Whitechurch Drinking Water System
2024 Operation and Maintenance Annual Report

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Table of Contents

1.0	**INTRODUCTION AND BACKGROUND**	**4**
2.0	**DESCRIPTION OF WATER SYSTEM**	**4,5**
3.0	**SUMMARY OF WATER QUALITY MONITORING**	**6**
3.1	**Water Treatment Equipment Operation and Monitoring**	**6**
3.1.1	*Point of Entry Free Chlorine Residuals*	*6*
3.1.2	*Treated and Distribution Free Chlorine Residuals*	*6*
3.1.3	*Raw and Treated Water Turbidity*	*7*
3.2	**Microbiological Sampling**	**8**
3.2.1	*Raw Water Samples*	*8*
3.2.2	*Treated Water (Point of Entry) Samples*	*9*
3.2.3	*Distribution Samples*	*9,10*
3.3	**Chemical Sampling and Testing**	**10**
3.3.1	*Inorganic*	*10*
3.3.2	*Organics*	*11,12*
3.3.3	*Trihalomethanes and Haloacetic Acids*	*13*
3.3.4	*Nitrate and Nitrite*	*13*
3.3.5	*Sodium*	*13,14*
3.3.6	*Fluoride*	*13,14*
3.3.7	*Lead*	*14*
4.0	**WATER AND CHEMICAL USE**	**15**
4.1	**Chemical Usage**	**15**
4.2	**Summary of Flow Rates, Annual Volumes and Capacities**	**15,16**
4.3	**System Capacity**	**17**
5.0	**IMPROVEMENTS TO SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE**	**18**
6.0	**MINISTRY OF THE ENVIRONMENT , CONSERVATIONS AND PARKS INSPECTIONS AND REGULATORY ISSUES**	**18**

List of Tables

Table 1 - Average Treated and Distribution Free Chlorine Residuals (Grab and SCADA Samples)

Table 2 - Average Raw and Treated Water Turbidity Results

Table 3 - Microbiological Results - RAW WELL # 1

Table 4 - Microbiological Results - RAW WELL # 2

Table 5 - Microbiological Results - WHITECHURCH - TREATED

Table 6 - Microbiological Results for Distribution System

Table 7 - Inorganics Results

Table 8 - Barium Results

Table 9 - Organics Results

Table 10 - Nitrate, Nitrite, THM and HAA Results at Whitechurch Drinking Water System

Table 11 - Sodium and Fluoride Results

Table 12 - Lead Sampling Program Results

Table 13 - Aesthetic Objectives and Operational Guideline Results

Table 14 - Sodium Hypochlorite and Sodium Silicate Usage

Table 15 - Flow Rates, Annual Volumes, and Capacities - WHITECHURCH WELL #1 (South)

Table 16 - Flow Rates, Annual Volumes, and Capacities - WHITECHURCH WELL #2 (North)

Table 17 - Flow Rates, Annual Volumes, and Capacities - WHITECHURCH - TOTAL BOTH WELLS

Table 18 - Total Volumes of All Well Supplies

Table 19 - Static Well Levels (PTTW)

Table 20 - Whitechurch WHPA: Summary of Significant Drinking Water Threats

1.0 INTRODUCTION AND BACKGROUND

The purpose of the 2024 Annual Report is to document the operation and maintenance data for the Whitechurch Drinking Water System for review by the Ministry of the Environment, Conservation and Parks (MECP) in accordance with O. Reg. 170/03. This report covers January 1, 2024 to December 31,2024. A copy of this report will be submitted to the owner to be uploaded to the township's website and can be provided to interested parties upon request.

