

May 22, 2019

Panjini Balaraju
Washington State Department of Ecology
Southwest Region – Toxics Cleanup Program/VCP
PO Box 47775
Olympia Washington 98504-7775

Re: Former Birds Eye Foods Tacoma, First Quarter 2019 Groundwater Monitoring
Event Summary Report
Facility Site ID: 1328, Cleanup Site ID: 5012, VCP Site No SW1187

Dear Panjini:

This letter report summarizes the first quarter 2019 (2019 Q1) groundwater sampling event performed at the former Birds Eye Foods facility located at 3303 South 35th Street, Tacoma, Washington. Petroleum-related contamination in soil was identified in a portion of the facility, referred to as the “Boiler Room Site” (Site), which was the subject of a 2011 Remedial Investigation/Feasibility Study (2011 RI/FS) (Pacific Groundwater Group, 2011). The preferred remedial alternative identified in the 2011 RI/FS includes an environmental restrictive covenant and long-term groundwater quality monitoring in a network of four well pairs. In 2013 the Washington State Department of Ecology (Ecology) determined that no further remedial action is necessary to clean up contamination at the Boiler Room Site, dependent on the continued performance and effectiveness of the post-cleanup controls and groundwater quality monitoring.

The Boiler Room Site is jointly regulated by Ecology and by the Tacoma – Pierce County Health Department (TPCHD). The 2019 Q1 sampling event was performed, and this summary report was prepared, to satisfy both the Ecology and TPCHD groundwater monitoring requirements.

Analytical results for groundwater samples collected in 2019 Q1 indicate that the preferred remedial alternative identified in the 2011 RI/FS is effective; the petroleum contamination in soil is not resulting in a dissolved plume with concentrations exceeding the Model Toxics Control Act (MTCA) Method A cleanup levels.

This work was performed, and this report prepared, in accordance with hydrogeologic practices generally accepted at this time and in this area for the exclusive use of Birds Eye Foods, for specific application to the project Site. No other warranty, express or implied, is made.

BOILER ROOM SITE MONITORING PROGRAMS

As regulating agencies, groundwater monitoring at the Site is required by both Ecology and TPCHD and the monitoring programs are described below. The analytical suites are the same for both the Ecology and TPCHD required programs (*Chemicals of Concern and Site Cleanup Levels* section of this report), but the schedules and well networks differ.

The 2019 Q1 monitoring event was conducted to satisfy both the Voluntary Cleanup Program (VCP) Long-Term Monitoring Program required by Ecology and the Semi-Annual Groundwater Monitoring Program required by TPCHD.

ECOLOGY-REQUIRED VCP LONG-TERM MONITORING PROGRAM

The Birds Eye Foods Long-Term Groundwater Monitoring Plan (herein VCP Monitoring Plan) (Pacific Groundwater Group, 2012) was reviewed by Ecology under the VCP framework of the Model Toxics Control Act (MTCA). The VCP Monitoring Plan describes the monitoring program objectives, well network, schedule, sampling protocols, contaminants of concern, and Site cleanup levels. The 2019 Q1 groundwater samples were collected in compliance with the VCP Monitoring Plan.

Monitoring Well Network

For the Boiler Room Site long-term monitoring well pairs, shallow wells have the added suffix “S”; deep wells have the added suffix “D”. At each pair, the shallow and deep wells are approximately five lateral feet from each other. Well construction information is summarized in Table 1. The long-term monitoring well network is presented in Figure 1 and consists of:

MW-9S	MW-12S	MW-13S	MW-14S
MW-9D	MW-12D	MW-13D	MW-14D

Monitoring Schedule

As described in the VCP Monitoring Plan, the preferred remedial alternative identified in the 2011 RI/FS includes groundwater quality monitoring in 8 wells at the following frequency:

- 4 quarters of monitoring in Year 1
- 1 event every 18 months in Years 2-10

This schedule is subject to change following Ecology Periodic Reviews¹ that are performed at five-year intervals (5-Year Reviews). Modifications to the groundwater monitoring program were not made as part of the 2019 Periodic Review.

The four quarters of consecutive monitoring in Year 1 were completed in 2013 Q1. The 2019 Q1 monitoring represents the fourth event at an 18-month interval and Year 7. The next sampling event under the VCP Monitoring Program is scheduled for 2020 Q3.

TPCHD-REQUIRED SEMI-ANNUAL GROUNDWATER MONITORING PROGRAM

TPCHD regulates the Boiler Room Site as an open UST Site. Due to the presence of contaminated soil below the water table at the Boiler Room Site, TPCHD requires on-going semi-annual groundwater monitoring to assess the efficacy of remedial actions and to monitor for potential contaminant migration (Marek, undated; received June 13, 2013).

The semi-annual monitoring events are performed in the spring and fall and involve sampling wells MW-9S, MW-9D, MW-12S, and MW-12D (Figure 1), which are a subset of the VCP Long-Term Monitoring Program.

2019 Q1 GROUNDWATER SAMPLING SUMMARY

Groundwater quality samples for the 2019 Q1 monitoring event were collected from the Boiler Room Site long-term well network in compliance with the Semi-Annual Groundwater Monitoring Plan (PGG, 2013) and TPCHD requirements (Marek, undated; received June 13, 2013) on March 13 and 14, 2019 by representatives of Pacific Groundwater Group (PGG).

The monitoring wells were purged and sampled using new, disposable tubing and peristaltic pumps. Low flow purging and sampling techniques were used to minimize turbidity in the groundwater samples. During purging, field meters were used to monitor pH, specific conductance, temperature, and turbidity. Samples were collected when these field parameters had stabilized or after a minimum of three casing volumes had been purged. Purge water was drummed and temporarily stored onsite prior to offsite treatment and disposal.

CHEMICALS OF CONCERN AND SITE CLEANUP LEVELS

Groundwater samples were delivered to Analytical Resources, Inc. (ARI), a Washington State certified laboratory, on March 14, 2019. Samples were delivered in ice chests following standard chain-of-custody procedures.

¹ The Boiler Room Site No Further Action is dated July 8, 2013; the first Periodic Review was completed in 2019 (Ecology, 2019) and concluded that cleanup actions continue to be protective of human health and the environment, that the requirements of the Restrictive Covenant are being satisfactorily met, and that no additional remedial actions are needed at this time.

Groundwater samples were analyzed according to Ecology and/or U.S. Environmental Protection Agency methods for the following parameters:

- Northwest Total Petroleum Hydrocarbons – Gasoline Range Organics (NWTPH-G), and Diesel-Range and Heavy Oil-Range Organics (NWTPH-Dx)
- BTEX Compounds: Benzene, Toluene, Ethylbenzene, and Xylenes (EPA Method 8260 ²)
- PAHs: Polynuclear Aromatic Hydrocarbons (EPA Method 8270D with selected ion monitoring modification to achieve required reporting limits)

As described in the 2011 RI/FS and Long-Term Monitoring Plan, standard MTCA Method A Unrestricted Land Use cleanup levels are applicable to the Boiler Room Site to evaluate the relative chemical effects from soil contamination at the Site on groundwater quality. MTCA Method A meets the criteria of WAC 173-340-704(1) because there are few hazardous substances at the Site and numerical Method A standards have been established. Site-groundwater cleanup levels are presented in Tables 2 and 3, and are consistent with the 2011 RI/FS.

