



December 4, 2018

File: 38050-40/AGWQMN/Grand Forks

Sion Improvement District
7920 Donaldson Drive
Grand Forks, British Columbia
V0H 1H2

Attention: Dan Koochin

Re: Chemical Analysis of Drinking Water – Pump House #1 Well (E219618)

The chemical analysis report for the water sample collected from this groundwater well on November 1, 2018 is attached to this letter. Please note that the water source exceeded the aesthetic objective (AO) for turbidity as outlined in the Canadian Drinking Water Quality Guidelines. Turbidity of the water was greater than 1.0 turbidity units (NTU) which may indicate water quality concerns.

The Canadian Drinking Water Guidelines establish maximum acceptable concentrations (MACs) and AOs for a variety of chemical parameters that may have health or aesthetic effects, respectively. An AO is a quality guideline established to address parameters or characteristics of water that may affect its acceptance by consumers such as taste, colour and odour.

If you have any questions about the health significance of these water quality results, please contact Mariia Kononova – Interior Health, BC at (250) 505-7288.

Subject to funding, we plan to monitor this water well again next year as part of ongoing ground water protection efforts in the community. Thank you for your cooperation in ground water quality monitoring of the Grand Forks Aquifer.

Yours truly,

Twyla Legault
Groundwater Technician

Enclosure: Chemical Analysis Results

TL/aw



BC MINISTRY OF FORESTS, LANDS AND
NATURAL RESOURCE

ATTN: Twyla Legault
102 Industrial Place
Penticton BC V2A 7C8

Date Received: 02-NOV-18
Report Date: 13-NOV-18 10:54 (MT)
Version: FINAL

Client Phone: 250-490-8200

Certificate of Analysis

Lab Work Order #: L2191176

Project P.O. #: 50239813

Job Reference: SION #1 RESERVOIR RD GRAND FORKS

C of C Numbers:

Legal Site Desc:

Other Client: GO
Information: EMS ID: E219618
Project: N/A

Dean Watt, B.Sc.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

Field Tests (WATER)

		ALS ID		L2191176-1
		Sampled Date		01-NOV-18
		Sampled Time		11:34
		Sample ID		E219618_REG
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Conductivity, Client Supplied	uS/cm	-	-	184
Diss. Oxygen, Client Supplied	mg/L	-	-	.54
pH, Client Supplied	pH	-	-	8.17

Federal Guidelines for Canadian Drinking Water Quality (FEB, 2017)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations for Secure GW source

Physical Tests (WATER)

		ALS ID		L2191176-1
		Sampled Date		01-NOV-18
		Sampled Time		11:34
		Sample ID		E219618_REG
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Conductivity	uS/cm	-	-	262
Hardness (as CaCO3)	mg/L	-	-	117
pH	pH	7.00-10.5	-	8.21
Total Dissolved Solids	mg/L	500	-	168
Turbidity	NTU	-	1.0	2.33

Federal Guidelines for Canadian Drinking Water Quality (FEB, 2017)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations for Secure GW source

ANALYTICAL REPORT

Anions and Nutrients (WATER)

		ALS ID		L2191176-1
		Sampled Date		01-NOV-18
		Sampled Time		11:34
		Sample ID		E219618_REG
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Alkalinity, Bicarbonate (as CaCO ₃)	mg/L	-	-	122
Alkalinity, Carbonate (as CaCO ₃)	mg/L	-	-	<1.0
Alkalinity, Hydroxide (as CaCO ₃)	mg/L	-	-	<1.0
Alkalinity, Phenolphthalein (as CaCO ₃)	mg/L	-	-	<2.0
Alkalinity, Total (as CaCO ₃)	mg/L	-	-	122
Ammonia, Total (as N)	mg/L	-	-	<0.0050
Chloride (Cl)	mg/L	250	-	2.71
Fluoride (F)	mg/L	-	1.5	0.315
Nitrate and Nitrite (as N)	mg/L	-	10	0.0453
Nitrate (as N)	mg/L	-	10	0.0453
Nitrite (as N)	mg/L	-	1	<0.0010
Dissolved Organic Nitrogen	mg/L	-	-	0.054
Dissolved Kjeldahl Nitrogen	mg/L	-	-	0.054
Total Dissolved Nitrogen	mg/L	-	-	0.099
Phosphorus (P)-Total Dissolved	mg/L	-	-	0.0079
Sulfate (SO ₄)	mg/L	500	-	14.6
Anion Sum	meq/L	-	-	2.83
Cation Sum	meq/L	-	-	2.59
Cation - Anion Balance	%	-	-	-4.3