2.0 DESCRIPTION OF WATER SYSTEM

A summary of the Whitechurch Drinking Water System description is outlined below:

Drinking Water System Number:	220008863
Drinking Water System Name:	Whitechurch Water Distribution and Supply
Drinking Water System Owner:	Corporation of the Township of Huron-Kinloss
Drinking Water System Category:	Small Municipal Residential
Drinking Water System Classification:	Limited System
Drinking Water System Certificate No.:	n/a
Daily Maximum Water Supply Capacity:	260 m^3
Disinfection Chemicals:	Sodium Hypochlorite, 12%
Iron Sequestering Chemicals:	Sodium Silicate (diluted 1:1)
Population (Stats Can 2021):	73
Total Number of Service Connections:	42
Average Day Demand:	20.99 m^3
Peak Day Demand:	44.16 m^3
Average Capacity:	8.1%
Peak Capacity:	17.0%
Distribution Network:	1 km, 100 mm ∅ DR18 PVC
Blow-offs:	3 (from County of Bruce GIS)
Sample Stations:	2

The Whitechurch Drinking Water System (Whitechurch DWS) is characterized as a "secure groundwater system". It consists of two (2) wells that deliver potable water to the Hamlet of Whitechurch.

Both wells are located at the well house property. This site is controlled, monitored, and alarmed through a Supervisory Control and Data Acquisition (SCADA) system which is connected to the main controller, autodialer, and server at the Ripley Municipal Office. The desktop computer used by the system's operators is located at the Ripley Township Shed and is connected remotely to the SCADA server. As a redundancy, each site is also equipped with an auto-dialer that is independent of the SCADA system, and is used to call out alarms in the event of communications/SCADA failure. This SCADA system provides the operator with the ability to monitor current operating status of the supply and treatment equipment throughout the water system at any given time via remote access by computer or Smartphone, and to have control over operations.

The two wells are detailed as follows:

Site: Whitechurch - 9A Whitechurch Street

- Water Source: Groundwater, Non-GUDI
- Number of Production Wells: 2 (Well # 1-South, 2003; Well # 2-North, 2003)
- Depth of Wells: 73.2 m; 54.9 m
- Well Pumps: 5 hp motor, 3 hp pump, submersible (both pumps)
- Disinfection: Sodium Hypochlorite (12%)
- Iron Sequestering: Sodium Silicate (diluted 1:1)
- CT Requirement: 2-log, 5°C, contact watermain (1.0 BF)
- Permit To Take Water: 1124-A4DMYC, expires November 28, 2025

Both Whitechurch wells are secure, deep bedrock wells that penetrate limestone aquifers. Due to the depth and structure of the aquifers, the water temperature is relatively constant (< 10°C), turbidity is low, and the water is relatively hard. Both wells contain Barium concentrations that exceed the Half-MAC (maximum allowable concentration) of 500 µg/L, requiring samples to be collected quarterly. In 2024, there were no samples that exceeded the MAC (1,000 µg/L).

The Whitechurch MDWL #087-105 requires that the Barium results are to be reported to the office of Grey Bruce Health Services annually. A letter was submitted to GBHS by the Operating Authority, and the Township of Huron-Kinloss generated a letter that was sent to their residents. The letter states: *"Most treatment methods used for water softening are effective for Barium removal. However, softening is not an option at the Municipal treatment facility due to its removal of any measurable chlorine residual in the distribution which is required to be present by regulation. Therefore, you may wish to install a personal treatment system."*

The raw water is also relatively **high in naturally-occurring iron and hardness**, but the lead content of the raw water is well below the half-MAC (Maximum Allowable Concentration). Iron sequestering is achieved by means of treating the chlorinated water with sodium silicate. Sequestering does not remove iron, but instead it prevents the dissolved iron from precipitating, which can stain plumbing fixtures and appear as discoloration in the water. Sodium silicate can leave a slight metallic taste in the water. Those who are supplied from the Whitechurch DWS are made aware of the various concentrations in their drinking water by numerous means of communication from the Township of Huron-Kinloss.

A 15 kW diesel generator and 204.4 L fuel system is located outside, adjacent to the well house in a sound attenuated, weather-proof enclosure. There is a fence around the generator to prevent unwarranted entry. The diesel generator provides emergency backup power for the water system in the event of a power failure. A stand-by propane generator is also located at the Ripley Municipal Office for back-up power requirements for the Municipal Office and SCADA system.

