



District of Peachland Annual Drinking Water Report – 2021



INTRODUCTION

The District of Peachland is legally required by the *Drinking Water Protection Act* to provide an annual report on their water supply systems. The annual report will provide water system users with an overview of the system, a summary of all water tests performed and an update to any significant maintenance and/or improvements made to the system.

Facility Name/Number: District of Peachland Water Distribution System (#561)
EOCP Classification: Level III

Facility Name/Number: Peachland Creek Water Treatment Facility (#2288)
EOCP Classification: Level IV

Facility Name/Number: Trepanier Creek Water Treatment Facility (#2289)
EOCP Classification: Level II

Facility Name/Number: Okanagan Lake Pumps Water Treatment Facility (#2290)
EOCP Classification: Level II

WATER SOURCES

Water for the District of Peachland can be supplied from three surface water sources;

- Peachland Creek
- Trepanier Creek
- Okanagan Lake

The Peachland Creek system supplies water to all properties within the District of Peachland boundary. It also supplies the properties accessed from Ponderosa Drive and the downtown area as far north as 11th Street (approximately). As of April 2021, this system is supplied via the new Peachland Creek water treatment plant. The new plant will be capable of a daily capacity of 25 MLD (expandable to 50 MLD) and includes a 2500 m³ treated water reservoir. The treatment process consists of clarification through the dissolved air flotation (DAF) process, multi-media filtration, ultraviolet (UV) disinfection and chlorination. This facility will prevent the annual water quality advisories that have become more common in the recent past.

The Trepanier system supplies water to the remainder of the properties in the District (from 11th Street north). When the Okanagan Lake pumps are operated in place of the Trepanier Creek Intake, the supply area is identical to the Trepanier system. These supplies can be adjusted using valving within the system.

The majority of water is supplied from the Peachland Creek (PCI) system (approximately 2/3) with the remainder supplied by the Trepanier Creek (TCI) system (approximately 1/3) or the Okanagan Lake Pumps. The Okanagan Lake Pumps (LPH) are typically operated during spring

freshet/runoff to supply less turbid water to the Trepanier system. In 2021, the Okanagan Lake Pumps were active from April 21 – May 25.

DISTRIBUTION SYSTEM

The District of Peachland uses chlorine as its primary disinfectant, both in a gaseous (Trepanier and Okanagan) and liquid state (Peachland) . Chlorine is injected using flow paced technology and is dosed to provide inactivation of bacteria, viruses and protozoan cysts which may be present within the surface water source. District staff maintain a first user residual ranging from 0.9 – 1.9 mg/L (depending on the time of year and clarity of the raw water). At the ends of the system, a chlorine residual target is 0.2 mg/L. A residual of chlorine remaining in the distribution system extends a measure of protection against any possible contamination entering the system after initial disinfection.

The distribution system and supply includes:

- 16 pressure reducing stations,
- 1 very high consequence dam (Peachland Lake)
- 1 high consequence dam (Silver Lake)
- 1 significant consequence dam (Glen Lake)
- 4 active reservoirs
- 6 active pump stations
- Approximately 81 km of pipeline

The Water Department is staffed by operators certified through the Environmental Operators Certification Program (EOCP – the association responsible for certification of system operators and classification of water distribution (WD) and water treatment (WT) systems within British Columbia), with their certifications noted below;

- Director of Operations: WD Level IV / WT Level II
- Utilities Leadhand: WD Level III / WT Level II
- Chief Water Treatment Plant Operator: WD Level II / WT Level IV
- Operator: WD Level II / WT Level II
- Instrumentation / Electrical Tech:

These operators have the capability to monitor the system at all times (24 hours per day, 365 days per year) through the use of the SCADA system (supervisory control and data acquisition). The system is set to alarm if it ranges beyond pre-determined set points, calling the standby operator to alert them. There is an operator on standby at all times.

ROUTINE MAINTENANCE

Fire Hydrants

All municipally owned fire hydrants are inspected, pressure tested and flushed annually. Hydrants undergo a complete tear-down and rebuild on an as-needed basis.

Main Valve Exercising

Main valves are exercised at least biennially or on an as-needed basis.

System Flushing

System flushing occurs annually during the fall. Hydrants and blow offs are used to pass higher velocity water through the system in order to scour any sediment that may have settled in the system over the year.

Pressure Reducing Valves (PRVs)

PRV's are inspected monthly and repaired or rebuilt on an as-needed basis.

WATER MASTER PLAN

In 2007, the sitting mayor and council adopted the Water Master Plan (WMP), a set of comprehensive upgrades that was anticipated to provide treated water to Peachland in its entirety by the years 2023/24. The WMP was amended in 2015 to include information on increased population growth and changes in drinking water legislation. If more in-depth information is desired, it is available at the District's website (<http://www.peachland.ca/water-master-plan-2015>)

The Peachland Creek Water Treatment Plant was nominally completed in January 2021 and after commissioning, started supplying filtered water to residents within the Peachland Creek system on March 29, 2021.

Completion of the WTP allows the District to exceed the minimum requirements of the Drinking Water Treatment Objectives for Surface Water Supplies in British Columbia. If minimum requirements are not met, water users can potentially be at increased risk of illness from protozoan pathogens.

