April 30, 2024
Project No.: 24046

Township of Esquimalt – Public Works
c/o Ken Gawryluk
601 Canteen Road,
Esquimalt, BC V9A 3R2
Ken.gawryluk@esquimalt.ca

RE: Environmental Overview – Liquid Fuel Tank System Removal
601 Canteen Road, Esquimalt, BC

INTRODUCTION

Wittich Environmental Services Ltd. (WES) was retained by the Township of Esquimalt – Public Works c/o Ken Gawryluk (the "Client") to provide environmental consulting services related to the removal of an existing liquid fuel tank system at 601 Canteen Road, Esquimalt, BC (the "Site). We understand the Client is requesting this work for due diligence as part of proposed infrastructure upgrades at the Site.

We understand that this letter will be included within a tender package for contractors to bid on the project. It is worth noting that WES is an environmental consultant and can be reasonably relied upon to provide appropriate recommendations related to the environmental components of the project. That said, WES is not a contractor and should not be solely relied upon to outline *all* applicable health and safety regulations and/or specific permitting requirements.

Background

WES was provided the following documents which collectively form our project understanding:

- Tender Documents – Liquid Fuel Tank System Removals and Installations – Township of Esquimalt Public Works Yard – 604 Canteen Road (Jan 2024; 66 pages)
- Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (PN 1326) – Canadian Council of Ministers of the Environment (CCME) (2003-2015; 68 pages)
- Canadian Construction Documents Committee (CCDC) 2 – 2020 Stipulated Price Contract
- CCDC 41 – Insurance Requirements (Dec 2020)

WES also attended the Site on February 29, 2024 to interview the Client and assess the existing refueling infrastructure. During the Site visit, the Client informed WES of the following:

- There are 2 x 4,500 Litre (L) Underground Storage Tanks (USTs) on-Site that require removal/replacement.

- The tanks are believed to have been installed in 1994, constructed of single-wall fiberglass and backfilled with pea-gravel. There are no installation records available.
- One tank contains gasoline while the other tank contains diesel.
- Bedrock is believed to be near surface on-Site and blasting was required to facilitate the original underground installation.
- There are two observations wells noted in the concrete pad.

Additionally, in an email on February 23, 2023, the Client posed the following questions:

- What is the proper procedure to remove UST with fuel?
- Is it mandatory to remove Underground Fuel Tanks? Can they be cleaned & filled with sand?
- Once the tanks are removed, what locations should the soil be tested and how many samples?
- What would be required if the test results come back over the MAC (maximum allowable concentration) in a large area? Do we just record the data for future reference in case the land is ever sold, re-zoned, and/or developed?

The most current guidance on Potential Contaminants of Concern (PCOCs) identify the following PCOCs related to gasoline and diesel refueling:

- Light Extractable Petroleum Hydrocarbons (LEPH), Heavy Extractable Petroleum Hydrocarbons (HEPH), Volatile Petroleum Hydrocarbons (VPH), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Gasoline & Diesel Volatile Organic Compounds (VOCs)[1].

Regulatory Framework

Standards

The BC Contaminated Site Regulation (CSR) has numerical standards that regulate soil, groundwater and soil vapour media based on the ground level Site use. The primary land use for the Site is considered Commercial; therefore, the Commercial Soil Standards (CL) apply to soil and soil vapour at the Site. Applicable soil pathways include intake of contaminated soil, groundwater used for drinking water, groundwater flow to a marine water and toxicity to soil invertebrates and plants. In groundwater, Drinking Water (DW) and Marine Aquatic Life (AWm) standards are considered applicable at this stage of investigation as the site is located in the area of a mapped aquifer and within 500 m of a marine aquatic receiving environment.

[1] Gasoline & Diesel VOCs: 1,2,4-trimethylbenzene; 1,2-dibromoethane; 1,2-dichloroethane; 1,3-butadiene; 1,3,5-trimethylbenzene; decane; hexane; isopropylbenzene; methylcyclohexane; cyclohexene

Clean Soil Relocation

The requirements for inferred clean soil relocation in BC have undergone changes based on the adoption of the Stage 14 amendments to the CSR which came into effect March 1, 2023. As of this date, soils from sites with current or former Schedule 2 activities (i.e. the Site) generally require characterization according to Protocol 19 before relocating.

Scope of Work

The scope of work for this Environmental Overview includes the following:

- Evaluating the depth to water, if present, within the UST nest (the area immediately surrounding the USTs);
- Collecting and analyzing a sample from each of the two observation wells installed in the UST nest (if present) for Potential Contaminants of Concern (PCOCs),
- Prepare a deliverable that includes, but is not limited to, interpreting, reporting and recommending on the following:
    - Results from the water testing,
    - Typical process for removal of liquid fuel USTs,
    - Management of contaminated materials (if required) during removal of the USTs,
    - Specific items to be mindful of when selecting appropriate tank removal contractors,
    - Post removal sampling considerations,
    - Appropriate measures to mitigate potential environmental risk(s) for the property.

Groundwater Sampling Methodology

WES conducted groundwater sampling of the existing observation wells (BH24-01 and BH24-02) on March 15, 2024. Figure 1 illustrates these locations on a site plan. There are no installation records available for the noted observation wells.

Groundwater sampling was completed in general accordance with the BC Field Sampling Manual, Part F – Water and Wastewater Sampling, 2020. Groundwater samples were collected from each location using a Solinst Model 410 peristaltic pump system, a low-flow sampling method was used to purge the wells and to collect the groundwater samples. A 10 mm outer diameter HDPE sample tubing was lowered to a depth just above the top of the well screen and the pumping rate was determined as the maximum flow rate that could be achieved while maintaining a steady water level in the well. Low-flow sampling rates were generally maintained at less than 0.1 litres/minute. Water was purged, until in-situ parameters had stabilized, confirmed via measurements from a Hanna HI98130 meter. A minimum of three well volumes below the pump intake were removed prior to sample collection.

