoform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Bromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Chlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Chloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Chloroform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Chloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: CBT

Lab ID: 2001230-03

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Dibromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Ethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Isopropylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
m,p-Xylene	ND	1.0	1	B0E0702	05/30/2020	05/30/20 21:56	
Methylene chloride	ND	1.0	1	B0E0702	05/30/2020	05/30/20 21:56	
n-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
n-Propylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Naphthalene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
o-Xylene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Styrene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Tetrachloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Toluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Trichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Trichlorofluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Vinyl chloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 21:56	
Surrogate: 1,2-Dichloroethane-d4	115 %	59 - 158		B0E0702	05/30/2020	05/30/20 21:56	
Surrogate: 4-Bromofluorobenzene	105 %	71 - 127		B0E0702	05/30/2020	05/30/20 21:56	
Surrogate: Dibromofluoromethane	106 %	66 - 147		B0E0702	05/30/2020	05/30/20 21:56	
Surrogate: Toluene-d8	101 %	77 - 138		B0E0702	05/30/2020	05/30/20 21:56	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: CBT

Lab ID: 2001230-03

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	B0E0602	05/27/2020	05/27/20 17:36	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>69.3 %</i>	<i>17 - 119</i>		B0E0602	05/27/2020	05/27/20 17:36	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>78.6 %</i>	<i>10 - 133</i>		B0E0602	05/27/2020	05/27/20 17:36	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>64.6 %</i>	<i>5 - 139</i>		B0E0602	05/27/2020	05/27/20 17:36	
<i>Surrogate: Nitrobenzene-d5</i>	<i>74.2 %</i>	<i>13 - 150</i>		B0E0602	05/27/2020	05/27/20 17:36	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: POX

Lab ID: 2001230-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,1-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,1-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Benzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Bromobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Bromodichloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Bromoform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Bromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Chlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Chloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Chloroform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Chloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: POX

Lab ID: 2001230-04

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Dibromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Ethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Isopropylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
m,p-Xylene	ND	1.0	1	B0E0702	05/30/2020	05/30/20 22:18	
Methylene chloride	ND	1.0	1	B0E0702	05/30/2020	05/30/20 22:18	
n-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
n-Propylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Naphthalene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
o-Xylene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Styrene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Tetrachloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Toluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Trichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Trichlorofluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Vinyl chloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:18	
Surrogate: 1,2-Dichloroethane-d4	116 %	59 - 158		B0E0702	05/30/2020	05/30/20 22:18	
Surrogate: 4-Bromofluorobenzene	107 %	71 - 127		B0E0702	05/30/2020	05/30/20 22:18	
Surrogate: Dibromofluoromethane	104 %	66 - 147		B0E0702	05/30/2020	05/30/20 22:18	
Surrogate: Toluene-d8	101 %	77 - 138		B0E0702	05/30/2020	05/30/20 22:18	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: POX

Lab ID: 2001230-04

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	B0E0602	05/27/2020	05/27/20 18:03	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.7 %</i>	<i>17 - 119</i>		B0E0602	05/27/2020	<i>05/27/20 18:03</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>82.3 %</i>	<i>10 - 133</i>		B0E0602	05/27/2020	<i>05/27/20 18:03</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>74.0 %</i>	<i>5 - 139</i>		B0E0602	05/27/2020	<i>05/27/20 18:03</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>73.5 %</i>	<i>13 - 150</i>		B0E0602	05/27/2020	<i>05/27/20 18:03</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: INF

Lab ID: 2001230-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,1-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,1-Dichloroethene	41	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Benzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Bromobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Bromodichloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Bromoform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Bromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Chlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Chloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Chloroform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Chloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego, CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: INF

