



Date: 25-NOV-19

PO No.: L2383413

WO No.: L2383413

LSD:

Project Ref:

Sample ID: WELL

Sampled By: Tony Norton

Date Collected: 12-NOV-19

Lab Sample ID: L2383413-1

Matrix: Water

HAGENSBORG WATER DISTRICT
 Box 25
 Hagensborg BC V0T 1H0
 ATTN: Tony Norton/Dianne Skelly

PAGE 1 of 5

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Physical Tests						
Colour, True	<5.0		CU		15	20-NOV-19
Conductivity	48.1		uS/cm			20-NOV-19
Hardness (as CaCO3)	19.4	HTC	mg/L		500	25-NOV-19
pH	7.20		pH		7-10.5	20-NOV-19
Total Dissolved Solids	27		mg/L		500	19-NOV-19
Turbidity	0.21		NTU			19-NOV-19
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	15.5		mg/L			20-NOV-19
Chloride (Cl)	<0.50		mg/L		250	20-NOV-19
Fluoride (F)	<0.020		mg/L	1.5		20-NOV-19
Nitrate (as N)	0.308		mg/L	10		20-NOV-19
Nitrite (as N)	<0.0010		mg/L	1		20-NOV-19
Sulfate (SO4)	5.17		mg/L		500	20-NOV-19
Total Metals						
Aluminum (Al)-Total	0.014		mg/L		0.1	24-NOV-19
Antimony (Sb)-Total	<0.00050		mg/L	0.006		24-NOV-19
Arsenic (As)-Total	<0.00010		mg/L	0.01		24-NOV-19
Barium (Ba)-Total	<0.020		mg/L	1		24-NOV-19
Boron (B)-Total	<0.10		mg/L	5		24-NOV-19
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		24-NOV-19
Calcium (Ca)-Total	7.22		mg/L			24-NOV-19
Chromium (Cr)-Total	<0.0020		mg/L	0.05		24-NOV-19
Copper (Cu)-Total	<0.0010		mg/L	2.0	1.0	24-NOV-19
Iron (Fe)-Total	<0.030		mg/L		0.3	24-NOV-19
Lead (Pb)-Total	<0.00050		mg/L	0.005		24-NOV-19
Magnesium (Mg)-Total	0.33		mg/L			24-NOV-19
Manganese (Mn)-Total	<0.0020		mg/L	0.12	0.02	24-NOV-19
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-NOV-19
Potassium (K)-Total	1.13		mg/L			24-NOV-19
Selenium (Se)-Total	<0.0010		mg/L	0.05		24-NOV-19
Sodium (Na)-Total	<2.0		mg/L		200	24-NOV-19
Uranium (U)-Total	0.00015		mg/L	0.02		24-NOV-19
Zinc (Zn)-Total	<0.050		mg/L		5.0	24-NOV-19

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700

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Box 25
Hagensborg BC V0T 1H0
ATTN: Tony Norton/Dianne Skelly

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
<p>CDWQG = Health Canada Guideline Limits updated</p> <p>* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. * Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality - A blank entry designates no known limit. - A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.</p>	JUNE 2019					
<p>Approved by </p> <p>Can Dang Account Manager</p>						



Date: 25-NOV-19

PO No.:

WO No.: L2383413

LSD:

Project Ref:

Sample ID: DAM

Sampled By: Tony Norton

Date Collected: 12-NOV-19

Lab Sample ID: L2383413-2

Matrix: Water

HAGENSBORG WATER DISTRICT
 Box 25
 Hagensborg BC V0T 1H0
 ATTN: Tony Norton/Dianne Skelly

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Physical Tests						
Colour, True	<5.0		CU		15	20-NOV-19
Conductivity	34.6		uS/cm			20-NOV-19
Hardness (as CaCO3)	13.1	HTC	mg/L		500	25-NOV-19
pH	7.12		pH		7-10.5	20-NOV-19
Total Dissolved Solids	22		mg/L		500	19-NOV-19
Turbidity	<0.10		NTU			19-NOV-19
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	8.1		mg/L			20-NOV-19
Chloride (Cl)	<0.50		mg/L		250	20-NOV-19
Fluoride (F)	0.020		mg/L	1.5		20-NOV-19
Nitrate (as N)	0.180		mg/L	10		20-NOV-19
Nitrite (as N)	<0.0010		mg/L	1		20-NOV-19
Sulfate (SO4)	6.34		mg/L		500	20-NOV-19
Total Metals						
Aluminum (Al)-Total	0.020		mg/L		0.1	24-NOV-19
Antimony (Sb)-Total	<0.00050		mg/L	0.006		24-NOV-19
Arsenic (As)-Total	<0.00010		mg/L	0.01		24-NOV-19
Barium (Ba)-Total	<0.020		mg/L	1		24-NOV-19
Boron (B)-Total	<0.10		mg/L	5		24-NOV-19
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		24-NOV-19
Calcium (Ca)-Total	4.87		mg/L			24-NOV-19
Chromium (Cr)-Total	<0.0020		mg/L	0.05		24-NOV-19
Copper (Cu)-Total	<0.0010		mg/L	2.0	1.0	24-NOV-19
Iron (Fe)-Total	<0.030		mg/L		0.3	24-NOV-19
Lead (Pb)-Total	<0.00050		mg/L	0.005		24-NOV-19
Magnesium (Mg)-Total	0.22		mg/L			24-NOV-19
Manganese (Mn)-Total	<0.0020		mg/L	0.12	0.02	24-NOV-19
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-NOV-19
Potassium (K)-Total	0.68		mg/L			24-NOV-19
Selenium (Se)-Total	<0.0010		mg/L	0.05		24-NOV-19
Sodium (Na)-Total	<2.0		mg/L		200	24-NOV-19
Uranium (U)-Total	0.00024		mg/L	0.02		24-NOV-19
Zinc (Zn)-Total	<0.050		mg/L		5.0	24-NOV-19

