

# Lefaivre & Plantagenet Drinking Water System

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Waterworks # 220002841  
System Category – Large Municipal Residential

## Annual Water Report

Prepared For:  
The Corporation of the Township of Alfred & Plantagenet

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2022

Issued: January 31<sup>st</sup>, 2023

Revision: 1

Operating Authority:



This report has been prepared to satisfy the annual reporting requirements in O.Reg 170/03 Section 11 and Schedule 22

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## Report Availability

This system serves less than 10,000 residents. The annual reports shall be made available publically to residents of The Corporation of the Township of Alfred & Plantagenet. Notification should be made available on the municipal website and copies provided free of charge if requested at the Municipal Office located at 205 Old Highway 17 P .O. Box 350 Plantagenet ON K0B 1L0.

## Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1 – On-site Inspection completed on October 17, 2022 No Issues Identified
Ministry of Labour Inspections	0
QEMS External Audit	Off-Site Operational Plan Audit – 1 OFI On-Site Reaccreditation Audit – 0 Issues Identified
AWQI's/BWA	1 – Pressure loss in January
Non-Compliance	0
Community Complaints	1
Spills	0
Watermain Breaks & Repairs	0

## System Process Description

### Raw Source

Raw water source for the Lefaiivre & Plantagenet Drinking Water System is the Ottawa River as per Permit to Take Water #4354-AK4NJ9. Raw water intake consists of a 120 m long x 500 mm diameter polyethylene pipe. The low lift pumping station located at the shore of the Ottawa River is equipped with Four (4) low lift pumps (two (2) pumps (duty, standby. A 200 mm diameter raw water transmission main from the low lift pumping station conveys raw water to the water treatment plant.

### Treatment

The Lefaiivre water treatment plant is a surface water treatment facility, serving the Village of Lefaiivre, Alfred, Plantagenet and the distribution system of St-Isidore. The treatment process consists of the following components; one (1) clarifier/flocculator with two (2) high rate filters (with double compartments), one (1) Actiflo® Process package plant with two (2) Filters, one (1) UV disinfection

system consisting of two (2) units and two (2) clearwells with a total volume of 660m<sup>3</sup>. Primary Disinfection is achieved through chlorination. Secondary disinfection is achieved by chlorination for water supplying the Lefavivre WDS and by Chloramination for Alfred and Plantagenet.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Soda Ash	Ph adjustments old plant	Univar
Aluminium Chloride Hydroxide Sulphate (PAX-XL6)	Coagulant	Kemira
Polymer - Norfloc 127H previously called Magnafloc LT27AG	Flocculation Agent	BASF
Sodium Hypochlorite	Post Disinfection	UBA
Ammonium Sulphate	Secondary Disinfection “Chloramination”	Canada Colors & Chemicals

## Distribution

Water is pumped by Two (2) distinct high lift pumping systems serving Lefavivre distribution system with Two (2) pumps (duty, standby) and One (1) fire pump. This part of the distribution system runs based on pressure and there are no water storage tanks.

Water serving the Alfred and Plantagenet distribution system is supplied by three (3) high lift pumps. Water is supplied is based on tower levels in the two elevated water tower storage tanks and demand from Alfred, Plantagenet. Water is also conveyed from the booster station in Plantagenet which supplies the St-Isidore Distribution system which is owned & operated by the Nation Municipality.

## Summary of Non-Compliance

### Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Legislation	Corrective Action Taken
January 21, 2022	157 650	Lefavivre Distribution	Power loss, generators failed to start, low pressure in Lefavivre	O.Reg 170/03	Responding operator got generators online and pressure back in town, issued a PBWA

### Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
No non-compliance issues reported during the reporting period.				