To provide this filtered water to the entire District, a second project was added to the scope of construction; the installation of a large diameter water main to interconnect the Peachland Creek and Trepanier Creek systems. This project was initiated in the fall of 2020, completed by late 2021 and is anticipated to be operating and supplying filtered water to the Trepanier system by early 2022.

A summary of the anticipated project costs is noted below;

	Total Cost	Grant	Borrowing	DCCs/Reserves
Water Treatment Plant	\$24 Million	\$6.9 Million	\$9.2 Million	\$7.9 Million
Trepanier Interconnect	\$6.1 Million	\$4.9 Million		\$1.2 Million

WATER SAMPLING

Drinking water samples are tested weekly for *E. Coli* and total coliforms by Caro Analytical Services in Kelowna. There were no positive bacteriological samples detected in 2021.

District employees monitor and record daily turbidity values along with pH and chlorine levels. Turbidity is one of the main parameters leading to a water quality advisory or a boil water notice as it can affect the number and type of microorganisms that enter a surface water source. As surface waters experience increased flows (ie. spring runoff, major rainfall events, etc), turbidity can fluctuate dramatically and the public is notified accordingly. **Records of average daily turbidity values can be found in Appendix IV.**

Chlorine concentrations are continuously monitored at 4-5 stations throughout the system (depending on the time of year) as well as daily grab samples at several locations to ensure instrument accuracy.

Water samples are also collected annually to perform a comprehensive analysis, giving an indication of any changes occurring within the source waters and/or distribution system. It should be noted that all raw sources tested are within the maximum allowable concentration (MAC) limits set out in the Guidelines for Canadian Drinking Water Quality. Lastly, trihalomethanes (THM`s) are also tested annually to provide an indication of the level of disinfection by-products present in the water supply system. The results from the comprehensive and THM analyses are included in Appendices I and II, respectively. The attached reports also indicate the limits or guidelines for each parameter listed.

WATER QUALITY ADVISORIES / BOIL WATER NOTICES / DO NOT USE NOTICE

Water quality advisories and boil water notices are notifications designed to inform the public of possible public health threats. The decision to institute an advisory or notice is made in discussion with staff at the Interior Health Authority (IHA).

A water quality advisory (WQA) is the lowest-level notification and used in situations where the possible public health threat is modest. These advisories are instituted when the turbidity in the water source increases over a value of 1 NTU (nephelometric turbidity units). Details of WQA's issued over the past year are noted below.

A boil water notice (BWN) is a moderate-level notification used in situations where the possible public health threat is one that can be effectively addressed by boiling the water. These notices are typically instituted when the water source turbidity increases over 5 NTU or there is a failure in the disinfection system. Details of BWN's issued over the past year are noted below.

A do not use notice is the highest level of notification. It is used in situations where a significant public health threat exists (ie. Chemical spill, etc). There were no do not use notices issued in 2020.

- April 9/21 - with turbidity increasing above 1 NTU, a WQA was implemented for properties supplied by the Trepanier system
- June 22/21 - with turbidity decreasing below 1 NTU, the WQA was rescinded.
- Dec 20/21 - a water main break on Princeton Avenue caused a loss of system pressure resulting in a precautionary BWN
- Dec 24/21 - system testing indicated no trace of bacteriological indicators and BWN was rescinded

WATER CONSUMPTION

In 2021, there was a total of 2,574 ML passing through the District Intakes. A monthly summary of consumption per intake and a graphical percentage comparison is located in Appendix III.

WORKS COMPLETED AND IN PROGRESS

- Annual leak detection program continues with the northern side of Princeton Avenue surveyed.
- Trepanier Interconnect project nominally completed with full operation anticipated to begin in early 2022.
- Water treatment plant construction completed. Commissioning completed and plant connected to system on March 29, 2021.



CERTIFICATE OF ANALYSIS

REPORTED TO	Peachland, Corporation of the District of 5806 Beach Avenue PEACHLAND, BC V0H 1X7	WORK ORDER	20L1682
ATTENTION	Shawn Grundy	RECEIVED / TEMP	2020-12-15 12:45 / 4°C
PO NUMBER		REPORTED	2020-12-22 15:51
PROJECT	General Potability	COC NUMBER	No Number
PROJECT INFO			

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

Navigation bar with icons for mouse, hand, zoom in (+), zoom out (-), 75.5% zoom level, print, refresh, search, and upload.