Federal Guidelines for Canadian Drinking Water Quality (FEB, 2017)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations for Secure GW source

Dissolved Metals (WATER)

		ALS ID		L2191176-1
		Sampled Date		01-NOV-18
		Sampled Time		11:34
		Sample ID		E219618_REG
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Dissolved Metals Filtration Location	No Unit	-	-	FIELD
Aluminum (Al)-Dissolved	mg/L	0.1	-	<0.0010
Antimony (Sb)-Dissolved	mg/L	-	0.006	0.00019
Arsenic (As)-Dissolved	mg/L	-	0.01	0.00202
Barium (Ba)-Dissolved	mg/L	-	1	0.0179
Beryllium (Be)-Dissolved	mg/L	-	-	<0.00010
Bismuth (Bi)-Dissolved	mg/L	-	-	<0.000050
Boron (B)-Dissolved	mg/L	-	5	<0.010
Cadmium (Cd)-Dissolved	mg/L	-	0.005	<0.0000050
Calcium (Ca)-Dissolved	mg/L	-	-	35.6
Chromium (Cr)-Dissolved	mg/L	-	0.05	<0.00010
Cobalt (Co)-Dissolved	mg/L	-	-	<0.00010
Copper (Cu)-Dissolved	mg/L	1	2	0.00107
Iron (Fe)-Dissolved	mg/L	0.3	-	0.0094
Lead (Pb)-Dissolved	mg/L	-	0.01	0.000114
Lithium (Li)-Dissolved	mg/L	-	-	0.0011
Magnesium (Mg)-Dissolved	mg/L	-	-	6.72
Manganese (Mn)-Dissolved	mg/L	0.05	-	0.00385
Molybdenum (Mo)-Dissolved	mg/L	-	-	0.00745
Nickel (Ni)-Dissolved	mg/L	-	-	<0.00050
Phosphorus (P)-Dissolved	mg/L	-	-	<0.010
Potassium (K)-Dissolved	mg/L	-	-	1.24
Selenium (Se)-Dissolved	mg/L	-	0.05	0.00202
Silicon (Si)-Dissolved	mg/L	-	-	5.27
Silver (Ag)-Dissolved	mg/L	-	-	<0.000010
Sodium (Na)-Dissolved	mg/L	200	-	5.29
Strontium (Sr)-Dissolved	mg/L	-	-	0.273
Sulfur (S)-Dissolved	mg/L	-	-	4.88
Thallium (Tl)-Dissolved	mg/L	-	-	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	<0.00030
Uranium (U)-Dissolved	mg/L	-	0.02	0.00263
Vanadium (V)-Dissolved	mg/L	-	-	0.00068

Federal Guidelines for Canadian Drinking Water Quality (FEB, 2017)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations for Secure GW source

ANALYTICAL REPORT

Dissolved Metals (WATER)

		ALS ID		L2191176-1
		Sampled Date		01-NOV-18
		Sampled Time		11:34
		Sample ID		E219618_REG
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Zinc (Zn)-Dissolved	mg/L	5	-	0.0127
Zirconium (Zr)-Dissolved	mg/L	-	-	<0.00030

Federal Guidelines for Canadian Drinking Water Quality (FEB, 2017)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations for Secure GW source