Thornhill Community Water System
2020 Annual Water Report

Regional District of
Kitimat-Stikine

Updated May 10, 2021
File No. 5621 01

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Operations and Maintenance Foreman

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1.0 INTRODUCTION

The Regional District of Kitimat-Stikine prepares an Annual Report for each of its Community Water Systems which is submitted to Northern Health and made publicly available on the Regional District website, www.rdks.bc.ca.

The Thornhill Community Water System (CWS) annual water system report represents the 2020 calendar year. This report serves to provide an overview of water source, treatment, sampling results and current or future upgrades to the system.

2.0 SYSTEM OVERVIEW

The Thornhill CWS's drinking water system supply consists of four water wells: PW1, PW2, PW4 and the Woodlands System well located on Hemlock Street (Figure 1). PW1 and PW2 are the active supply wells; as of December 2020; PW4 had not been connected to the CWS and had been idle since its completion in October 2009. The Woodlands System well is a lag well used for emergency back-up purposes only. The CWS services 1,581 connections within the Thornhill community.

2.1 Wells and Intakes

PW1 is located at 3460 Edlund Avenue, Thornhill, BC having GPS coordinates of N 54°31'52.7"/W 128°30'39.5". PW2 is located near the intersection of Walker Street and Edlund Avenue having GPS coordinates of N 54°31'52.8"/W 128°30'47.4". PW4 is located at Haaland Avenue having GPS coordinates of N 54°31'54.1"/W 128°30'21.1". The Woodlands System well is located on Hemlock Street having GPS coordinates of N 54°30'7.6"/W 128°31'21.7". PW2 is located approximately 153 m west of PW1 and PW4 is located approximately 325 m east of PW1. The Woodlands System well is located approximately 3.4 km south of PW1, PW2 and PW4. PW1, PW2 and PW4 are situated approximately 260 m to 420 m south of the Skeena River. The Woodlands System well is situated approximately 2.4 km southeast of the Skeena River. Well details are provided in Appendix A.

The PW1, PW2 and PW4 well fields have ground elevations between 94 m and 97 m above sea level (ASL), higher than the 200-year flood elevation of 72 m ASL, indicating that all three wells would not be affected by a 200-year flood event. The Woodlands System well has a ground elevation of approximately 135 m ASL, higher than the 200-year flood elevation of 72 m ASL, indication that this well would not be affected by a 200-year flood event.

PW1 and PW2 are both situated within confined aquifers, while PW4 is located within an unconfined aquifer. PW4 is not currently connected to the community system, though will be connected should contamination or additional capacity be required. PW4 undergoes regular cleaning and maintenance to ensure it is available if and when required. There is a 203 mm diameter by 65 m deep former well: PW3, located approximately 62 m northwest of PW1; currently a dedicated groundwater monitoring well. A recently completed and updated Level 1 Groundwater at Risk of Containing Pathogens (GARP) assessment demonstrated that all of the Thornhill wells are not at risk of pathogens. The Woodlands System well is located within a deep confined aquifer. It is connected to the system, though is not regularly used and is kept as a back-up well for emergency use only.

PW1 is a 254 mm diameter drilled well which was significantly rehabilitated in 1995. PW1 is 57.90 m deep and was screened from 49.00 to 57.90 m with a 0.150" and a 0.100" slot sized screens. PW2 is a 254 mm diameter drilled well which was completed in 1981. PW2 is 53.03 m deep and was screened from 48.43 to 53.03 with a screen of unknown slot size. PW4 is a 152 mm diameter well which was completed in 2008. PW4

is 64.01 m deep and was screened from 60.35 to 64.01 m with a 0.150” slot size screen. The Woodlands System well is a 305 mm diameter well which was completed on an unknown date. The Woodlands System well is 322 m deep and the screened interval and slot size were unknown.

2.2 Water Storage

Water is stored within three reservoirs present within the Thornhill CWS. One reservoir is located on Thornhill Street, one on the hill along Old Lakelse Lake Drive and one on Clark Street at the Junior High School. Reservoir details are provided in Appendix A.

2.3 Water Distribution

Water is pumped via installed submersible pumps within the production wells (PW1 and PW2). From the wells, water is conveyed through the distribution system to the three reservoirs mentioned within section 2.2, for storage purposes. Water does not travel through any treatment facilities prior to entering the distribution system.

2.4 Water Treatment

The water does not undergo any form of treatment as it is of good quality, because it is sourced from deep groundwater aquifers.

3.0 MAINTENANCE & IMPROVEMENTS

3.1 System Improvements

Thorough revisions to the ERP have been undertaken and completed for release with this report.

3.2 System Flushing Schedule

The CWS was completely flushed from April 6th to 24th, 2020. The process took approximately two weeks to complete and included all piping and dead ends. Flushing notifications were posted in the newspaper two weeks in advance.

3.3 System Repairs

A header at Pumphouse 1 did not run for 3 days during an Arctic Outflow weather event due to waiting on parts for a repair. On January 16, 2020, the issue was remedied with the use of heat tape and additional heaters.

On January 20, 2020, a leak occurred at the booster station from a broken flange. A loss of 900 cubic meters of water inside the booster station damaged drywall in the ceiling and a power outage occurred at 4:30 a.m. on Saturday and Monday morning.

On June 11, 2020, we replaced the pump and motor in Pump House 2.