Lab ID: 2001230-05

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Dibromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Ethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Isopropylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
m,p-Xylene	ND	1.0	1	B0E0702	05/30/2020	05/30/20 23:04	
Methylene chloride	ND	1.0	1	B0E0702	05/30/2020	05/30/20 23:04	
n-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
n-Propylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Naphthalene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
o-Xylene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Styrene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Tetrachloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Toluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Trichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Trichlorofluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Vinyl chloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 23:04	
Surrogate: 1,2-Dichloroethane-d4	118 %	59 - 158		B0E0702	05/30/2020	05/30/20 23:04	
Surrogate: 4-Bromofluorobenzene	104 %	71 - 127		B0E0702	05/30/2020	05/30/20 23:04	
Surrogate: Dibromofluoromethane	106 %	66 - 147		B0E0702	05/30/2020	05/30/20 23:04	
Surrogate: Toluene-d8	99.2 %	77 - 138		B0E0702	05/30/2020	05/30/20 23:04	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: INF

Lab ID: 2001230-05

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	23	2.0	1	B0E0603	05/27/2020	05/28/20 19:20	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	58.5 %	17 - 119		B0E0603	05/27/2020	05/28/20 19:20	
<i>Surrogate: 2-Fluorobiphenyl</i>	61.9 %	10 - 133		B0E0603	05/27/2020	05/28/20 19:20	
<i>Surrogate: 4-Terphenyl-d14</i>	72.7 %	5 - 139		B0E0603	05/27/2020	05/28/20 19:20	
<i>Surrogate: Nitrobenzene-d5</i>	61.2 %	13 - 150		B0E0603	05/27/2020	05/28/20 19:20	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: EW-02

Lab ID: 2001230-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,1-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,1-Dichloroethene	13	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Benzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Bromobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Bromodichloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Bromoform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Bromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Chlorobenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Chloroethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Chloroform	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Chloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: EW-02

Lab ID: 2001230-06

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Dibromomethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Ethylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Isopropylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
m,p-Xylene	ND	1.0	1	B0E0702	05/30/2020	05/30/20 22:41	
Methylene chloride	ND	1.0	1	B0E0702	05/30/2020	05/30/20 22:41	
n-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
n-Propylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Naphthalene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
o-Xylene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Styrene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Tetrachloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Toluene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Trichloroethene	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Trichlorofluoromethane	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Vinyl chloride	ND	0.50	1	B0E0702	05/30/2020	05/30/20 22:41	
Surrogate: 1,2-Dichloroethane-d4	119 %	59 - 158		B0E0702	05/30/2020	05/30/20 22:41	
Surrogate: 4-Bromofluorobenzene	108 %	71 - 127		B0E0702	05/30/2020	05/30/20 22:41	
Surrogate: Dibromofluoromethane	104 %	66 - 147		B0E0702	05/30/2020	05/30/20 22:41	
Surrogate: Toluene-d8	101 %	77 - 138		B0E0702	05/30/2020	05/30/20 22:41	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: EW-02

Lab ID: 2001230-06

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	7.5	2.0	1	B0E0603	05/27/2020	05/28/20 19:46	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>56.7 %</i>	<i>17 - 119</i>		<i>B0E0603</i>	<i>05/27/2020</i>	<i>05/28/20 19:46</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>66.5 %</i>	<i>10 - 133</i>		<i>B0E0603</i>	<i>05/27/2020</i>	<i>05/28/20 19:46</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>82.6 %</i>	<i>5 - 139</i>		<i>B0E0603</i>	<i>05/27/2020</i>	<i>05/28/20 19:46</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>59.9 %</i>	<i>13 - 150</i>		<i>B0E0603</i>	<i>05/27/2020</i>	<i>05/28/20 19:46</i>	



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Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: MW-29

Lab ID: 2001230-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,1,1-Trichloroethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,1,2,2-Tetrachloroethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,1,2-Trichloroethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,1-Dichloroethane	1.2	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,1-Dichloroethene	130	2.5	5	B0E0702	05/30/2020	05/30/20 23:50	
1,1-Dichloropropene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2,3-Trichloropropane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2,3-Trichlorobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2,4-Trichlorobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2,4-Trimethylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2-Dibromo-3-chloropropane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2-Dibromoethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2-Dichlorobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2-Dichloroethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,2-Dichloropropane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,3,5-Trimethylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,3-Dichlorobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,3-Dichloropropane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
1,4-Dichlorobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
2,2-Dichloropropane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
2-Chlorotoluene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
4-Chlorotoluene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
4-Isopropyltoluene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Benzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Bromobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Bromodichloromethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Bromoform	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Bromomethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Carbon tetrachloride	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Chlorobenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Chloroethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Chloroform	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Chloromethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
cis-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
cis-1,3-Dichloropropene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: MW-29

