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REMARKS

The water as represented by the samples submitted met the Canadian Drinking Water Guidelines for all parameters analysed with the exception of Iron for the sample "Liard Admin. Building"; Total Dissolved Solids for the samples "Community Well #6-GHL", "Teslin Band Office", "Sleepy Hallow-GHL"; Iron and Manganese for the sample "Lower Post Admin Building"; and Total Dissolved Solids, Turbidity, Iron and Manganese for the sample "TTFN Band Office". These parameters are usually limited for aesthetic purposes rather than health considerations. See the guidelines attached or contact ALS Environmental if you require any additional information.

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RESULTS OF ANALYSIS - Water

Sample ID			Community Well #6-GHL	Liard Admin. Building	Teslin Band Office	Sleepy Hallow-GHL	Lower Post Admin Bldg
Sample Date			03 02 20	03 02 20	03 02 20	03 02 20	03 02 20
ALS ID			*1*	*2*	*3*	*4*	*5*
Physical Tests							
Colour	(CU)		<5	<5	<5	<5	<5
Conductivity	(uS/cm)		686	416	615	616	415
Total Dissolved Solids			444	229	377	349	231
Hardness	CaCO3		396	227	276	345	225
pH			8.15	8.18	8.27	8.16	8.16
Turbidity	(NTU)		0.4	0.9	0.3	0.4	1.4
Dissolved Anions							
Alkalinity-Total		CaCO3	228	206	226	260	211
Chloride	Cl		1.8	5.4	5.9	7.5	5.3
Fluoride	F		0.07	0.07	0.16	0.13	0.07
Sulphate	SO4		162	12	108	60	12
Nutrients							
Nitrate Nitrogen		N	0.3	0.7	<0.1	2.4	0.7
Nitrite Nitrogen		N	<0.1	<0.1	<0.1	<0.1	<0.1
Total Metals							
Aluminum	T-Al		<0.01	<0.01	<0.01	<0.01	<0.01
Antimony	T-Sb		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	T-As		<0.001	<0.001	0.018	<0.001	<0.001
Barium	T-Ba		0.04	0.15	0.03	0.08	0.16
Boron	T-B		<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	T-Cd		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Calcium	T-Ca		83.6	66.4	44.7	83.3	65.0
Chromium	T-Cr		<0.002	<0.002	<0.002	<0.002	<0.002
Copper	T-Cu		<0.01	0.01	<0.01	<0.01	0.01
Iron	T-Fe		<0.03	0.41	0.17	<0.03	0.52
Lead	T-Pb		<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	T-Mg		45.6	14.9	39.9	33.3	15.3
Manganese	T-Mn		<0.002	0.045	0.031	<0.002	0.053
Mercury	T-Hg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	T-K		1.1	0.9	1.7	2.5	1.0
Selenium	T-Se		<0.001	<0.001	<0.001	<0.001	<0.001
Sodium	T-Na		2	3	37	4	3
Uranium	T-U		0.0039	0.0005	0.0001	0.0024	0.0005
Zinc	T-Zn		0.09	<0.05	<0.05	0.08	<0.05

Remarks regarding the analyses appear at the beginning of this report.
Results are expressed as milligrams per litre except for pH, Colour (CU), Conductivity (umhos/cm), and Turbidity (NTU).
< = Less than the detection limit indicated.