4.0 WATER SYSTEM WORKS

4.1 Water Quality Inquiries and Complaints

On August 10, 2020, a complaint was received from a Churchill Drive resident that she and her neighbors were experiencing a loss of water pressure. Flushing activities in Queensway during an unexpected high volume of water usage had created a vacuum in the Churchill/Pierson section requiring a recharge and flush to restore water pressure.

4.2 Water Restrictions and High Consumption Events

A water restriction was issued on June 11, 2020 due to an issue with the pump in Pumphouse 2. The restriction was rescinded on June 22, 2020, following the completion of repairs.

4.3 Service Disruptions and Advisories

Water Samples results received on December 14, 2020 showed concerning total coliform levels. As a precaution a Boil Water Advisory was issued while awaiting resampled results. Results received on the December 18, 2020 continued to show total coliform throughout the system. On December 23, 2020 and again on the December 31, 2020, additional sample results were received and were negative for total coliform. Following receipt of these results, Northern Health authorized the rescinding of the advisory on December 31, 2020.

5.0 SYSTEM CLASSIFICATION

The Thornhill Water System is a Class 1 facility.

Facility Number (EOCP):	600
Name:	Thornhill Water Distribution System
City:	Thornhill, BC
Facility Classification:	WD-II
Classification Date:	2002-04-04

All RDKS Operators have an individual EOCP Membership Number.

The EOCP can be contacted directly for additional inquiries into individual members or facilities at:

EOCP
#201 3833 Henning Drive
Burnaby, BC
V5C 6N5
Phone: (604) 874-4784 · Toll Free: 1-866-552-3627
Fax: (604) 874-4794 · E-mail: eocp@eocp.ca

6.0 WATER QUALITY RESULTS

Water samples were collected and submitted for analysis weekly from 7 sampling locations within the Thornhill CWS. Those samples were analyzed for total coliforms, fecal coliforms and E. coli. Additionally, samples were collected four times from PW1, PW2, Main Reservoir, Woodlands Reservoir and School Reservoir, and analyzed for soluble nutrients including chloride, nitrate and nitrite, sulfate and ammonia (total as nitrogen). Once per year, additional parameters were analyzed as discussed further within Section 7.2. Water sampling results are available to the public via the online Public Health Protection database from Northern Health (www.healthspace.ca/nha), where historical data is available in a searchable format. Results for samples collected from Pumphouses #1 and #2 are provided in Appendix C.

6.1 Bacteriological

In 2020, water system operators, as part of regular duties, collected samples weekly from representative locations within the water system. In 2020, a total of 142 samples were collected and submitted to a certified laboratory for analysis of total coliforms, fecal coliforms and E. coli. The monitoring program indicated that there were six (6) positive samples collected over the 2020 period for total coliforms. No samples were positive for fecal coliforms or E. coli. Follow-up flushing of the system and water quality advisories related to these sample results are detailed in section 5.4. All 2020 samples met the bacteriological requirements of the Canadian Drinking Water Quality Guidelines.

6.2 Chemical

Addtionally, samples are collected two times per year and analyzed for chloride, nitrate and nitrite, sulfate and ammonia (total as nitrogen). These parameters indicate contamination from wastewater, fertilizer application, etc. and assist in the early detection of contamination within the wells. Once per year additional parameters are analyzed for. These parameters were as follows:

- pH
- Conductivity
- Alkalinity (total as $CaCO_3$)
- Turbidity
- Total Dissolved Solids
- True Colour
- Fluoride
- Chloride
- Nitrate, as Nitrogen (N)
- Nitrite, as N
- Nitrate+Nitrite, as N
- Ammonia, as N
- Hardness, as $CaCO_3$
- Sulfate as SO_4
- Langelier Index
- Aluminum
- Antimony
- Arsenic
- Barium
- Baryllium
- Bismuth
- Boron
- Cadmium
- Calcium
- Chromium
- Copper
- Cobalt
- Nickel
- Iron
- Lead
- Lithium
- Magnesium
- Manganese
- Mercury
- Molybdenum
- Phosphorus
- Potassium
- Selenium
- Silicon
- Strontium
- Sulphur
- Tellurium
- Thallium
- Thorium
- Tin
- Titanium
- Uranium
- Vanadium
- Zinc

All metals were analyzed for in both dissolved and total concentrations. Results for samples collected from Pumphouses #1 and #2 are provided within Appendix C.

7.0 FUTURE INITIATIVES AND ISSUES

7.1 Proposed System Improvements

The RDKS does not have any current proposed system improvements for the Thornhill CWS however, a Cross Connection Control program is proposed and is discussed further within Section 7.4.

7.2 Source Protection

The RDKS retained Kala Geosciences Ltd. in 2007 to complete a wellhead protection plan for the Thornhill wellheads. This report determined wellhead protection areas surrounding each wellhead and implemented a plan to prevent contamination of the wells through the use of monitoring activities within the wellhead protection areas. Activities monitored include land use and zoning, spill and contingency planning, groundwater supply investigation, public education and the forming of a wellhead protection advisory committee. The protection plan included a presentation to the public which outlined where the protection area is and what its purpose was.

