Tsawwassen First Nation

2024 Drinking Water Quality Monitoring Report

April 2025

Prepared by Darcy Dion

Executive Summary

Tsawwassen First Nation (TFN) provides this report in fulfillment of the Drinking Water Protection Act, Section 15. This report outlines a summary of water quality testing results, water flows, as well as system improvement actions and plans.

A total of 158 samples were taken from the water distribution system during 2024 for Escherichia Coli and total coliforms analyses. Quarterly samples were taken for disinfection by-products, and semi-annual samples were taken for metals and vinyl chloride. No samples exceeded the limits set out in the Drinking Water Protection Act and Regulation and the Guidelines for Canadian Drinking Water Quality. TFN is committed to delivery of water of the highest quality and will continue to make the necessary investments to ensure its continued success.

Any questions regarding this report can be directed to Gordon Mielke, Utilities Supervisor, at (604) 828-8204 or gmielke@tsawwassenfirstnation.com.

Table of Contents

1.0 Introduction

This report provides a summary of the Drinking Water Quality Monitoring Program during the 2024 calendar year for Tsawwassen First Nation's (TFN) Distribution System.

The supply of drinking water is governed by the Drinking Water Protection Regulation (pursuant to the Drinking Water Protection Act) and requires suppliers in British Columbia to:

1. Develop a process to notify the Drinking Water Officer (DWO) of situations or conditions that render or could render the water unfit to drink.
2. Implement a plan for collecting, shipping, and analyzing drinking water samples in compliance with the directives set by the DWO.
3. Implement a plan for reporting monitoring results to the DWO and to water users, including the preparation of an annual report.

TFN is required to hold an annual Operating Permit to monitor the water quality in the distribution system. Section 4 of this report provides a summary of the test results for 2024.

The 2024 Drinking Water Quality Monitoring Report provides a summary of TFN's water distribution system and discusses the monitoring results, performance, and improvements of the system.

2.0 Water Distribution System

An overview of the existing TFN water distribution system is available in Appendix A as a distribution map. The system services residential, commercial, and operation sites on TFN lands. Water quality is monitored at six sampling sites throughout the distribution network, summarized in Table 1:

Table 1 Sampling Locations

Site	Location	Category	Flow Category	Description
W-1	101 Tsatsu Shores, Tsatsu Condo	Strata Residence	Dead End	Boiler Room
W-2	1926 Tsawwassen Drive Admin Office	TFN Facility	Medium	Lunchroom Tap
W-3	4515 Salish Sea Way	TFN Facility	Medium	Plant Lab Tap
W-4	4786 Fisherman way	TFN Sample Point	Medium	Sample Station
W-5	Falcon Way, Lands Office	TFN Facility	Dead End	Lunchroom Tap
W-6	27B Avenue	TFN Sample Point	Dead End	Sample Station

Drinking water is supplied to TFN by Metro Vancouver and the Corporation of Delta. Two primary connections to the Metro Vancouver South Delta 350mm trunk watermain are located along 52nd Street. Two additional connections to a 450mm trunk main owned by Delta are located on Highway 17.

The connection south of Salish Sea Drive services the Big Splash Waterpark, while the connection at Tsawwassen Drive north of highway 17 is a back up. There are also two areas where TFN is directly serviced by Delta's water system located at Pacific Drive and Tsawwassen Beach Road. The areas serviced by Delta are not part of this monitoring report as their operation and maintenance is provided by the Corporation of Delta.

The main distribution system is comprised of pipes ranging in size from 150mm diameter to 500mm and consists of PVC and HDPE materials.

2.1 Facility Classification and Certifications

Under the Environmental Operator's Certification Program, TFN is classified as a Level II Water Distribution System. There is currently one Utilities Foreperson and two entry level operators who oversee day to day operations regarding maintenance, water quality, sampling, etc.

Mike Murphy, Manager – Level II Water Distribution

Darcy Dion, Utilities Foreperson – Level II Water Distribution

Thomas McCauley, Operator – In Training

Andrew Westby, Operator – In Training

2.2 Connections and Population

Currently, Tsawwassen First Nation has about 1,175 water service connections, that provide water to a population of about 4,600. This does not include the Stahaken subdivision as the water system in this area is operated and managed by Delta. Of these 1,150 connections, approximately 45 are commercial and 1,125 are residential.

3.0 Testing and Monitoring

Drinking water quality varies from place to place and is dependent on the condition of the source water and the degree of treatment it receives. As a result, water quality monitoring is performed throughout all stages of its supply from source to tap. While Metro Vancouver carries out testing of water at the source and after treatment, TFN's Drinking Water Quality Monitoring Program (DWQMP) is focused on the water quality within our own distribution system. No additional treatment is provided to the water at TFN.