TEST RESULTS

REPORTED TO PROJECT Peachland, Corporation of the District of General Potability

WORK ORDER REPORTED 20L1682 2020-12-22 15:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
#3 Swim Bay Washroom (20L1682-01) Matrix: Water Sampled: 2020-12-15 07:45					
Anions					
Chloride	2.17	AO ≤ 250	0.10 mg/L	2020-12-16	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2020-12-16	
Nitrate (as N)	0.019	MAC = 10	0.010 mg/L	2020-12-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-12-16	
Sulfate	11.9	AO ≤ 500	1.0 mg/L	2020-12-16	
Calculated Parameters					
Total Trihalomethanes	0.0791	MAC = 0.1	0.00400 mg/L	N/A	
Hardness, Total (as CaCO ₃)	92.6	None Required	0.500 mg/L	N/A	
Solids, Total Dissolved	109	AO ≤ 500	1.00 mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO ₃)	89.5	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Bicarbonate (as CaCO ₃)	89.5	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2020-12-21	
Conductivity (EC)	189	N/A	2.0 µS/cm	2020-12-21	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2020-12-18	
pH	7.96	7.0-10.5	0.10 pH units	2020-12-21	HT2
Turbidity	0.38	OG < 1	0.10 NTU	2020-12-16	
Microbiological Parameters					
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2020-12-15	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2020-12-15	
Total Metals					
Aluminum, total	0.0125	OG < 0.1	0.0050 mg/L	2020-12-19	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2020-12-19	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2020-12-19	
Barium, total	0.0235	MAC = 2	0.0050 mg/L	2020-12-19	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2020-12-19	
Cadmium, total	0.000015	MAC = 0.005	0.000010 mg/L	2020-12-19	
Calcium, total	30.3	None Required	0.20 mg/L	2020-12-19	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-12-19	
Copper, total	0.0657	MAC = 2	0.00040 mg/L	2020-12-19	
Iron, total	0.057	AO ≤ 0.3	0.010 mg/L	2020-12-19	
Lead, total	0.00046	MAC = 0.005	0.00020 mg/L	2020-12-19	
Magnesium, total	4.08	None Required	0.010 mg/L	2020-12-19	
Manganese, total	0.00392	MAC = 0.12	0.00020 mg/L	2020-12-19	
Potassium, total	1.53	N/A	0.10 mg/L	2020-12-19	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-12-19	
Sodium, total	4.13	AO ≤ 200	0.10 mg/L	2020-12-19	
Strontium, total	0.215	7	0.0010 mg/L	2020-12-19	



TEST RESULTS

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WORK ORDER REPORTED 20L1682 2020-12-22 15:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
#3 Swim Bay Washroom (20L1682-01) Matrix: Water Sampled: 2020-12-15 07:45, Continued					
<i>Total Metals, Continued</i>					
Uranium, total	0.00112	MAC = 0.02	0.000020 mg/L	2020-12-19	
Zinc, total	0.0106	AO ≤ 5	0.0040 mg/L	2020-12-19	
<i>Volatile Organic Compounds (VOC)</i>					
Bromodichloromethane	0.0032	N/A	0.0010 mg/L	2020-12-18	
Bromoform	< 0.0010	N/A	0.0010 mg/L	2020-12-18	
Chloroform	0.0722	N/A	0.0010 mg/L	2020-12-18	
Dibromochloromethane	0.0036	N/A	0.0010 mg/L	2020-12-18	
Surrogate: Toluene-d8	97		70-130 %	2020-12-18	
Surrogate: 4-Bromofluorobenzene	80		70-130 %	2020-12-18	
#1 Todd Rd. Washroom (20L1682-02) Matrix: Water Sampled: 2020-12-15 08:00					
<i>Anions</i>					
Chloride	27.6	AO ≤ 250	0.10 mg/L	2020-12-16	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2020-12-16	
Nitrate (as N)	0.070	MAC = 10	0.010 mg/L	2020-12-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-12-16	
Sulfate	16.9	AO ≤ 500	1.0 mg/L	2020-12-16	
<i>Calculated Parameters</i>					
Total Trihalomethanes	0.0435	MAC = 0.1	0.00400 mg/L	N/A	
Hardness, Total (as CaCO3)	135	None Required	0.500 mg/L	N/A	
Solids, Total Dissolved	169	AO ≤ 500	1.00 mg/L	N/A	
<i>General Parameters</i>					
Alkalinity, Total (as CaCO3)	99.8	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Bicarbonate (as CaCO3)	99.8	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-21	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-21	
Conductivity (EC)	282	N/A	2.0 µS/cm	2020-12-21	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2020-12-18	
pH	7.98	7.0-10.5	0.10 pH units	2020-12-21	HT2
Turbidity	0.20	OG < 1	0.10 NTU	2020-12-16	
<i>Microbiological Parameters</i>					
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2020-12-15	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2020-12-15	
<i>Total Metals</i>					
Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2020-12-19	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2020-12-19	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2020-12-19	