3.0 SUMMARY OF WATER QUALITY MONITORING

Requirement - Drinking Water System Owner/Operating Authority

The *SDWA* also requires the Drinking Water System Owner/Operating Authority to immediately notify the MECP and the Grey Bruce Health Services office and the Huron-Perth Public Health office (if applicable), that the laboratory notice has been received and that "corrective actions" are being initiated. The method of contact is by telephone to a person of authority. The Operating Authority also faxes Form 2A - Notices of Adverse Test Results and Issue Resolution (Schedule 16) within 24 hours to both agencies first to verify previous live communication. Once the issue has been resolved and to confirm that corrective actions have been completed, the Operating Authority also faxes Form 2B - Notices of Adverse Test Results and Issue Resolution (Schedule 16) within 7 days to the agencies. This reporting system provides assurance that the DWS Owner is complying with the applicable regulations and that appropriate corrective actions are being taken and are being reported.

3.1 Water Treatment Equipment Operation and Monitoring

3.1.1 Point of Entry Free Chlorine Residuals

A total of 366 treated water grab samples were collected and analyzed for free chlorine residual at the point of entry (POE) using a Hach pocket chlorine colorimeter. **Table 2** shows the grab samples monthly average of free chlorine residual values and the on-line continuous samples monthly average (as collected by SCADA) of the free chlorine residual values.

3.1.2 Distribution Free Chlorine Residuals

In 2024, a total of 366 distribution residuals were collected. A summary of all the residuals collected is presented in **Table 1**.

Table 1 - Average Treated and Distribution Free Chlorine Residuals (Grab and SCADA Samples)

Month	Whitechurch Treated (Grab)	Whitechurch Treated (SCADA)	Distribution (Grab)
Jan	1.58	1.59	1.44
Feb	1.60	1.60	1.46
Mar	1.70	1.69	1.57
Apr	1.63	1.67	1.42
May	1.63	1.69	1.41
Jun	1.55	1.57	1.31
Jul	1.65	1.68	1.39
Aug	1.66	1.65	1.37
Sep	1.69	1.70	1.39
Oct	1.57	1.57	1.37
Nov	1.67	1.70	1.38
Dec	1.76	1.80	1.56
CT Requirement	0.47	0.47	0.20
Annual Min	1.30	1.10	0.82
Annual Max	2.01	2.25	1.80
Annual Avg	1.64	1.66	1.42
# Samples	366	continuous	366

3.1.3 Raw and Treated Water Turbidity

Raw water and treated water grab samples were collected and analyzed for turbidity using a portable turbidity analyzer. **Table 2** provides a summary of raw and treated water turbidity results.

Table 2 - Average Raw and Treated Water Turbidity Results

Month	Whitechurch Well # 1	Whitechurch Well # 2	Whitechurch Treated
Jan	0.25	0.27	–
Feb	0.35	0.42	–
Mar	0.33	0.37	0.29
Apr	0.19	0.17	0.26
May	0.23	0.29	0.26
Jun	0.14	0.31	0.26
Jul	0.19	0.38	0.31
Aug	0.22	0.24	0.29
Sep	0.28	0.27	0.32
Oct	0.21	0.20	0.19
Nov	0.17	0.19	0.26
Dec	0.16	0.22	0.31
Annual Min	0.14	0.17	0.19
Annual Max	0.35	0.42	0.32
Annual Avg	0.23	0.28	0.28
# Samples	12	12	12

3.2 Microbiological Sampling

3.2.1 Raw Water Samples

Raw water samples are collected every week, even though O. Reg. 170/03, Sch. 11 states one sample is required every two weeks. A total of 106 samples (53 from Well # 1 and 53 from Well # 2) were collected and analyzed for E. Coli (EC) and Total Coliform (TC). **Table 3 and Table 3** provide summaries of microbiological results performed on the raw water from each well.