The DWQMP consists of routine monitoring to obtain an accurate overview of water quality within the distribution system. The program also includes non-routine monitoring for handling complaints and emergency situations. Monitoring includes two components: safe, representative collection of the sample, and accurate laboratory analysis. The analyses are performed by the BCCDC Public Health Laboratory and by the Metro Vancouver Water Laboratory.

3.1 Routine Monitoring

The collection of water samples is performed by certified TFN staff and forwarded to a qualified lab (Metro Vancouver) for the analysis of Total Coliforms, E. coli, vinyl chloride, disinfection by-products, and metals. All microbiological and chemical analyses were conducted by laboratories that have been approved by the Canadian Association of Environmental Analytical Laboratories or an equivalent certification program. Results of the analyses are reported to the Fraser Health Authority.

3.2 Sampling Parameters

The significance of the parameters is briefly discussed below. Further details can be found by accessing the supporting documents of the Guidelines for Canadian Drinking Water Quality (GCDWQ) through the following web site, http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php, or by contacting Health Canada at (613) 957-2991. Below is a list and outline of each sampling parameter we monitor within TFN's drinking water system.

Chlorine

Chlorine is added to drinking water prior to entry into TFN by Metro Vancouver. Chlorine is necessary to ensure water stays disinfected and to avoid pathogens developing in water mains, we verify this by testing chlorine residuals. Chlorine residuals in the distribution system should be above 0.2mg/L, including dead ends. At no point did the chlorine residual in TFN drop below 0.4mg/L, and typically is above 0.60mg/L. Watermain flushing is conducted twice per year throughout TFN's distribution system to ensure optimal chlorine residuals. Chlorine residual samples are taken and tested from all 6 sample points each week.

Total Coliforms and E. Coli

One of the primary concerns in water quality is the growth of coliform bacteria. The presence of total coliforms could indicate that treatment is inadequate, the distribution system is experiencing regrowth, or infiltration to the system is occurring. Escherichia coli, (a species in the fecal coliform group) is a definite indicator of the presence of contamination within the distribution system. Total Coliform and E. Coli samples are taken from each of the 6 sample points every two weeks. The BCDWPR requires that (1) no sample should contain fecal coliform and Escherichia coli (E. Coli) and that (2) samples should not contain more than 10 total coliforms per 100 millilitre or not more than 10% of samples from the distribution system in each calendar month should show the presence of total coliform Bacteria.

Vinyl Chloride and Metals

Samples for Metals and Vinyl chloride are taken twice per year. Vinyl chloride is a manufactured substance that does not occur naturally; however, it can be formed in the environment when other manufactured substances are broken down by certain microorganisms. Vinyl chloride can enter the environment from manufacturing or processing plants which release to the air or into wastewater. This substance is harmful to humans in that it is carcinogenic and causes damage to the liver and central nervous system. Metals are usually present in trace amounts in natural waters, but many of them are toxic even at low concentrations. Semi-annually, samples were taken for metals in our drinking water. Neither vinyl chloride or metals samples exceeded the MAC or AO for drinking water quality.

Disinfection by-products (THMs and HAAs)

Samples for disinfection by-products are taken four times per year. Trihalomethanes (THMs) and halo acetic acids (HAAs) are the two major groups of carcinogenic disinfection by-products (CDBPs). The concentrations of these contaminants can be used as indicators of the total loading of all CDBPs which may be found in drinking water supplies. Essentially, CDBPs can be formed when high amounts of organic matter are present in water during the chlorination process. Effective water treatment strategies prior to disinfection help mitigate potential formation of CDBPs.

3.3 Sampling Locations & Frequency

Sampling locations throughout TFN are detailed in Table 1 of Section 2. The distribution system map is available in Appendix A while Appendix B contains the results of the testing conducted throughout the year.

In 2022, the sampling program was increased from 5 sampling locations to 6 at an increased frequency from once per calendar month to once every two weeks. This amendment took place after discussions with Fraser Health officer due to increased population and to ensure water quality at a dead end in the water system.

In 2023 it was decided collectively between TFN Operations and Fraser Health that the bi-weekly frequency of sampling amongst 6 samples was adequate and representative of our distribution system. No additional samples or locations were deemed necessary for 2024.

3.4 Non-routine Monitoring

Consumer complaints are recorded so that water quality concerns can be tracked and responded to efficiently. The parameters to be sampled for depend on the nature of the complaint. In any emergency, the procedures outlined in the TFN Emergency Response Plan are to be followed. There were no reported events in 2024 that required emergency sampling.

4.0 Water Quality Results

There were 158 samples collected from the water distribution system in 2024. No samples exceeded the limits set out in the BC Drinking Water Protection Regulation (BCDWPR) and the GCDWQ. The sample analysis results are summarized in tables below.

