



August 17, 2018

Ms. Sabrina Sturman  
Regulatory Specialist  
Sahtu Land and Water Board  
P.O. Box 1  
Fort Good Hope, NT X0E 0H0

**RE: Great Bear Lake Sites – 2018 Monitoring Notification (Licence # S17L8-002)**

Dear Ms. Sturman,

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) - Contaminants and Remediation Division's (CARD) is pleased to provide notification to the Sahtu Land and Water Board of 2018 monitoring activities to be conducted at the Great Bear Lake (GBL) Sites between August 28 and 29, 2018.

***Operational Name Change***

As reflected in this correspondence, the operational name of the department has changed from Indigenous and Northern Affairs Canada (INAC) to Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). Notwithstanding this change, the legal name remains the Department of Indian and Northern Affairs Canada (DIAND), consistent with the project Water Licence (# S17L8-002) and Land Use Permit (# S17D-003).

***Responsive Monitoring***

Section 2.3 of the *GBL Site Pre-Remediation Monitoring Plan* indicates that additional sampling may be conducted beyond what is identified in the Plan where anomalous data or changing contaminant concentrations are identified. As discussed within the *GBL Sites 2017 Water Quality Monitoring Report*, concentrations of cadmium and zinc in some 2017 water samples from Smallwood Lake (adjacent to Smallwood Mine), were higher than reported in previous monitoring years. To confirm these findings, two additional samples from Smallwood Lake will be included in 2018 monitoring as follows:

- SM-1: General chemistry, total metals and dissolved metals
- SM-6: General chemistry and total metals

Access and subsequent off-shore sampling at station SM-6 will be conducted using the float equipped aircraft. Should weather conditions not permit off-shore work due to the proximal rocky shorelines at this location, previously established station SM-2 will be used as a



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substitute and sampled for the same parameters.

### ***QA/QC Plan Notifications***

The *GBL Sites QA/QC Plan* includes requirements for annual Sahtu Land and Water Board notification of the laboratory to be used, analytical methods and detection limits for all Surveillance Network Program (SNP) parameters.

The 2018 samples will be submitted to ALS Laboratories in Yellowknife, NT for analysis and forward to their southern facilities as necessary. This is consistent with 2017 monitoring and efforts have been taken to ensure analytical methods and detection limits remain the same. Both the analytical methods and detection limits were provided as part of the laboratory quotation and have been attached as Appendix A.

If you have any questions or concerns, please do not hesitate to contact me at (867) 669-2461 or [candace.decoste@canada.ca](mailto:candace.decoste@canada.ca).

Sincerely,

Candace DeCoste

Project Manager

Contaminants and Remediation Division

cc. Carey Ogilvie, Senior Manager, INAC-CARD



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and Northern Affairs Canada

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## ***ALS Laboratories – 2018 Analytical Methods and Detection Limits***



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Water-Physical Tests			
Conductivity	APHA 2510 Auto. Conduc.	2.0	uS/cm
Hardness (as CaCO <sub>3</sub> )	APHA 2340B	0.50	mg/L
pH	APHA 4500-H pH Value	0.10	pH
Total Dissolved Solids	APHA 2540 C - GRAVIMETRIC	10	mg/L
Total Suspended Solids	APHA 2540 D - GRAVIMETRIC	3.0	mg/L
Turbidity	APHA 2130 Turbidity	0.10	NTU
Water-Anions and Nutrients			
Alkalinity, Total (as CaCO <sub>3</sub> )	APHA 2320 Alkalinity	1	mg/L
Ammonia, Total (as N)	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC	0.0050	mg/L
Bromide (Br)	EPA 300.1 (mod)	0.050	mg/L
Chloride (Cl)	EPA 300.1 (mod)	0.50	mg/L
Fluoride (F)	EPA 300.1 (mod)	0.020	mg/L
Nitrate (as N)	EPA 300.1 (mod)	0.0050	mg/L
Nitrite (as N)	EPA 300.1 (mod)	0.0010	mg/L
Phosphorus (P)-Total	APHA 4500-P Phosphorus	0.0020	mg/L
Phosphorus (P)-Total Dissolved	APHA 4500-P Phosphorous	0.0020	mg/L
Sulfate (SO <sub>4</sub> )	EPA 300.1 (mod)	0.30	mg/L
Sulphide as S	APHA 4500-S2 Sulphide	0.018	mg/L
Water-Organic / Inorganic Carbon			
Dissolved Organic Carbon	APHA 5310B	0.50	mg/L
Total Organic Carbon	APHA 5310B TOTAL ORGANIC CARBON (TOC)	0.50	mg/L
Water-Total Metals			
Aluminum (Al)-Total	EPA 200.2/6020A (mod)	0.003	mg/L
Antimony (Sb)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Arsenic (As)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Barium (Ba)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Beryllium (Be)-Total	EPA 200.2/6020A (mod)	0.000020	mg/L
Bismuth (Bi)-Total	EPA 200.2/6020A (mod)	0.00005	mg/L
Boron (B)-Total	EPA 200.2/6020A (mod)	0.01	mg/L
Cadmium (Cd)-Total	EPA 200.2/6020A (mod)	0.000005	mg/L
Calcium (Ca)-Total	EPA 200.2/6020A (mod)	0.05	mg/L
Cesium (Cs)-Total	EPA 200.2/6020A (mod)	0.00001	mg/L
Chromium (Cr)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Cobalt (Co)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Copper (Cu)-Total	EPA 200.2/6020A (mod)	0.0005	mg/L
Iron (Fe)-Total	EPA 200.2/6020A (mod)	0.01	mg/L