7.3 Emergency Response

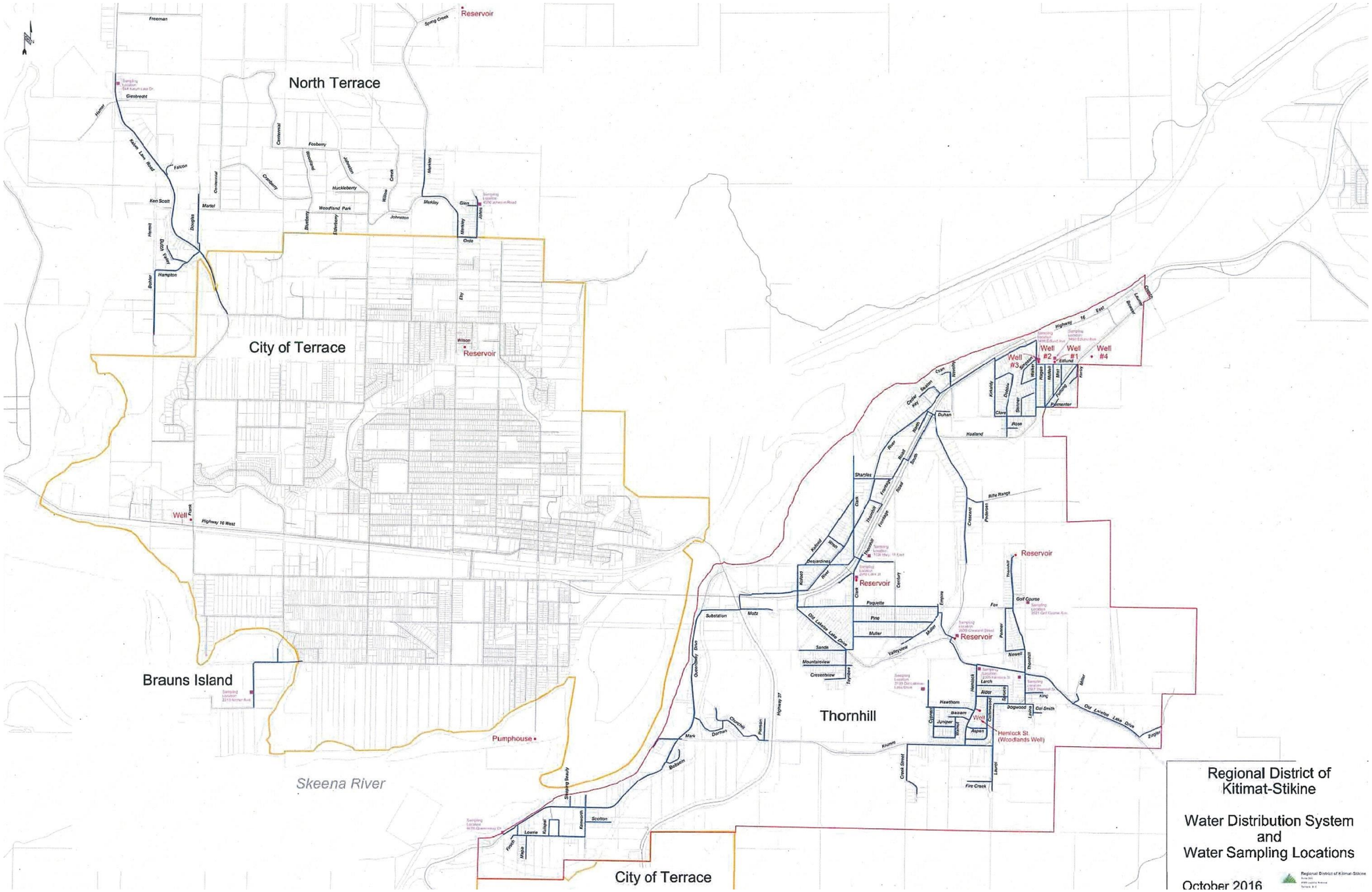
An Emergency Response Plan (ERP) is currently in place for the Thornhill CWS and is provided within Appendix D. The ERP for the Thornhill CWS was created with the assistance of Kala Geosciences Ltd. and has been approved by the Northern Health Authority. The ERP includes Boil Water Notices procedures and signage to be used should a Boil Water Notice be required. The ERP (Appendix D) is in place and will be activated during high turbidity events within the CWS.

7.4 Cross Connection Control

The RDKS currently has no Cross-Connection Control in place, though there are currently plans to implement in the future. Currently all the documentation to implement a consultation program, with the intention of engaging the local commercial and residential users of the Thornhill CWS, is in place.

LIST OF FIGURES

3.4 Figure 1: Thornhill Community Water System Map


North Terrace
City of Terrace
Brauns Island
Thornhill
Reservoir
Pumphouse
Well
Skeena River
Regional District of
Kitimat-Stikine
Water Distribution System
and
Water Sampling Locations
October 2016

LIST OF APPENDICES

3.5 Appendix A: Water Well and Reservoir Details

WELL NAME and (WELL ID PLATE #)	WELL PHYSICAL ADDRESS	STATUS (Primary source, emergency use only, not connected, etc.)	WELL DEPTH (Attach any well logs you may have. Name file as Well Log – and well name or ID)	Well Diameter (6/8")	Surface Water Influenced (YES/NO)	Date of Well Construction and source of information (well log/measurement/verbal/etc.)	Wellhead Protection Plan (YES/NO)	Water License Number (if applicable)	GPS Coordinates + Altitude
Well #1	Edlund Ave	Primary Source #1	190' (57.9 m)	10"	No	1979 (Kala report 95028)	Yes		54°31'52.7" N 128°30'39.5" W 95.1 m ASL
Well #2	Intersection of Edlund Ave and Walker Ave	Primary Source #2	174' (53.03 m)	10"	No	1981 (Kala report 06728)	Yes		54°31'52.8" N 128°30'47.4" W 97.1 m ASL
Well #4	Furlong Ave	Not Connected	211.5' (64.47 m)	16"	No with some uncertainties	2010 (Well log)	No		54°31'54.1" N 128°30'21.1" W 94.3 m ASL
Woodlands Well	Hemlock St	Emergency Use Only	1055 Feet	12"	No	Unknown	No		54°30'7.6" N 128°31'21.7" W 143.0 m ASL
Well #3	Simpson St	To be decommissioned (2021)					No		54°31'53.3" N 128°30'49.6" W 97.0 m ASL