4.1 Metro Vancouver Laboratory Results

Table 2 Water Quality Results

TFN-830 Tsatsu Shores							
Date and Time	**Cl_2 Residual mg/L**	**E. Coli CFU/100mL**	**HPC CFU/100mL**	**pH**	**Temp °C**	**Total Col CFU/100mL**	**Turbidity NTU**
	0.02-2.0mg/L	**0/100mL**	**<500 CFU**	**7.0-10.5**		**0/100mL**	**<1.0NTU**
2024/01/03 9:30	0.55	<1	2	8.7	9.9	<1	0.09
2024/01/19 7:30	0.59	<1	2	8.4	9.7	<1	0.08
2024/01/31 8:15	0.65	<1	<2	8.3	10.1	<1	0.38
2024/02/15 8:00	0.56	<1	<2	8.1	10.1	<1	0.13
2024/02/29 8:00	0.55	<1	10	8.4	9.9	<1	0.19
2024/03/14 8:30	0.62	<1	2	7.9	8.9	<1	0.11
2024/03/27 9:00	0.72	<1	2	7.9	9.9	<1	0.17
2024/04/10 9:00	0.57	<1	4	7.6	9.9	<1	0.15
2024/04/22 8:45	0.62	<1	<2	7.8	10.1	<1	0.15
2024/05/08 8:30	0.66	<1	<2	7.7	10.2	<1	0.15
2024/05/21 9:35	0.52	<1	<2	8.6	14.8	<1	0.10
2024/06/06 8:40	0.47	<1	<2	7.7	17.3	<1	0.09
2024/06/19 9:00	0.5	<1	<2	8.2	18.6	<1	0.10
2024/07/04 8:46	0.55	<1	4	8	18.1	<1	0.09
2024/07/18 9:10	0.53	<1	<2	7.9	17	<1	0.11
2024/07/31 9:09	0.56	<1	<2	8.4	18.7	<1	0.10
2024/08/15 9:10	0.52	<1	<2	8.1	18.7	<1	0.08
2024/08/29 9:10	0.56	<1	2	8.6	19.2	<1	0.08
2024/09/12 9:45	0.56	<1	2	8.5	18.3	<1	0.08
2024/09/26 9:00	0.57	<1	<2	8.4	16.9	<1	0.10
2024/10/10 9:00	0.59	<1	6	8.6	17.2	<1	0.10
2024/10/23 8:45	0.65	<1	N/A	8.6	14	<1	0.14
2024/11/06 8:21	0.48	<1	4	8.3	15.3	<1	0.55
2024/11/21 8:50	0.55	<1	32	8.3	14.1	<1	0.11
2024/12/05 9:30	0.55	<1	<2	8.6	13.1	<1	0.19
2024/12/18 9:45	0.62	<1	6	8.3	11.7	<1	0.11

Table 3 Water Quality Results

TFN-831 1926 Tsawwassen Drive							
Date and Time	**Cl_2 Residual mg/L**	**E. Coli**	**HPC**	**pH**	**Temp °C**	**Total Col**	**Turbidity NTU**
	0.02-2.0mg/L	**0/100mL**	**<500 CFU**	**7.0-10.5**		**0/100mL**	**<1.0NTU**
2024/01/03 9:30	0.65	<1	2	8.8	11.1	<1	0.1
2024/01/19 7:30	0.6	<1	2	8.1	8.6	<1	0.09
2024/01/31 8:15	0.65	<1	4	8.2	9.3	<1	0.42
2024/02/15 8:00	0.59	<1	8	7.7	10.1	<1	0.29
2024/02/29 8:00	0.6	<1	2	8.6	10.1	<1	0.15
2024/03/14 8:30	0.64	<1	4	7.4	9.7	<1	0.11
2024/03/27 9:00	0.6	<1	8	7.6	11	<1	0.16
2024/04/10 9:00	0.66	<1	<2	7.9	11.9	<1	0.15
2024/04/22 8:45	0.53	<1	6	7.8	13.5	<1	0.20
2024/05/08 8:30	0.62	<1	2	7.7	13.8	<1	0.39
2024/05/21 9:35	0.73	<1	36	7.7	16.1	<1	0.14
2024/06/06 8:40	0.72	<1	2	7.8	15.5	<1	0.09
2024/06/19 9:00	0.62	<1	<2	8.1	16.6	<1	0.16
2024/07/04 8:46	0.54	<1	8	8.2	18.3	<1	0.17
2024/07/18 9:10	0.56	<1	10	8	20.4	<1	0.14
2024/07/31 9:09	0.54	<1	50	8	21.4	<1	0.09
2024/08/15 9:10	0.53	<1	26	8.2	21.3	<1	0.16
2024/08/29 9:10	0.52	<1	14	8.2	19.6	<1	0.17
2024/09/12 9:45	0.67	<1	42	8.4	20.2	<1	0.14
2024/09/26 9:00	0.63	<1	20	8.7	18.9	<1	0.11
2024/10/10 9:00	0.65	<1	24	8.4	17.2	<1	0.14
2024/10/23 8:45	0.7	<1	10	8.6	15.3	<1	0.15
2024/11/06 8:21	0.56	<1	34	7.4	14.1	<1	0.14
2024/11/21 8:50	0.55	<1	6	7.9	13.7	<1	0.12
2024/12/05 9:30	0.61	<1	6	8.4	11.6	<1	0.09
2024/12/18 9:45	0.69	<1	10	8.4	11.3	<1	0.10