Lab ID: 2001230-07

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibromochloromethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Dibromomethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Dichlorodifluoromethane	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Ethylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Hexachlorobutadiene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Isopropylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
m,p-Xylene	ND	1.0	1	B0E0702	05/31/2020	05/31/20 00:13	
Methylene chloride	ND	1.0	1	B0E0702	05/31/2020	05/31/20 00:13	
n-Butylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
n-Propylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Naphthalene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
o-Xylene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
sec-Butylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Styrene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
tert-Butylbenzene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Tetrachloroethene	0.86	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Toluene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
trans-1,2-Dichloroethene	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Trichloroethene	1.2	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Trichlorofluoromethane	0.51	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
Vinyl chloride	ND	0.50	1	B0E0702	05/31/2020	05/31/20 00:13	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>120 %</i>	<i>59 - 158</i>		B0E0702	05/31/2020	<i>05/31/20 00:13</i>	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>120 %</i>	<i>59 - 158</i>		B0E0702	05/30/2020	<i>05/30/20 23:50</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>71 - 127</i>		B0E0702	05/31/2020	<i>05/31/20 00:13</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>	<i>71 - 127</i>		B0E0702	05/30/2020	<i>05/30/20 23:50</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>	<i>66 - 147</i>		B0E0702	05/30/2020	<i>05/30/20 23:50</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>	<i>66 - 147</i>		B0E0702	05/31/2020	<i>05/31/20 00:13</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>77 - 138</i>		B0E0702	05/31/2020	<i>05/31/20 00:13</i>	
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>	<i>77 - 138</i>		B0E0702	05/30/2020	<i>05/30/20 23:50</i>	



Certificate of Analysis

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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

Client Sample ID: MW-29

Lab ID: 2001230-07

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	91	2.0	1	B0E0603	05/27/2020	05/28/20 20:12	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>49.6 %</i>	<i>17 - 119</i>		B0E0603	05/27/2020	05/28/20 20:12	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>56.0 %</i>	<i>10 - 133</i>		B0E0603	05/27/2020	05/28/20 20:12	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>72.7 %</i>	<i>5 - 139</i>		B0E0603	05/27/2020	05/28/20 20:12	
<i>Surrogate: Nitrobenzene-d5</i>	<i>52.3 %</i>	<i>13 - 150</i>		B0E0603	05/27/2020	05/28/20 20:12	



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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

Batch B0E0702 - MSVOA_LL_W

Blank (B0E0702-BLK1)

Prepared: 5/30/2020 Analyzed: 5/30/2020

1,1,1,2-Tetrachloroethane	ND	0.50	0.11
1,1,1-Trichloroethane	ND	0.50	0.21
1,1,2,2-Tetrachloroethane	ND	0.50	0.36
1,1,2-Trichloroethane	ND	0.50	0.25
1,1-Dichloroethane	ND	0.50	0.09
1,1-Dichloroethene	ND	0.50	0.13
1,1-Dichloropropene	ND	0.50	0.13
1,2,3-Trichloropropane	ND	0.50	0.39
1,2,3-Trichlorobenzene	ND	0.50	0.18
1,2,4-Trichlorobenzene	ND	0.50	0.16
1,2,4-Trimethylbenzene	ND	0.50	0.14
1,2-Dibromo-3-chloropropane	ND	0.50	0.41
1,2-Dibromoethane	ND	0.50	0.24
1,2-Dichlorobenzene	ND	0.50	0.20
1,2-Dichloroethane	ND	0.50	0.20
1,2-Dichloropropane	ND	0.50	0.15
1,3,5-Trimethylbenzene	ND	0.50	0.13
1,3-Dichlorobenzene	ND	0.50	0.16
1,3-Dichloropropane	ND	0.50	0.21
1,4-Dichlorobenzene	ND	0.50	0.17
2,2-Dichloropropane	ND	0.50	0.38
2-Chlorotoluene	ND	0.50	0.11
4-Chlorotoluene	ND	0.50	0.12
4-Isopropyltoluene	ND	0.50	0.11
Benzene	ND	0.50	0.13
Bromobenzene	ND	0.50	0.21
Bromodichloromethane	ND	0.50	0.14
Bromoform	ND	0.50	0.20
Bromomethane	ND	0.50	0.40
Carbon tetrachloride	ND	0.50	0.09
Chlorobenzene	ND	0.50	0.13
Chloroethane	ND	0.50	0.15
Chloroform	ND	0.50	0.11
Chloromethane	ND	0.50	0.12
cis-1,2-Dichloroethene	ND	0.50	0.14
cis-1,3-Dichloropropene	ND	0.50	0.13
Dibromochloromethane	ND	0.50	0.16
Dibromomethane	ND	0.50	0.19