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Lead (Pb)-Total	EPA 200.2/6020A (mod)	0.00005	mg/L
Lithium (Li)-Total	EPA 200.2/6020A (mod)	0.001	mg/L
Magnesium (Mg)-Total	EPA 200.2/6020A (mod)	0.1	mg/L
Manganese (Mn)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Mercury (Hg)-Total	EPA 1631E (mod)	0.0000050	mg/L
Molybdenum (Mo)-Total	EPA 200.2/6020A (mod)	0.00005	mg/L
Nickel (Ni)-Total	EPA 200.2/6020A (mod)	0.0005	mg/L
Phosphorus (P)-Total	EPA 200.2/6020A (mod)	0.05	mg/L
Potassium (K)-Total	EPA 200.2/6020A (mod)	0.1	mg/L
Selenium (Se)-Total	EPA 200.2/6020A (mod)	0.00005	mg/L
Silicon (Si)-Total	EPA 200.2/6020A (mod)	0.1	mg/L
Silver (Ag)-Total	EPA 200.2/6020A (mod)	0.00001	mg/L
Sodium (Na)-Total	EPA 200.2/6020A (mod)	0.05	mg/L
Strontium (Sr)-Total	EPA 200.2/6020A (mod)	0.0002	mg/L
Sulfur (S)-Total	EPA 200.2/6020A (mod)	0.5	mg/L
Thallium (Tl)-Total	EPA 200.2/6020A (mod)	0.00001	mg/L
Tin (Sn)-Total	EPA 200.2/6020A (mod)	0.0001	mg/L
Titanium (Ti)-Total	EPA 200.2/6020A (mod)	0.0003	mg/L
Uranium (U)-Total	EPA 200.2/6020A (mod)	0.00001	mg/L
Vanadium (V)-Total	EPA 200.2/6020A (mod)	0.0005	mg/L
Zinc (Zn)-Total	EPA 200.2/6020A (mod)	0.003	mg/L
Zirconium (Zr)-Total	EPA 200.2/6020A (mod)	0.0003	mg/L

Water-Dissolved Metals

Aluminum (Al)-Dissolved	APHA 3030B/6020A (mod)	0.001	mg/L
Antimony (Sb)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Arsenic (As)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Barium (Ba)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Beryllium (Be)-Dissolved	APHA 3030B/6020A (mod)	0.000020	mg/L
Bismuth (Bi)-Dissolved	APHA 3030B/6020A (mod)	0.00005	mg/L
Boron (B)-Dissolved	APHA 3030B/6020A (mod)	0.01	mg/L
Cadmium (Cd)-Dissolved	APHA 3030B/6020A (mod)	0.000005	mg/L
Calcium (Ca)-Dissolved	APHA 3030B/6020A (mod)	0.05	mg/L
Cesium (Cs)-Dissolved	APHA 3030B/6020A (mod)	0.00001	mg/L
Chromium (Cr)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Cobalt (Co)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Copper (Cu)-Dissolved	APHA 3030B/6020A (mod)	0.0002	mg/L
Dissolved Mercury Filtration Location	APHA 3030B/EPA 1631E (mod)		
Dissolved Metals Filtration Location	APHA 3030B/6020A (mod)		
Dissolved Metals Filtration Location	APHA 3030B/6020A (mod)		