Table 4 Water Quality Results

TFN-832 4515 Salish Sea Way							
Date and Time	**Cl_2 Residual mg/L**	**E. Coli**	**HPC**	**pH**	**Temp °C**	**Total Col**	**Turbidity NTU**
	0.02-2.0mg/L	**0/100mL**	**<500 CFU**	**7.0-10.5**		**0/100mL**	**<1.0NTU**
2024/01/03 11:30	0.71	<1	<2	8.6	10.2	<1	0.13
2024/01/19 9:30	0.72	<1	60	8.1	8.2	<1	0.09
2024/01/31 10:40	0.66	<1	4	8.4	9.5	<1	0.2
2024/02/15 10:00	0.65	<1	<2	7.6	9.9	<1	0.22
2024/02/29 9:30	0.70	<1	2	8.3	9.8	<1	0.12
2024/03/14 10:30	0.83	<1	<2	7.4	8.2	<1	0.11
2024/03/27 10:30	0.75	<1	2	7.4	10.1	<1	0.27
2024/04/10 11:00	0.72	<1	<2	7.9	11.4	<1	0.16
2024/04/22 10:15	0.70	<1	<2	7.4	10.6	<1	0.17
2024/05/08 10:30	0.73	<1	<2	7.6	10.2	<1	0.27
2024/05/21 11:40	0.68	<1	<2	7.6	11.5	<1	0.13
2024/06/06 11:25	0.85	<1	<2	8.5	11.3	<1	0.11
2024/06/19 11:27	0.64	<1	<2	7.7	12.2	<1	0.18
2024/07/04 12:15	0.73	<1	6	7.9	14.9	<1	0.14
2024/07/18 11:15	0.66	<1	2	8	14.4	<1	0.23
2024/07/31 10:50	0.76	<1	2	8.3	14.9	<1	0.13
2024/08/15 10:25	0.71	<1	<2	8.4	16.1	<1	0.33
2024/08/29 10:55	0.79	<1	4	8.4	17	<1	0.13
2024/09/12 12:15	0.68	<1	2	8.4	17.5	<1	0.12
2024/09/26 11:00	0.83	<1	4	8.3	18	<1	0.11
2024/10/10 10:30	0.76	<1	<2	8.3	16.9	<1	0.12
2024/10/23 10:30	0.73	<1	<2	8.5	15.1	<1	0.35
2024/11/06 9:25	0.60	<1	2	8.7	13	<1	0.12
2024/11/21 10:30	0.60	<1	<2	8.2	13.5	<1	0.11
2024/12/05 11:30	0.81	<1	<2	8.6	10.7	<1	0.16
2024/12/18 9:58	0.78	<1	<2	8.2	11.2	<1	0.12

Table 5 Water Quality Results

TFN-833 2640 Falcon Way							
Date and Time	**Cl2 Residual mg/L**	**E. Coli**	**HPC**	**pH**	**Temp °C**	**Total Col**	**Turbidity NTU**
	0.02-2.0mg/L	**0/100mL**	**<500 CFU**	**7.0-10.5**		**0/100mL**	**<1.0NTU**
2024/01/03 10:30	0.70	<1	6	8.2	10.6	<1	0.10
2024/01/19 8:50	0.73	<1	10	7.2	8.7	<1	0.11
2024/01/31 9:30	0.73	<1	<2	8.4	9.5	<1	0.22
2024/02/15 8:45	0.67	<1	<2	7.8	8.5	<1	0.14
2024/02/29 9:00	0.63	<1	<2	8.6	10.3	<1	0.13
2024/03/14 9:15	0.78	<1	<2	7.3	8.1	<1	0.21
2024/03/27 9:45	0.72	<1	<2	7.6	10.1	<1	0.16
2024/04/10 9:55	0.74	<1	<2	7.6	11.6	<1	0.27
2024/04/22 9:30	0.64	<1	<2	8.2	10.6	<1	0.14
2024/05/08 9:15	0.63	<1	<2	7.7	13.2	<1	0.20
2024/05/21 10:35	0.55	<1	2	7.8	13.4	<1	0.14
2024/06/06 10:00	0.78	<1	2	7.8	13.3	<1	0.11
2024/06/19 10:23	0.74	<1	<2	8.2	14.7	<1	0.15
2024/07/04 11:20	0.54	<1	6	7.8	18.3	<1	0.16
2024/07/18 10:15	0.63	<1	42	8.0	19.9	<1	0.12
2024/08/15 9:45	0.56	<1	24	8.1	21.3	<1	0.18
2024/08/29 10:00	0.56	<1	8	8.2	20.7	<1	0.09
2024/09/12 11:00	0.50	<1	4	8.4	20.1	<1	0.10
2024/09/26 10:00	0.69	<1	8	8.4	20.0	<1	0.09
2024/10/10 9:15	0.63	<1	<2	8.3	18.6	<1	0.11
2024/10/23 9:15	0.68	<1	2	8.5	15.4	<1	0.14
2024/11/16 8:58	0.50	<1	12	8.4	13.9	<1	0.13
2024/11/21 9:55	0.56	<1	4	7.6	13.4	<1	0.13
2024/12/05 10:15	0.73	<1	6	8.3	11.0	<1	0.13
2024/12/18 9:36	0.72	<1	6	8.3	11.4	<1	0.11