ANALYTICAL RESULTS

The 2019 Q1 groundwater monitoring analytical results are summarized in Tables 2 and 3. The analytical lab report is presented in Appendix A. Site contaminants of concern were not detected in the groundwater samples. The analytical reporting limits were less than corresponding Site cleanup levels.

The 2019 Q1 groundwater analytical results indicate the preferred remedial alternative identified in the 2011 RI/FS is effective; the petroleum contamination in soil at the Boiler Room Site is not resulting in a dissolved plume with concentrations exceeding MTCA Method A groundwater cleanup levels.

Quality assurance/quality control (QA/QC) data associated with the Boiler Room Site 2019 Q1 groundwater samples were reviewed by PGG. All requested analyses were performed and the QA/QC assessments indicated acceptable results. Consistent with the VCP Monitoring Plan, field QA/QC included a blind field duplicate labeled MW-22S that was collected at well MW-12S and analyzed to evaluate analytical precision. No Site chemicals of concern were detected in either the 2019 Q1 field duplicate MW-22S or MW-12S.

² As stated in reports for sampling events performed between September 2015 and March 2017, groundwater samples collected at the Boiler Room Site between 2001 and March 2015 were analyzed for BTEX compounds by EPA Method 8021. Subsequently, ARI discontinued analyzing water samples for BTEX compounds by Method 8021 and informed PGG that “Ecology is moving away from that method as it gives false positives” (Bottem, 2015). Therefore, samples collected at the Boiler Room Site in 2019 Q1 were analyzed for BTEX compounds by EPA 8260. ARI’s BTEX reporting limits for EPA 8260 are equal to or less than those for EPA 8021.

GROUNDWATER FLOW DIRECTION

Water levels measured in the shallow well network during the 2019 Q1 sampling event (Table 2, measurements made March 13 and 14, 2019) were used to generate elevation contours of the water table (Figure 1). The contours reflect a very flat water table, varying only 0.12 feet, or 1.4 inches, across the Site. The groundwater flow direction during the 2019 Q1 event was toward the north/northeast.

REFERENCES

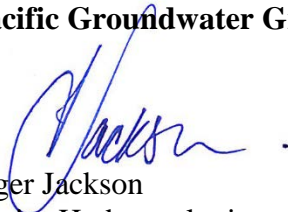
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<https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>
- Washington State Department of Ecology, 2019. Periodic Review Report Final Birds Eye Foods Facility; Site ID#: 1328; Cleanup Site ID#: 5012; 3303 South 35th Street Tacoma, Washington 98409. Southwest Regional Office Toxics Cleanup Program. February 2019.

CLOSING

We hope this data contributes to your understanding of the Site and groundwater monitoring data. Please contact Inger Jackson at Pacific Groundwater Group with questions.

Sincerely,

Pacific Groundwater Group



Inger Jackson
Senior Hydrogeologist

2019Q1_BEFSummaryReport_Final

Cc: René Rimelspach, Conagra Brands

Rob Olsen, Environmental Health Division/UST Program, Tacoma | Pierce
County Health Department

Attachments: Table 1. VCP Long-Term Monitoring Well Network Construction Details,
Birds Eye Boiler Room Site

Table 2. Summary of Groundwater Quality Data, Birds Eye Foods, 2019
Q1

Table 3. Summary of Polynuclear Aromatic Hydrocarbon (PAH,
SW8270D) Data, Birds Eye Foods, 2019 Q1

Figure 1. VCP Long-Term Monitoring Well Network & 2019 Q1 Water
Table Contours

Appendix A. ARI Lab Report 19C0249

Table 1. VCP Long-Term Monitoring Well Network Construction Details, Birds Eye Boiler Room Site

Units, Datum*		MW-9S	MW-9D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D
Unique Well ID (UWID)				BHL 104	BHL 103	BHL 106	BHL 105	BHL 108	BHL 107
Location Information									
Township/Range-Section		21N/R3E-07	21N/R3E-07	21N/R3E-07	21N/R3E-07	21N/R3E-07	21N/R3E-07	21N/R3E-07	21N/R3E-07
Northing	feet, NAD 83/91 WA South	697261.9	697257.9	697590.9	697585.0	697449.3	697457.4	697375.4	697375.0
Easting	feet, NAD 83/91 WA South	1148195.0	1148194.9	1148259.2	1148259.1	1148109.1	1148110.2	1148314.6	1148326.9
Ground Surface Elevation	feet, NAVD 88	247.67	247.64	248.24	248.19	247.23	247.24	249.45	249.43
Measuring Point Elevation	feet, NAVD 88	246.99	247.14	247.86	247.90	246.89	246.98	249.08	249.10
Construction Information									
Date Completed		10/22/1991	8/24/1992	4/23/2012	4/23/2012	4/24/2012	4/24/2012	4/26/2012	4/25/2012
Diameter	inches	2	2	2	2	2	2	2	2
Depth Drilled	feet bgs	37	82	35	75	35	75	35	75
Top of Screen	feet bgs	22	77	20	63	20	63	20	63
Bottom of Screen	feet bgs	37	82	35	73	35	73	35	73
Depth Completed	feet bgs	37	82	35	73	35	73	35	73
Monument Type		← Sherwood High Traffic Flush Monument →							

* Vertical and Horizontal Datums use the Washington State Reference Network

Table 2: Summary of Groundwater Quality Data, Birds Eye Foods, 2019 Q1

CONSTITUENT	UNITS	Site Cleanup	MW-9S	MW-9D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D
		Levels*								
Field Parameters										
Depth to Water	feet		16.77	17.19	17.76	17.94	16.76	17	18.93	19.12
pH, Field	std. units		6.69	6.83	7.16	7.35	6.83	7.43	6.69	7.18
Specific Conductance, Field	umhos/cm		239.8	319	536.3	633.1	159	386.2	345.7	434.2
Temperature (C)	C		14.1	14.6	14.3	14.8	15	14.9	14.5	14.5
Turbidity, Field	NTU		1.62	1.33	41.7	3.75	1.27	1.67	6.38	0.14
NWTPH Analytes										
Diesel Range Organics	mg/L	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline Range Organics	mg/L	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Oil Range Organics	mg/L	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BTEX (EPA 8260)										
Benzene	ug/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	700	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	ug/L	1000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
o-Xylene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylene Isomers, m+p	ug/L		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U

**Cleanup Levels based on MTCA Method A.*

MTCA Cleanup Levels: Gasoline Range Organics 0.8 mg/L if benzene present, 1.0 mg/L if benzene not present; Xylenes 1000 ug/L (individual cleanup levels for m+p xylenes and o-xylenes not established); Benzo(a)pyrene 0.1 ug/L, this represents the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency method in WAC 173-340-708(8) - see Table 3 if carcinoqenic PAHs detected in groundwater samples for this annual event.

NWTPH-Dx analysis with silica gel cleanup, consistent with historical site analyses

Lower case qualifiers assigned by PGG QA/QC data reviewer.

Upper case qualifiers assigned by lab.

Bold text indicates constituent detected at or above method reporting limit.