Groundwater Results

The results from the groundwater sampling is summarized below.

Field Observations

The following field observations were noted during the groundwater sampling on March 15, 2024.

- The sampled observations wells extended to a depth of approximately 2.9 meters(m) below ground surface (bgs).
- The water table was noted at approximately 1.2 m bgs.
- No non-aqueous phase liquid (NAPL) or free product was measured in the observation wells.
- The water was generally clear with faint petroleum hydrocarbon odour at BH24-02 (See **Figure 1**)
- The water level remained static during the sampling period.

Analytical Results

See attached **Tables** for complete analytical results. **Figure 2** presents the results on a site plan and the lab report is provided in **Appendix B.**

In summary, the groundwater samples collected from BH24-01 and BH24-02 were analyzed for the PCOCs identified above. The tested parameters were all below the applicable standards in each location except for:

- Benzene at BH24-02 which was 12 µg/L compared to the applicable drinking water standard of 5 µg/L.

UST Removal Process Overview

British Columbia Fire Code (2018) Section 4.3.16.1. (Underground Storage Tanks) states that "*the removal, abandonment in place, disposal or temporary taking out of service of an underground storage tank shall be in conformance with good engineering practice*." When a leak is detected in a storage tank the storage tank shall be replaced, the escaped liquid shall be removed and the Chief Fire Official shall be notified within 24 hours of detection of a leak.

Based on the Environmental Code of Practice for Above and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Product, municipal bylaws and guidance documents, a UST shall not be abandoned in place unless it is considered impractical to remove. That is, the removal may compromise a foundation or structure. Since this type of structural issue is not anticipated for this project, it is recommended the USTs be removed. This is also best practice as it limits the potential for future geotechnical issues and/or contamination of the environment.

Based on the above Environmental Code of Practice and WES experience removing USTs in CRD, the general UST removal process can be summarized as follows:

- Obtain all required permits and approvals;
- Place BC One Call prior to start of work and have subsurface utilities located;
- Provide Client with appropriate insurance certificates;
- Make all required notifications (i.e., Esquimalt Fire Department).
- Install temporary fencing around excavation area.
- Empty the USTs by using all the fuel prior to removing.
- Have an electrician licenced to work with petroleum substances disconnect the pumping system and conduct all other electrical work;
- Any residual fuel and/or sludge shall be removed from the storage tank, piping, dispensing, and transfer equipment and disposed of at a licenced disposal facility in accordance with the Transportation of Dangerous Good Act and the Hazardous Waste Regulation.
- The storage tank, piping, dispensing and transfer equipment shall be purged of vapours to less than 10% of the lower flammable limit and the presence of vapour shall be checked with a combustible gas meter;
- Sufficient openings shall be cut in the tanks to render them unfit for further use;
- The USTs shall be removed with a crane and/or excavator(s) and transported to an approved disposal facility.
- A Qualified Professional (QP) shall be retained to oversee the UST removal and to conduct testing of the soil around and under the fuel tanks.
- A “certificate of destruction” or “affidavit of destruction” shall be obtained and provided to the Client by the disposal facility.
- Re-instate the Site with backfill aggregate that meets BC ENV commercial land use standards, compacted to 95 % Standard Proctor and area repaved.

Some additional notes on the work-program are provided below:

- Typically, the fire department needs to be involved via permitting and/or inspections since the removal of storage tank systems shall be in conformance with the National Fire Code of Canada.
- A Spill Response Plan should be developed as part of the Health and Safety Plan for the Site. The spill plan should include a sufficient number of spill response equipment in the event of a spill during UST removal.
- A Groundwater Management Plan should be developed in the event dewatering of the excavation is required.
- A Soil Management Plan should be developed in the event suspected contaminated soils is encountered based on odour and visual evidence of petroleum hydrocarbon impacts,
- Contractors should be Petroleum Oriented Safety Training (POST) Certified Contractors and carry Pollution Liability Insurance.

Environmental Overview Discussion

It is understood that the project objectives are to remove the storage tanks on-Site and completing reasonable efforts to remediate and/or improve the environmental condition of the Site during the removal process. That said, remediating to the applicable standards during the storage tank removal is not the objective and will be completed during an eventual property divesture. Considering the Site is an active Schedule 2, this is considered a reasonable approach.

Based on the data collected during the groundwater sampling, there are residual levels of benzene contamination in the UST nest with no NAPL observed. Considering there was no free product, broadly distributed and/or high concentration petroleum hydrocarbon contamination in the groundwater, the risk of potential worsening site conditions appears limited. The benzene concentrations in the groundwater will naturally biodegrade overtime; therefore, combining the storage tank removal with remedial efforts does not appear well supported at this time.