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Iron (Fe)-Dissolved	APHA 3030B/6020A (mod)	0.01	mg/L
Lead (Pb)-Dissolved	APHA 3030B/6020A (mod)	0.00005	mg/L
Lithium (Li)-Dissolved	APHA 3030B/6020A (mod)	0.001	mg/L
Magnesium (Mg)-Dissolved	APHA 3030B/6020A (mod)	0.1	mg/L
Manganese (Mn)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Mercury (Hg)-Dissolved	APHA 3030B/EPA 1631E (mod)	0.0000050	mg/L
Molybdenum (Mo)-Dissolved	APHA 3030B/6020A (mod)	0.00005	mg/L
Nickel (Ni)-Dissolved	APHA 3030B/6020A (mod)	0.0005	mg/L
Phosphorus (P)-Dissolved	APHA 3030B/6020A (mod)	0.05	mg/L
Potassium (K)-Dissolved	APHA 3030B/6020A (mod)	0.1	mg/L
Selenium (Se)-Dissolved	APHA 3030B/6020A (mod)	0.00005	mg/L
Silicon (Si)-Dissolved	APHA 3030B/6020A (mod)	0.05	mg/L
Silver (Ag)-Dissolved	APHA 3030B/6020A (mod)	0.00001	mg/L
Sodium (Na)-Dissolved	APHA 3030B/6020A (mod)	0.05	mg/L
Strontium (Sr)-Dissolved	APHA 3030B/6020A (mod)	0.0002	mg/L
Sulfur (S)-Dissolved	APHA 3030B/6020A (mod)	0.5	mg/L
Thallium (Tl)-Dissolved	APHA 3030B/6020A (mod)	0.00001	mg/L
Tin (Sn)-Dissolved	APHA 3030B/6020A (mod)	0.0001	mg/L
Titanium (Ti)-Dissolved	APHA 3030B/6020A (mod)	0.0003	mg/L
Uranium (U)-Dissolved	APHA 3030B/6020A (mod)	0.00001	mg/L
Vanadium (V)-Dissolved	APHA 3030B/6020A (mod)	0.0005	mg/L
Zinc (Zn)-Dissolved	APHA 3030B/6020A (mod)	0.001	mg/L
Zirconium (Zr)-Dissolved	APHA 3030B/6020A (mod)	0.0003	mg/L

Water-Aggregate Organics

Oil and Grease	BCMOE (2010), EPA1664A	5.0	mg/L
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Water-Volatile Organic Compounds

1,4-Difluorobenzene (SS)	EPA 5035A/5021A/8260C	1	%
4-Bromofluorobenzene (SS)	EPA 5035A/5021A/8260C	1	%
Benzene	EPA 5021A/8260C	0.00050	mg/L
Ethylbenzene	EPA 5021A/8260C	0.00050	mg/L
meta- & para-Xylene	EPA 5021A/8260C	0.00050	mg/L
Methyl t-butyl ether (MTBE)	EPA 5021A/8260C	0.00050	mg/L
ortho-Xylene	EPA 5021A/8260C	0.00050	mg/L
Styrene	EPA 5021A/8260C	0.00050	mg/L
Toluene	EPA 5021A/8260C	0.00045	mg/L
F1 (C6-C10)	EPA 5021A/CCME CWS PHC (Pub# 1310)	0.10	mg/L
Xylenes	CALCULATION	0.00075	mg/L

Water-Hydrocarbons



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
2-Bromobenzotrifluoride, F2-F4	CCME CWS-PHC, Pub #1310, Dec 2001	1.0	%
3,4-Dichlorotoluene (SS)	BC Env. Lab Manual (VH in Solids)	1	%
F2 (C10-C16)	CCME CWS-PHC, Pub #1310, Dec 2001	0.30	mg/L
F3 (C16-C34)	CCME CWS-PHC, Pub #1310, Dec 2001	0.30	mg/L
F4 (C34-C50)	CCME CWS-PHC, Pub #1310, Dec 2001	0.30	mg/L
F1-BTEX	CCME CWS PHC TIER 1 (2001)	0.10	mg/L
Volatile Hydrocarbons (VH6-10)	BC Env. Lab Manual (VH in Water)	0.10	mg/L
VPH (C6-C10)	BC MOE VPH	0.10	mg/L

Misc.-Radiological Parameters

Pb-210	Refer to sublet facility report	0.037	Bq/L
Ra-226	EPA 903.0		

Methodology

Product	Matrix	Product Description	Analytical Method Reference
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BE-D-L-CCMS-VA      Water      Diss. Be (low) in Water by CRC ICPMS      APHA 3030B/6020A (mod)  
 Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

BE-T-L-CCMS-VA      Water      Total Be (Low) in Water by CRC ICPMS      EPA 200.2/6020A (mod)  
 Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

BR-L-IC-N-VA      Water      Bromide in Water by IC (Low Level)      EPA 300.1 (mod)  
 Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CARBONS-DOC-VA      Water      Dissolved organic carbon by combustion      APHA 5310B  
 This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA      Water      Total organic carbon by combustion      APHA 5310B TOTAL ORGANIC CARBON (TOC)  
 This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CL-IC-N-VA      Water      Chloride in Water by IC      EPA 300.1 (mod)  
 Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-PCT-VA      Water      Conductivity (Automated)      APHA 2510 Auto. Conduc.  
 This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.