U - Compound not detected

J - Concentration estimated

B - Compound detected in blank

Table 3: Summary of Polynuclear Aromatic Hydrocarbon (PAH, SW8270D) Data, Birds Eye Foods, 2019 Q1

Site Cleanup										
CONSTITUENT	UNITS	Levels*	MW-9S	MW-9D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D
Carcinogenic PAHs										
Benzo(a)anthracene	ug/L	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chrysene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibenzo(a,h)anthracene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Non-Carcinogenic PAHs										
Acenaphthene	ug/L	160	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthylene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Anthracene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluorene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Phenanthrene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Pyrene	ug/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

**Cleanup Levels based on MTCA Method A.*

MTCA Cleanup Levels: Gasoline Range Organics 0.8 mg/L if benzene present, 1.0 mg/L if benzene not present; Xylenes 1000 ug/L (individual cleanup levels for m+p xylenes and o-xylenes not established); Benzo(a)pyrene 0.1 ug/L, this represents the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency method in WAC 173-340-708(8) - see Table 3 if carcinogenic PAHs detected in groundwater samples for this annual event.

NWTPH-Dx analysis with silica gel cleanup, consistent with historical site analyses

Lower case qualifiers assigned by PGG QA/QC data reviewer.

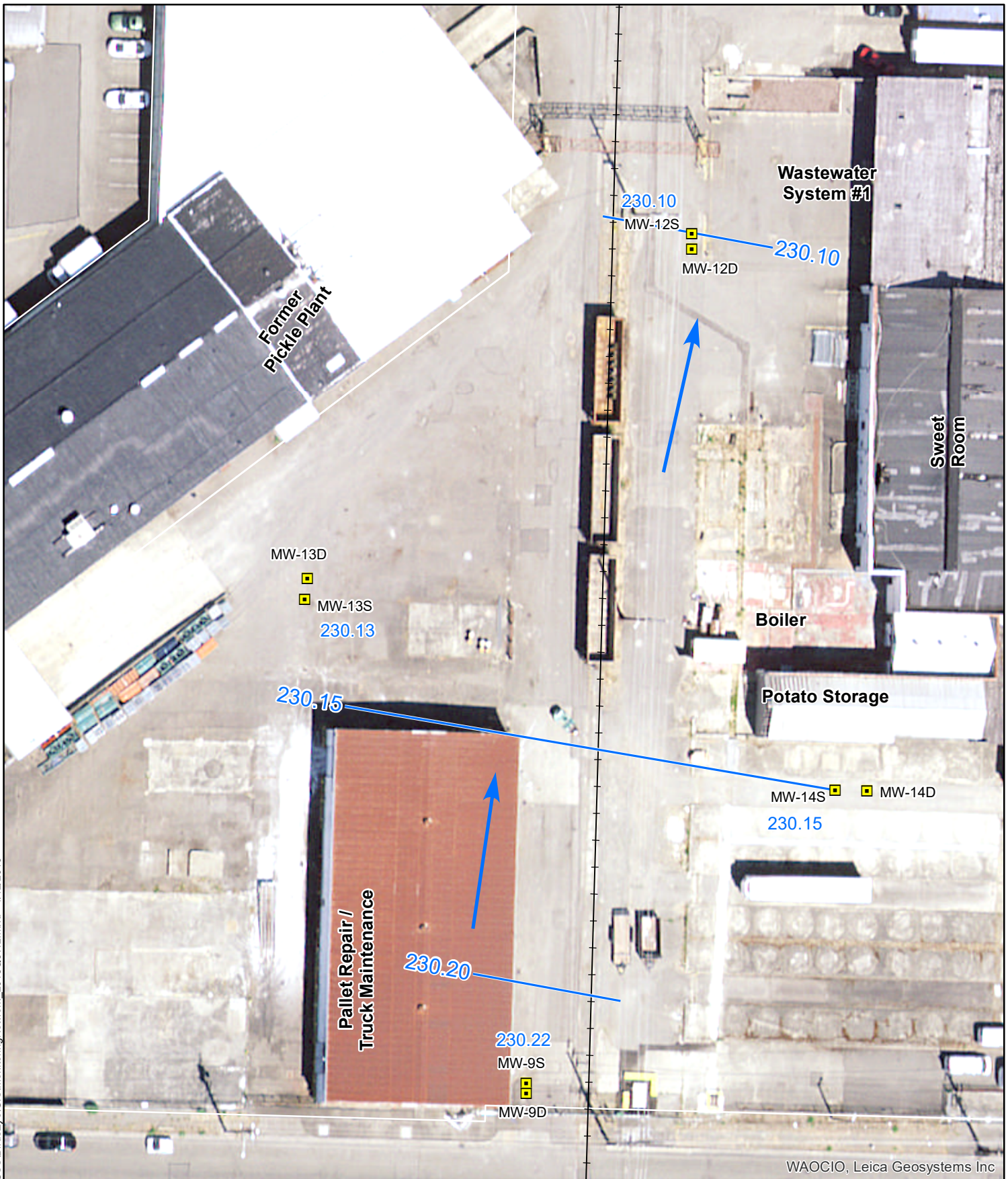
Upper case qualifiers assigned by lab.

Bold text indicates constituent detected at or above method reporting limit.

U - Compound not detected

J - Concentration estimated

B - Compound detected in blank



WAOCIO, Leica Geosystems Inc

Figure 1
VCP Long-Term Monitoring
Well Network & 2019 Q1
Water Table Contours

Birds Eye
 2017 Q3 Monitoring Report

pgg

- Long-Term Monitoring Well Network with Water Table Elevation in Feet
- Water Table Elevation Contours in Feet NAVD88
- ➔ Groundwater Flow Direction





Analytical Resources, Incorporated
Analytical Chemists and Consultants

11 April 2019

Inger Jackson
Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle, WA 98102

RE: Birds Eye

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
19C0249

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19C0249		Turn-around Requested: Standard		Page: 1 of	
ARI Client Company: Pacific Groundwater Group		Phone: 206 329 0141		Date:	Ice Present?
Client Contact: Inger Jackson		No. of Coolers:		Cooler Temps:	
Client Project Name: Birds Eye		Analysis Requested			
Client Project #: J1001.09		Notes/Comments			
Samplers: J Jackson / K Mayer Blackwell / D Wayner					
Sample ID	Date	Time	Matrix	No. Containers	
MW-12S	3/13/19	1030	GLW	8	
MW-12A (+ms/msd)	3/13/19	1140		24	
MW-9S	3/13/19	1415		8	
MW-9D	3/13/19	1500		8	
MW-22S	3/13/19	1045		8	
MW-14S	3/14/19	1110		8	
MW-14A	3/14/19	1140		8	
MW-13S	3/14/19	1355		8	
MW-13A	3/14/19	1425		8	
<div> <div> Relinquished by: (Signature) <i>[Signature]</i> Printed Name: Inger Jackson Company: Pacific GW Group Date & Time: 3/14/19 1555 </div> <div> Received by: (Signature) <i>[Signature]</i> Printed Name: Erin Soller Company: ARI Date & Time: 03/14/19 1555 </div> </div>					



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-12S	19C0249-01	Water	13-Mar-2019 10:30	14-Mar-2019 15:55
MW-12D (+MS/MSD)	19C0249-02	Water	13-Mar-2019 11:40	14-Mar-2019 15:55
MW-9S	19C0249-03	Water	13-Mar-2019 14:15	14-Mar-2019 15:55
MW-9D	19C0249-04	Water	13-Mar-2019 15:00	14-Mar-2019 15:55
MW-22S	19C0249-05	Water	13-Mar-2019 10:45	14-Mar-2019 15:55
MW-14S	19C0249-06	Water	14-Mar-2019 11:10	14-Mar-2019 15:55
MW-14D	19C0249-07	Water	14-Mar-2019 11:40	14-Mar-2019 15:55
MW-13S	19C0249-08	Water	14-Mar-2019 13:55	14-Mar-2019 15:55
MW-13D	19C0249-09	Water	14-Mar-2019 14:25	14-Mar-2019 15:55
Trip Blanks	19C0249-10	Water	13-Mar-2019 10:30	14-Mar-2019 15:55



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

Work Order Case Narrative

Revised Report - April 11, 2019

This report was revised to include missing SIM PAH case narrative.