TEST RESULTS

REPORTED TO PROJECT Peachland, Corporation of the District of General Potability

WORK ORDER REPORTED 20L1682 2020-12-22 15:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
#1 Todd Rd. Washroom (20L1682-02) Matrix: Water Sampled: 2020-12-15 08:00, Continued					
<i>Total Metals, Continued</i>					
Barium, total	0.0626	MAC = 2	0.0050 mg/L	2020-12-19	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2020-12-19	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010 mg/L	2020-12-19	
Calcium, total	41.8	None Required	0.20 mg/L	2020-12-19	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-12-19	
Copper, total	0.0323	MAC = 2	0.00040 mg/L	2020-12-19	
Iron, total	0.024	AO ≤ 0.3	0.010 mg/L	2020-12-19	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2020-12-19	
Magnesium, total	7.50	None Required	0.010 mg/L	2020-12-19	
Manganese, total	0.00123	MAC = 0.12	0.00020 mg/L	2020-12-19	
Potassium, total	2.48	N/A	0.10 mg/L	2020-12-19	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-12-19	
Sodium, total	11.9	AO ≤ 200	0.10 mg/L	2020-12-19	
Strontium, total	0.265	7	0.0010 mg/L	2020-12-19	
Uranium, total	0.00438	MAC = 0.02	0.000020 mg/L	2020-12-19	
Zinc, total	0.0111	AO ≤ 5	0.0040 mg/L	2020-12-19	
<i>Volatile Organic Compounds (VOC)</i>					
Bromodichloromethane	0.0030	N/A	0.0010 mg/L	2020-12-18	
Bromoform	< 0.0010	N/A	0.0010 mg/L	2020-12-18	
Chloroform	0.0372	N/A	0.0010 mg/L	2020-12-18	
Dibromochloromethane	0.0033	N/A	0.0010 mg/L	2020-12-18	
Surrogate: Toluene-d8	98		70-130 %	2020-12-18	
Surrogate: 4-Bromofluorobenzene	80		70-130 %	2020-12-18	

Sample Qualifiers:
 HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Peachland, Corporation of the District of General Potability

WORK ORDER REPORTED 20L1882
2020-12-22 15:51

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 8020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



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REPORTED TO Peachland, Corporation of the District of
PROJECT General Potability

WORK ORDER 20L1882
REPORTED 2020-12-22 15:51

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: teamcaro@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

Appendix II – Trihalomethane Analyses



CERTIFICATE OF ANALYSIS

REPORTED TO	Peachland, Corporation of the District of 5806 Beach Avenue PEACHLAND, BC V0H 1X7	WORK ORDER	0071251
ATTENTION	Shawn Grundy	RECEIVED / TEMP	2020-07-14 12:05 / 13°C
PO NUMBER		REPORTED	2020-07-20 12:04
PROJECT	General Potability	COC NUMBER	No Number
PROJECT INFO			

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If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

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TEST RESULTS

REPORTED TO PROJECT Peachland, Corporation of the District of
General Potability

WORK ORDER REPORTED 0071251
2020-07-20 12:04

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
#1 Todd's Washroom (0071251-01) Matrix: Water Sampled: 2020-07-13 08:00					
<i>Calculated Parameters</i>					
Total Trihalomethanes	0.0571	MAC = 0.1	0.00400 mg/L		N/A
<i>Volatile Organic Compounds (VOC)</i>					
Bromodichloromethane	0.0022	N/A	0.0010 mg/L		2020-07-17
Bromoform	< 0.0010	N/A	0.0010 mg/L		2020-07-17
Chloroform	0.0549	N/A	0.0010 mg/L		2020-07-17
Dibromochloromethane	< 0.0010	N/A	0.0010 mg/L		2020-07-17
Surrogate: Toluene-d8	88		70-130 %		2020-07-17
Surrogate: 4-Bromofluorobenzene	95		70-130 %		2020-07-17

#3 Swimbat Washroom (0071251-02) | Matrix: Water | Sampled: 2020-07-13 07:45

<i>Calculated Parameters</i>					
Total Trihalomethanes	0.0666	MAC = 0.1	0.00400 mg/L		N/A
<i>Volatile Organic Compounds (VOC)</i>					
Bromodichloromethane	0.0026	N/A	0.0010 mg/L		2020-07-17
Bromoform	< 0.0010	N/A	0.0010 mg/L		2020-07-17
Chloroform	0.0640	N/A	0.0010 mg/L		2020-07-17
Dibromochloromethane	< 0.0010	N/A	0.0010 mg/L		2020-07-17
Surrogate: Toluene-d8	88		70-130 %		2020-07-17
Surrogate: 4-Bromofluorobenzene	96		70-130 %		2020-07-17



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Peachland, Corporation of the District of General Potability

WORK ORDER REPORTED 0071251
2020-07-20 12:04

Analysis Description	Method Ref.	Technique	Accredited	Location
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

Guidelines Referenced in this Report:

[Guidelines for Canadian Drinking Water Quality \(Health Canada, June 2019\)](#)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user

General Comments:

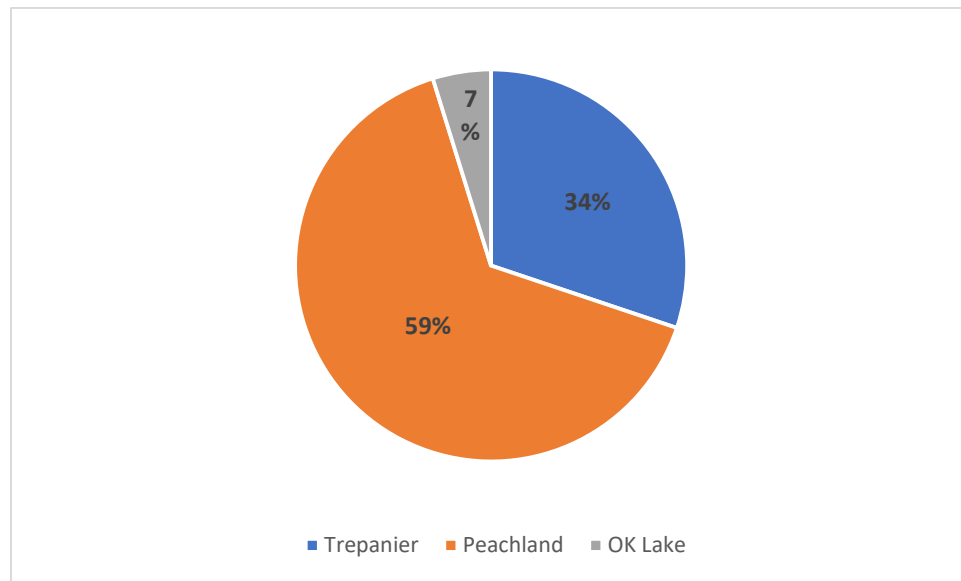
The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any **Bold** and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: teamcaro@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

Appendix III – 2020 Water Consumption

Month	Volume (UK Gal)			Volume		
	Trepanier Creek	Peachland Creek	Lake Pumps	Total	m ³	ML
January	5,583,900	15,036,000		20,619,900	93,821	93.74
February	6,135,800	12,452,000		18,587,800	84,574	84.50
March	7,834,700	25,288,000		33,122,700	150,708	150.58
April	8,285,000	31,472,000	8,040,000	47,797,000	217,476	217.29
May	7,534,700	37,477,000	32,292,000	77,303,700	351,732	351.43
June	24,386,300	29,155,000		53,541,300	243,613	243.40
July	33,939,400	48,285,000		82,224,400	374,121	373.80
August	39,223,200	54,062,000		93,285,200	424,448	424.08
September	30,379,800	41,127,000		71,506,800	325,356	325.08
October	16,046,000	17,484,000		33,530,000	152,562	152.43
November	8,986,000	10,826,000		19,812,000	90,145	90.07
December	3,878,700	13,705,000		17,583,700	80,006	79.94
TOTALS	192,213,500	336,369,000	40,332,000	568,914,500	2,586,337	2,586.34



Peachland water use by source (percentage)