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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 B0E0702 - MSVOA_LL_W (continued)

Blank (B0E0702-BLK1) - Continued

Prepared: 5/30/2020 Analyzed: 5/30/2020

Dichlorodifluoromethane	ND	0.50	0.18
Ethylbenzene	ND	0.50	0.13
Hexachlorobutadiene	ND	0.50	0.15
Isopropylbenzene	ND	0.50	0.10
m,p-Xylene	ND	1.0	0.19
Methylene chloride	ND	1.0	0.71
n-Butylbenzene	ND	0.50	0.11
n-Propylbenzene	ND	0.50	0.10
Naphthalene	ND	0.50	0.41
o-Xylene	ND	0.50	0.13
sec-Butylbenzene	ND	0.50	0.09
Styrene	ND	0.50	0.13
tert-Butylbenzene	ND	0.50	0.09
Tetrachloroethene	ND	0.50	0.10
Toluene	ND	0.50	0.12
trans-1,2-Dichloroethene	ND	0.50	0.09
Trichloroethene	ND	0.50	0.10
Trichlorofluoromethane	ND	0.50	0.23
Vinyl chloride	ND	0.50	0.13

Surrogate: 1,2-Dichloroethane-d4	26.98	25.0000	108	59 - 158
Surrogate: 4-Bromofluorobenzene	26.02	25.0000	104	71 - 127
Surrogate: Dibromofluoromethane	25.57	25.0000	102	66 - 147
Surrogate: Toluene-d8	25.52	25.0000	102	77 - 138

LCS (B0E0702-BS1)

Prepared: 5/30/2020 Analyzed: 5/30/2020

1,1,1,2-Tetrachloroethane	19.3800	0.50	0.11	20.0000	96.9	71 - 133
1,1,1-Trichloroethane	22.1700	0.50	0.21	20.0000	111	62 - 124
1,1,2,2-Tetrachloroethane	15.9800	0.50	0.36	20.0000	79.9	50 - 131
1,1,2-Trichloroethane	17.3600	0.50	0.25	20.0000	86.8	77 - 121
1,1-Dichloroethane	19.7300	0.50	0.09	20.0000	98.6	52 - 130
1,1-Dichloroethene	21.2500	0.50	0.13	20.0000	106	61 - 136
1,1-Dichloropropene	20.5200	0.50	0.13	20.0000	103	80 - 128
1,2,3-Trichloropropane	17.1500	0.50	0.39	20.0000	85.8	59 - 126
1,2,3-Trichlorobenzene	18.8100	0.50	0.18	20.0000	94.0	69 - 138
1,2,4-Trichlorobenzene	19.4300	0.50	0.16	20.0000	97.2	78 - 125
1,2,4-Trimethylbenzene	21.5200	0.50	0.14	20.0000	108	70 - 126
1,2-Dibromo-3-chloropropane	13.1700	0.50	0.41	20.0000	65.8	58 - 127
1,2-Dibromoethane	18.3900	0.50	0.24	20.0000	92.0	76 - 120
1,2-Dichlorobenzene	19.1900	0.50	0.20	20.0000	96.0	82 - 117
1,2-Dichloroethane	21.2700	0.50	0.20	20.0000	106	66 - 126



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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 B0E0702 - MSVOA_LL_W (continued)