STORAGE NAME	STORAGE PHYSICAL ADDRESS	VOLUME (Litres)	Turnover Time	Date of Construction	GPS Coordinates + Altitude Above Sea Level (ASL)
Thornhill Community Water System Reservoir	Crescent St and Old Lakelse Lake Dr. (corner)	2210m^3	Summer: 12 hours Winter: 24 hours	November 1978	54°30'29.26"N 128°31'33.03"W 138.40 m ASL
Thornhill Community Water System School Reservoir	Clark St	565m^3	Used as a back-up fire protection only; recirculated once a week on Wednesdays from 80% to 63% and then refilled	Circa 1972	54°30'48.75"N 128°32'19.57"W 81.23 m ASL
Thornhill – Woodlands Water	Thornhill St (end of road)	667m^3	Summer: 12 hours Winter: 18 hours	Late 1960s	54°30'52.04"N 128°31'0.85"W 180.83 m ASL

3.6 Appendix B: Operator Certifications

OPERATOR CERTIFICATIONS

THORNHILL COMMUNITY WATER SYSTEM

OPERATOR	CERTIFICATION(S) & TRAINING	
Chris Kerr W&S Operations & Maintenance Foreman, RDKS	WD 2 WWC 2 MWWT 1	Water Distribution Level 2 Wastewater Collection Level 2 Municipal Wastewater Treatment Level 1
Parrish Miller Utilities Operator III, RDKS	WT-MU-1 WD 2 WWC 2 MWWT 2 CH	Water Treatment Multi-Utilities Level 1 Water Distribution Level 2 Wastewater Collection Level 2 Municipal Wastewater Treatment Level 2 Chlorine Handler Cross Connection Control Awareness Cross Connection Control Management UV Disinfection Training
Jason Lacroix Utilities Operator II, RDKS	WD 2 WWC 1	Water Distribution Level 2 Wastewater Collection Level 1 Small Water Systems – Operator (NHA)
Jobin Kunjumon Utilities Operator I, RDKS	 MWWT 1	Diploma: Water & Wastewater Technology Municipal Wastewater Treatment Level 1
Marty Eisner Utilities Operator, RDKS		
David Scaife W&S Labourer, RDKS		

3.7 Appendix C: Water Quality Results 2020

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ANALYTICAL REPORT

Regional District of Kitimat Stikine	Project: Pumphouses
300 - 4545 Lazelle Avenue	Project Number: -
Terrace, BC V8G 4E1	Project Manager: Nicki Veikle
nveikle@rdks.bc.ca	
Work Order: N21A010	
RECEIVED: 05-Jan-2021	**REPORTED:** 27-Jan-2021

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.

Jesse Newton
Laboratory Manager

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ANALYTICAL REPORT

Regional District of Kitimat Stikine - Pumphouses **Work Order:** N21A010

LAB #				**N21A010-01**	**N21A010-02**
SAMPLED DATE				**05-Jan-21**	**05-Jan-21**
SAMPLED TIME				**11:45**	**12:00**
SAMPLE ID				**Pumphouse #1**	**Pumphouse #2**
	MRL	*Units*	*CDWG*		
General Parameters (Water)					
pH	*1.0*	*pH units*	*7.0-10.5*	**7.8**	**8.0**
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**68**	**94**
Conductivity	*1.0*	*uS/cm*	-	**142**	**216**
Colour	*1*	*PtCo units*	*AO <= 15*	<1	**1**
Turbidity	*0.05*	*NTU*	*MAC = 1*	**0.12**	**0.12**
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**97**	**140**
Ammonia (total as N)	*0.03*	*mg/L*	-	**0.03**	**0.03**
Calculated Parameters (Water)					
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	**0.24**	
Nitrate (as N)	*2.0*	*mg/L*	*MAC = 10*		**2.2**
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**55.1**	**82.3**
Anions (Water)					
Chloride	*1.0*	*mg/L*	*AO <= 250*	**1.7**	**5.3**
Fluoride	*0.05*	*mg/L*	*MAC = 1.5*	**0.10**	**0.10**
Nitrite (as N)	*0.01*	*mg/L*	*MAC = 1*	<0.01	<0.01
Nitrate + Nitrite (as N)	*0.10*	*mg/L*	*MAC = 10*	**0.24**	**2.2**
Sulfate	*1.0*	*mg/L*	*AO <= 500*	**2.1**	**4.5**
Total Metals (Water)					
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	<0.0050	**0.0060**
Antimony, total	*0.00020*	*mg/L*	*MAC = 0.006*	<0.00020	<0.00020
Arsenic, total	*0.00050*	*mg/L*	*MAC = 0.01*	<0.00050	**0.00069**
Barium, total	*0.0050*	*mg/L*	*MAC = 1*	**0.0130**	**0.0276**
Beryllium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010
Bismuth, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010
Boron, total	*0.0500*	*mg/L*	*MAC = 5*	<0.0500	<0.0500
Cadmium, total	*0.000010*	*mg/L*	*MAC = 0.005*	<0.000010	<0.000010
Calcium, total	*0.20*	*mg/L*	-	**19.2**	**28.4**
Chromium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050	<0.00050
Cobalt, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010
Copper, total	*0.00040*	*mg/L*	*AO = 1* *MAC = 2*	**0.00184**	**0.00198**
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	<0.010	<0.010