Appendix IV – Turbidity data

	Daily Average Turbidity (NTU)				Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake		Peachland	Trepanier	OK Lake
01-Jan-20	0.5	0.51	OFF	24-Jan-20	0.49	0.37	OFF
02-Jan-20	0.54	0.52	OFF	25-Jan-20	0.5	0.3	OFF
03-Jan-20	0.48	0.5	OFF	26-Jan-20	0.51	0.35	OFF
04-Jan-20	0.46	0.48	OFF	27-Jan-20	0.48	0.37	OFF
05-Jan-20	0.46	0.52	OFF	28-Jan-20	0.47	0.44	OFF
06-Jan-20	0.48	0.51	OFF	29-Jan-20	0.48	0.35	OFF
07-Jan-20	0.49	0.53	OFF	30-Jan-20	0.46	0.29	OFF
08-Jan-20	0.45	0.56	OFF	31-Jan-20	0.48	0.29	OFF
09-Jan-20	0.49	0.63	OFF	01-Feb-20	0.48	0.54	OFF
10-Jan-20	0.51	0.55	OFF	02-Feb-20	0.61	0.32	OFF
11-Jan-20	0.52	0.6	OFF	03-Feb-20	0.55	0.23	OFF
12-Jan-20	0.51	0.61	OFF	04-Feb-20	0.51	0.19	OFF
13-Jan-20	0.5	0.58	OFF	05-Feb-20	0.51	0.23	OFF
14-Jan-20	0.5	0.59	OFF	06-Feb-20	0.51	0.22	OFF
15-Jan-20	0.48	0.6	OFF	07-Feb-20	0.54	0.19	OFF
16-Jan-20	0.48	0.53	OFF	08-Feb-20	0.51	0.19	OFF
17-Jan-20	0.5	0.55	OFF	09-Feb-20	0.51	0.19	OFF
18-Jan-20	0.54	0.66	OFF	10-Feb-20	0.52	0.21	OFF
19-Jan-20	0.51	0.68	OFF	11-Feb-20	0.49	0.2	OFF
20-Jan-20	0.52	0.14	OFF	12-Feb-20	0.47	0.18	OFF
21-Jan-20	0.53	0.39	OFF	13-Feb-20	0.48	0.18	OFF
22-Jan-20	0.5	0.38	OFF	14-Feb-20	0.49	0.21	OFF
23-Jan-20	0.51	0.44	OFF	15-Feb-20	0.5	0.2	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
16-Feb-20	0.5	0.16	OFF
17-Feb-20	0.5	0.17	OFF
18-Feb-20	0.5	0.17	OFF
19-Feb-20	0.5	0.19	OFF
20-Feb-20	0.5	0.18	OFF
21-Feb-20	0.52	0.18	OFF
22-Feb-20	0.52	0.2	OFF
23-Feb-20	0.55	0.18	OFF
24-Feb-20	0.55	0.18	OFF
25-Feb-20	0.54	0.16	OFF
26-Feb-20	0.51	0.18	OFF
27-Feb-20	0.49	0.18	OFF
28-Feb-20	0.52	0.19	OFF
01-Mar-20	0.66	0.2	OFF
02-Mar-20	0.69	0.2	OFF
03-Mar-20	0.8	0.21	OFF
04-Mar-20	0.72	0.17	OFF
05-Mar-20	0.68	0.17	OFF
06-Mar-20	0.66	0.22	OFF
07-Mar-20	0.65	0.23	OFF
08-Mar-20	0.66	0.21	OFF
09-Mar-20	0.77	0.18	OFF
10-Mar-20	0.68	0.25	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
11-Mar-20	0.68	0.17	OFF
12-Mar-20	0.67	0.17	OFF
13-Mar-20	0.66	0.2	OFF
14-Mar-20	0.64	0.16	OFF
15-Mar-20	0.61	0.2	OFF
16-Mar-20	0.66	0.26	OFF
17-Mar-20	0.75	0.29	OFF
18-Mar-20	0.95	0.17	OFF
19-Mar-20	1	0.17	OFF
20-Mar-20	0.8	0.15	OFF
21-Mar-20	0.81	0.18	OFF
22-Mar-20	1.08	0.21	OFF
23-Mar-20	0.89	0.19	OFF
24-Mar-20	0.73	0.26	OFF
25-Mar-20	1.02	0.24	OFF
26-Mar-20	0.78	0.19	OFF
27-Mar-20	0.71	0.3	OFF
28-Mar-20	0.72	0.3	OFF
29-Mar-20	0.71	0.31	OFF
30-Mar-20	0.73	0.37	OFF
31-Mar-20	0.68	0.33	OFF
1-Apr-20	0.75	0.23	OFF
2-Apr-20	0.82	0.21	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
3-Apr-20	0.77	0.53	OFF
4-Apr-20	0.44	0.59	OFF
5-Apr-20	0.39	0.25	OFF
6-Apr-20	0.47	0.46	OFF
7-Apr-20	0.46	0.47	OFF
8-Apr-20	0.5	0.57	OFF
9-Apr-20	0.49	0.42	OFF
10-Apr-20	0.48	0.7	OFF
11-Apr-20	0.57	1.75	OFF
12-Apr-20	0.59	0.95	OFF
13-Apr-20	0.52	0.78	OFF
14-Apr-20	0.54	0.92	OFF
15-Apr-20	0.7	2.23	OFF
16-Apr-20	1.11	2.47	OFF
17-Apr-20	1.49	2.56	OFF
18-Apr-20	1.89	2.28	OFF
19-Apr-20	2.31	2.77	OFF
20-Apr-20	2.9	3.09	OFF
21-Apr-20	4.09	4.46	0.81
22-Apr-20	5.41	2.45	1.55
23-Apr-20	4.44	1.93	1.13
24-Apr-20	4.25	0.26	0.83
25-Apr-20	3.74	0.24	1.12

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
26-Apr-20	3.12	0.19	0.94
27-Apr-20	2.38	0.3	1.41
28-Apr-20	2.13	0.3	1.56
29-Apr-20	1.91	0.31	1.61
30-Apr-20	1.9	0.37	1.62
1-May-20	2.01	OFF	1.28
2-May-20	1.89	OFF	0.85
3-May-20	2.75	OFF	1
4-May-20	3.26	OFF	0.87
5-May-20	2.33	OFF	0.81
6-May-20	1.91	OFF	1.19
7-May-20	1.73	OFF	0.87
8-May-20	1.59	OFF	1.41
9-May-20	1.48	OFF	1.25
10-May-20	1.53	OFF	1.48
11-May-20	1.63	OFF	1.09
12-May-20	1.78	OFF	1.12
13-May-20	1.66	OFF	1.18
14-May-20	1.53	OFF	1.53
15-May-20	1.51	OFF	1.5
16-May-20	1.36	OFF	0.88
17-May-20	1.28	OFF	1.33
18-May-20	1.66	OFF	1