Considering the benzene in groundwater will naturally remediate, and poses limited additional environmental risk to the Site, it is reasonable to avoid handling the groundwater during the UST removal to minimize costs of the proposed project. As such, in addition to the above general process, the following should be considered during storage tank removal (where possible):

- During the removal of the tanks, efforts should be made to preserve the existing monitoring wells to allow for future monitoring of groundwater qualities.
    - If destroyed during removal, the Client should consider having a monitoring well installed during re-instatement to allow for monitoring of groundwater qualities.
- The inferred pea gravel overlaying and surrounding the storage tanks should only be removed to the water table (+/- 1.2m bgs).
    - These dry gravels are unlikely to be impacted; therefore, can be temporarily stored on the asphalt surface adjacent to the UST nest until the USTs have been removed.
    - If the existing fill material surrounding the tanks is not entirely pea gravel, and consist of sufficient fines for lab analysis, samples should be collected according to Technical Guidance 1 (TG1) and analyzed for PCOCs and metals to ensure it meets the applicable BC ENV CL standards.
    - Once the USTs have been removed, and assuming sample results are less than the ENV CL standards, this gravel can be returned in-situ as backfill material.
    - If soil testing results are above the applicable BC ENV CL standards this material should be transported to a licenced disposal facility.
- Once the groundwater table is reached, if possible, the gravel surrounding the USTs should remain in-situ and tank removal should occur.
    - If necessary, gravels can be shifted within the excavation as needed to facilitate removal of the USTs.
    - If this level of gravel movement is inadequate to facilitate tank removal, gravels would need to be stored ex-situ according to the Soil Management Plan.

        - At minimum the gravels should be drained in the excavation prior to stockpiling and the stockpile should be temporarily stored on 6-mil polyethylene plastic and configured in a manner that any subsequent drainage from the gravels can be captured and/or drained back into the excavation.
        - The testing requirements above for gravels above the water table would apply if the material contains sufficient fines to collect a sample.
        - If soil testing results are above the applicable BC ENV CL standards this material should not be used as backfill and transported to a licenced disposal facility.
    - If dewatering is required to facilitate UST removal and/or backfilling requirements, the Groundwater Management Plan could be engaged to facilitate dewatering.
- Once the USTs have been removed the QP should test the in-situ soils along the base and walls of the excavation (if any) for the above PCOCs and according to Technical Guidance 1.
    - The QP should prepare an environmental report to the Client summarizing the storage tank removal, and test results.
- Based on the results obtained during the groundwater monitoring, there is unlikely significant soil contamination and excavating contaminated soils during tank removal is not warranted at this time.
    - A complete Site assessment and remediation plan can be developed once the Schedule 2 activity on-site ceases.
- Backfill aggregate should be source from a reputable supplied that meets BC ENV commercial land use standards, compacted to 95 % Standard Proctor and area repaved.

The following environmental reporting requirements also need to be considered:

- If inferred clean soil >30m^3 is required to be removed from Site, a QP should be retained to test the soil in accordance with Protocol 19.
- If contaminated media are going to be remediated and managed off-site, a Notice of Independent Remediation (NIR) and Site Risk Classification Report (SRCR).
- If during the execution of this project, 100L of product spills into the environment, the spill must be reported to ENV.

Closure

We trust that this information is sufficient for your current needs. Should you require clarification on any part of this letter, please do not hesitate to contact the undersigned.

Sincerely,

Wittich Environmental Services Ltd.

Keith Miller, MSc., AScT.
Email: keith@wesltd.net

Enc Figures
Tables
Appendix A – Site Photos
Appendix B – Lab Report

LIMITATIONS & CONDITIONS

General Conditions

The material contained in the report reflects Wittich Environmental Services Ltd. (WES) best judgment considering the information available at the time of assessment and report preparation. WES may have also relied on information provided by third parties for the preparation of this report. The accuracy of this report may have been affected by the accuracy of this information.

The reported information is believed to provide a reasonable representation of the general environmental and hydrogeological conditions in the areas assessed. The data presented was collected at specific locations and the conditions may be different in other locations where specific information was not collected.

Findings outlined in the report cannot and should not be extrapolated to areas of the Site or other sites that were not specifically investigated. In addition, only those parameters specifically addressed in this report have been evaluated.

The assessment, conclusion and recommendations provided in this report are intended for the sole use of WES' Client. WES is prepared to provide a onetime project specific use "Letter of Reliance" to a third party at the written request of WES' Client.

When the information in this report is used or relied upon by any party other than WES' Client, WES does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report, unless otherwise authorized in writing by WES. Any unauthorized use of this report is at the sole risk of the user.

WES reserves the right to modify the opinion contained in this report if new information is discovered or comes to light that was not provided or available at the time of writing.

Limitations of Report

This report pertains to a specific scope of work and to a specific site, developments and adjacent land use as outlined in the report. The conclusions and recommendations set out in this report are based on specific observations, assessments and testing completed on the Site.

This report is applicable for land uses present during the assessment of the Site. Any variation from the identified Site conditions or developments and land use could necessitate additional investigation and assessment. It should be recognized that conditions may vary across the Site and with changes in seasons and these variations could affect the conclusion and recommendations made in this report. The findings, conclusions and recommendations contained in this report are time sensitive.

WES is not qualified to make, and it is not making any recommendations with respect to the purchase, sale, investment or development of any property. These decisions are the sole responsibility of the Client.

Third Party Information

During the performance of the work and the preparation of this report, WES may have relied on information provided by persons other than the Client. While WES endeavors to verify the accuracy of such information when instructed to do so by the Client, WES accepts no responsibility for the accuracy or the reliability of such information, which may affect the conclusion reached in the report.

Standard of Care

Services performed by WES for this project have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided.

Technical judgment has been applied in developing the conclusions and/or recommendations provided in this report. No other warranty or guarantee, expressed or implied, is made concerning the test results, conclusions, recommendations, or any other portion of this report.

Electronic Report Format

When WES submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables, the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy version submitted by WES shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions.

The electronic reports and documents shall be used only and exactly as submitted by WES. Any corruption and change to the content and quality of the electronic reports and documents as a result of subsequent electronic re-transmission will be the sole responsibility of the party completing the retransmission.