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ANALYTICAL REPORT

Regional District of Kitimat Stikine - Pumphouses **Work Order:** N21A010

LAB #				**N21A010-01**	**N21A010-02**
SAMPLED DATE				**05-Jan-21**	**05-Jan-21**
SAMPLED TIME				**11:45**	**12:00**
SAMPLE ID				**Pumphouse #1**	**Pumphouse #2**
	MRL	***Units***	***CDWG***		
Total Metals (continued)					
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	<0.00020	**0.00158**
Lithium, total	*0.00010*	*mg/L*	-	**0.00034**	**0.00089**
Magnesium, total	*0.010*	*mg/L*	-	**1.70**	**2.71**
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.00023**	<0.00020
Mercury, total	*0.000010*	*mg/L*	*MAC = 0.001*	**0.000025**	<0.000010
Molybdenum, total	*0.00010*	*mg/L*	-	**0.00120**	**0.00078**
Nickel, total	*0.00040*	*mg/L*	-	<0.00040	<0.00040
Phosphorus, total	*0.050*	*mg/L*	-	<0.050	<0.050
Potassium, total	*0.10*	*mg/L*	-	**0.34**	**0.62**
Selenium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050	<0.00050
Silicon, total	*1.0*	*mg/L*	-	**6.2**	**6.6**
Silver, total	*0.000050*	*mg/L*	-	<0.000050	<0.000050
Sodium, total	*0.10*	*mg/L*	*AO <= 200*	**2.41**	**4.44**
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0735**	**0.106**
Sulfur, total	*3.0*	*mg/L*	-	<3.0	<3.0
Tellurium, total	*0.00050*	*mg/L*	-	<0.00050	<0.00050
Thallium, total	*0.000020*	*mg/L*	-	<0.000020	<0.000020
Thorium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010
Tin, total	*0.00020*	*mg/L*	-	<0.00020	<0.00020
Titanium, total	*0.0050*	*mg/L*	-	<0.0050	<0.0050
Tungsten, total	*0.0010*	*mg/L*	-	<0.0010	<0.0010
Uranium, total	*0.000020*	*mg/L*	*MAC = 0.02*	**0.000054**	**0.000267**
Vanadium, total	*0.0010*	*mg/L*	-	<0.0010	<0.0010
Zinc, total	*0.0040*	*mg/L*	*AO <= 5*	**0.0048**	<0.0040
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010

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ANALYTICAL REPORT

Regional District of Kitimat Stikine - Pumphouses **Work Order:** N21A010

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with **red** text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf

Regional District of Kitimat-Stikine

Bacteriological Data for Thornhill Community Water System
2020

Week #	Facility	Sampling Location	Description	Sample No.	Date of Collection	Total Coliform per 100mL	Total E. Coli per 100mL	Comments
18	TCWS	Thornhill WS	Main Reservoir	200414401	04-28-20	Less than 1	Less than 1	
18	TCWS	Thornhill WS	School Reservoir	200414402	04-28-20	Less than 1	Less than 1	
19	TCWS	Thornhill WS	PH2	200503701	05-05-20	Less than 1	Less than 1	
19	TCWS	Thornhill WS	Aerator Building	200503702	05-05-20	**L1 B2**	Less than 1	
20	TCWS	Thornhill WS	Cap-It	200503401	05-12-20	Less than 1	Less than 1	
20	TCWS	Thornhill WS	Lakelse Machine	200507402	05-12-20	Less than 1	Less than 1	
21	TCWS	Thornhill WS	PH1	200510101	05-19-20	Less than 1	Less than 1	
21	TCWS	Thornhill WS	Aerator Building	200510102	05-19-20	Less than 1	Less than 1	
22	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200514401	05-26-20	Less than 1	Less than 1	
22	TCWS	Thornhill WS	Cap-It	200514402	05-26-20	Less than 1	Less than 1	
23	TCWS	Thornhill WS	Aerator Building	200602401	06-02-20	Less than 1	Less than 1	
23	TCWS	Thornhill WS	Main Reservoir	200602402	06-02-20	Less than 1	Less than 1	
24	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200607101	06-09-20	Less than 1	Less than 1	
24	TCWS	Thornhill WS	Cap-It	200607102	06-09-20	Less than 1	Less than 1	
25	TCWS	Thornhill WS	PH2	200611901	06-17-20	**L1 B15**	Less than 1	*Pump repair testing*
25	TCWS	Thornhill WS	PH2	200613101	06-18-20	Less than 1	Less than 1	*Pump repair testing*
25	TCWS	Thornhill WS	PH2	200613601	06-19-20	Less than 1	Less than 1	*Pump repair testing*
26	TCWS	Thornhill WS	PH1	200615501	06-23-20	Less than 1	Less than 1	
26	TCWS	Thornhill WS	PH2	200615502	06-23-20	Less than 1	Less than 1	
26	TCWS	Thornhill WS	Main Reservoir	200615503	06-23-20	Less than 1	Less than 1	
26	TCWS	Thornhill WS	School Reservoir	200615504	06-23-20	Less than 1	Less than 1	
26	TCWS	Woodlands WS	Woodlands Reservoir	200615505	06-23-20	Less than 1	Less than 1	
26	TCWS	Thornhill WS	Skeena Concrete	200615506	06-23-20	Less than 1	Less than 1	
26	TCWS	Thornhill WS	Lakelse Machine	200615507	06-23-20	Less than 1	Less than 1	
27	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	n/a	06-30-20	n/a	n/a	*Samples expired in transit, analysis cancelled*
27	TCWS	Thornhill WS	Coast Mountain Wireless	n/a	06-30-20	n/a	n/a	*Samples expired in transit, analysis cancelled*
28	TCWS	Thornhill WS	Cap-It	200704401	07-07-20	Less than 1	Less than 1	
28	TCWS	Thornhill WS	Aerator Building	200704402	07-07-20	Less than 1	Less than 1	
29	TCWS	Thornhill WS	Skeena Concrete	200709001	07-14-20	Less than 1	Less than 1	
29	TCWS	Thornhill WS	Cap-It	200709002	07-14-20	**L1 B1**	Less than 1	
30	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200713301	07-21-20	Less than 1	Less than 1	
30	TCWS	Thornhill WS	Lakelse Machine	200713302	07-21-20	**L1 B4**	Less than 1	
30	TCWS	Thornhill WS	Cap-It	200713303	07-21-20	**L1 B2**	Less than 1	
31	TCWS	Thornhill WS	Coast Mountain Wireless	200717001	07-27-20	**L1 B1**	Less than 1	*additional sampling due to previous elevated results*
31	TCWS	Thornhill WS	Skeena Concrete	200717002	07-27-20	Less than 1	Less than 1	*additional sampling due to previous elevated results*