Table 6 Water Quality Results

TFN-834 4786 Fisherman Way							
Date and Time	**Cl2 Residual mg/L**	**E. Coli**	**HPC**	**pH**	**Temp °C**	**Total Col**	**Turbidity NTU**
	0.02-2.0mg/L	**0/100mL**	**<500 CFU**	**7.0-10.5**		**0/100mL**	**<1.0NTU**
2024/01/03 10:45	0.64	<1	<2	8.5	10.9	<1	0.1
2024/01/19 9:15	0.47	<1	120	8.4	8.3	<1	0.1
2024/01/31 9:45	0.76	<1	<2	8.2	9.2	<1	0.14
2024/02/15 9:45	0.70	<1	2	7.9	8.5	<1	0.16
2024/02/29 9:45	0.65	<1	<2	8.3	9.9	<1	0.12
2024/03/14 10:00	0.66	<1	<2	7.5	8.4	<1	0.10
2024/03/27 10:15	0.71	<1	6	7.6	10.2	<1	0.21
2024/04/10 10:20	0.81	<1	<2	7.7	11.2	<1	0.30
2024/04/22 9:45	0.70	<1	2	8.3	11.6	<1	0.16
2024/05/08 9:45	0.79	<1	<2	7.6	13.2	<1	0.29
2024/05/21 11:05	0.66	<1	<2	7.6	12.2	<1	0.12
2024/06/06 10:35	0.72	<1	<2	7.5	14.5	<1	0.11
2024/06/19 8:20	0.59	<1	<2	8.7	12.3	<1	0.17
2024/07/04 8:13	0.67	<1	<2	8.6	3.7	<1	0.27
2024/07/18 8:20	0.70	<1	<2	8.5	14.5	<1	0.18
2024/07/31 9:26	0.79	<1	<2	8.5	15.1	<1	0.21
2024/08/15 8:30	0.75	<1	<2	8.5	16.6	<1	0.13
2024/08/29 8:15	0.71	<1	<2	8.8	16.5	<1	0.13
2024/09/12 11:20	0.62	<1	<2	8.4	18.0	<1	0.08
2024/09/26 10:30	0.67	<1	2	8.6	17.8	<1	0.12
2024/10/10 10:00	0.75	<1	<2	8.4	16.3	<1	0.15
2024/10/23 9:30	0.71	<1	<2	8.5	15.3	<1	0.17
2024/11/06 8:10	0.62	<1	<2	8.4	12.4	<1	0.10
2024/11/21 8:15	0.67	<1	2	8.5	11.8	<1	0.12
2024/12/05 10:30	0.75	<1	<2	8.5	10.9	<1	0.15
2024/12/18 8:25	0.75	<1	<2	8.5	9.0	<1	0.11