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RESULTS OF ANALYSIS - Water

Sample ID			Well #7-GHL	TTFN Band Office
Sample Date			03 02 20	03 02 20
ALS ID			*6*	*7*
Physical Tests				
Colour	(CU)		<5	<5
Conductivity	(uS/cm)		695	1100
Total Dissolved Solids			423	666
Hardness	CaCO3		397	520
pH			8.17	8.11
Turbidity	(NTU)		0.4	44.4
Dissolved Anions				
Alkalinity-Total		CaCO3	302	443
Chloride	Cl		<0.5	73.3
Fluoride	F		0.14	0.29
Sulphate	SO4		105	95
Nutrients				
Nitrate Nitrogen		N	<0.1	<0.1
Nitrite Nitrogen		N	<0.1	<0.1
Total Metals				
Aluminum	T-Al		<0.01	<0.02
Antimony	T-Sb		<0.0005	<0.001
Arsenic	T-As		<0.001	<0.002
Barium	T-Ba		0.03	0.06
Boron	T-B		<0.1	<0.2
Cadmium	T-Cd		<0.0002	<0.0004
Calcium	T-Ca		77.4	108
Chromium	T-Cr		<0.002	<0.004
Copper	T-Cu		<0.01	<0.02
Iron	T-Fe		<0.03	3.47
Lead	T-Pb		<0.001	<0.002
Magnesium	T-Mg		49.5	60.6
Manganese	T-Mn		<0.002	0.351
Mercury	T-Hg		<0.0002	<0.0002
Potassium	T-K		1.4	4.0
Selenium	T-Se		<0.001	<0.002
Sodium	T-Na		<2	8
Uranium	T-U		0.0017	0.0045
Zinc	T-Zn		0.29	<0.1

Remarks regarding the analyses appear at the beginning of this report.
Results are expressed as milligrams per litre except for pH, Colour (CU), Conductivity (umhos/cm), and Turbidity (NTU).
< = Less than the detection limit indicated.

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Appendix 1 - REGULATORY CRITERIA

Health Canada

Summary of Guidelines for Canadian Drinking Water Quality, April 2002.
All limits are Maximum Acceptable Concentration (MAC) unless otherwise indicated.
Limits expressed as milligrams per litre except pH, Turbidity, Colour, and Coliform Bacteria.

			Lower Limit	Upper Limit		Notes
Physical Tests						
Colour	(CU)		-	15	CU	1
Total Dissolved Solids			-	500	mg/L	1
Hardness	CaCO3		-	-		2
pH			6.5	8.5		1
Turbidity	(NTU)		-	5	NTU	1, 3
Dissolved Anions						
Chloride	Cl		-	250	mg/L	1
Fluoride	F		-	1.5	mg/L	
Sulphate	SO4		-	500	mg/L	1, 4
Nutrients						
Nitrate Nitrogen		N	-	10	mg/L	
Nitrite Nitrogen		N	-	1	mg/L	
Total Metals						
Antimony	T-Sb		-	0.006	mg/L	5, 6
Arsenic	T-As		-	0.025	mg/L	5
Barium	T-Ba		-	1	mg/L	
Boron	T-B		-	5	mg/L	5
Cadmium	T-Cd		-	0.005	mg/L	
Chromium	T-Cr		-	0.05	mg/L	
Copper	T-Cu		-	1	mg/L	1, 7
Iron	T-Fe		-	0.3	mg/L	1
Lead	T-Pb		-	0.01	mg/L	7, 6
Manganese	T-Mn		-	0.05	mg/L	1
Mercury	T-Hg		-	0.001	mg/L	
Selenium	T-Se		-	0.01	mg/L	
Sodium	T-Na		-	200	mg/L	1
Uranium	T-U		-	0.02	mg/L	5
Zinc	T-Zn		-	5	mg/L	1, 7

1 Aesthetic Objective (AO) (taste, odour, appearance, etc.)
2 Maximum not established, levels > 200 mg/L are considered poor but may be tolerated.
3 1 NTU maximum allowed for water entering distribution systems.
4 There may be a laxative effect in some individuals when sulphate levels exceed 500 mg/L.
5 Interim Maximum Acceptable Concentration (IMAC)
6 First drawn water may be high, flush system before sampling.
7 At point of consumption.