Regional District of Kitimat-Stikine

Bacteriological Data for Thornhill Community Water System
2020

Week #	Facility	Sampling Location	Description	Sample No.	Date of Collection	Total Coliform per 100mL	Total E. Coli per 100mL	Comments
2	TCWS	Thornhill WS	Lakelse Machine	200102101	01-07-20	Less than 1	Less than 1	
2	TCWS	Thornhill WS	Skeena Concrete	200102102	01-07-20	Less than 1	Less than 1	
3	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200106001	01-14-20	Less than 1	Less than 1	
3	TCWS	Thornhill WS	Coast Mountain Wireless	200106002	01-14-20	Less than 1	Less than 1	
4	TCWS	Thornhill WS	Aerator Building	200110401	01-21-20	Less than 1	Less than 1	
4	TCWS	Woodlands WS	Thornhill Community Church	200110402	01-21-20	Less than 1	Less than 1	
5	TCWS	Thornhill WS	Skeena Concrete	200114801	01-28-20	Less than 1	Less than 1	
5	TCWS	Thornhill WS	Cap-It	200114802	01-28-20	Less than 1	Less than 1	
6	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200202501	02-04-20	Less than 1	Less than 1	
6	TCWS	Thornhill WS	Lakelse Machine	200202502	02-04-20	Less than 1	Less than 1	
7	TCWS	Woodlands WS	Thornhill Community Church	200206501	02-11-20	Less than 1	Less than 1	
7	TCWS	Thornhill WS	Coast Mountain Wireless	200206502	02-11-20	Less than 1	Less than 1	
8	TCWS	Thornhill WS	Aerator Building	200209401	02-18-20	Less than 1	Less than 1	
8	TCWS	Thornhill WS	Skeena Concrete	200209402	02-18-20	Less than 1	Less than 1	
9	TCWS	Thornhill WS	Cap-It	200215501	02-25-20	Less than 1	Less than 1	
9	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200215502	02-25-20	Less than 1	Less than 1	
10	TCWS	Woodlands WS	Thornhill Community Church	200303301	03-03-20	Less than 1	Less than 1	
10	TCWS	Thornhill WS	Lakelse Machine	200303302	03-03-20	Less than 1	Less than 1	
11	TCWS	Thornhill WS	Coast Mountain Wireless	200308401	03-10-20	Less than 1	Less than 1	
11	TCWS	Thornhill WS	Skeena Concrete	200308402	03-10-20	Less than 1	Less than 1	
12	TCWS	Thornhill WS	Main Reservoir	200312501	03-18-20	Less than 1	Less than 1	
12	TCWS	Thornhill WS	Aerator Building	200312502	03-18-20	Less than 1	Less than 1	
13	TCWS	Thornhill WS	PH1	200316501	03-24-20	Less than 1	Less than 1	
13	TCWS	Thornhill WS	PH2	200316502	03-24-20	Less than 1	Less than 1	
13	TCWS	Thornhill WS	Cap-It	200316503	03-24-20	Less than 1	Less than 1	
13	TCWS	Thornhill WS	Lakelse Machine	200316504	03-24-20	Less than 1	Less than 1	
13	TCWS	Thornhill WS	Aerator Building	200316505	03-24-20	Less than 1	Less than 1	
14	TCWS	Thornhill WS	Main Reservoir	200318401	03-31-20	Less than 1	Less than 1	
14	TCWS	Thornhill WS	Aerator Building	200318402	03-31-20	Less than 1	Less than 1	
15	TCWS	Thornhill WS	ph1	200403001	04-07-20	Less than 1	Less than 1	
15	TCWS	Thornhill WS	Aerator Building	200403002	04-07-20	**L1 B187**	Less than 1	
16	TCWS	Thornhill WS	PH2	200405001	04-14-20	Less than 1	Less than 1	
16	TCWS	Thornhill WS	School Reservoir	200405002	04-14-20	Less than 1	Less than 1	
17	TCWS	Thornhill WS	Main Reservoir	200408501	04-21-20	Less than 1	Less than 1	
17	TCWS	Thornhill WS	Aerator Building	200408502	04-21-20	Less than 1	Less than 1	