Volatiles - EPA Method SW8260C

The sample(s) were run within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were run within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.



WORK ORDER

19C0249

Client: Pacific Groundwater Group

Project: Birds Eye

Project Manager: Kelly Bottem

Project Number: Birds Eye

Report To:

Pacific Groundwater Group
Inger Jackson
2377 Eastlake Ave. E. Suite 200
Seattle, WA 98102
Phone: (206) 329-0141
Fax: -

Invoice To:

Pacific Groundwater Group
Inger Jackson
2377 Eastlake Ave. E. Suite 200
Seattle, WA 98102
Phone : (206) 329-0141
Fax: -

Date Due: 29-Mar-2019 18:00 (10 day TAT)

Received By: Erin I. Salle

Logged In By: Erin I. Salle

Date Received: 14-Mar-2019 15:55

Date Logged In: 15-Mar-2019 10:28

Samples Received at: 0.7°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....No
Custody papers properly filled out (in, signed, analyses requested, etc).....Yes
Was sufficient ice used (if appropriate).....Yes
All bottles arrived in good condition (unbroken).....Yes
Number of containers listed on COC match number received.....No
Correct bottles used for the requested analyses.....Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).No
Sample split at ARI.....No

Custody papers included with the cooler..... Yes
Was a temperature blank included in the cooler..... No
All bottles sealed in individual plastic bags..... Yes
All bottle labels complete and legible..... Yes
Bottle labels and tags agree with COC..... No
All VOC vials free of air bubbles..... Yes
Sufficient amount of sample sent in each bottle..... Yes

Analysis	Due	TAT	Expires	Comments
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WORK ORDER

19C0249

Client: Pacific Groundwater Group

Project Manager: Kelly Bottem

Project: Birds Eye

Project Number: Birds Eye

Analysis	Due	TAT	Expires	Comments
19C0249-01 MW-12S [Water] Sampled 13-Mar-2019 10:30 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	27-Mar-2019 10:30	Client gets raw data
8260C VOA	29-Mar-2019 15:00	10	27-Mar-2019 10:30	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	20-Mar-2019 10:30	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	20-Mar-2019 10:30	Client gets raw data
19C0249-02 MW-12D (+MS/MSD) [Water] Sampled 13-Mar-2019 11:40 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = VOA Vial, Clear, 40 mL, HCL</i>	<i>F = VOA Vial, Clear, 40 mL, HCL</i>	<i>G = VOA Vial, Clear, 40 mL, HCL</i>	<i>H = VOA Vial, Clear, 40 mL, HCL</i>	
<i>I = VOA Vial, Clear, 40 mL, HCL</i>	<i>J = VOA Vial, Clear, 40 mL, HCL</i>	<i>K = VOA Vial, Clear, 40 mL, HCL</i>	<i>L = VOA Vial, Clear, 40 mL, HCL</i>	
<i>M = Glass NM, Amber, 500 mL</i>	<i>N = Glass NM, Amber, 500 mL</i>	<i>O = Glass NM, Amber, 500 mL</i>	<i>P = Glass NM, Amber, 500 mL</i>	
<i>Q = Glass NM, Amber, 500 mL</i>	<i>R = Glass NM, Amber, 500 mL</i>	<i>S = Glass NM, Amber, 500 mL</i>	<i>T = Glass NM, Amber, 500 mL</i>	
<i>U = Glass NM, Amber, 500 mL</i>	<i>V = Glass NM, Amber, 500 mL</i>	<i>W = Glass NM, Amber, 500 mL</i>	<i>X = Glass NM, Amber, 500 mL</i>	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	20-Mar-2019 11:40	Client gets raw data
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	20-Mar-2019 11:40	
8260C VOA	29-Mar-2019 15:00	10	27-Mar-2019 11:40	
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	27-Mar-2019 11:40	Client gets raw data
19C0249-03 MW-9S [Water] Sampled 13-Mar-2019 14:15 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
8260C VOA	29-Mar-2019 15:00	10	27-Mar-2019 14:15	
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	27-Mar-2019 14:15	Client gets raw data
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	20-Mar-2019 14:15	Client gets raw data
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	20-Mar-2019 14:15	
19C0249-04 MW-9D [Water] Sampled 13-Mar-2019 15:00 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	20-Mar-2019 15:00	Client gets raw data
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	27-Mar-2019 15:00	Client gets raw data
8260C VOA	29-Mar-2019 15:00	10	27-Mar-2019 15:00	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	20-Mar-2019 15:00	



WORK ORDER

19C0249

Client: Pacific Groundwater Group
Project: Birds Eye

Project Manager: Kelly Bottem
Project Number: Birds Eye

Analysis	Due	TAT	Expires	Comments
19C0249-05 MW-22S [Water] Sampled 13-Mar-2019 10:45 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
8260C VOA	29-Mar-2019 15:00	10	27-Mar-2019 10:45	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	20-Mar-2019 10:45	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	20-Mar-2019 10:45	Client gets raw data
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	27-Mar-2019 10:45	Client gets raw data
19C0249-06 MW-14S [Water] Sampled 14-Mar-2019 11:10 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	21-Mar-2019 11:10	
8260C VOA	29-Mar-2019 15:00	10	28-Mar-2019 11:10	
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	28-Mar-2019 11:10	Client gets raw data
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	21-Mar-2019 11:10	Client gets raw data
19C0249-07 MW-14D [Water] Sampled 14-Mar-2019 11:40 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	21-Mar-2019 11:40	
8260C VOA	29-Mar-2019 15:00	10	28-Mar-2019 11:40	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	21-Mar-2019 11:40	Client gets raw data
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	28-Mar-2019 11:40	Client gets raw data
19C0249-08 MW-13S [Water] Sampled 14-Mar-2019 13:55 (GMT-08:00) Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL</i>	<i>B = VOA Vial, Clear, 40 mL, HCL</i>	<i>C = VOA Vial, Clear, 40 mL, HCL</i>	<i>D = VOA Vial, Clear, 40 mL, HCL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	28-Mar-2019 13:55	Client gets raw data
8260C VOA	29-Mar-2019 15:00	10	28-Mar-2019 13:55	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	21-Mar-2019 13:55	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	21-Mar-2019 13:55	Client gets raw data