Table 3 - Microbiological Results - RAW WELL # 1

Month	Total Coliform			E. Coli		
	# Samples	# Samples "0"	# Samples ≥1	# Samples	# Samples "0"	# Samples ≥1
Jan	5	5	0	5	5	0
Feb	4	4	0	4	4	0
Mar	4	4	0	4	4	0
Apr	5	5	0	5	5	0
May	4	4	0	4	4	0
Jun	4	4	0	4	4	0
Jul	5	4	1	5	5	0
Aug	4	4	0	4	4	0
Sep	5	5	**0**	5	5	0
Oct	4	4	0	4	4	0
Nov	4	4	**0**	4	4	0
Dec	5	5	**0**	5	5	0
TOTAL	**53**	**52**	**0**	**53**	**53**	**0**

June 20: 2 TC

Table 4 - Microbiological Results - RAW WELL # 2

Month	Total Coliform			E. Coli		
	# Samples	# Samples "0"	# Samples ≥1	# Samples	# Samples "0"	# Samples ≥1
Jan	5	5	0	5	5	0
Feb	4	4	0	4	4	0
Mar	4	4	0	4	4	0
Apr	5	5	0	5	5	0
May	4	4	0	4	4	0
Jun	4	4	0	4	4	0
Jul	5	5	0	5	5	0
Aug	4	4	**0**	4	4	**0**
Sep	5	5	0	5	5	0
Oct	4	4	0	4	4	0
Nov	4	4	0	4	4	0
Dec	5	5	0	5	5	0
TOTAL	**53**	**53**	**0**	**53**	**53**	**0**

3.2.2 Treated Water (Point of Entry) Samples

One (1) treated water sample from the Point of Entry is taken every week and analyzed for E. Coli (EC), Total Coliform (TC), and Heterotrophic Plate Count (HPC). In 2024, a total of 53 treated water samples were collected and analyzed for TC, EC, and HPC. Each TC and EC result from the treated water was 0 cfu/100 mL. The range of HPC results were 0 - 20 cfu/100 mL. **Table 5** provides a summary of all microbiological results performed on treated water.

Table 5 - Microbiological Results - WHITECHURCH - TREATED

Month	Total Coliform			E. Coli			HPC	
	# Samples	# Samples "0"	# Samples ≥1	# Samples	# Samples "0"	# Samples ≥1	# Samples	# Samples > 10
Jan	5	5	0	5	5	0	5	0
Feb	4	4	0	4	4	0	4	0
Mar	4	4	0	4	4	0	4	0
Apr	5	5	0	5	5	0	5	1
May	4	4	0	4	4	0	4	0
Jun	4	4	0	4	4	0	4	0
Jul	5	5	0	5	5	0	5	0
Aug	4	4	0	4	4	0	4	0
Sep	5	5	0	5	5	0	5	0
Oct	4	4	0	4	4	0	4	0
Nov	4	4	0	4	4	0	4	0
Dec	5	5	0	5	5	0	5	0
TOTAL	**53**	**53**	**0**	**53**	**53**	**0**	**53**	**1**

3.2.3 Distribution Samples

Distribution samples are collected every week and tested for E. Coli (EC), Total Coliform (TC), and a minimum of 25% of the samples are also analyzed for Heterotrophic Plate Count (HPC). For Municipal Small Residential systems, Ontario Regulation 170/03 requires 1 distribution sample to be taken every 2 weeks. In 2024, a total of 53 distribution samples were collected and analyzed for TC and EC, which is above the required number of samples (n=26, based on 96 residents). A total of 53 distribution samples were analyzed for HPC (n=7, 25% of 26). Each TC and EC result from the treated water was 0 cfu/100 mL. The range of HPC results were 0 - 20 cfu/100 mL. **Table 6** provides a summary of all microbiological samples taken in the distribution system.

Table 6 - Microbiological Results for Distribution System

Month	Total Coliform			E. Coli			HPC	
	# Samples	# Samples "0"	# Samples ≥1	# Samples	# Samples "0"	# Samples ≥1	# Samples	# Samples > 10
Jan	5	5	0	5	5	0	5	0
Feb	4	4	0	4	4	0	4	0
Mar	4	4	0	4	4	0	4	0
Apr	5	5	0	5	5	0	5	0
May	4	4	0	4	4	0	4	0
Jun	4	4	0	4	4	0	4	0
Jul	5	5	0	5	5	0	5	0
Aug	4	4	0	4	4	0	4	0
Sep	5	5	0	5	5	0	5	0
Oct	4	4	0	4	4	0	4	0
Nov	4	4	0	4	4	0	4	0
Dec	5	5	0	5	5	0	5	1
TOTAL	**53**	**53**	**0**	**53**	**53**	**0**	**53**	**1**