LCS (B0E0702-BS1) - Continued

Prepared: 5/30/2020 Analyzed: 5/30/2020

1,2-Dichloropropane	18.7900	0.50	0.15	20.0000		94.0	70 - 117		
1,3,5-Trimethylbenzene	21.6000	0.50	0.13	20.0000		108	71 - 125		
1,3-Dichlorobenzene	19.5300	0.50	0.16	20.0000		97.6	81 - 116		
1,3-Dichloropropane	18.4800	0.50	0.21	20.0000		92.4	69 - 124		
1,4-Dichlorobenzene	18.7300	0.50	0.17	20.0000		93.6	80 - 114		
2,2-Dichloropropane	21.5200	0.50	0.38	20.0000		108	58 - 132		
2-Chlorotoluene	21.1600	0.50	0.11	20.0000		106	71 - 119		
4-Chlorotoluene	21.2100	0.50	0.12	20.0000		106	72 - 122		
4-Isopropyltoluene	22.8100	0.50	0.11	20.0000		114	69 - 126		
Benzene	19.5100	0.50	0.13	20.0000		97.6	80 - 116		
Bromobenzene	19.5700	0.50	0.21	20.0000		97.8	77 - 118		
Bromodichloromethane	19.4300	0.50	0.14	20.0000		97.2	73 - 118		
Bromoform	16.4200	0.50	0.20	20.0000		82.1	65 - 133		
Bromomethane	22.5000	0.50	0.40	20.0000		112	7 - 205		
Carbon tetrachloride	22.6600	0.50	0.09	20.0000		113	63 - 133		
Chlorobenzene	19.0900	0.50	0.13	20.0000		95.4	86 - 113		
Chloroethane	21.3700	0.50	0.15	20.0000		107	66 - 141		
Chloroform	19.9500	0.50	0.11	20.0000		99.8	63 - 127		
Chloromethane	16.9800	0.50	0.12	20.0000		84.9	0 - 207		
cis-1,2-Dichloroethene	18.7000	0.50	0.14	20.0000		93.5	64 - 126		
cis-1,3-Dichloropropene	18.4100	0.50	0.13	20.0000		92.0	70 - 141		
Dibromochloromethane	18.7100	0.50	0.16	20.0000		93.6	67 - 135		
Dibromomethane	18.6800	0.50	0.19	20.0000		93.4	74 - 118		
Dichlorodifluoromethane	19.9200	0.50	0.18	20.0000		99.6	14 - 181		
Ethylbenzene	20.5900	0.50	0.13	20.0000		103	77 - 118		
Hexachlorobutadiene	22.6300	0.50	0.15	20.0000		113	66 - 125		
Isopropylbenzene	21.2800	0.50	0.10	20.0000		106	68 - 137		
m,p-Xylene	42.4800	1.0	0.19	40.0000		106	78 - 126		
Methylene chloride	18.6100	1.0	0.71	20.0000		93.0	51 - 149		
n-Butylbenzene	22.5000	0.50	0.11	20.0000		112	63 - 127		
n-Propylbenzene	21.1000	0.50	0.10	20.0000		106	69 - 124		
Naphthalene	16.3000	0.50	0.41	20.0000		81.5	60 - 126		
o-Xylene	20.6000	0.50	0.13	20.0000		103	79 - 126		
sec-Butylbenzene	21.0700	0.50	0.09	20.0000		105	69 - 124		
Styrene	22.8700	0.50	0.13	20.0000		114	80 - 127		
tert-Butylbenzene	21.1100	0.50	0.09	20.0000		106	71 - 124		
Tetrachloroethene	21.3600	0.50	0.10	20.0000		107	73 - 129		
Toluene	19.4500	0.50	0.12	20.0000		97.2	78 - 121		
trans-1,2-Dichloroethene	21.1200	0.50	0.09	20.0000		106	58 - 141		
Trichloroethene	19.5600	0.50	0.10	20.0000		97.8	73 - 126		



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Reported : 06/01/2020

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 B0E0702 - MSVOA_LL_W (continued)

LCS (B0E0702-BS1) - Continued

Prepared: 5/30/2020 Analyzed: 5/30/2020

Trichlorofluoromethane	20.7600	0.50	0.23	20.0000	104	62 - 146			
Vinyl chloride	19.8000	0.50	0.13	20.0000	99.0	61 - 137			
Surrogate: 1,2-Dichloroethane-d4	26.73			25.0000	107	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.41			25.0000	106	71 - 127			
Surrogate: Dibromofluoromethane	26.03			25.0000	104	66 - 147			
Surrogate: Toluene-d8	25.40			25.0000	102	77 - 138			