Table 7 Water Quality Results

TFN-835 27B Avenue							
Date and Time	**Cl2 Residual mg/L**	**E. Coli**	**HPC**	**pH**	**Temp °C**	**Total Col**	**Turbidity NTU**
	0.02-2.0mg/L	**0/100mL**	**<500 CFU**	**7.0-10.5**		**0/100mL**	**<1.0NTU**
2024/01/03 11:00	0.53	<1	2	8.8	10.2	<1	0.14
2024/01/19 8:30	0.49	<1	2	8.0	8.4	<1	0.10
2024/01/31 10:00	0.52	<1	<2	8.3	9.1	<1	0.13
2024/02/15 9:20	0.55	<1	<2	7.6	9.2	<1	0.10
2024/02/29 10:00	0.52	<1	<2	8.4	9.8	<1	0.10
2024/03/14 10:15	0.51	<1	<2	7.7	8.6	<1	0.12
2024/03/27 10:00	0.45	<1	<2	7.8	10.9	<1	0.20
2024/04/10 10:50	0.75	<1	<2	7.8	11.3	<1	0.12
2024/04/22 10:00	0.57	<1	<2	7.4	12.4	<1	0.11
2024/05/08 10:05	0.63	<1	<2	7.5	13.3	<1	0.10
2024/05/21 11:25	0.57	<1	<2	7.8	12.2	<1	0.11
2024/06/06 11:00	0.67	<1	<2	8.7	16	<1	0.11
2024/06/19 11:05	0.79	<1	<2	8.4	14.7	<1	0.16
2024/07/04 11:55	0.60	<1	<2	7.8	16	<1	0.11
2024/07/18 11:00	0.61	<1	2	8.0	16.6	<1	0.16
2024/07/31 10:30	0.76	<1	2	7.9	17	<1	0.33
2024/08/15 10:15	0.50	<1	32	8.2	19.6	<1	0.08
2024/08/29 10:35	0.55	<1	12	8.4	18.5	<1	0.09
2024/09/12 12:00	0.58	<1	2	8.6	19	<1	0.08
2024/09/26 10:45	0.59	<1	180	8.4	16.7	<1	0.11
2024/10/10 10:15	0.49	<1	80	8.6	17.2	<1	0.10
2024/10/23 10:00	0.49	<1	56	8.6	16.7	<1	0.14
2024/11/6 7:55	0.57	<1	10	8.5	15.1	<1	0.11
2024/11/21 11:00	0.42	<1	130	8.2	13.9	<1	0.10
2024/12/05 11:00	0.63	<1	<2	8.4	11.1	<1	1.0
2024/12/18 10:08	0.61	<1	4	8.1	12.2	<1	0.10

4.3 Disinfection By Product (DBP) Results

Table 8 DBP Analyses and results

		THM (ppb)						HAA (ppb)						
Sample	Date Sampled	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
TFN-832	31-Jan-24	<1	<1	<1	24	24	28	<0.5	12	<0.5	<0.5	12	25	20
TFN-832	23-Apr-24	<1	<1	<1	27	28	28	<0.5	13	<0.5	0.9	9.5	24	23
TFN-832	12-Sep-24	1	<1	<1	25	27	28	<0.5	9.9	<0.5	<0.5	7.1	17	23
TFN-832	21-Nov-24	<1	<1	<1	30	31	26	<0.5	14	<0.5	1.1	12	27	22

4.4 Metals Results

*Table 9 Metals results *ALARA – as low as reasonably practicable *Guidelines checked May 2, 2024*

TFN-834 4786 Fisherman Way					
Analyses	**Units**	**22-Apr-24**	**10-Oct-24**	**Canadian Guideline Limit**	**Reason Guideline Established**
Aluminum Total	µg/L	23	22	2900	Health
Antimony Total	µg/L	<0.5	<0.5	6	Health
Arsenic Total	µg/L	<0.5	<0.5	10 (ALARA)	Health
Barium Total	µg/L	2.9	3.1	2000	Health
Boron Total	µg/L	<10	<10	5000	Health
Cadmium Total	µg/L	<0.2	<0.2	7	Health
Calcium Total	µg/L	8660	7630	none	
Chromium Total	µg/L	<0.05	<0.05	50	Health
Cobalt Total	µg/L	<0.5	<0.5	none	
Copper Total	µg/L	0.6	<0.5	2000	Health
Iron Total	µg/L	5	<5	≤ 300	Aesthetic
Lead Total	µg/L	<0.5	<0.5	5 (ALARA)	Health
Magnesium Total	µg/L	231	290	none	
Manganese Total	µg/L	4.6	5.9	120	Health
Mercury Total	µg/L	<0.5	<0.05	1.0	Health
Molybdenum Total	µg/L	<0.5	<0.5	none	
Nickel Total	µg/L	<0.5	<0.5	none	
Potassium Total	µg/L	159	236	none	
Selenium Total	µg/L	<0.5	<0.5	50	Health
Silver Total	µg/L	<0.5	<0.5	none	
Sodium Total	µg/L	1810	2630	≤ 200,000	Aesthetic
Zinc Total	µg/L	<3.0	<3.0	≤ 5000	Aesthetic

4.5 Vinyl Chloride Results

Table 10 Vinyl Chloride Results

Analysis	Units MAC <2ppb	TFN-834	TFN-834
		4786 Fisherman Way	4786 Fisherman Way
		6/6/2024 10:35	11/21/2024
		GRAB	GRAB
Vinyl Chloride	µg/L	<1	<1

5.0 Flow Data

The total annual flow for 2024 to TFN was 528, 544m^3. Compared to 2023's water usage, this is a decrease of 27, 188 m^3. Typically, in past years there is always an increase in water usage year over year due to exponential population increase. However, TFN Operations and by-law were actively enforcing water conservation throughout the system during water restrictions in 2024. **Note: December 2024's usage is significantly higher in 2024 as dead end + uni-directional flushing was conducted to avoid water restriction windows and staffing considerations.*