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Appendix 2 - QUALITY CONTROL - Replicates

Water			Well #7-GHL 03 02 20	Well #7-GHL QC # 324776
Physical Tests				
Colour	(CU)		<5	<5
Conductivity	(uS/cm)		695	692
Hardness	CaCO3		397	399
pH			8.17	8.16
Turbidity	(NTU)		0.4	0.4
Dissolved Anions				
Alkalinity-Total		CaCO3	302	309
Chloride	Cl		<0.5	<0.5
Fluoride	F		0.14	0.14
Sulphate	SO4		105	105
Nutrients				
Nitrate Nitrogen		N	<0.1	<0.1
Nitrite Nitrogen		N	<0.1	<0.1
Total Metals				
Aluminum	T-Al		<0.01	<0.01
Antimony	T-Sb		<0.0005	<0.0005
Arsenic	T-As		<0.001	<0.001
Barium	T-Ba		0.03	0.03
Boron	T-B		<0.1	<0.1
Cadmium	T-Cd		<0.0002	<0.0002
Calcium	T-Ca		77.4	75.4
Chromium	T-Cr		<0.002	<0.002
Copper	T-Cu		<0.01	<0.01
Iron	T-Fe		<0.03	<0.03
Lead	T-Pb		<0.001	<0.001
Magnesium	T-Mg		49.5	51.3
Manganese	T-Mn		<0.002	<0.002
Mercury	T-Hg		<0.0002	<0.0002
Potassium	T-K		1.4	1.4
Selenium	T-Se		<0.001	<0.001
Sodium	T-Na		<2	<2
Uranium	T-U		0.0017	0.0017
Zinc	T-Zn		0.29	0.29

Remarks regarding the analyses appear at the beginning of this report.
Results are expressed as milligrams per litre except for pH, Colour (CU), Conductivity (umhos/cm), and Turbidity (NTU).
< = Less than the detection limit indicated.

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Appendix 3 - METHODOLOGY

Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

Colour in Water

This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (true colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.

Recommended Holding Time:
Sample: 2 days
Reference: APHA
For more detail see ALS Environmental "Collection & Sampling Guide"

Conductivity in Water

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

Recommended Holding Time:
Sample: 28 days
Reference: APHA
For more detail see ALS Environmental "Collection & Sampling Guide"

Solids in Water

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total dissolved solids (TDS) and total suspended solids (TSS) 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 is determined by drying the filter at 104 degrees celsius. Total solids are determined by evaporating a sample to dryness at 104 degrees celsius. Fixed and volatile solids are determined by igniting a dried sample residue at 550 degrees celsius.

Recommended Holding Time:
Sample: 7 days
Reference: APHA
For more detail see ALS Environmental "Collection & Sampling Guide"

Conventional Parameters in Water

These analyses are carried out in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (USEPA), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (BCMOE), and/or "Standard Methods for the Examination of Water and Wastewater" (APHA). Further details are available on request.

pH in Water

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.

Recommended Holding Time:
Sample: 2 hours
Reference: APHA
For more detail see ALS Environmental "Collection & Sampling Guide"

Turbidity of Water

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

Recommended Holding Time:
Sample: 2 days
Reference: APHA
For more detail see ALS Environmental "Collection & Sampling Guide"

Alkalinity in Water by Colourimetry

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

Recommended Holding Time:
Sample: 14 days
Reference: APHA
For more detail see ALS Environmental "Collection & Sampling Guide"

Dissolved Anions in Water by Ion Chromatography

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG17 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

Recommended Holding Time:
Sample: 28 days (bromide, chloride, fluoride, sulphate)
Sample: 2 days (nitrate, nitrite)
Reference: APHA and EPA
For more detail see ALS Environmental "Collection & Sampling Guide"

Appendix 3 - METHODOLOGY - Continued

Metals in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:

Sample:	6 months
Reference:	EPA
For more detail see:	ALS "Collection & Sampling Guide"

Mercury in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic absorption and/or fluorescence spectrophotometry (EPA Method 7470A/7471A/245.7).

Recommended Holding Time:

Sample:	28 days
Reference:	EPA

For more detail see ALS Environmental "Collection & Sampling Guide"

End of Report