The electronic files submitted by WES have been prepared and submitted using specific software and hardware systems in WES' possession at the time of preparation and submission.

While WES endeavours to stay current in the software used, there is no guarantee that the software will be the most recent versions available.

WES makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

Figures

Legend

Site

Observation Wells

Notes

This drawing is for conceptual purposes only
Source: CRD Areas Atlas 2021

0 2.5 5 10
Meters

Client	Consultant	YYYY-MM-DD: 4/9/2024	Project	Title	
Corporation of the Township of Esquimalt	WES ENVIRONMENTAL	Prepared: AR Reviewed: KM Approved: KM	601 Canteen Road, Esquimalt, BC PROJECT NO. 24046 PHASE 01 REV. V001	**SAMPLE LOCATION PLAN**	Figure 1

Legend

- Site
- Observation Wells
- Sample < BC CSR Standards
- Sample > BC CSR Standards

Notes

For full analytical results refer to appended tables.

This drawing is for conceptual purposes only
Source: CRD Areas Atlas 2021

0 2.5 5 10 Meters

Client: Corporation of the Township of Esquimalt	Consultant: WES ENVIRONMENTAL	YYYY-MM-DD: 4/9/2024 Prepared: AR Reviewed: KM Approved: KM	Project: 601 Canteen Road, Esquimalt, BC PROJECT NO. 24046 PHASE 01 REV. V001	Title: **GROUNDWATER ANALYTICAL RESULTS**	Figure 2

Tables

Wittich Environmental Services

Standard Table Notes

Groundwater Samples

Groundwater sample results are presented in micrograms per litre (µg/L)

EPH	Extractable Petroleum Hydrocarbons, not corrected for PAH
LEPH	Light Extractable Petroleum Hydrocarbons, corrected for PAH
HEPH	Heavy Extractable Petroleum Hydrocarbons, corrected for PAH
PAH	Polycyclic Aromatic Hydrocarbons
MAH	Monocyclic Aromatic Hydrocarbons (benzene, toluene, ethylbenzene, xylenes)
MTBE	Methyl Tert-Butyl Ether
VOC	Volatile Organic Compounds
RDL	Reportable Detection Limit
GS	Grab Sample of Groundwater
<	Less than the stated detection limit
-	Not analyzed
CSR	Contaminated Sites Regulation
DW	Drinking Water Use
AW	Aquatic Water Use
IW	Irrigation Water Use
LW	Livestock Water Use
Shaded and Bold	Greater than the most stringent of the applicable CSR standards
Shaded and Bold	Lower than the BC CSR Technical Bulletin 3 Regional Background Concentration
EQL	Estimated Quantitation Limit
	Empty cell indicates no laboratory analysis completed

BC CSR standards for certain metals are pH dependent. Standards for these specific metals are presented in a range; with the most stringent standard corresponding to lower pH values and the most lenient standard corresponding to higher pH values.

Relative Percent Differences have only been considered where a concentration is greater than 5 times the EQL.

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Table 1
Water Results - Extractable Petroleum Hydrocarbons
601 Canteen Road, Esquimalt, BC.

				PHCs			
				EPH C10-C19	EPH C19-C32	HEPH	LEPH
				µg/L	µg/L	µg/L	µg/L
EQL				250	250	250	250
BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)				5,000			500
BC Schedule 3.2 Water DW - Drinking Water				5,000			
Date	**Location Code**	**Sample Code**	**Field ID**				
15 Mar 2024	**BH24-01**	**VA24A5578-001**	**BH24-01**	<250	<250	<250	<250
15 Mar 2024	**BH24-02**	**VA24A5578-002**	**BH24-02**	<250	<250	<250	<250

Environmental Standards
BC MoE, March 2021, BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)
BC MoE, March 2021, BC Schedule 3.2 Water DW - Drinking Water

WES Project ID: 24046

Table 2
Water Results - Monocyclic Aromatic Hydrocarbons
601 Canteen Road, Esquimalt, BC.

				MAH									
				Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Styrene	MTBE	VH C6-C10	VPH (C6-C10)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.5	0.5	0.5	0.4	0.3	0.5	0.5	0.5	100	100
BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)				1,000	2,000	2,500			300	720	4,400	15,000	1,500
BC Schedule 3.2 Water DW - Drinking Water				5	60	140			90	800	95	15,000	
Date	**Location Code**	**Sample Code**	**Field ID**										
15 Mar 2024	**BH24-01**	**VA24A5578-001**	**BH24-01**	<0.50	<0.50	<0.50	<0.40	<0.30	<0.50	<0.50	<0.50	<100	<100
15 Mar 2024	**BH24-02**	**VA24A5578-002**	**BH24-02**	12.0	<0.50	2.02	1.26	5.72	6.98	<0.50	<0.50	<100	<100

Environmental Standards
BC MoE, March 2021, BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)
BC MoE, March 2021, BC Schedule 3.2 Water DW - Drinking Water

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Table 3
Water Results - Polycyclic Aromatic Hydrocarbons
601 Canteen Road, Esquimalt, BC.

				PAH																			
				Benzo(b+j+k)fluoranthene	1-Methylnaphthalene	2-methylnaphthalene	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.015	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.005	0.01	0.01	0.01	0.05	0.02	0.01	0.05
BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)							60		0.5	1	1	0.1				1		2	120		10	3	0.2	34
BC Schedule 3.2 Water DW - Drinking Water					5.5	15	250			1,000	0.07	0.01	0.07			7	0.01	150	150		80		100	0.05
Date	**Location Code**	**Sample Code**	**Field ID**																					
15 Mar 2024	**BH24-01**	**VA24A5578-001**	**BH24-01**	<0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050
15 Mar 2024	**BH24-02**	**VA24A5578-002**	**BH24-02**	<0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.083	<0.020	<0.010	<0.050

Environmental Standards

BC MoE, March 2021, BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)
BC MoE, March 2021, BC Schedule 3.2 Water DW - Drinking Water

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Table 4
Water Results - Volatile Organic Compounds
601 Canteen Road, Esquimalt, BC.