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
19-May-20	1.88	OFF	1.22
20-May-20	2.62	OFF	0.93
21-May-20	3.23	OFF	0.57
22-May-20	1.65	1.22	0.37
23-May-20	1.03	1	0.89
24-May-20	0.96	1	0.8
25-May-20	0.97	0.89	0.74
26-May-20	1.05	1.67	OFF
27-May-20	1.05	1.07	OFF
28-May-20	1	0.86	OFF
29-May-20	0.83	0.81	OFF
30-May-20	0.91	0.79	OFF
31-May-20	0.99	0.87	OFF
1-Jun-20	1.07	0.76	OFF
2-Jun-20	0.82	0.95	OFF
3-Jun-20	0.76	0.78	OFF
4-Jun-20	1.33	0.79	OFF
5-Jun-20	1.61	0.75	OFF
6-Jun-20	1.7	0.76	OFF
7-Jun-20	1.69	0.61	OFF
8-Jun-20	1.52	0.63	OFF
9-Jun-20	1.47	0.63	OFF
10-Jun-20	1.41	0.57	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
11-Jun-20	1.61	0.56	OFF
12-Jun-20	1.47	0.73	OFF
13-Jun-20	5.44	0.99	OFF
14-Jun-20	3.45	0.66	OFF
15-Jun-20	1.5	0.68	OFF
16-Jun-20	0.75	0.52	OFF
17-Jun-20	0.75	0.53	OFF
18-Jun-20	0.6	0.6	OFF
19-Jun-20	0.6	0.61	OFF
20-Jun-20	0.59	0.54	OFF
21-Jun-20	0.55	0.5	OFF
22-Jun-20	0.6	0.47	OFF
23-Jun-20	0.6	0.52	OFF
24-Jun-20	0.56	0.96	OFF
25-Jun-20	1.55	0.98	OFF
26-Jun-20	2	0.97	OFF
27-Jun-20	1.1	0.91	OFF
28-Jun-20	1.1	0.85	OFF
29-Jun-20	0.96	0.94	OFF
30-Jun-20	0.92	0.85	OFF
1-Jul-20	0.85	0.76	OFF
2-Jul-20	0.82	0.77	OFF
3-Jul-20	0.84	0.75	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
4-Jul-20	0.86	0.73	OFF
5-Jul-20	0.89	0.69	OFF
6-Jul-20	1.05	0.79	OFF
7-Jul-20	1.08	0.95	OFF
8-Jul-20	1.02	0.7	OFF
9-Jul-20	0.96	0.96	OFF
10-Jul-20	0.91	0.67	OFF
11-Jul-20	0.86	0.65	OFF
12-Jul-20	0.81	0.56	OFF
13-Jul-20	0.6	0.76	OFF
14-Jul-20	0.53	0.61	OFF
15-Jul-20	0.54	0.74	OFF
16-Jul-20	0.57	0.62	OFF
17-Jul-20	0.58	0.64	OFF
18-Jul-20	0.58	0.55	OFF
19-Jul-20	0.58	0.5	OFF
20-Jul-20	0.57	0.84	OFF
21-Jul-20	0.56	0.55	OFF
22-Jul-20	0.57	0.55	OFF
23-Jul-20	0.57	0.51	OFF
24-Jul-20	0.54	0.56	OFF
25-Jul-20	0.54	0.46	OFF
26-Jul-20	0.53	0.42	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
27-Jul-20	0.53	0.46	OFF
28-Jul-20	0.53	0.45	OFF
29-Jul-20	0.5	0.72	OFF
30-Jul-20	0.5	0.48	OFF
31-Jul-20	0.53	0.42	OFF
1-Aug-20	0.55	0.43	OFF
2-Aug-20	0.58	0.39	OFF
3-Aug-20	0.61	0.38	OFF
4-Aug-20	0.64	0.63	OFF
5-Aug-20	0.68	0.38	OFF
6-Aug-20	0.68	0.38	OFF
7-Aug-20	0.73	0.32	OFF
8-Aug-20	0.78	0.3	OFF
9-Aug-20	0.76	0.3	OFF
10-Aug-20	0.83	0.32	OFF
11-Aug-20	0.78	0.32	OFF
12-Aug-20	0.74	0.31	OFF
13-Aug-20	0.72	0.38	OFF
14-Aug-20	0.73	0.32	OFF
15-Aug-20	0.71	0.3	OFF
16-Aug-20	0.65	0.3	OFF
17-Aug-20	0.65	0.54	OFF
18-Aug-20	0.67	0.33	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
19-Aug-20	0.67	0.31	OFF
20-Aug-20	0.69	0.32	OFF
21-Aug-20	0.72	0.3	OFF
22-Aug-20	0.76	0.29	OFF
23-Aug-20	0.75	0.26	OFF
24-Aug-20	0.76	0.34	OFF
25-Aug-20	0.78	0.25	OFF
26-Aug-20	0.77	0.26	OFF
27-Aug-20	0.85	0.29	OFF
28-Aug-20	0.87	0.25	OFF
29-Aug-20	0.82	0.28	OFF
30-Aug-20	0.81	0.24	OFF
31-Aug-20	0.81	0.35	OFF
1-Sep-20	0.9	0.21	OFF
2-Sep-20	1.31	0.31	OFF
3-Sep-20	0.88	0.26	OFF
4-Sep-20	0.55	0.25	OFF
5-Sep-20	0.61	0.26	OFF
6-Sep-20	0.6	0.24	OFF
7-Sep-20	0.63	0.26	OFF
8-Sep-20	0.62	0.23	OFF
9-Sep-20	0.55	0.21	OFF
