



Date: 01-JUN-20

PO No.:

WO No.: L2449297

LSD:

Project Ref: SAVONA WTP

Sample ID: SAVONA WTP

Sampled By:

Date Collected: 19-MAY-20

Lab Sample ID: L2449297-1

Matrix: Water

**THOMPSON NICOLA REGIONAL DISTRICT**  
**300 - 465 Victoria Street**  
**Kamloops BC V2C 2A9**  
**ATTN: Tyrone McCabe**

PAGE 1 of 4

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
<b>Physical Tests</b>						
UV Absorbance (254 nm), Unfiltered	0.138		Abs/cm			21-MAY-20
Colour, True	15.9		CU		15	22-MAY-20
Hardness (as CaCO3)	45.0		mg/L		500	30-MAY-20
Transmittance @ 254 NM, Un-Filtered	72.8		%T/cm			22-MAY-20
<b>Organic / Inorganic Carbon</b>						
Total Organic Carbon	4.14		mg/L			26-MAY-20
<b>Total Metals</b>						
Aluminum (Al)-Total	0.127		mg/L		0.1	25-MAY-20
Antimony (Sb)-Total	<0.00010		mg/L	0.006		25-MAY-20
Arsenic (As)-Total	0.00020		mg/L	0.01		25-MAY-20
Barium (Ba)-Total	0.0104		mg/L	2		25-MAY-20
Beryllium (Be)-Total	<0.00010		mg/L			25-MAY-20
Bismuth (Bi)-Total	<0.000050		mg/L			25-MAY-20
Boron (B)-Total	<0.010		mg/L	5		25-MAY-20
Cadmium (Cd)-Total	0.0000120		mg/L	0.005		25-MAY-20
Calcium (Ca)-Total	13.9		mg/L			25-MAY-20
Cesium (Cs)-Total	0.000021		mg/L			25-MAY-20
Chromium (Cr)-Total	0.00033		mg/L	0.05		25-MAY-20
Cobalt (Co)-Total	0.00011		mg/L			25-MAY-20
Copper (Cu)-Total	0.0133		mg/L	2.0	1.0	25-MAY-20
Iron (Fe)-Total	0.216		mg/L		0.3	25-MAY-20
Lead (Pb)-Total	0.00127		mg/L	0.005		25-MAY-20
Lithium (Li)-Total	<0.0010		mg/L			25-MAY-20
Magnesium (Mg)-Total	2.93		mg/L			25-MAY-20
Manganese (Mn)-Total	0.00671		mg/L	0.12	0.02	25-MAY-20
Mercury (Hg)-Total	<0.0000050		mg/L	0.001		22-MAY-20
Molybdenum (Mo)-Total	0.00110		mg/L			25-MAY-20
Nickel (Ni)-Total	0.00097		mg/L			25-MAY-20
Phosphorus (P)-Total	<0.050		mg/L			25-MAY-20
Potassium (K)-Total	0.962		mg/L			25-MAY-20
Rubidium (Rb)-Total	0.00150		mg/L			25-MAY-20
Selenium (Se)-Total	0.000114		mg/L	0.05		25-MAY-20
Silicon (Si)-Total	3.70		mg/L			25-MAY-20
Silver (Ag)-Total	<0.000010		mg/L			25-MAY-20
Sodium (Na)-Total	2.41		mg/L		200	25-MAY-20
Strontium (Sr)-Total	0.0826		mg/L	7		25-MAY-20
Sulfur (S)-Total	2.45		mg/L			25-MAY-20
Tellurium (Te)-Total	<0.00020		mg/L			25-MAY-20
Thallium (Tl)-Total	<0.000010		mg/L			25-MAY-20
Thorium (Th)-Total	<0.00010		mg/L			25-MAY-20
Tin (Sn)-Total	<0.00010		mg/L			25-MAY-20
Titanium (Ti)-Total	0.00632		mg/L			25-MAY-20

ADDRESS: 1445 McGill Rd, Unit 2B, Kamloops BC, V2C 6K7 | Phone: +1 250 372 3588 | Fax: +1 250 372 3670

ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company



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PAGE 2 of 4

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Tungsten (W)-Total	<0.00010		mg/L			25-MAY-20
Uranium (U)-Total	0.000382		mg/L	0.02		25-MAY-20
Vanadium (V)-Total	0.00059		mg/L			25-MAY-20
Zinc (Zn)-Total	0.0086		mg/L		5.0	25-MAY-20
Zirconium (Zr)-Total	<0.00020		mg/L			25-MAY-20
<b>Dissolved Metals</b>						
Dissolved Mercury Filtration Location	FIELD					22-MAY-20
Dissolved Metals Filtration Location	FIELD					29-MAY-20
Aluminum (Al)-Dissolved	0.0276		mg/L		0.1	29-MAY-20
Antimony (Sb)-Dissolved	<0.00010		mg/L	0.006		29-MAY-20
Arsenic (As)-Dissolved	0.00014		mg/L	0.01		29-MAY-20
Barium (Ba)-Dissolved	0.00885		mg/L	2		29-MAY-20
Beryllium (Be)-Dissolved	<0.00010		mg/L			29-MAY-20
Bismuth (Bi)-Dissolved	<0.000050		mg/L			29-MAY-20
Boron (B)-Dissolved	<0.010		mg/L	5		29-MAY-20
Cadmium (Cd)-Dissolved	0.0000068		mg/L	0.005		29-MAY-20
Calcium (Ca)-Dissolved	13.7		mg/L			29-MAY-20
Cesium (Cs)-Dissolved	<0.000010		mg/L			29-MAY-20
Chromium (Cr)-Dissolved	0.00011		mg/L	0.05		29-MAY-20
Cobalt (Co)-Dissolved	<0.00010		mg/L			29-MAY-20
Copper (Cu)-Dissolved	0.00803		mg/L	2.0	1.0	29-MAY-20
Iron (Fe)-Dissolved	0.038		mg/L		0.3	29-MAY-20
Lead (Pb)-Dissolved	0.000562		mg/L	0.005		29-MAY-20
Lithium (Li)-Dissolved	0.0017		mg/L			29-MAY-20
Magnesium (Mg)-Dissolved	2.62		mg/L			29-MAY-20
Manganese (Mn)-Dissolved	0.00128		mg/L	0.12	0.02	29-MAY-20
Mercury (Hg)-Dissolved	<0.0000050		mg/L	0.001		22-MAY-20
Molybdenum (Mo)-Dissolved	0.00114		mg/L			29-MAY-20
Nickel (Ni)-Dissolved	0.00069		mg/L			29-MAY-20
Phosphorus (P)-Dissolved	<0.050		mg/L			29-MAY-20
Potassium (K)-Dissolved	0.936		mg/L			29-MAY-20
Rubidium (Rb)-Dissolved	0.00127		mg/L			29-MAY-20
Selenium (Se)-Dissolved	0.000073		mg/L	0.05		29-MAY-20
Silicon (Si)-Dissolved	3.58		mg/L			29-MAY-20
Silver (Ag)-Dissolved	<0.000010		mg/L			29-MAY-20
Sodium (Na)-Dissolved	2.22		mg/L		200	29-MAY-20
Strontium (Sr)-Dissolved	0.0881		mg/L	7		29-MAY-20
Sulfur (S)-Dissolved	2.40		mg/L			29-MAY-20
Tellurium (Te)-Dissolved	<0.00020		mg/L			29-MAY-20
Thallium (Tl)-Dissolved	<0.000010		mg/L			29-MAY-20
Thorium (Th)-Dissolved	<0.00010		mg/L			29-MAY-20
Tin (Sn)-Dissolved	<0.00010		mg/L			29-MAY-20