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Sample ID: **DAM**


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Date Collected: 12-NOV-19

Lab Sample ID: L2383413-2

Matrix: Water

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ATTN: Tony Norton/Dianne Skelly

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
<p>CDWQG = Health Canada Guideline Limits updated</p> <p>* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. * Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality - A blank entry designates no known limit. - A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.</p>	JUNE 2019					
<p>Approved by </p> <p>Can Dang Account Manager</p>						

Guidelines & Objectives

Sample Parameter Qualifier key listed:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Health Canada MAC Health Related Criteria Limits

Nitrate/Nitrite-N*	Criteria limit is 10 mg/L (1.0 mg/L if present as all Nitrite-N). High concentrations may contribute to blue baby syndrome in infants.
Lead*	A cumulative body poison, uncommon in naturally occurring hard waters.
Fluoride*	Present in fluoridated water supplies at 0.8 mg/L to reduce dental caries. Elevated levels causes fluorosis (mottling of teeth).
Total Coliforms*	Criteria is 0 CFU/100mL. Adverse health effects.
E. Coli*	Criteria is 0 CFU/100 mL. Certain E. Coli bacteria can be life threatening.
Manganese*	Criteria limit is 0.12 mg/L. Possible neurological effects in infants.

*Health Canada Canadian Drinking Water Quality Guidelines (MAC limit)

Aesthetic Objective Concentration Levels

Alkalinity	Acid neutralizing capacity. Usually a measure of carbonate and bicarbonates and calculated and reported as calcium carbonate.
Balance	Quality control parameter ratioing cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO ₃ -1
Carbonate	See Alkalinity. Reported at the anion CO ₃ -2
Calcium	See Hardness. Common major cation of water chemistry.
Chloride	Common major anion of water chemistry.
Conductance	Physical test measuring water salinity (dissolved ions or solids)
Hardness	Classical measure or capacity of water to precipitate soap (chiefly calcium and magnesium ions). Causes scaling tendency in water if carbonates/bicarbonates are present (if >200 mg/L). For drinking water purposes waters with results <200 mg/L are considered acceptable, results >200 mg/L are considered poor but can be tolerated. Results >500 mg/L are unacceptable.
Hydroxide	See alkalinity
Magnesium	See hardness. Common major cation of water chemistry. Elevated levels (>125 mg/L) may exert a cathartic or diuretic action.
pH	Measure of water acidity/alkalinity. Normal range is 7.0-8.5.
Potassium	Common major cation of water chemistry.
Sodium	Common major cation of water chemistry. Measure of salinity (saltiness).
Sulphate	Common major anion of water chemistry. Elevated levels may exert a cathartic or diuretic action.
Total Dissolved Solids	A measure of water salinity.
Iron	Causes staining to laundry and porcelain and astringent taste. Oxidizes to red-brown precipitate on exposure to air.
Heterotrophic Plate Count	Criteria is 500 cfu/mL Measure of heterotrophic bacteria present.

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2383413-COFC

COC Number: 17 - 787428

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Report To Contact and company name below will appear on the final report		Report Format / Distribution Select Report Format: <input type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			Priority Regular [R] <input type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply												
Company: <u>Hagensborg Water District</u>		Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO			EMERGENCY 4 day [P4-20%] <input type="checkbox"/>		1 Business day [E - 100%] <input type="checkbox"/>										
Contact: <u>Tony Norton / Diane Kelly</u>		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked			3 day [P3-25%] <input type="checkbox"/>		Same Day, Weekend or Statutory holiday [E2 -200%] <input type="checkbox"/>										
Phone: <u>250-982-2403 259-799-5997</u>		Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			2 day [P2-50%] <input type="checkbox"/>		Same Day, Weekend or Statutory holiday [E2 -200%] <input type="checkbox"/>										
Company address below will appear on the final report		Street: <u>P.O. Box 25</u>			Date and Time Required for all E&P TATs:			dd-mmm-yy hh:mm									
City/Province: <u>Hagensborg, B.C.</u>		Email 1 or Fax			For tests that can not be performed according to the service level selected, you will be contacted.												
Postal Code: <u>V0T 1H0</u>		Email 2			Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												
Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Invoice Distribution															
Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Select Invoice Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			NUMBER OF CONTAINERS						SAMPLES ON HOLD						
Company: <u>Hagensborg Water District</u>		Email 1 or Fax															
Contact: <u>Tony Norton / Diane Kelly</u>		Email 2															
Project Information			Oil and Gas Required Fields (client use)														
ALS Account # / Quote #:		AFE/Cost Center:	PO#														
Job #:		Major/Minor Code:	Routing Code:														
PO / AFE:		Requisitioner:															
LSD:		Location:															
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:														
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)													Time (hh:mm)

Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)			SAMPLE CONDITION AS RECEIVED (lab use only)							
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO					Frozen <input type="checkbox"/>		SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>		Ice Packs <input checked="" type="checkbox"/>		Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO					Cooling Initiated <input type="checkbox"/>		INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C			
SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)						
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: <u>PN</u>	Date: <u>16 Nov 19</u>	Time: <u>12:45 PM</u>				