3.3 Chemical Sampling and Testing as per Schedule 13, O. Reg. 170/03

3.3.1 Inorganics

Treated water samples are collected every 60 months (5 years) and analyzed for inorganics. The most recent samples for the Whitechurch DWS were collected on September 12, 2022 and submitted to the laboratory for analysis of inorganics as listed in Schedule 23 (see **Table 7**). All results for the parameters tested in 2022 were found to be within compliance. Inorganics are scheduled to be sampled again in 2027.

Table 7 - Inorganics Results

Parameter	Whitechurch Treated (µg/L)	Maximum Allowable Concentration (µg/L)
Antimony	0.6 <MDL	6
Arsenic	0.4	10
Barium	853	1000
Boron	15	5000
Cadmium	0.005	5
Chromium	0.15	50
Mercury	0.01 <MDL	1
Selenium	0.04 <MDL	50
Uranium	0.085	20

*MDL = Laboratory Minimum Detection Limit

REGULATORY RELIEF FOR BARIUM: Barium concentration is consistently in exceedance of the Half-MAC and therefore is sampled on a quarterly basis as required by MDWL #087-105, Schedule D.

On February 14, 2024 a letter summarizing the Barium results was submitted to the Grey Bruce Health Unit, the Owner, and the Ministry of the Environment, Conservation and Parks and the Source Water Protection Group. **Table 8** provides a summary of the 2024 Barium sampling.

Table 8 - Barium Results - 2022

Sampling Quarter	Whitechurch Treated - Barium (µg/L)	Maximum Allowable Concentration (µg/L)
February	795	1000
May	836	1000
August	832	1000
November	856	1000

3.3.2 Organics

Treated water samples are collected every 60 months (5 years) and tested for Schedule 24 organic parameters. The most recent samples were collected on September 12, 2022. All parameters were found to be within compliance. Organics will be sampled and analyzed again in 2027. Samples results can be found in **Table 9**.

Table 9 - Organics Results

Parameter	Whitechurch Treated (µg/L)	Maximum Allowable Concentration (µg/L)
Benzene	0.32 <MDL	1
Carbon Tetrachloride	0.17 <MDL	2
1,2-Dichlorobenzene	0.41 <MDL	200
1,4-Dichlorobenzene	0.36 <MDL	5
1,1-Dichloroethylene	0.33 <MDL	14
1,2-Dichloroethane	0.35 <MDL	5
Dichloromethane	0.35 <MDL	50
Monochlorobenzene	0.3 <MDL	80
Tetrachloroethylene	0.35 <MDL	10
Trichloroethylene	0.44 <MDL	5
Vinyl Chloride	0.17 <MDL	1
Diquat	1 <MDL	70
Paraquat	1 <MDL	10
Glyphosate	1 <MDL	280
Polychlorinated Biphenyls	0.04 <MDL	3
Benzo(a)pyrene	0.004 <MDL	0.01

Table 9 - Organics Results - Continued

Parameter	Whitechurch Treated (µg/L)	Maximum Allowable Concentration (µg/L)
Alachlor	0.02 <MDL	5
Atrazine+N-dealkylated metabolites	0.01 <MDL	5
Atrazine	0.01 <MDL	--
Desethyl Atrazine	0.01 <MDL	--
Azinphos-methyl	0.05 <MDL	20
Carbaryl	0.05 <MDL	90
Carbofuran	0.01 <MDL	90
Chlorpyrifos	0.02 <MDL	90
Diazinon	0.02 <MDL	20
Dimethoate	0.06 <MDL	20
Diuron	0.03 <MDL	150
Malathion	0.02 <MDL	190
Metolachlor	0.01 <MDL	50
Metribuzin	0.02 <MDL	80
Phorate	0.01 <MDL	2
Prometryne	0.03 <MDL	1
Simazine	0.01 <MDL	10
Terbufos	0.01 <MDL	1
Triallate	0.01 <MDL	230
Trifluralin	0.02 <MDL	45
2,4-Dichlorophenoxyacetic acid	0.19 <MDL	100
Bromoxynil	0.33 <MDL	5
Dicamba	0.20 <MDL	120
Diclofop-methyl	0.40 <MDL	9
MCPA	0.00012 <MDL	0.1
Picloram	1 <MDL	190
2,4-Dichlorophenol	0.15 <MDL	900
2,4,6-Trichlorophenol	0.25 <MDL	5
2,3,4,6-Tetrachlorophenol	0.20 <MDL	100
Pentachlorophenol	0.15 <MDL	60