LCS Dup (B0E0702-BS1)

Prepared: 5/30/2020 Analyzed: 5/30/2020

1,1,1,2-Tetrachloroethane	19.7000	0.50	0.11	20.0000	98.5	71 - 133	1.64	20	
1,1,1-Trichloroethane	22.0200	0.50	0.21	20.0000	110	62 - 124	0.679	20	
1,1,2,2-Tetrachloroethane	16.6800	0.50	0.36	20.0000	83.4	50 - 131	4.29	20	
1,1,2-Trichloroethane	18.3200	0.50	0.25	20.0000	91.6	77 - 121	5.38	20	
1,1-Dichloroethane	19.2600	0.50	0.09	20.0000	96.3	52 - 130	2.41	20	
1,1-Dichloroethene	20.8800	0.50	0.13	20.0000	104	61 - 136	1.76	20	
1,1-Dichloropropene	19.3800	0.50	0.13	20.0000	96.9	80 - 128	5.71	20	
1,2,3-Trichloropropane	18.4400	0.50	0.39	20.0000	92.2	59 - 126	7.25	20	
1,2,3-Trichlorobenzene	19.8600	0.50	0.18	20.0000	99.3	69 - 138	5.43	20	
1,2,4-Trichlorobenzene	19.8400	0.50	0.16	20.0000	99.2	78 - 125	2.09	20	
1,2,4-Trimethylbenzene	21.8800	0.50	0.14	20.0000	109	70 - 126	1.66	20	
1,2-Dibromo-3-chloropropane	14.5200	0.50	0.41	20.0000	72.6	58 - 127	9.75	20	
1,2-Dibromoethane	19.6000	0.50	0.24	20.0000	98.0	76 - 120	6.37	20	
1,2-Dichlorobenzene	19.7500	0.50	0.20	20.0000	98.8	82 - 117	2.88	20	
1,2-Dichloroethane	21.1300	0.50	0.20	20.0000	106	66 - 126	0.660	20	
1,2-Dichloropropane	18.6100	0.50	0.15	20.0000	93.0	70 - 117	0.963	20	
1,3,5-Trimethylbenzene	21.6900	0.50	0.13	20.0000	108	71 - 125	0.416	20	
1,3-Dichlorobenzene	19.5700	0.50	0.16	20.0000	97.8	81 - 116	0.205	20	
1,3-Dichloropropane	19.3400	0.50	0.21	20.0000	96.7	69 - 124	4.55	20	
1,4-Dichlorobenzene	19.0500	0.50	0.17	20.0000	95.2	80 - 114	1.69	20	
2,2-Dichloropropane	20.8000	0.50	0.38	20.0000	104	58 - 132	3.40	20	
2-Chlorotoluene	21.0600	0.50	0.11	20.0000	105	71 - 119	0.474	20	
4-Chlorotoluene	21.6900	0.50	0.12	20.0000	108	72 - 122	2.24	20	
4-Isopropyltoluene	22.6400	0.50	0.11	20.0000	113	69 - 126	0.748	20	
Benzene	19.0500	0.50	0.13	20.0000	95.2	80 - 116	2.39	20	
Bromobenzene	19.4900	0.50	0.21	20.0000	97.4	77 - 118	0.410	20	
Bromodichloromethane	19.2600	0.50	0.14	20.0000	96.3	73 - 118	0.879	20	
Bromoform	17.3900	0.50	0.20	20.0000	87.0	65 - 133	5.74	20	
Bromomethane	22.2600	0.50	0.40	20.0000	111	7 - 205	1.07	20	
Carbon tetrachloride	21.9500	0.50	0.09	20.0000	110	63 - 133	3.18	20	
Chlorobenzene	19.1100	0.50	0.13	20.0000	95.6	86 - 113	0.105	20	
Chloroethane	21.2800	0.50	0.15	20.0000	106	66 - 141	0.422	20	



Certificate of Analysis

Hargis & Associates, Inc.