WORK ORDER

19C0249

Client: Pacific Groundwater Group

Project Manager: Kelly Bottem

Project: Birds Eye

Project Number: Birds Eye

Analysis	Due	TAT	Expires	Comments
19C0249-09 MW-13D [Water] Sampled 14-Mar-2019 14:25 (GMT-08:00)				
Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL D = VOA Vial, Clear, 40 mL, HCL</i>				
<i>E = Glass NM, Amber, 500 mL F = Glass NM, Amber, 500 mL G = Glass NM, Amber, 500 mL H = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	28-Mar-2019 14:25	Client gets raw data
8260C VOA	29-Mar-2019 15:00	10	28-Mar-2019 14:25	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	29-Mar-2019 15:00	10	21-Mar-2019 14:25	
TPH NW (Extractables) low level	29-Mar-2019 15:00	10	21-Mar-2019 14:25	Client gets raw data
19C0249-10 Trip Blanks [Water] Sampled 13-Mar-2019 10:30 (GMT-08:00)				
Pacific Time (US & Canada)				
<i>A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL</i>				
8260C VOA	29-Mar-2019 15:00	10	27-Mar-2019 10:30	
8260C Gas (NWTPH)	29-Mar-2019 15:00	10	27-Mar-2019 10:30	Client gets raw data

Reviewed By

Date

Page 4 of 4



Cooler Receipt Form

ARI Client: PGG

Project Name: Bird's Eye

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19C0249

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES

NO

Were custody papers included with the cooler? _____

YES

NO

Were custody papers properly filled out (ink, signed, etc.) _____

YES

NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time _____

4.6 0.4 0.7

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 0005206

Cooler Accepted by: [Signature]

Date: 03/14/19

Time: 1355

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES

NO

What kind of packing material was used? ...

Bubble Wrap

Wet Ice

Gel Packs

Baggies

Foam Block

Paper

Other: _____

Was sufficient ice used (if appropriate)? _____

NA

YES

NO

Were all bottles sealed in individual plastic bags? _____

YES

NO

Did all bottles arrive in good condition (unbroken)? _____

YES

NO

Were all bottle labels complete and legible? _____

YES

NO

Did the number of containers listed on COC match with the number of containers received? _____

YES

NO

Did all bottle labels and tags agree with custody papers? _____

YES

NO

Were all bottles used correct for the requested analyses? _____

YES

NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA

YES

NO

Were all VOC vials free of air bubbles? _____

NA

YES

NO

Was sufficient amount of sample sent in each bottle? _____

YES

NO

Date VOC Trip Blank was made at ARI: _____

NA

3/14/19

Was Sample Split by ARI: NA YES

Date/Time: _____

Equipment: _____

Split by: _____

Samples Logged by: [Signature]

Date: 3/15/19

Time: 1028

Labels checked by: _____

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
<u>MW-12D(+MS/MSD)</u>	<u>MW-12D(+MS/MSD)</u>		
<u>MW-12D MS</u>			
<u>MW-12D MSD</u>			
<u>MW-12D</u>			

Additional Notes, Discrepancies, & Resolutions:

included 2 trip blanks not on COC

By: [Signature]

Date: 3/15/19



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12S
19C0249-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/13/2019 10:30

Analyzed: 03/20/2019 18:00

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHC0585 Sample Size: 10 mL
Prepared: 20-Mar-2019 Final Volume: 10 mL

Extract ID: 19C0249-01 C

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.5	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	101	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12S
19C0249-01 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/13/2019 10:30
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 18:00
Sample Preparation:	Extract ID: 19C0249-01 C
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.5	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12S
19C0249-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8 Analyst: JZ

Sampled: 03/13/2019 10:30

Analyzed: 03/29/2019 13:52

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BHC0518 Sample Size: 500 mL
Prepared: 19-Mar-2019 Final Volume: 0.5 mL

Extract ID: 19C0249-01 G 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	68.6	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	103	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12S
19C0249-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx			Sampled: 03/13/2019 10:30
Instrument: FID3 Analyst: VTS			Analyzed: 03/27/2019 10:48
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 19C0249-01 E 01
	Preparation Batch: BHC0506	Sample Size: 500 mL	
	Prepared: 20-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19C0249-01 E 01
	Cleanup Batch: CHC0177	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19C0249-01 E 01
	Cleanup Batch: CHC0176	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	104	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12D (+MS/MSD)
19C0249-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/13/2019 11:40

Analyzed: 03/20/2019 18:26

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Sample Size: 10 mL
Preparation Batch: BHC0585 Final Volume: 10 mL
Prepared: 20-Mar-2019 Extract ID: 19C0249-02 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	102	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12D (+MS/MSD)
19C0249-02 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/13/2019 11:40
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 18:26
Sample Preparation:	Extract ID: 19C0249-02 A
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12D (+MS/MSD)
19C0249-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/13/2019 11:40

Instrument: NT8 Analyst: JZ

Analyzed: 03/29/2019 14:18

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19C0249-02 M 02

Preparation Batch: BHC0518

Sample Size: 500 mL

Prepared: 19-Mar-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	59.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	95.6	%	



Pacific Groundwater Group
2377 Eastlake Ave. E. Suite 200
Seattle WA, 98102

Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-12D (+MS/MSD)
19C0249-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3 Analyst: VTS

Sampled: 03/13/2019 11:40

Analyzed: 03/27/2019 11:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BHC0506
Prepared: 20-Mar-2019

Sample Size: 500 mL
Final Volume: 1 mL

Extract ID: 19C0249-02 P 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CHC0177
Cleaned: 26-Mar-2019

Initial Volume: 1 mL
Final Volume: 1 mL

Extract ID: 19C0249-02 P 01

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CHC0176
Cleaned: 26-Mar-2019

Initial Volume: 1 mL
Final Volume: 1 mL

Extract ID: 19C0249-02 P 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	86.3	%	



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Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-9S
19C0249-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/13/2019 14:15

Analyzed: 03/20/2019 18:52

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHC0585 Sample Size: 10 mL
Prepared: 20-Mar-2019 Final Volume: 10 mL

Extract ID: 19C0249-03 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	102	%	



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Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
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MW-9S
19C0249-03 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/13/2019 14:15
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 18:52
Sample Preparation:	Extract ID: 19C0249-03 A
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	



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Project Manager: Inger Jackson

Reported:
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MW-9S
19C0249-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8 Analyst: JZ

Sampled: 03/13/2019 14:15

Analyzed: 03/29/2019 14:44

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BHC0518
Prepared: 19-Mar-2019

Extract ID: 19C0249-03 F 01

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	53.9	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	95.0	%	



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Reported:
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MW-9S
19C0249-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3 Analyst: VTS

Sampled: 03/13/2019 14:15

Analyzed: 03/27/2019 12:16

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BHC0506
Prepared: 20-Mar-2019

Sample Size: 500 mL
Final Volume: 1 mL

Extract ID: 19C0249-03 E 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CHC0177
Cleaned: 26-Mar-2019

Initial Volume: 1 mL
Final Volume: 1 mL

Extract ID: 19C0249-03 E 01

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CHC0176
Cleaned: 26-Mar-2019

Initial Volume: 1 mL
Final Volume: 1 mL

Extract ID: 19C0249-03 E 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	110	%	



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Project Manager: Inger Jackson