*MDL = Laboratory Minimum Detection Limit

3.3.3 Trihalomethanes and Haloacetic Acids

One distribution sample is collected every three months from a representative point in the distribution system and tested for Trihalomethanes (THMs) and Haloacetic Acids (HAAs). Samples were collected during the months of February, May, August, and November. The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Allowable Concentration (MAC) of 100 µg/L for THMs and it is expressed as a running annual average (RAA). The RAA for THMs was found to be 23.3 µg/L, which is within compliance. The HAA MAC is 80 µg/L.

Refer to **Table 10** for the summary of trihalomethane and haloacetic acid results.

3.3.4 Nitrate and Nitrite

One treated water sample is collected every three months and tested for nitrate and nitrite. Samples were collected during the months of February, May, August, and November. The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Allowable Concentration (MAC) of 10 mg/L for nitrates and 1 mg/L for nitrites. The results were found to be within compliance. Refer to **Table 10**.

Table 10 - Nitrate, Nitrite, THM and HAA Results at Whitechurch Drinking Water System

Month	Nitrite (mg/L)	Nitrate (mg/L)	THMS (µg/L)	HAAs (µg/L)
Feb	<0.003	<0.006	15.0	<5.3
May	<0.003	<0.006	19.0	13.4
Aug	<0.003	<0.006	36.0	20.2
Nov	<0.003	<0.006	23.0	13.1
Average	<0.003	<0.006	RAA 23.3	13.0
Maximum	<0.003	<0.006	36	20.2
MAC	**1**	**10**	**100**	**80**

3.3.5 Sodium

One (1) water sample is collected from the Point of Entry (treated water) every 60 months (5 years) and analyzed for Sodium. The *Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines, PIBS 4449e01, June 2006*, states: "The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the Sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets." This sample was collected on January 31, 2023. Results can be found in **Table 11**. The next sampling date for Sodium will be in 2028.

3.3.6 Fluoride

One (1) water sample is collected from the Point of Entry (treated water) every 60 months (5 years) and analyzed for Fluoride. The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Allowable Concentration (MAC) of 1.5 mg/L. On November 26, 2024, a sample was collected for this analysis. The results are summarized in **Table 11**. The next sampling date for Fluoride will be in 2029.

Table 11 - Sodium and Fluoride Results

Location	Sodium	Fluoride
	Result (mg/L)	Result (mg/L)
Whitechurch Treated Water	16.8	1.04
MAC (mg/L)	**20**	**1.5**

3.3.7 Lead

Schedule 15.1 of Ontario Regulation 170/03 requires that samples be taken during two seasons: once between December 15 and April 15, and once between June 15 and October 15. One (1) pH, alkalinity and lead sample was collected on January 9, 2024 and one (1) pH, alkalinity and lead sample was collected on July 8, 2024. Lead Alkalinity and pH samples are required next in the 2025 sampling season. Results for 2024 can be found in **Table 12**.

Table 12 - Lead Sampling Program Results

Season	Alkalinity (mg/L)	pH	Lead (µg/L)
Dec-Apr	275	8.00	0.04
Jun-Oct	281	7.97	0.1
MAC (µg/L)	–	–	**10**

4.0 WATER AND CHEMICAL USE

4.1 Chemical Usage

The total amount of 12% sodium hypochlorite (NaOCl) used to treat the water that was provided to the distribution system is tabulated in **Table 15** with the average chlorine dosage. During the same period, the total amount of sodium silicate (Na_2SiO_3), diluted 1:1, for iron sequestering is tabulated in **Table 14** with the average silicate dosage.