There are two flow meters along 52nd Avenue which indicate total flow received from Metro Vancouver. The chart below demonstrates the monthly water usage comparison between 2021 and 2024:

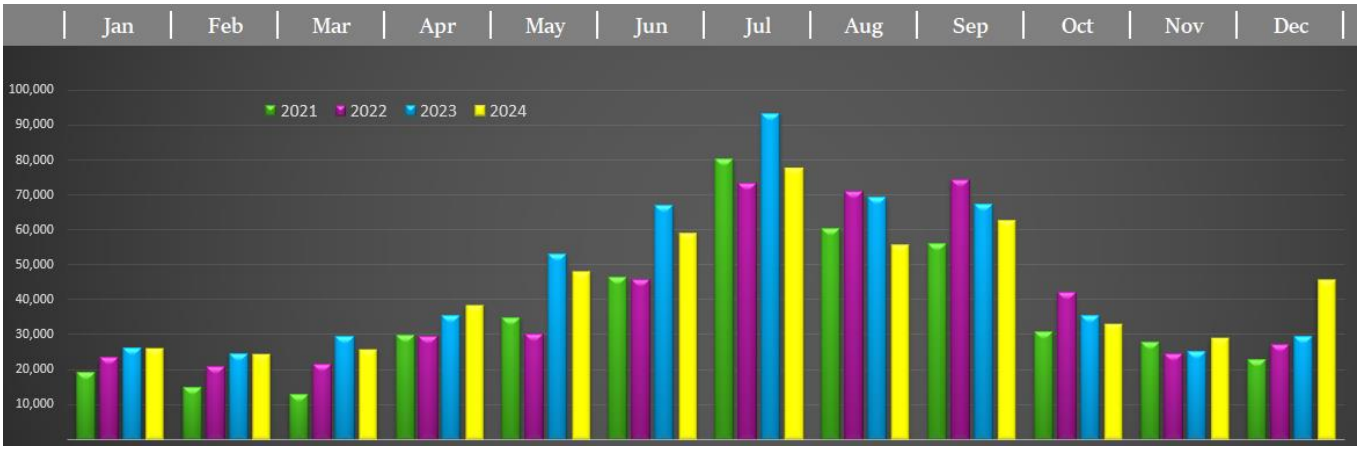

Figure 1 Monthly Water Usage 2021-2024

6.0 Upgrades and Improvements

In 2024, various construction projects have added growth to our community and water system. More townhomes and high-density apartment buildings have brought greater population and demand to areas which have otherwise been low water use zones.

In 2025, there will be even more townhomes, apartments and detached homes becoming occupied. Various developments have many low-rise apartment buildings approved for construction.

Construction of townhomes, apartments, and detached home developments have brought greater population and increased demand to areas which have otherwise been low water use zones. This has aided in ensuring water quality by eliminating stagnant sections of watermain.

Implementation and active use of our maintenance program, Lucity, has been beneficial in tracking water distribution maintenance. We track and record all flushing, repairs, and upgrades to our water system. Lucity ensures our flushing is completed within an acceptable time frame twice per year. Our water meter management system Neptune 360 was brought online and collected data has been instrumental in in managing water loss. iHydrant technology was introduced in 2024, as well, which monitors system pressure and water temperature at select locations in our system to mitigate water loss and water quality issues. Dedicated sampling stations have been installed in areas where residential taps were being used, beginning in 2025 two existing sample tap locations will be dedicated sampling stations as recommended by Fraser Health.

7.0 Summary

Tsawwassen First Nation (TFN) provides this report in fulfillment of the Drinking Water Protection Act. This report outlines a summary of water quality testing, monitoring, and improvements for ensuring water quality for the 2024 calendar year.

158 samples were taken from the water distribution system, all of which were compliant with the limits set out in the Drinking Water Protection Regulation Sections 2 and 9, Schedule A and Section 8, Schedule B. Every two weeks, 1 sample was taken at each of the 6 sample points throughout the distribution system and submitted to Metro Vancouver Laboratory this is above the required minimum of 4 samples per month. Each week chlorine residual testing was also conducted.

Improvements to the TFN water distribution system in 2025 (adding more iHydrants and dedicated sampling stations) will aid in maintaining water quality. Administrative and operations measures, controls, and procedures have also been implemented to maintain compliance, exceed regulatory requirements, and ensure clean and safe drinking water is delivered to all consumers within Tsawwassen First Nations' water distribution system.