Reported:
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MW-9D
19C0249-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/13/2019 15:00

Analyzed: 03/20/2019 19:17

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHC0585 Sample Size: 10 mL
Prepared: 20-Mar-2019 Final Volume: 10 mL

Extract ID: 19C0249-04 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.6	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	99.7	%	



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Reported:
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MW-9D
19C0249-04 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/13/2019 15:00
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 19:17
Sample Preparation:	Extract ID: 19C0249-04 A
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.6	%	



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Reported:
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MW-9D
19C0249-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8 Analyst: JZ

Sampled: 03/13/2019 15:00

Analyzed: 03/29/2019 15:10

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BHC0518 Sample Size: 500 mL
Prepared: 19-Mar-2019 Final Volume: 0.5 mL

Extract ID: 19C0249-04 E 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)anthracene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	48.4	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	102	%	



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Reported:
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MW-9D
19C0249-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx			Sampled: 03/13/2019 15:00
Instrument: FID3 Analyst: VTS			Analyzed: 03/27/2019 12:38
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 19C0249-04 F 01
	Preparation Batch: BHC0506	Sample Size: 500 mL	
	Prepared: 20-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19C0249-04 F 01
	Cleanup Batch: CHC0177	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19C0249-04 F 01
	Cleanup Batch: CHC0176	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	111	%	



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MW-22S
19C0249-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/13/2019 10:45

Instrument: NT3 Analyst: PKC

Analyzed: 03/20/2019 19:43

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19C0249-05 A

Preparation Batch: BHC0585

Sample Size: 10 mL

Prepared: 20-Mar-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	103	%	



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MW-22S
19C0249-05 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/13/2019 10:45
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 19:43
Sample Preparation:	Extract ID: 19C0249-05 A
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	



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MW-22S
19C0249-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8 Analyst: JZ

Sampled: 03/13/2019 10:45

Analyzed: 03/29/2019 15:35

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BHC0518 Sample Size: 500 mL
Prepared: 19-Mar-2019 Final Volume: 0.5 mL

Extract ID: 19C0249-05 E 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	53.9	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	92.2	%	



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Reported:
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MW-22S
19C0249-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx			Sampled: 03/13/2019 10:45
Instrument: FID3 Analyst: VTS			Analyzed: 03/27/2019 13:00
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 19C0249-05 F 01
	Preparation Batch: BHC0506	Sample Size: 500 mL	
	Prepared: 20-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19C0249-05 F 01
	Cleanup Batch: CHC0177	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19C0249-05 F 01
	Cleanup Batch: CHC0176	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	110	%	



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Reported:
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MW-14S
19C0249-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/14/2019 11:10

Instrument: NT3 Analyst: PKC

Analyzed: 03/20/2019 20:08

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19C0249-06 B

Preparation Batch: BHC0585

Sample Size: 10 mL

Prepared: 20-Mar-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.4	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	102	%	



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MW-14S
19C0249-06 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/14/2019 11:10
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 20:08
Sample Preparation:	Extract ID: 19C0249-06 B
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.4	%	



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Reported:
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MW-14S
19C0249-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/14/2019 11:10

Instrument: NT8 Analyst: JZ

Analyzed: 03/29/2019 16:01

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19C0249-06 E 02

Preparation Batch: BHC0518

Sample Size: 500 mL

Prepared: 19-Mar-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	57.8	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	88.0	%	



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Reported:
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MW-14S
19C0249-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3 Analyst: VTS

Sampled: 03/14/2019 11:10

Analyzed: 03/27/2019 13:22

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BHC0506
Prepared: 20-Mar-2019

Sample Size: 500 mL
Final Volume: 1 mL

Extract ID: 19C0249-06 F 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CHC0177
Cleaned: 26-Mar-2019

Initial Volume: 1 mL
Final Volume: 1 mL

Extract ID: 19C0249-06 F 01

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CHC0176
Cleaned: 26-Mar-2019

Initial Volume: 1 mL
Final Volume: 1 mL

Extract ID: 19C0249-06 F 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	87.3	%	



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Reported:
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MW-14D
19C0249-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/14/2019 11:40

Analyzed: 03/20/2019 20:34

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHC0585 Sample Size: 10 mL
Prepared: 20-Mar-2019 Final Volume: 10 mL

Extract ID: 19C0249-07 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.0	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	102	%	



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Reported:
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MW-14D
19C0249-07 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/14/2019 11:40
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 20:34
Sample Preparation:	Extract ID: 19C0249-07 A
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.0	%	



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Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
11-Apr-2019 11:55

MW-14D
19C0249-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/14/2019 11:40

Instrument: NT8 Analyst: JZ

Analyzed: 03/29/2019 16:27

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19C0249-07 E 02

Preparation Batch: BHC0518

Sample Size: 500 mL

Prepared: 19-Mar-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	60.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	106	%	



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Reported:
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MW-14D
19C0249-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx			Sampled: 03/14/2019 11:40
Instrument: FID3 Analyst: VTS			Analyzed: 03/27/2019 13:44
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 19C0249-07 F 01
	Preparation Batch: BHC0506	Sample Size: 500 mL	
	Prepared: 20-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19C0249-07 F 01
	Cleanup Batch: CHC0177	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19C0249-07 F 01
	Cleanup Batch: CHC0176	Initial Volume: 1 mL	
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	89.1	%	



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Reported:
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MW-13S
19C0249-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/14/2019 13:55

Instrument: NT3 Analyst: PKC

Analyzed: 03/20/2019 20:59

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19C0249-08 C

Preparation Batch: BHC0585

Sample Size: 10 mL

Prepared: 20-Mar-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.1	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	102	%	



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MW-13S
19C0249-08 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/14/2019 13:55
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 20:59
Sample Preparation:	Extract ID: 19C0249-08 C
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.1	%	



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MW-13S
19C0249-08 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8 Analyst: JZ

Sampled: 03/14/2019 13:55

Analyzed: 03/29/2019 16:53

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BHC0518 Sample Size: 500 mL
Prepared: 19-Mar-2019 Final Volume: 0.5 mL

Extract ID: 19C0249-08 E 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	49.4	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	88.4	%	



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Reported:
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MW-13S
19C0249-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx			Sampled: 03/14/2019 13:55
Instrument: FID3 Analyst: VTS			Analyzed: 03/27/2019 14:06
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 19C0249-08 F 01
	Preparation Batch: BHC0506		
	Sample Size: 500 mL		
	Prepared: 20-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19C0249-08 F 01
	Cleanup Batch: CHC0177		
	Initial Volume: 1 mL		
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19C0249-08 F 01
	Cleanup Batch: CHC0176		
	Initial Volume: 1 mL		
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	97.9	%	



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MW-13D
19C0249-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/14/2019 14:25

Analyzed: 03/20/2019 21:25

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHC0585 Sample Size: 10 mL
Prepared: 20-Mar-2019 Final Volume: 10 mL

Extract ID: 19C0249-09 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.9	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	99.7	%	



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MW-13D
19C0249-09 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/14/2019 14:25
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 21:25
Sample Preparation:	Extract ID: 19C0249-09 A
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.9	%	



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Reported:
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MW-13D
19C0249-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8 Analyst: JZ