				Solvents	VOCs								
				Cyclohexane	1,2,4-trimethylbenzene	1,2-dibromoethane	1,2-dichloroethane	1,3-Butadiene	1,3,5-trimethylbenzene	Decane	Hexane	Isopropylbenzene	Methylcyclohexane
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	0.2	1	0.2	1	1	1	1	1
BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)							1,000						
BC Schedule 3.2 Water DW - Drinking Water						0.5	5	1	40			400	
Date	**Location Code**	**Sample Code**	**Field ID**										
15 Mar 2024	**BH24-01**	**VA24A5578-001**	**BH24-01**	<1.0	<1.0	<0.20	<1.0	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0
15 Mar 2024	**BH24-02**	**VA24A5578-002**	**BH24-02**	<1.0	2.4	<0.20	<1.0	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0

Environmental Standards
BC MoE, March 2021, BC Schedule 3.2 Water AW - Aquatic Life (Marine and Estuarine)
BC MoE, March 2021, BC Schedule 3.2 Water DW - Drinking Water

Appendix A – Site Photographs

Site Photographs

Photo 1 – Rear of Site showing pump island and location of Groundwater wells.

Photo 2 – Groundwater well after cap has been taken off.

Appendix B – Laboratory Report

CERTIFICATE OF ANALYSIS

Work Order	: **VA24A5578**	Page	: 1 of 5
Client	: **Wittich Environmental Services Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Claire Price	Account Manager	: Emmanuel Mariano
Address	: 5715 Sooke Road Sooke BC Canada V9Z 0C4	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 24046	Date Samples Received	: 16-Mar-2024 14:00
PO	: ----	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: ----	Issue Date	: 22-Mar-2024 15:33
Sampler	: ----		
Site	: ----		
Quote number	: Wittich Env. Standing Offer 2024		
No. of samples received	: 3		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Organics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: BH24-01	BH24-02	----	----	----
					Client sampling date / time: 15-Mar-2024 00:00	15-Mar-2024 00:00	----	----	----
					VA24A5578-001	VA24A5578-002	--------	--------	--------
					Result	Result	----	----	----
Volatile Organic Compounds									
Cyclohexane	110-82-7	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Volatile Organic Compounds [Fuels]									
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	12.0	----	----	----
Butadiene, 1,3-	106-99-0	E611H/VA	0.20	µg/L	<0.20	<0.20	----	----	----
Decane, n-	124-18-5	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Dibromoethane, 1,2-	106-93-4	E611H/VA	0.20	µg/L	<0.20	<0.20	----	----	----
Dichloroethane, 1,2-	107-06-2	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	2.02	----	----	----
Hexane, n-	110-54-3	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Isopropylbenzene	98-82-8	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Methylcyclohexane	108-87-2	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611H/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Trimethylbenzene, 1,2,4-	95-63-6	E611H/VA	1.0	µg/L	<1.0	2.4	----	----	----
Trimethylbenzene, 1,3,5-	108-67-8	E611H/VA	1.0	µg/L	<1.0	<1.0	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	1.26	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	5.72	----	----	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	6.98	----	----	----
Hydrocarbons									
EPH (C10-C19)	----	E601A/VA	250	µg/L	<250	<250	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L	<250	<250	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L	<100	<100	----	----	----
HEPHw	----	EC600A/VA	250	µg/L	<250	<250	----	----	----
LEPHw	----	EC600A/VA	250	µg/L	<250	<250	----	----	----
VPHw	----	EC580A/VA	100	µg/L	<100	<100	----	----	----
Hydrocarbons Surrogates									