9171 Towne Centre Drive, Suite 375

San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

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 B0E0702 - MSVOA_LL_W (continued)

LCS Dup (B0E0702-BSD1) - Continued

Prepared: 5/30/2020 Analyzed: 5/30/2020

Chloroform	19.9900	0.50	0.11	20.0000	100	63 - 127	0.200	20	
Chloromethane	17.0300	0.50	0.12	20.0000	85.2	0 - 207	0.294	20	
cis-1,2-Dichloroethene	18.2700	0.50	0.14	20.0000	91.4	64 - 126	2.33	20	
cis-1,3-Dichloropropene	18.1100	0.50	0.13	20.0000	90.6	70 - 141	1.64	20	
Dibromochloromethane	18.8900	0.50	0.16	20.0000	94.4	67 - 135	0.957	20	
Dibromomethane	18.7200	0.50	0.19	20.0000	93.6	74 - 118	0.214	20	
Dichlorodifluoromethane	19.4500	0.50	0.18	20.0000	97.2	14 - 181	2.39	20	
Ethylbenzene	20.2500	0.50	0.13	20.0000	101	77 - 118	1.67	20	
Hexachlorobutadiene	21.6800	0.50	0.15	20.0000	108	66 - 125	4.29	20	
Isopropylbenzene	21.1400	0.50	0.10	20.0000	106	68 - 137	0.660	20	
m,p-Xylene	42.6900	1.0	0.19	40.0000	107	78 - 126	0.493	20	
Methylene chloride	17.4300	1.0	0.71	20.0000	87.2	51 - 149	6.55	20	
n-Butylbenzene	22.0800	0.50	0.11	20.0000	110	63 - 127	1.88	20	
n-Propylbenzene	21.0200	0.50	0.10	20.0000	105	69 - 124	0.380	20	
Naphthalene	17.1900	0.50	0.41	20.0000	86.0	60 - 126	5.32	20	
o-Xylene	20.1100	0.50	0.13	20.0000	101	79 - 126	2.41	20	
sec-Butylbenzene	20.9900	0.50	0.09	20.0000	105	69 - 124	0.380	20	
Styrene	22.5900	0.50	0.13	20.0000	113	80 - 127	1.23	20	
tert-Butylbenzene	20.9800	0.50	0.09	20.0000	105	71 - 124	0.618	20	
Tetrachloroethene	20.7000	0.50	0.10	20.0000	104	73 - 129	3.14	20	
Toluene	19.4600	0.50	0.12	20.0000	97.3	78 - 121	0.0514	20	
trans-1,2-Dichloroethene	19.9500	0.50	0.09	20.0000	99.8	58 - 141	5.70	20	
Trichloroethene	19.3400	0.50	0.10	20.0000	96.7	73 - 126	1.13	20	
Trichlorofluoromethane	20.6500	0.50	0.23	20.0000	103	62 - 146	0.531	20	
Vinyl chloride	19.9300	0.50	0.13	20.0000	99.6	61 - 137	0.654	20	
Surrogate: 1,2-Dichloroethane-d4	26.04			25.0000	104	59 - 158			
Surrogate: 4-Bromofluorobenzene	26.82			25.0000	107	71 - 127			
Surrogate: Dibromofluoromethane	25.52			25.0000	102	66 - 147			
Surrogate: Toluene-d8	25.30			25.0000	101	77 - 138			



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San Diego , CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

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

Batch B0E0603 - MSSEMI_W

Blank (B0E0603-BLK1)

Prepared: 5/27/2020 Analyzed: 5/28/2020

1,4-Dioxane	ND	2.0	0.84						
Surrogate: 1,2-Dichlorobenzene-d	66.46			100.000	66.5	17 - 119			
Surrogate: 2-Fluorobiphenyl	73.40			100.000	73.4	10 - 133			
Surrogate: 4-Terphenyl-d14	91.24			100.000	91.2	5 - 139			
Surrogate: Nitrobenzene-d5	73.04			100.000	73.0	13 - 150			

LCS (B0E0603-BS1)