Regional District of Kitimat-Stikine

Bacteriological Data for Thornhill Community Water System
2020

Week #	Facility	Sampling Location	Description	Sample No.	Date of Collection	Total Coliform per 100mL	Total E. Coli per 100mL	Comments
43	TCWS	Thornhill WS	Skeena Concrete	201013005	10-20-20	Less than 1	Less than 1	
44	TCWS	Thornhill WS	Skeena Concrete	201017518	10-27-20	Less than 1	Less than 1	
44	TCWS	Thornhill WS	Aerator Building	201017519	10-27-20	Less than 1	Less than 1	
45	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	201101704	11-03-20	Less than 1	Less than 1	
45	TCWS	Thornhill WS	Cap-It	201101705	11-03-20	Less than 1	Less than 1	
46	TCWS	Thornhill WS	Aerator Building	201107301	11-10-20	**L1 B1**	Less than 1	
46	TCWS	Thornhill WS	Lakelse Machine	201107302	11-10-20	Less than 1	Less than 1	
47	TCWS	Thornhill WS	Skeena Concrete	201109711	11-17-20	**L1 B1**	Less than 1	
47	TCWS	Thornhill WS	Coast Mountain Wireless	201109712	11-17-20	Less than 1	Less than 1	
48	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	201112901	11-24-20	Less than 1	Less than 1	
48	TCWS	Thornhill WS	Aerator Building	201112902	11-24-20	Less than 1	Less than 1	
49	TCWS	Thornhill WS	Coast Mountain Wireless	201201501	12-01-20	Less than 1	Less than 1	
49	TCWS	Thornhill WS	Cap-It	201201502	12-01-20	Less than 1	Less than 1	
50	TCWS	Thornhill WS	Lakelse Machine	201205409	12-08-20	**L1 B29**	Less than 1	
50	TCWS	Thornhill WS	PH1	201205410	12-08-20	**29 B55**	Less than 1	
51	TCWS	Thornhill WS	PH1	201209307	12-14-20	**10 B136**	Less than 1	
51	TCWS	Thornhill WS	Lakelse Machine	201209308	12-14-20	**L1 B27**	Less than 1	
51	TCWS	Thornhill WS	PH1	201210407	12-15-20	**G23**	Less than 1	
51	TCWS	Thornhill WS	PH2	201210408	12-15-20	Less than 1	Less than 1	
51	TCWS	Thornhill WS	Main Reservoir	201210409	12-15-20	**8 B17**	Less than 1	
51	TCWS	Thornhill WS	Skeena Concrete	201210410	12-15-20	**17 B18**	Less than 1	
51	TCWS	Thornhill WS	Aerator Building	201210411	12-15-20	**6 B19**	Less than 1	
51	TCWS	Woodlands WS	Woodlands Reservoir	201210412	12-15-20	Less than 1	Less than 1	
51	TCWS	Thornhill WS	School Reservoir	201210413	12-15-20	**L1 B2**	Less than 1	
52	TCWS	Thornhill WS	Aerator Building	201212701	12-22-20	Less than 1	Less than 1	
52	TCWS	Thornhill WS	Main Reservoir	201212702	12-22-20	Less than 1	Less than 1	
52	TCWS	Woodlands WS	Woodlands Reservoir	201212703	12-22-20	Less than 1	Less than 1	
52	TCWS	Thornhill WS	Lakelse Machine	201212704	12-22-20	**L1 B2**	Less than 1	
52	TCWS	Thornhill WS	School Reservoir	201212705	12-22-20	Less than 1	Less than 1	
52	TCWS	Thornhill WS	PH2	201212706	12-22-20	Less than 1	Less than 1	
52	TCWS	Thornhill WS	PH1	201214001	12-29-20	**L1 B105**	Less than 1	
52	TCWS	Thornhill WS	PH2	201214002	12-29-20	Less than 1	Less than 1	
52	TCWS	Thornhill WS	Main Reservoir	201214003	12-29-20	Less than 1	Less than 1	
52	TCWS	Woodlands WS	Woodlands Reservoir	201214004	12-29-20	Less than 1	Less than 1	
52	TCWS	Thornhill WS	School Reservoir	201214005	12-29-20	Less than 1	Less than 1	