Sampled: 03/14/2019 14:25

Analyzed: 03/29/2019 17:19

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BHC0518 Sample Size: 500 mL
Prepared: 19-Mar-2019 Final Volume: 0.5 mL

Extract ID: 19C0249-09 E 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)anthracene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	52.3	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	88.7	%	



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Reported:
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MW-13D
19C0249-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx			Sampled: 03/14/2019 14:25
Instrument: FID3 Analyst: VTS			Analyzed: 03/27/2019 14:28
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 19C0249-09 F 01
	Preparation Batch: BHC0506		
	Sample Size: 500 mL		
	Prepared: 20-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19C0249-09 F 01
	Cleanup Batch: CHC0177		
	Initial Volume: 1 mL		
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19C0249-09 F 01
	Cleanup Batch: CHC0176		
	Initial Volume: 1 mL		
	Cleaned: 26-Mar-2019	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	111	%	



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Reported:
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Trip Blanks
19C0249-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT3 Analyst: PKC

Sampled: 03/13/2019 10:30

Analyzed: 03/20/2019 14:30

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHC0585 Sample Size: 10 mL
Prepared: 20-Mar-2019 Final Volume: 10 mL

Extract ID: 19C0249-10 B

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.7	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	99.2	%	



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Trip Blanks
19C0249-10 (Water)

Volatile Organic Compounds

Method: NWTPHg	Sampled: 03/13/2019 10:30
Instrument: NT3 Analyst: PKC	Analyzed: 03/20/2019 14:30
Sample Preparation:	Extract ID: 19C0249-10 B
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BHC0585	Sample Size: 10 mL
Prepared: 20-Mar-2019	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.7	%	



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Volatile Organic Compounds - Quality Control

Batch BHC0585 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHC0585-BLK1) Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 14:01										
Benzene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Surrogate: Toluene-d8	5.09		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	5.00		96.5	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.06		ug/L	5.00		101	80-120			
Blank (BHC0585-BLK2) Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 14:01										
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	5.09		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	5.00		96.5	80-120			
LCS (BHC0585-BS1) Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 12:18										
Benzene	10.4	0.20	ug/L	10.0		104	80-120			
Toluene	10.5	0.20	ug/L	10.0		105	80-120			
Ethylbenzene	10.4	0.20	ug/L	10.0		104	80-120			
m,p-Xylene	20.4	0.40	ug/L	20.0		102	80-121			
o-Xylene	10.2	0.20	ug/L	10.0		102	80-121			
Surrogate: Toluene-d8	5.11		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.01		ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.82		ug/L	5.00		96.4	80-120			
LCS (BHC0585-BS2) Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 13:09										
Gasoline Range Organics (Tol-Nap)	913	100	ug/L	1000		91.3	72-128			
Surrogate: Toluene-d8	4.91		ug/L	5.00		98.2	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00		100	80-120			
LCS Dup (BHC0585-BSD1) Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 12:44										
Benzene	9.90	0.20	ug/L	10.0		99.0	80-120	5.04	30	
Toluene	9.97	0.20	ug/L	10.0		99.7	80-120	5.24	30	
Ethylbenzene	9.80	0.20	ug/L	10.0		98.0	80-120	5.47	30	
m,p-Xylene	19.8	0.40	ug/L	20.0		99.2	80-121	2.52	30	



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Volatile Organic Compounds - Quality Control

Batch BHC0585 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHC0585-BSD1)		Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 12:44								
o-Xylene	9.77	0.20	ug/L	10.0		97.7	80-121	4.70	30	
Surrogate: Toluene-d8	5.06		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	5.00		102	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.19		ug/L	5.00		104	80-120			
LCS Dup (BHC0585-BSD2)		Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 13:35								
Gasoline Range Organics (Tol-Nap)	956	100	ug/L	1000		95.6	72-128	4.56	30	
Surrogate: Toluene-d8	4.99		ug/L	5.00		99.9	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00		99.9	80-120			
Matrix Spike (BHC0585-MS1)		Source: 19C0249-02		Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 21:51						
Benzene	11.2	0.20	ug/L	10.0	ND	112	80-120			
Toluene	11.4	0.20	ug/L	10.0	ND	114	80-120			
Ethylbenzene	11.1	0.20	ug/L	10.0	ND	111	80-120			
m,p-Xylene	22.2	0.40	ug/L	20.0	ND	111	80-121			
o-Xylene	10.9	0.20	ug/L	10.0	ND	109	80-121			
Surrogate: Toluene-d8	5.05		ug/L	5.00	4.95	101	80-120			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	5.00	5.05	99.8	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.02		ug/L	5.00	5.08	100	80-120			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike (BHC0585-MS2)		Source: 19C0249-02		Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 22:42						
Gasoline Range Organics (Tol-Nap)	904	100	ug/L	1000	ND	90.4	72-128			
Surrogate: Toluene-d8	5.10		ug/L	5.00	4.95	102	80-120			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	5.00	5.05	99.7	80-120			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BHC0585-MSD1)		Source: 19C0249-02		Prepared: 20-Mar-2019 Analyzed: 20-Mar-2019 22:16						
Benzene	10.1	0.20	ug/L	10.0	ND	101	80-120	10.70	30	
Toluene	9.98	0.20	ug/L	10.0	ND	99.8	80-120	13.10	30	
Ethylbenzene	10.1	0.20	ug/L	10.0	ND	101	80-120	9.71	30	
m,p-Xylene	19.9	0.40	ug/L	20.0	ND	99.4	80-121	11.20	30	
o-Xylene	9.92	0.20	ug/L	10.0	ND	99.2	80-121	9.28	30	
Surrogate: Toluene-d8	5.09		ug/L	5.00	4.95	102	80-120			



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Project Manager: Inger Jackson

Reported:
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Volatile Organic Compounds - Quality Control

Batch BHC0585 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BHC0585-MSD1)		Source: 19C0249-02		Prepared: 20-Mar-2019		Analyzed: 20-Mar-2019 22:16				
Surrogate: 4-Bromofluorobenzene	5.12		ug/L	5.00	5.05	102	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.07		ug/L	5.00	5.08	101	80-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BHC0585-MSD2)		Source: 19C0249-02		Prepared: 20-Mar-2019		Analyzed: 20-Mar-2019 23:08				
Gasoline Range Organics (Tol-Nap)	918	100	ug/L	1000	ND	91.8	72-128	1.58	30	
Surrogate: Toluene-d8	4.96		ug/L	5.00	4.95	99.2	80-120			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	5.00	5.05	99.8	80-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Pacific Groundwater Group
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Project: Birds Eye
Project Number: Birds Eye
Project Manager: Inger Jackson

Reported:
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Semivolatile Organic Compounds - SIM - Quality Control