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BH24-01	BH24-02	----	----	----
					Client sampling date / time	15-Mar-2024 00:00	15-Mar-2024 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24A5578-001	VA24A5578-002	--------	--------	--------
						Result	Result	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		92.7	89.5	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		87.9	95.6	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		92.1	95.4	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611H/VA	1.0	%		92.1	95.4	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		103	103	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611H/VA	1.0	%		103	103	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	0.083	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BH24-01	BH24-02	----	----	----
					Client sampling date / time	15-Mar-2024 00:00	15-Mar-2024 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24A5578-001	VA24A5578-002	--------	--------	--------
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		103	101	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		99.9	98.7	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		98.0	97.5	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24A5578**	Page	: 1 of 7
Client	: **Wittich Environmental Services Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Claire Price	Account Manager	: Emmanuel Mariano
Address	: 5715 Sooke Road Sooke BC Canada V9Z 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 24046	Date Samples Received	: 16-Mar-2024 14:00
PO	: ----	Issue Date	: 22-Mar-2024 15:33
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Wittich Env. Standing Offer 2024		
No. of samples received	: 3		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH24-01	E601A	15-Mar-2024	21-Mar-2024	14 days	6 days	✓	21-Mar-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH24-02	E601A	15-Mar-2024	21-Mar-2024	14 days	6 days	✓	21-Mar-2024	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
BH24-01	E581.VH+F1	15-Mar-2024	19-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	6 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
BH24-02	E581.VH+F1	15-Mar-2024	19-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH24-01	E641A	15-Mar-2024	21-Mar-2024	14 days	6 days	✓	21-Mar-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH24-02	E641A	15-Mar-2024	21-Mar-2024	14 days	6 days	✓	21-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH24-01	E611A	15-Mar-2024	19-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH24-02	E611A	15-Mar-2024	19-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	6 days	✓
Volatile Organic Compounds : VOCs (Regular Full + BC Special List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH24-01	E611H	15-Mar-2024	19-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	6 days	✓
Volatile Organic Compounds : VOCs (Regular Full + BC Special List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH24-02	E611H	15-Mar-2024	19-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1371156	1	15	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1371157	1	20	5.0	5.0	✓
VOCs (Regular Full + BC Special List) by Headspace GC-MS	E611H	1371155	1	8	12.5	5.0	✓
Laboratory Control Samples (LCS)							
BC PHCs - EPH by GC-FID	E601A	1374773	1	6	16.6	5.0	✓
BTEX by Headspace GC-MS	E611A	1371156	1	15	6.6	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1374772	1	7	14.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1371157	1	20	5.0	5.0	✓
VOCs (Regular Full + BC Special List) by Headspace GC-MS	E611H	1371155	1	8	12.5	5.0	✓
Method Blanks (MB)							
BC PHCs - EPH by GC-FID	E601A	1374773	1	6	16.6	5.0	✓
BTEX by Headspace GC-MS	E611A	1371156	1	15	6.6	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1374772	1	7	14.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1371157	1	20	5.0	5.0	✓
VOCs (Regular Full + BC Special List) by Headspace GC-MS	E611H	1371155	1	8	12.5	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1371156	1	15	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1371157	1	20	5.0	5.0	✓
VOCs (Regular Full + BC Special List) by Headspace GC-MS	E611H	1371155	1	8	12.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Regular Full + BC Special List) by Headspace GC-MS	E611H ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **VA24A5578**	Page	: 1 of 8
Client	: Wittich Environmental Services Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Claire Price	Account Manager	: Emmanuel Mariano
Address	: 5715 Sooke Road Sooke BC Canada V9Z 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 24046	Date Samples Received	: 16-Mar-2024 14:00
PO	: ----	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: ----	Issue Date	: 22-Mar-2024 15:33
Sampler	: ---- ----		
Site	: ----		
Quote number	: Wittich Env. Standing Offer 2024		
No. of samples received	: 3		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Vancouver Organics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1371155)											
FJ2400765-001	Anonymous	Butadiene, 1,3-	106-99-0	E611H	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Cyclohexane	110-82-7	E611H	1.0	µg/L	1.4	1.2	0.1	Diff <2x LOR	----
		Decane, n-	124-18-5	E611H	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611H	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611H	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611H	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Isopropylbenzene	98-82-8	E611H	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611H	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trimethylbenzene, 1,2,4-	95-63-6	E611H	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Trimethylbenzene, 1,3,5-	108-67-8	E611H	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1371156)											
FJ2400765-001	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	0.59	0.57	0.02	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	0.71	0.68	0.03	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	0.79	0.73	0.07	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	1.34	1.25	0.08	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1371157)											
FJ2400765-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1371155)						
Butadiene, 1,3-	106-99-0	E611H	0.2	µg/L	<0.20	----
Cyclohexane	110-82-7	E611H	1	µg/L	<1.0	----
Decane, n-	124-18-5	E611H	1	µg/L	<1.0	----
Dibromoethane, 1,2-	106-93-4	E611H	0.2	µg/L	<0.20	----
Dichloroethane, 1,2-	107-06-2	E611H	1	µg/L	<1.0	----
Hexane, n-	110-54-3	E611H	1	µg/L	<1.0	----
Isopropylbenzene	98-82-8	E611H	1	µg/L	<1.0	----
Methylcyclohexane	108-87-2	E611H	1	µg/L	<1.0	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611H	0.5	µg/L	<0.50	----
Trimethylbenzene, 1,2,4-	95-63-6	E611H	1	µg/L	<1.0	----
Trimethylbenzene, 1,3,5-	108-67-8	E611H	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 1371156)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1371157)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1374773)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1374772)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1374772) - continued						
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1371155)									
Butadiene, 1,3-	106-99-0	E611H	0.2	µg/L	100 µg/L	109	60.0	140	----
Cyclohexane	110-82-7	E611H	1	µg/L	100 µg/L	111	70.0	130	----
Decane, n-	124-18-5	E611H	1	µg/L	100 µg/L	124	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611H	0.2	µg/L	100 µg/L	101	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611H	1	µg/L	100 µg/L	90.7	70.0	130	----
Hexane, n-	110-54-3	E611H	1	µg/L	100 µg/L	111	70.0	130	----
Isopropylbenzene	98-82-8	E611H	1	µg/L	100 µg/L	118	70.0	130	----
Methylcyclohexane	108-87-2	E611H	1	µg/L	100 µg/L	112	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611H	0.5	µg/L	100 µg/L	109	70.0	130	----
Trimethylbenzene, 1,2,4-	95-63-6	E611H	1	µg/L	100 µg/L	122	70.0	130	----
Trimethylbenzene, 1,3,5-	108-67-8	E611H	1	µg/L	100 µg/L	124	70.0	130	----
Volatile Organic Compounds (QCLot: 1371156)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	101	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	115	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	109	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	107	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	120	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	119	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	113	70.0	130	----
Hydrocarbons (QCLot: 1371157)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	78.4	70.0	130	----
Hydrocarbons (QCLot: 1374773)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	93.8	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	91.5	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1374772)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	103	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	96.1	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	99.4	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	99.3	60.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1374772) - continued									
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	95.1	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	103	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	96.9	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	95.8	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	94.9	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	98.4	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	95.0	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	96.7	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	103	60.0	130	----