Regional District of Kitimat-Stikine

Bacteriological Data for Thornhill Community Water System
2020

Week #	Facility	Sampling Location	Description	Sample No.	Date of Collection	Total Coliform per 100mL	Total E. Coli per 100mL	Comments
31	TCWS	Thornhill WS	Lakelse Machine	200717003	07-27-20	Less than 1	Less than 1	additional sampling due to previous elevated results
31	TCWS	Thornhill WS	Cap-It	200717004	07-27-20	Less than 1	Less than 1	additional sampling due to previous elevated results
31	TCWS	Thornhill WS	Main Reservoir	200717005	07-27-20	**L1 B1**	Less than 1	additional sampling due to previous elevated results
31	TCWS	Thornhill WS	School Reservoir	200717006	07-27-20	Less than 1	Less than 1	additional sampling due to previous elevated results
31	TCWS	Thornhill WS	PH 1	200717007	07-27-20	Less than 1	Less than 1	additional sampling due to previous elevated results
31	TCWS	Thornhill WS	PH 2	200717008	07-27-20	Less than 1	Less than 1	additional sampling due to previous elevated results
32	TCWS	Thornhill WS	Aerator Building	200802601	08-04-20	**L1 B1**	Less than 1	
32	TCWS	Thornhill WS	Skeena Concrete	200802602	08-04-20	Less than 1	Less than 1	
33	TCWS	Thornhill WS	Cap-It	200809801	08-11-20	Less than 1	Less than 1	
33	TCWS	Thornhill WS	Aerator Building	200809802	08-11-20	Less than 1	Less than 1	
34	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	200815401	08-18-20	Less than 1	Less than 1	
34	TCWS	Thornhill WS	Lakelse Machine	200815402	08-18-20	Less than 1	Less than 1	
35	TCWS	Thornhill WS	Skeena Concrete	200821601	08-25-20	Less than 1	Less than 1	
35	TCWS	Thornhill WS	Coast Mountain Wireless	200821602	08-25-20	Less than 1	Less than 1	
36	TCWS	Thornhill WS	Aerator Building	200901705	09-01-20	Less than 1	Less than 1	
36	TCWS	Thornhill WS	Cap-It	200901706	09-01-20	Less than 1	Less than 1	
37	TCWS	Thornhill WS	PH1	200906113	09-08-20	Less than 1	Less than 1	
37	TCWS	Thornhill WS	Main Reservoir	200906114	09-08-20	Less than 1	Less than 1	
38	TCWS	Thornhill WS	Lakelse Machine	200911804	09-15-20	Less than 1	Less than 1	
38	TCWS	Thornhill WS	Skeena Concrete	200911805	09-15-20	Less than 1	Less than 1	
39	TCWS	Thornhill WS	PH1	200918201	09-22-20	3	Less than 1	
39	TCWS	Thornhill WS	PH2	200918202	09-22-20	Less than 1	Less than 1	
39	TCWS	Thornhill WS	Main Reservoir	200918203	09-22-20	Less than 1	Less than 1	
39	TCWS	Woodlands WS	Woodlands Reservoir	200918204	09-22-20	Less than 1	Less than 1	
39	TCWS	Thornhill WS	School Reservoir	200918205	09-22-20	Less than 1	Less than 1	
39	TCWS	Thornhill WS	Coast Mountain Wireless	200918206	09-22-20	Less than 1	Less than 1	
40	TCWS	Thornhill WS	Aerator Building	200922401	09-29-20	Less than 1	Less than 1	
40	TCWS	Thornhill WS	PH1	200922402	09-29-20	Less than 1	Less than 1	
40	TCWS	Thornhill WS	Skeena Concrete	200922403	09-29-20	Less than 1	Less than 1	
41	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	201003910	10-06-20	**L1 B1**	Less than 1	
41	TCWS	Thornhill WS	Lakelse Machine	201003911	10-06-20	Less than 1	Less than 1	
42	TCWS	Thornhill WS	Skeena Concrete	201007605	10-13-20	Less than 1	Less than 1	
42	TCWS	Thornhill WS	Cap-It	201007606	10-13-20	Less than 1	Less than 1	
42	TCWS	Thornhill WS	Roy Cage - 3584 Old Lakelse	201007607	10-13-20	Less than 1	Less than 1	
43	TCWS	Thornhill WS	Coast Mountain Wireless	201013003	10-20-20	Less than 1	Less than 1	

Regional District of Kitimat-Stikine

Bacteriological Data for Thornhill Community Water System
2020

Week #	Facility	Sampling Location	Description	Sample No.	Date of Collection	Total Coliform per 100mL	Total E. Coli per 100mL	Comments
52	TCWS	Thornhill WS	Aerator Building	201214006	12-29-20	**L1 B1**	Less than 1	
52	TCWS	Thornhill WS	Lakelse Machine	201214007	12-29-20	Less than 1	Less than 1	

RESULT SUMMARY

Between January 1st and December 31st, 2020, **142** Drinking Water Samples were tested
All **142** samples came back Less than 1 Total E. Coli per 100 ml, however, 6 samples failed to meet drinking water standards with 1 or greater Total Coliform per 100ml

Breakdown of Total Coliform per 100 ml:

Qty	Total Coliform per 100 ml
117	Less than 1
18	L1 with B1 or Greater
6	1 or Greater
1	G 23
142	

Definitions/Codes:

L1: means less than 1 (<1) – essentially 0. Satisfactory

B# (number) or BG: means the number of non-coliform background bacteria colonies. High numbers (>200) may indicate deteriorating water quality

G: means overgrowth of bacterial colonies; not possible to count coliform bacteria

3.8 Appendix D: Thornhill Community Water System Emergency Response Plan

The Thornhill Community Water System Emergency Response Plan will be provided as a Separate Document.