Appendix A

Distribution Map

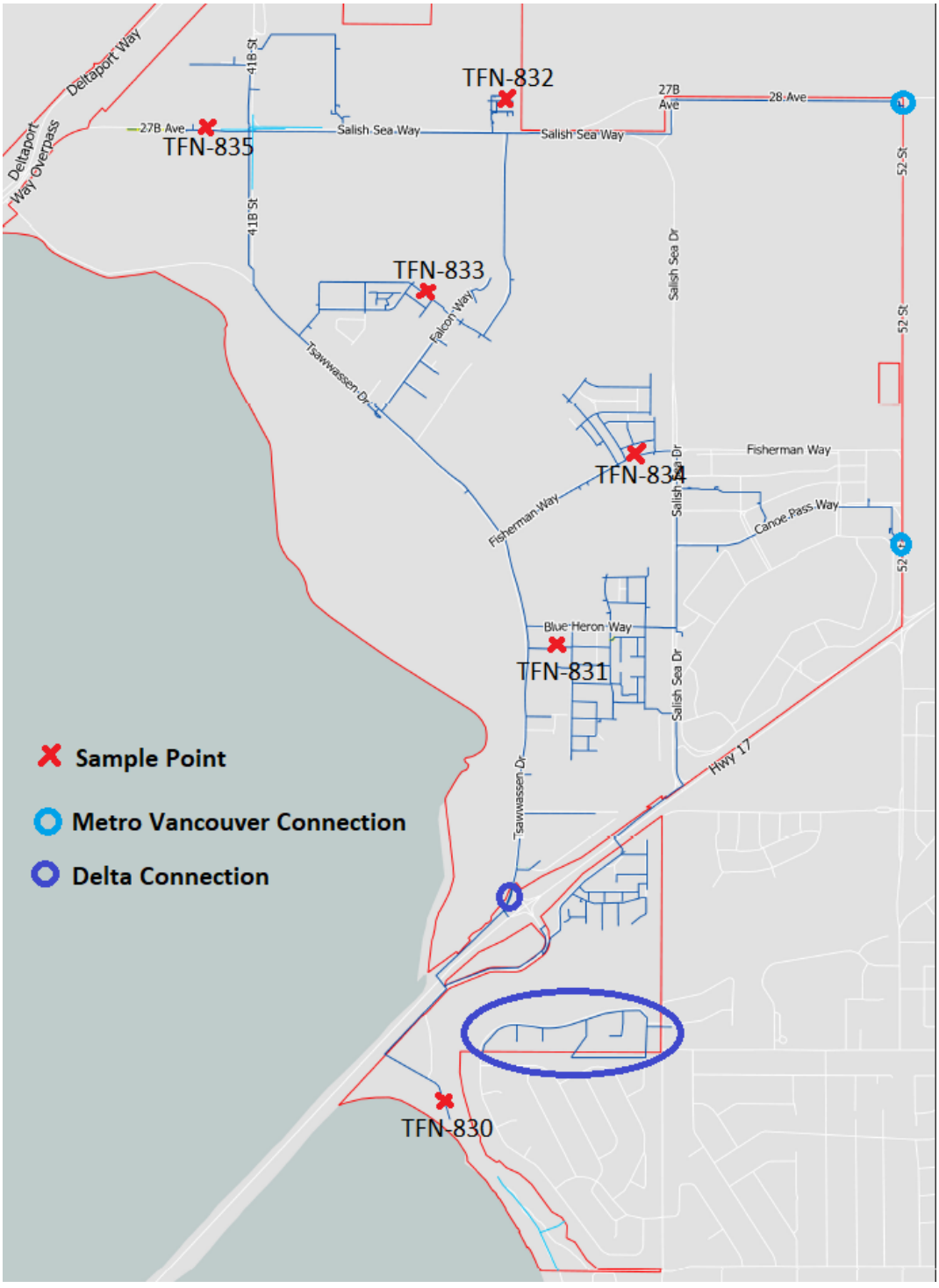

Figure 2 Distribution Map

References

1. British Columbia Drinking Water Protection Act
2. British Columbia Drinking Water Regulation
3. Water Quality Monitoring and Reporting Plan for the GVRD and Member Municipalities http://www.metrovancouver.org/services/water/quality-treatment-testing/quality-and-testing/Pages/default.aspx
4. Guidelines for Canadian Drinking Water Quality (October 2014)

Metals in Drinking Water – "Flush" Message

fraserhealth Better health. Best in health care.

February 1, 2021

Water System Operators

Re: Metals in Drinking Water – "Flush" Message in Annual Reports

Fraser Health has recently revised its metals at the tap "Flush" message and we are asking all water systems to please include the following health message with your next annual reports to your users.

Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.) The more time water has been sitting in your home's pipes, the more lead it may contain.

Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.

The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants.

If you have any questions, please contact our Drinking Water Program at 604-870-7903.

Sincerely,

Drinking Water Program
Fraser Health Authority
HPLand@fraserhealth.ca

Fraser Health Authority
Health Protection

Suite 400 2777 Gladwin Rd
Abbotsford BC
V2T 4V1 Canada

Tel (604) 870-7900
Fax (604) 852-1558
www.fraserhealth.ca