Prepared: 5/27/2020 Analyzed: 5/28/2020

1,4-Dioxane	101.910	2.0	0.84	100.000	102	75 - 155			
Surrogate: 1,2-Dichlorobenzene-d	66.66			100.000	66.7	17 - 119			
Surrogate: 2-Fluorobiphenyl	74.51			100.000	74.5	10 - 133			
Surrogate: 4-Terphenyl-d14	86.94			100.000	86.9	5 - 139			
Surrogate: Nitrobenzene-d5	73.30			100.000	73.3	13 - 150			

LCS Dup (B0E0603-BSD1)

Prepared: 5/27/2020 Analyzed: 5/28/2020

1,4-Dioxane	101.480	2.0	0.84	100.000	101	75 - 155	0.423	20	
Surrogate: 1,2-Dichlorobenzene-d	67.04			100.000	67.0	17 - 119			
Surrogate: 2-Fluorobiphenyl	78.30			100.000	78.3	10 - 133			
Surrogate: 4-Terphenyl-d14	87.56			100.000	87.6	5 - 139			
Surrogate: Nitrobenzene-d5	74.37			100.000	74.4	13 - 150			



Certificate of Analysis

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9171 Towne Centre Drive, Suite 375

San Diego, CA 92122

Project Number : Raytheon Main GETS Mid Monthly Sampl

Report To : Steve Netto

Reported : 06/01/2020

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	RPD Limit	Notes

Batch B0E0602 - MSSEMI_W

Blank (B0E0602-BLK1)

Prepared: 5/27/2020 Analyzed: 5/27/2020

1,4-Dioxane	ND	0.20	0.05						
Surrogate: 1,2-Dichlorobenzene-d	0.7391			1.00000		73.9	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.8069			1.00000		80.7	10 - 133		
Surrogate: 4-Terphenyl-d14	0.9365			1.00000		93.6	5 - 139		
Surrogate: Nitrobenzene-d5	0.6632			1.00000		66.3	13 - 150		

LCS (B0E0602-BS1)

Prepared: 5/27/2020 Analyzed: 5/27/2020

1,4-Dioxane	1.34966	0.20	0.05	1.00000		135	75 - 155		
Surrogate: 1,2-Dichlorobenzene-d	0.6002			1.00000		60.0	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.7334			1.00000		73.3	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8621			1.00000		86.2	5 - 139		
Surrogate: Nitrobenzene-d5	0.5604			1.00000		56.0	13 - 150		

LCS Dup (B0E0602-BSD1)

Prepared: 5/27/2020 Analyzed: 5/27/2020

1,4-Dioxane	1.33818	0.20	0.05	1.00000		134	75 - 155	0.854	20
Surrogate: 1,2-Dichlorobenzene-d	0.5972			1.00000		59.7	17 - 119		
Surrogate: 2-Fluorobiphenyl	0.7294			1.00000		72.9	10 - 133		
Surrogate: 4-Terphenyl-d14	0.8592			1.00000		85.9	5 - 139		
Surrogate: Nitrobenzene-d5	0.5745			1.00000		57.4	13 - 150		



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Project Number : Raytheon Main GETS Mid Monthly Sam

Report To : Steve Netto

Reported : 06/01/2020

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.



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

Date: 5/21/2020
Page 1 of 1

PROJECT: Raytheon Main GETS Mid Month Sample

TASK NO.: 532.15

Project Manager Steve Netto

QA Manager Ross Horton

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 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			
2601150-01	TB-052120	5/21/2020	8:00	X	X			X	2							X									X												
-02	CEFF	5/21/2020	9:16	X	X			X	3							1	X								X	X											
-03	CBT	5/21/2020	9:25	X	X			X	3							1	X								X	X											
-04	POX	5/21/2020	9:45	X	X			X	3							1	X								X	X											
-05	INF	5/21/2020	10:00	X	X			X	3							1	X							X				X									
-06	EW-02	5/21/2020	11:05	X	X			X	3							1	X							X			X										
-07	MW-29	5/21/2020	11:20	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																															
HFA		5-21-20 11:36		HFA		5-21-20 11:36																															
Relinquished By: / Company:		Date / Time		Received By: / Company		Date / Time																															
HFA		5-21-2020 14:55		HFA		5-21-2020 14:57																															

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 & Ross Horton
9171 Towne Centre Drive
Suite 375
San Diego, CA 92122
Ph: 858.455.6500
snetto@hargis.com
rhorton@hargis.com