10-Sep-20	0.59	0.21	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
11-Sep-20	0.63	0.23	OFF
12-Sep-20	0.61	0.23	OFF
13-Sep-20	0.64	0.23	OFF
14-Sep-20	0.64	0.22	OFF
15-Sep-20	0.68	0.45	OFF
16-Sep-20	0.49	0.24	OFF
17-Sep-20	0.38	0.27	OFF
18-Sep-20	0.45	0.25	OFF
19-Sep-20	0.38	0.28	OFF
20-Sep-20	0.63	0.29	OFF
21-Sep-20	0.51	0.27	OFF
22-Sep-20	0.41	0.28	OFF
23-Sep-20	0.43	0.35	OFF
24-Sep-20	0.67	0.4	OFF
25-Sep-20	0.78	0.31	OFF
26-Sep-20	0.74	0.3	OFF
27-Sep-20	0.87	0.25	OFF
28-Sep-20	0.82	0.26	OFF
29-Sep-20	0.81	0.3	OFF
30-Sep-20	0.79	0.28	OFF
1-Oct-20	0.92	0.28	OFF
2-Oct-20	0.94	0.28	OFF
3-Oct-20	0.93	0.33	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
4-Oct-20	0.94	0.31	OFF
5-Oct-20	0.89	0.32	OFF
6-Oct-20	0.91	0.35	OFF
7-Oct-20	0.9	0.32	OFF
8-Oct-20	0.85	0.33	OFF
9-Oct-20	0.79	0.31	OFF
10-Oct-20	0.73	0.35	OFF
11-Oct-20	0.67	0.31	OFF
12-Oct-20	0.6	1.22	OFF
13-Oct-20	0.52	0.72	OFF
14-Oct-20	0.49	1.1	OFF
15-Oct-20	0.48	0.52	OFF
16-Oct-20	0.47	0.46	OFF
17-Oct-20	0.56	0.61	OFF
18-Oct-20	0.59	0.61	OFF
19-Oct-20	0.61	0.54	OFF
20-Oct-20	0.71	0.6	OFF
21-Oct-20	0.84	0.36	OFF
22-Oct-20	0.91	0.32	OFF
23-Oct-20	0.98	0.32	OFF
24-Oct-20	0.95	0.39	OFF
25-Oct-20	0.76	0.22	OFF
26-Oct-20	0.75	0.27	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
27-Oct-20	0.93	0.26	OFF
28-Oct-20	0.94	0.33	OFF
29-Oct-20	0.93	0.24	OFF
30-Oct-20	0.92	0.44	OFF
31-Oct-20	0.85	0.37	OFF
1-Nov-20	0.76	0.34	OFF
2-Nov-20	1.36	0.4	OFF
3-Nov-20	0.63	0.61	OFF
4-Nov-20	0.65	0.53	OFF
5-Nov-20	0.64	1.04	OFF
6-Nov-20	0.7	0.38	OFF
7-Nov-20	0.7	0.26	OFF
8-Nov-20	0.73	0.26	OFF
9-Nov-20	0.69	0.28	OFF
10-Nov-20	0.7	0.27	OFF
11-Nov-20	0.68	0.24	OFF
12-Nov-20	0.65	0.26	OFF
13-Nov-20	0.65	0.23	OFF
14-Nov-20	1.01	0.25	OFF
15-Nov-20	1.37	0.23	OFF
16-Nov-20	0.76	0.23	OFF
17-Nov-20	0.79	0.31	OFF
18-Nov-20	0.87	0.31	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
19-Nov-20	0.95	0.27	OFF
20-Nov-20	1.01	0.28	OFF
21-Nov-20	0.67	0.25	OFF
22-Nov-20	0.63	0.3	OFF
23-Nov-20	0.64	0.27	OFF
24-Nov-20	1.12	0.37	OFF
25-Nov-20	0.57	0.32	OFF
26-Nov-20	0.57	0.27	OFF
27-Nov-20	0.57	0.28	OFF
28-Nov-20	0.72	0.28	OFF
29-Nov-20	0.77	0.25	OFF
30-Nov-20	0.71	0.27	OFF
1-Dec-20	0.87	0.25	OFF
2-Dec-20	0.65	0.25	OFF
3-Dec-20	0.55	0.4	OFF
4-Dec-20	0.5	0.26	OFF
5-Dec-20	0.41	0.25	OFF
6-Dec-20	0.35	0.25	OFF
7-Dec-20	0.85	0.23	OFF
8-Dec-20	3.18	0.28	OFF
9-Dec-20	2.35	0.25	OFF
10-Dec-20	0.71	0.25	OFF
11-Dec-20	0.71	0.24	OFF

	Daily Average Turbidity (NTU)		
	Peachland	Trepanier	OK Lake
12-Dec-20	0.76	0.76	OFF
13-Dec-20	0.78	0.78	OFF
14-Dec-20	0.77	0.77	OFF
15-Dec-20	0.76	0.76	OFF
16-Dec-20	0.73	0.73	OFF
17-Dec-20	0.95	0.95	OFF
18-Dec-20	0.76	0.76	OFF
19-Dec-20	0.66	0.66	OFF
20-Dec-20	0.59	0.59	OFF
21-Dec-20	0.61	0.61	OFF
22-Dec-20	0.82	0.82	OFF
23-Dec-20	0.71	0.71	OFF
24-Dec-20	0.61	0.61	OFF
25-Dec-20	0.69	0.69	OFF
26-Dec-20	0.67	0.67	OFF
27-Dec-20	0.75	0.75	OFF
28-Dec-20	0.7	0.7	OFF
29-Dec-20	0.67	0.67	OFF
30-Dec-20	0.59	0.59	OFF
31-Dec-20	0.58	0.58	OFF