Matrix Spike (MS) Report

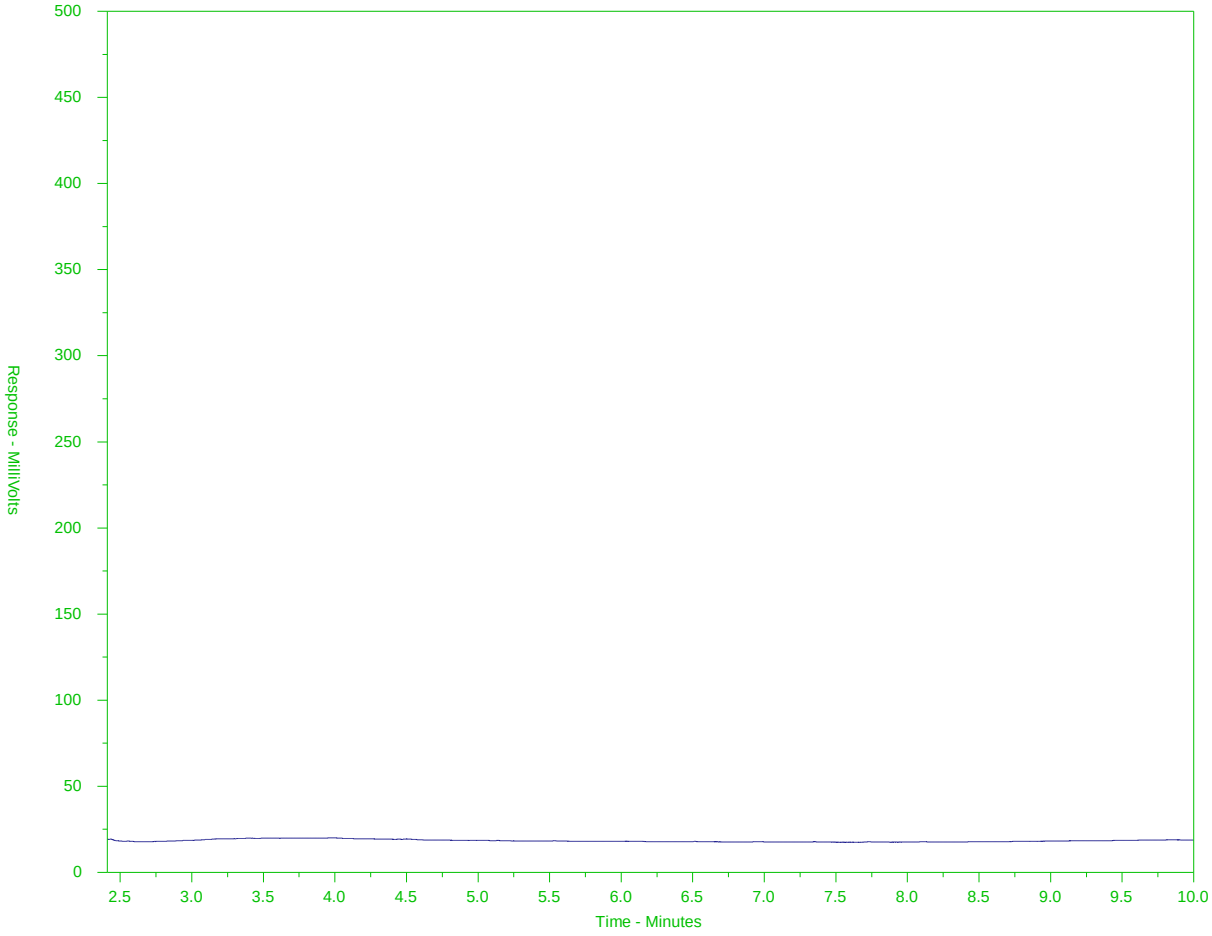
A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1371155)										
FJ2400765-001	Anonymous	Butadiene, 1,3-	106-99-0	E611H	113 µg/L	100 µg/L	113	60.0	140	----
		Cyclohexane	110-82-7	E611H	117 µg/L	100 µg/L	117	60.0	140	----
		Decane, n-	124-18-5	E611H	132 µg/L	100 µg/L	132	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611H	123 µg/L	100 µg/L	123	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611H	115 µg/L	100 µg/L	115	60.0	140	----
		Hexane, n-	110-54-3	E611H	116 µg/L	100 µg/L	116	60.0	140	----
		Isopropylbenzene	98-82-8	E611H	122 µg/L	100 µg/L	122	60.0	140	----
		Methylcyclohexane	108-87-2	E611H	122 µg/L	100 µg/L	122	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611H	123 µg/L	100 µg/L	123	60.0	140	----
		Trimethylbenzene, 1,2,4-	95-63-6	E611H	120 µg/L	100 µg/L	120	60.0	140	----
		Trimethylbenzene, 1,3,5-	108-67-8	E611H	121 µg/L	100 µg/L	121	60.0	140	----
Volatile Organic Compounds (QCLot: 1371156)										
FJ2400765-001	Anonymous	Benzene	71-43-2	E611A	115 µg/L	100 µg/L	115	60.0	140	----
		Ethylbenzene	100-41-4	E611A	118 µg/L	100 µg/L	118	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	123 µg/L	100 µg/L	123	60.0	140	----
		Styrene	100-42-5	E611A	116 µg/L	100 µg/L	116	60.0	140	----
		Toluene	108-88-3	E611A	126 µg/L	100 µg/L	126	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	250 µg/L	200 µg/L	125	60.0	140	----
		Xylene, o-	95-47-6	E611A	120 µg/L	100 µg/L	120	60.0	140	----
Hydrocarbons (QCLot: 1371157)										
KS2400896-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	4390 µg/L	6310 µg/L	69.6	60.0	140	----