Batch BHC0518 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHC0518-BLK1)										
					Prepared: 19-Mar-2019 Analyzed: 29-Mar-2019 12:24					
Naphthalene	ND	0.10	ug/L							U
Acenaphthylene	ND	0.10	ug/L							U
Acenaphthene	ND	0.10	ug/L							U
Fluorene	ND	0.10	ug/L							U
Phenanthrene	ND	0.10	ug/L							U
Anthracene	ND	0.10	ug/L							U
Fluoranthene	ND	0.10	ug/L							U
Pyrene	ND	0.10	ug/L							U
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzo(g,h,i)perylene	ND	0.10	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	1.51		ug/L	3.00		50.2	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.41		ug/L	3.00		80.4	10-125			
LCS (BHC0518-BS1)										
					Prepared: 19-Mar-2019 Analyzed: 29-Mar-2019 12:50					
Naphthalene	1.37	0.10	ug/L	3.00		45.8	33-120			
Acenaphthylene	1.47	0.10	ug/L	3.00		48.8	32-120			
Acenaphthene	1.58	0.10	ug/L	3.00		52.8	38-120			
Fluorene	1.75	0.10	ug/L	3.00		58.5	41-120			
Phenanthrene	2.11	0.10	ug/L	3.00		70.4	49-120			
Anthracene	2.06	0.10	ug/L	3.00		68.8	39-120			
Fluoranthene	2.37	0.10	ug/L	3.00		79.0	48-120			
Pyrene	2.53	0.10	ug/L	3.00		84.2	48-120			
Benzo(a)anthracene	2.17	0.10	ug/L	3.00		72.3	37-120			
Chrysene	2.51	0.10	ug/L	3.00		83.5	48-120			
Benzo(a)pyrene	2.21	0.10	ug/L	3.00		73.6	25-120			
Indeno(1,2,3-cd)pyrene	2.58	0.10	ug/L	3.00		85.9	32-120			
Dibenzo(a,h)anthracene	2.68	0.10	ug/L	3.00		89.3	21-120			
Benzo(g,h,i)perylene	2.62	0.10	ug/L	3.00		87.3	28-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BHC0518 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHC0518-BS1)		Prepared: 19-Mar-2019 Analyzed: 29-Mar-2019 12:50								
Surrogate: 2-Methylnaphthalene-d10	1.60		ug/L	3.00		53.4	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.06		ug/L	3.00		102	10-125			
Matrix Spike (BHC0518-MS1)		Source: 19C0249-02 Prepared: 19-Mar-2019 Analyzed: 29-Mar-2019 17:45								
Naphthalene	1.34	0.10	ug/L	3.00	ND	44.7	33-120			
Acenaphthylene	1.49	0.10	ug/L	3.00	ND	49.6	32-120			
Acenaphthene	1.57	0.10	ug/L	3.00	ND	52.3	38-120			
Fluorene	1.72	0.10	ug/L	3.00	ND	57.4	41-120			
Phenanthrene	2.07	0.10	ug/L	3.00	ND	69.0	49-120			
Anthracene	2.09	0.10	ug/L	3.00	ND	69.7	39-120			
Fluoranthene	2.35	0.10	ug/L	3.00	ND	78.2	48-120			
Pyrene	2.51	0.10	ug/L	3.00	ND	83.8	48-120			
Benzo(a)anthracene	2.26	0.10	ug/L	3.00	ND	75.4	37-120			
Chrysene	2.54	0.10	ug/L	3.00	ND	84.8	48-120			
Benzo(a)anthracene, Total	8.89	0.20	ug/L	9.00	ND	98.7	46-120			
Benzo(a)pyrene	2.31	0.10	ug/L	3.00	ND	77.2	25-120			
Indeno(1,2,3-cd)pyrene	2.54	0.10	ug/L	3.00	ND	84.8	32-120			
Dibenzo(a,h)anthracene	2.59	0.10	ug/L	3.00	ND	86.2	21-120			
Benzo(g,h,i)perylene	2.61	0.10	ug/L	3.00	ND	87.0	28-120			
Surrogate: 2-Methylnaphthalene-d10	1.61		ug/L	3.00	1.78	53.6	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.09		ug/L	3.00	2.87	103	10-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BHC0518-MSD1)		Source: 19C0249-02 Prepared: 19-Mar-2019 Analyzed: 29-Mar-2019 18:10								
Naphthalene	1.63	0.10	ug/L	3.00	ND	54.4	33-120	19.70	30	
Acenaphthylene	1.70	0.10	ug/L	3.00	ND	56.7	32-120	13.40	30	
Acenaphthene	1.74	0.10	ug/L	3.00	ND	58.2	38-120	10.60	30	
Fluorene	1.84	0.10	ug/L	3.00	ND	61.5	41-120	6.80	30	
Phenanthrene	2.18	0.10	ug/L	3.00	ND	72.5	49-120	5.03	30	
Anthracene	2.20	0.10	ug/L	3.00	ND	73.3	39-120	5.04	30	
Fluoranthene	2.37	0.10	ug/L	3.00	ND	79.1	48-120	1.16	30	
Pyrene	2.62	0.10	ug/L	3.00	ND	87.3	48-120	4.06	30	
Benzo(a)anthracene	2.32	0.10	ug/L	3.00	ND	77.2	37-120	2.28	30	
Chrysene	2.56	0.10	ug/L	3.00	ND	85.2	48-120	0.46	30	
Benzo(a)anthracene, Total	8.83	0.20	ug/L	9.00	ND	98.1	46-120	0.67	30	



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BHC0518 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BHC0518-MSD1)		Source: 19C0249-02		Prepared: 19-Mar-2019 Analyzed: 29-Mar-2019 18:10						
Benzo(a)pyrene	2.37	0.10	ug/L	3.00	ND	79.2	25-120	2.56	30	
Indeno(1,2,3-cd)pyrene	2.57	0.10	ug/L	3.00	ND	85.6	32-120	0.89	30	
Dibenzo(a,h)anthracene	2.57	0.10	ug/L	3.00	ND	85.5	21-120	0.85	30	
Benzo(g,h,i)perylene	2.68	0.10	ug/L	3.00	ND	89.5	28-120	2.83	30	
Surrogate: 2-Methylnaphthalene-d10	1.83		ug/L	3.00	1.78	61.0	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.99		ug/L	3.00	2.87	99.5	10-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Petroleum Hydrocarbons - Quality Control

Batch BHC0506 - EPA 3510C SepF

Instrument: FID3 Analyst: VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHC0506-BLK1)		Prepared: 20-Mar-2019 Analyzed: 27-Mar-2019 10:05								
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.232		mg/L	0.225		103	50-150			
LCS (BHC0506-BS1)		Prepared: 20-Mar-2019 Analyzed: 27-Mar-2019 10:27								
Diesel Range Organics (C12-C24)	2.88	0.100	mg/L	3.00		96.0	56-120			
Surrogate: o-Terphenyl	0.257		mg/L	0.225		114	50-150			
Matrix Spike (BHC0506-MS1)		Source: 19C0249-02		Prepared: 20-Mar-2019 Analyzed: 27-Mar-2019 11:32						
Diesel Range Organics (C12-C24)	2.88	0.100	mg/L	3.00	ND	96.1	56-120			
Surrogate: o-Terphenyl	0.159		mg/L	0.225	0.194	70.5	50-150			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BHC0506-MSD1)		Source: 19C0249-02		Prepared: 20-Mar-2019 Analyzed: 27-Mar-2019 11:54						
Diesel Range Organics (C12-C24)	2.73	0.100	mg/L	3.00	ND	90.9	56-120	5.47	30	
Surrogate: o-Terphenyl	0.248		mg/L	0.225	0.194	110	50-150			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



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Certified Analyses included in this Report

Analyte	Certifications
EPA 8260C in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE



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trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE



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EPA 8270D-SIM in Water

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP



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Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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