Table 14 - Sodium Hypochlorite and Sodium Silicate Usage

Month	Whitechurch Treated Water			
	Sodium Hypochlorite		Sodium Silicate	
	Usage (kg)	Average Dosage (mg/L)	Usage (kg)	Average Dosage (mg/L)
Jan	2.78	4.37	6.61	10.33
Feb	2.36	4.53	5.05	9.75
Mar	2.41	4.37	5.35	9.66
Apr	2.32	4.81	5.11	10.42
May	3.01	4.76	6.46	10.15
Jun	3.16	4.81	7.30	10.81
Jul	3.85	4.83	7.86	9.72
Aug	3.06	5.03	6.49	10.63
Sep	3.07	5.03	6.55	10.88
Oct	3.52	5.62	6.64	10.55
Nov	2.70	4.86	5.23	9.63
Dec	2.70	4.56	5.47	9.38
TOTAL	34.94	–	74.12	–
Average	–	2.07	–	10.16

Sodium Hypochlorite Grand Total Usage: 34.94 kg
Sodium Hypochlorite Average Dosage: 2.07 mg/L

4.2 Summary of Flow Rates, Annual Volumes and Capacities (O. Reg. 170/03, Schedule 22-2 (3))

A summary of the water supplied to the distribution system from each well supply is provided in **Tables 15, 16 and 17**. The volumes reported for each well supply are taken from the SCADA continuous monitoring system. The flow meters were calibrated on the following dates:

Whitechurch:	Raw water flow meter # 1	July 9, 2024
Whitechurch:	Raw water flow meter # 2	July 9, 2024

Table 15 - Flow Rates, Annual Volumes, and Capacities - WHITECHURCH WELL #1 (South)

Month	Raw Flow Daily Max (L/s)	Raw Flow Monthly Avg (L/s)	Raw Volume Monthly Total (m^3)	Raw Volume Daily Max (m^3)	Raw Volume Monthly Avg (m^3)	Capacity Monthly Avg (%)
Jan	3.23	2.58	322.63	14.55	10.41	4.0%
Feb	3.23	2.59	272.96	13.69	9.41	3.6%
Mar	**3.25**	2.55	283.63	13.44	9.15	3.5%
Apr	3.25	2.77	262.41	13.98	8.75	3.4%
May	3.71	2.48	337.63	21.02	10.89	4.2%
Jun	3.19	2.48	361.29	18.92	12.04	4.6%
Jul	**3.21**	2.58	412.45	21.73	13.30	5.1%
Aug	**3.20**	2.51	330.13	18.04	10.65	4.1%
Sep	**2.89**	1.42	320.83	15.88	10.69	4.1%
Oct	2.88	1.40	319.80	15.12	10.32	4.0%
Nov	2.87	1.40	219.38	11.72	9.71	3.7%
Dec	2.88	1.42	304.78	12.36	9.83	3.8%
PTTW Max	**3.283**	**3.283**	**7,908.33**	**260.00**	**---**	**---**
Annual Max	**3.71**	---	–	21.73	---	–
Annual Avg	---	2.16	–	---	10.43	4.0%
Annual Total	---	---	3,819.92	---	---	---

Table 16 - Flow Rates, Annual Volumes, and Capacities - WHITECHURCH WELL #2 (North)