## Methodology

Product	Matrix	Product Description	Analytical Method Reference
EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
F1-BTX-CALC-VA	Water	F1-Total BTX	CCME CWS PHC TIER 1 (2001)
This analysis is based on the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For F1 (C6-C10), the sample undergoes a purge and trap extraction prior to analysis by GC/FID. The F1-BTEX result is calculated as follows:  F1-BTEX: F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).			
F1-HSFID-VA	Water	CCME F1 By Headspace with GCFID	EPA 5021A/CCME CWS PHC (Pub# 1310)
This analysis is based on the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For F1 (C6-C10), the sample undergoes a headspace purge prior to analysis by GC/FID.  F1 (C6-C10): Sum of all hydrocarbons that elute between nC6 and nC10.			
F2-F4-ME-FID-VA	Water	CCME F2-F4 Hydrocarbons in Water	CCME CWS-PHC, Pub #1310, Dec 2001
F2-F4 is extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, Dec 2001.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			





Methodology

Product	Matrix	Product Description	Analytical Method Reference
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
<p>This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.</p>			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
<p>The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease.</p>			
OGG-VISIBLE-SHEEN-VA	Water	Oil and Grease - Visible Sheen	AER D50
<p>"Visible Sheen" refers to a qualitative visual observation of the presence or absence of rainbow sheen, iridescence, or non-aqueous phase liquid (NAPL) on the surface of a drilling waste (fluid portion, clear liquid portion, or total waste) or on an aqueous sample. No hold time guidance is available for this test. Field observations should also be recorded, because sample characteristics may change between sampling and time of observation at the laboratory. This is a non-accredited test.</p>			
P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus
<p>This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.            Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.</p> <p>Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.</p>			
P-TD-PRES-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
<p>This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.            Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.</p> <p>Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.</p>			
PB210L-FC	Misc.	Lead-210 by Liquid Scintillation	Refer to sublet facility report
<p>Pb in soils and sediments is solubilized using nitric, hydrofluoric and hydrochloric acids.            Pb is pre-concentrated by passing the sample through a cation exchange column. A chromatographic resin with a high affinity for Pb is used to isolate 210Pb from potentially interfering radionuclides. In nitric acid, Pb is retained on the resin while other unwanted sample constituents are not. Pb is stripped from the resin with hydrochloric acid (HCl). The purified solution containing Pb is mixed with liquid scintillation cocktail and counted in a liquid scintillation counter (LSC). Stable Pb, added into the samples at the beginning of the procedure to monitor the chemical recovery, is measured in the sample by ICP-AES before and after chemical separation.</p>			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
<p>This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode</p> <p>It is recommended that this analysis be conducted in the field.</p>			



Methodology

Product	Matrix	Product Description	Analytical Method Reference
PREP-MET-FILT-VA	Water	Sample Prep (Filtration for Metals)	
RA226-GFPC-FC	Misc.	Radium-226 by Gas Flow Prop.	EPA 903.0
S2-T-COL-VA	Water	Total Sulphide by Colorimetric	APHA 4500-S2 Sulphide
This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methylene blue colourimetric method.			
SAMPLE-DISPOSAL-VA	Misc.	Sample Handling and Disposal Fee	
SHIPPING-MD-YL	Misc.	Subsidized shipping charge (per cooler)	
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			
VH-HSFID-VA	Water	VH in Water by Headspace GCFID	BC Env. Lab Manual (VH in Water)
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Compounds eluting between n-hexane and n-decane are measured and summed together using flame-ionization detection.			
VH-SURR-FID-VA	Water	VH Surrogates for Waters	BC Env. Lab Manual (VH in Solids)
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.			
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
VPH-CALC-VA	Water	VPH is VH minus select aromatics	BC MOE VPH
VPHw measures Volatile Petroleum Hydrocarbons in water. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure. VPHw = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene			



Methodology

Product	Matrix	Product Description	Analytical Method Reference
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.