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**ATTN: Tyrone McCabe**

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Titanium (Ti)-Dissolved	0.00068		mg/L			29-MAY-20
Tungsten (W)-Dissolved	<0.00010		mg/L			29-MAY-20
Uranium (U)-Dissolved	0.000332		mg/L	0.02		29-MAY-20
Vanadium (V)-Dissolved	<0.00050		mg/L			29-MAY-20
Zinc (Zn)-Dissolved	0.0062		mg/L		5.0	29-MAY-20
Zirconium (Zr)-Dissolved	<0.00020		mg/L			29-MAY-20
<b>Trihalomethanes</b>						
Bromodichloromethane	0.0018		mg/L			24-MAY-20
Bromoform	<0.0010		mg/L			24-MAY-20
Dibromochloromethane	<0.0010		mg/L			24-MAY-20
Chloroform	0.133		mg/L			24-MAY-20
Total THMs	0.135		mg/L	0.1		26-MAY-20
<b>Haloacetic Acids</b>						
Bromochloroacetic Acid	<1.0		ug/L			26-MAY-20
Dibromoacetic Acid	<1.0		ug/L			26-MAY-20
Dichloroacetic Acid	24.4		ug/L			26-MAY-20
Total Haloacetic Acids 5	74.2		ug/L			26-MAY-20
Bromoacetic Acid	<1.0		ug/L			26-MAY-20
Chloroacetic acid	<5.0		ug/L			26-MAY-20
Trichloroacetic Acid	49.8		ug/L			26-MAY-20
<b>CDWQG = Health Canada Guideline Limits updated JUNE 2019</b>						
<p>* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L &lt; or N.D. = less than detection limit.</p> <p>* 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</p> <p>- A blank entry designates no known limit.</p> <p>- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.</p>						
<p>Approved by </p> <p>Amanda Lampreau Account Manager</p>						

## Guidelines & Objectives

### 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 ratiating cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO <sub>3</sub> -1
Carbonate	See Alkalinity. Reported at the anion CO <sub>3</sub> -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.*



ALS Environmental

Chain of Custody (COC) / Analytical Request Form  
Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here  
(lab use only)

COC Number: 15 -  
Page of

www.alsglobal.com

Contact and company name below will appear on the final report

Report Format / Distribution

Select Report Format:  PDF  EXCEL  EDD (DIGITAL)

Quality Control (QC) Report with Report  YES  NO

Compare Results to Criteria on Report - provide details below if box checked

Select Distribution:  EMAIL  MAIL  FAX

Email 1 or Fax: skratchner@lnd.ca

Email 2: imccabe@lnd.ca

Email 3:

Invoice Distribution

Select Invoice Distribution:  EMAIL  MAIL  FAX

Email 1 or Fax: finance@lnd.ca

Email 2:

Oil and Gas Required Fields (client use)

APECost Center

Mapskhor Code:

Requisitioner:

Location:

ALS Contact:

Amanda Lampeau

Date

(dd-mm-yy)

Sampler:

Time

(hh:mm)

Sample Type

Water

R

Q79867

Number of Containers

Select Service Level Below - Please confirm all EAP TATs with your RM - surcharges will apply

Regular [R]  Standard TAT if received by 3 pm - business days - no surcharges apply

4 day [P4]  1 Business day [E1]

3 day [P3]  Same Day, Weekend or Statutory holiday [E0]

2 day [P2]

EMERGENCY

Date and Time Required for all EAP TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Indicates Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Analysts Request

Report To: Thompson Nicola Regional District

Contact: Tyronne McCabe

Phone: 250-377-8673

Company address below will appear on the final report

Street: 300 - 465 Victoria St

City/Province: Kamloops BC

Postal Code: V2C 2A9

Invoice To: Same as Report To

Copy of Invoice with Report  YES  NO

Company: Thompson Nicola Regional District

Contact: Accounts Payable

Project Information

ALS Account # / Quote #: TNR100 Q79867

Job #: Savona WTP

PO / A/E:

LSD:

ALS Lab Work Order # (lab use only): L2449397

Sample Identification and/or Coordinates (This description will appear on the report)

Savona Treatment Plant

ALS Sample # (lab use only)

REFERR TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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 - report copy.

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

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

OCTOBER 2015 PRINT

Released by: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL SHIPMENT RECEPTION (lab use only)

Date: MAY 19 2020

Time: 10

Received by: \_\_\_\_\_

FINAL SHIPMENT RECEPTION (lab use only)

Date: \_\_\_\_\_ Time: \_\_\_\_\_

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen

Ice Packs

Ice Cubes

Cooling Initiated

SIF Observations Yes  No

Custody seal intact Yes  No

INITIAL COOLER TEMPERATURES °C: \_\_\_\_\_

FINAL COOLER TEMPERATURES °C: \_\_\_\_\_

Drinking Water (DW) Samples<sup>1</sup> (client use)

Are samples taken from a Regulated DW System?

YES  NO

Are samples for human drinking water use?

YES  NO

SHIPMENT RELEASE (client use)

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Barcode: L2449297-COFC