Month	Raw Flow Daily Max (L/s)	Raw Flow Monthly Avg (L/s)	Raw Volume Monthly Total (m^3)	Raw Volume Daily Max (m^3)	Raw Volume Monthly Avg (m^3)	Capacity Monthly Avg (%)
Jan	2.96	2.40	338.85	15.63	10.93	4.2%
Feb	2.96	2.43	274.25	14.14	9.46	3.6%
Mar	3.05	2.37	283.60	13.64	9.15	3.5%
Apr	2.99	2.38	271.65	13.63	9.06	3.5%
May	2.84	2.32	339.90	21.60	10.96	4.2%
Jun	2.92	2.33	364.04	19.35	12.13	4.7%
Jul	3.00	2.40	416.00	22.43	13.42	5.2%
Aug	2.91	2.31	331.42	18.13	10.69	4.1%
Sep	2.63	1.48	323.48	16.35	10.78	4.1%
Oct	2.65	1.47	322.41	15.59	10.40	4.0%
Nov	2.61	1.47	293.01	11.98	9.77	3.8%
Dec	2.61	1.48	305.45	12.23	9.85	3.8%
PTTW Max	**3.283**	**3.283**	**7,908.33**	**260.00**	**---**	**---**
Annual Max	3.05	---	–	22.43	---	
Annual Avg	---	2.07	–	---	10.55	4.1%
Annual Total	---	---	**3,864.06**	---	---	---

Table 17 - Flow Rates, Annual Volumes, and Capacities - WHITECHURCH - TOTAL BOTH WELLS

Month	Combined Volume Daily Max (m^3)	Combined Volume Daily Average (m^3)	Combined Volume Monthly Total (m^3)	Capacity Monthly Avg (%)
Jan	29.25	21.34	661.48	8.2%
Feb	27.83	18.87	547.21	7.3%
Mar	27.08	18.30	567.23	7.0%
Apr	27.61	17.80	534.06	6.8%
May	42.62	21.86	677.53	8.4%
Jun	38.27	24.18	725.33	9.3%
Jul	44.16	26.72	828.45	10.3%
Aug	36.17	21.34	661.55	8.2%
Sep	32.23	21.48	644.31	8.3%
Oct	30.71	20.72	642.21	8.0%
Nov	23.70	19.48	584.39	7.5%
Dec	24.59	19.68	610.23	7.6%
PTTW Max	**260.00**	**260.00**	**7,908.33**	**---**
Annual Max	44.16	---	–	–
Annual Avg	---	20.99	–	8.1%
Annual Total	---	---	7,683.98	---

4.3 System Capacity

The following is a comparison of the annual volumes to the rated capacity and flow rates approved in the systems' PTTW, DWWP and MDWL. The total system capacity represents the percentage capacity of the sum of all the water produced in relation to the total system volume permitted. A summary of the totals for both well supplies is presented in **Table 18**.

Table 18 - Total Volumes of All Well Supplies

Location (Well Supply)	Total Volume for 2022 (m^3)
Whitechurch Well # 1	**3,819.92**
Whitechurch Well # 2	**3,864.06**
Well # 1 and Well # 2 Combined	7,683.98
Total Annual Rated Capacity, PTTW (m^3)	**94,900**
Overall Operating Capacity, Actual %	8.1%

5.0 IMPROVEMENTS TO SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE

The following summarizes water system improvements and routine and preventative maintenance for the Whitechurch Drinking Water System Supply:

Monthly routine and preventative maintenance performed as per Jobs Plus schedule.
Annual generator service completed by the Municipality.
Annual flow meter calibration completed by Cleartech (July).
Annual backflow preventer testing completed by Ferguson plumbing (July).
Annual Fire and Safety inspections completed by the Municipality.
Semi-annual flushing and annual valve turning completed.

March:	Replaced the analyzer
April:	APM heating has repaired and inspected the generator
	Heaters have been repaired
	UPS batteries were changed out for new ones
May	The fuel tank was inspected - no report received?

6.0 MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS INSPECTIONS AND REGULATORY ISSUES (Schedule 22-2 (2))

- MECP Drinking Water Inspection was conducted on June 13, 2024, there was one non-compliance: -Records did not confirm that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.
- A rating of 96.59% was received.
- A list of Capital Items for 2024 was submitted to the Township of Huron-Kinloss in November 2023.
- DWQMS Management Review was conducted on August 31, 2024.
- DWQMS Internal Audit was conducted on November 19, 2024.
- DWQMS External Surveillance Audit was conducted on August 27, 2024.
- DWQMS Risk Assessment was not completed in 2024 due to time constraints.
- Emergency Response Exercise was conducted by the Township of Huron-Kinloss in 2024, Veolia took part.