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: VA24A5578-001-E601A
Client Sample ID: BH24-01



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

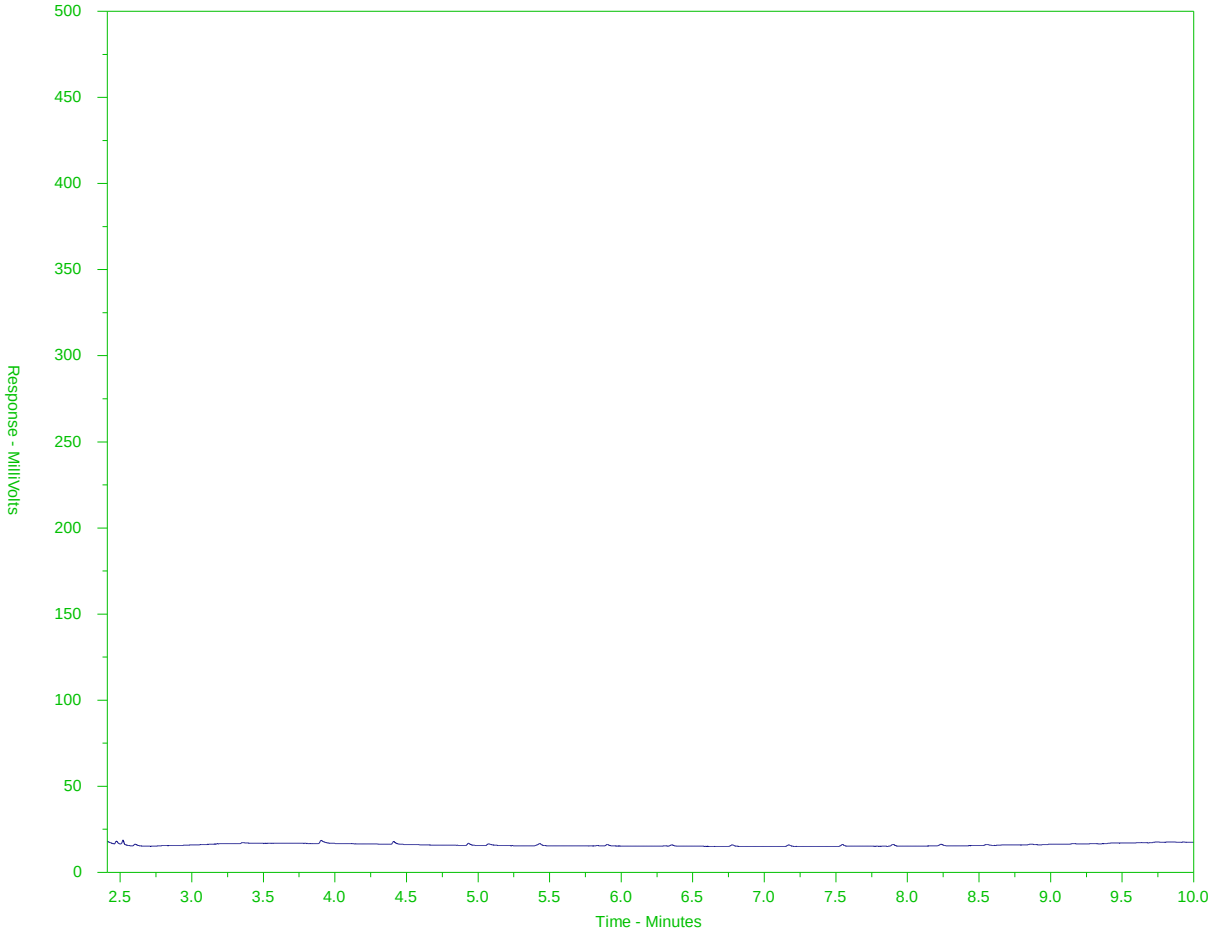
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: VA24A5578-002-E601A
Client Sample ID: BH24-02



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Wittich Environmental Services (WES) Ltd.	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:		Quality Control (QC) Report with Report ☑ ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☑ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	250-889-144613	☑ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E1 - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200%] ☐ (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	5715 Sooke Road	Email 1 or Fax keith@wesltd.net	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Sooke, BC	Email 2	
Postal Code:	V9C 0C4	Email 3	
Invoice To	Same as Report To ☐ YES ☑ NO	**Invoice Distribution**	
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:	Wittich Environmental Services (WES) Ltd.	Email 1 or Fax claire@wesltd.net	
Contact:	Claire Price	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	24046	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Environmental Division
Vancouver
Work Order Reference
VA24A5578

Telephone : +1 604 253 4188

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Indicate Filtered (F), Preserved (F): LEPH/HEPH/PAH	Diesel VOCs	Gasoline VOCs	BTEX/THM/VPH	SAMPLED BY (if known)	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH24-01	15-03-24		Water	P4	P4	P4	P4			
	BH24-02				P4	P4	P4	P4			
	BH24-DUP1								H		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ ☑ NO	British Columbia Contaminated Sites Regulation Stage 10 Amendment (NOV, 2017)
Are samples for human consumption/ use? ☐ ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			
Released by: Timothy A-F	Date: 15-03-2024	Time:	Received by:	Date:	Time:	Received by:

Rcvd jc 16Mar24 15°C 1400 ice pll

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.