**Non-Compliance Identified in a Ministry Inspection:**

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
No non-compliances identified in the inspection during this reporting period				

**Flow**

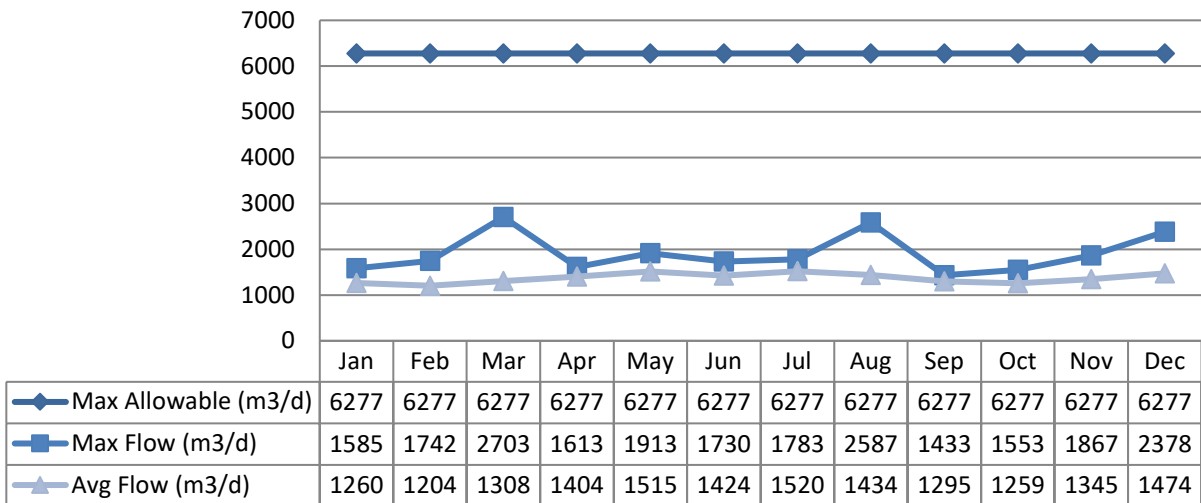
With a 2022 annual average day flow of 1370 m<sup>3</sup>/d, the Lefaiivre & Plantagenet Drinking Water System is operating below half its rated capacity.

**Raw Water Flows**

The Raw Water flows are regulated under the Permit to Take Water. The Ontario Regulation 387/04 Water Taking and Transfers requires all water takers to report daily water taking amounts to the Water Taking Reporting System (WTRS) electronic database. The 2022 Raw Flow Data was submitted to the Ministry electronically under permit #4354-AK4NJ9. The confirmation and a copy of the data that was submitted are attached in Appendix A.

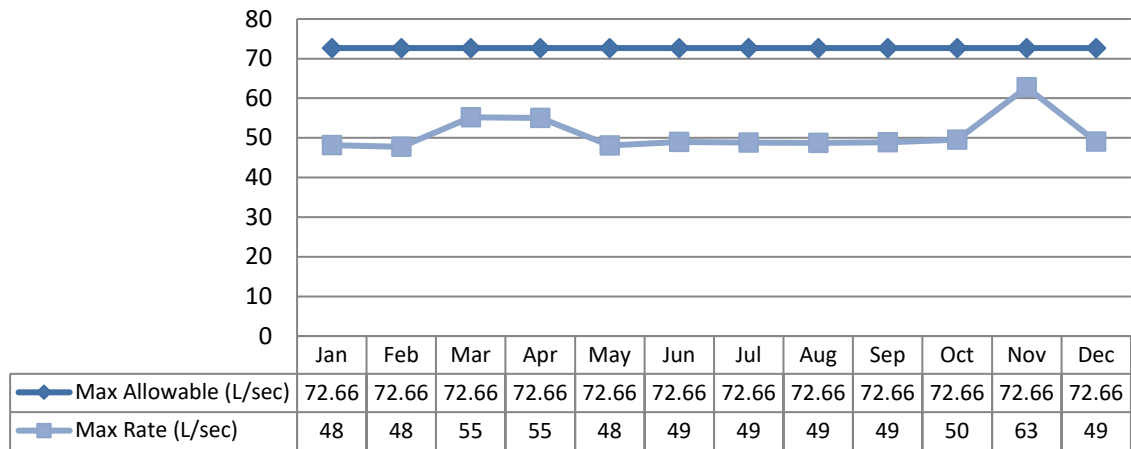
**Total Monthly Flows (m3/d)**

Max Allowable PTTW 6277m3/d



Monthly Rated Flows (L/s)

Max allowable rate - PTTW 72.66 L/sec

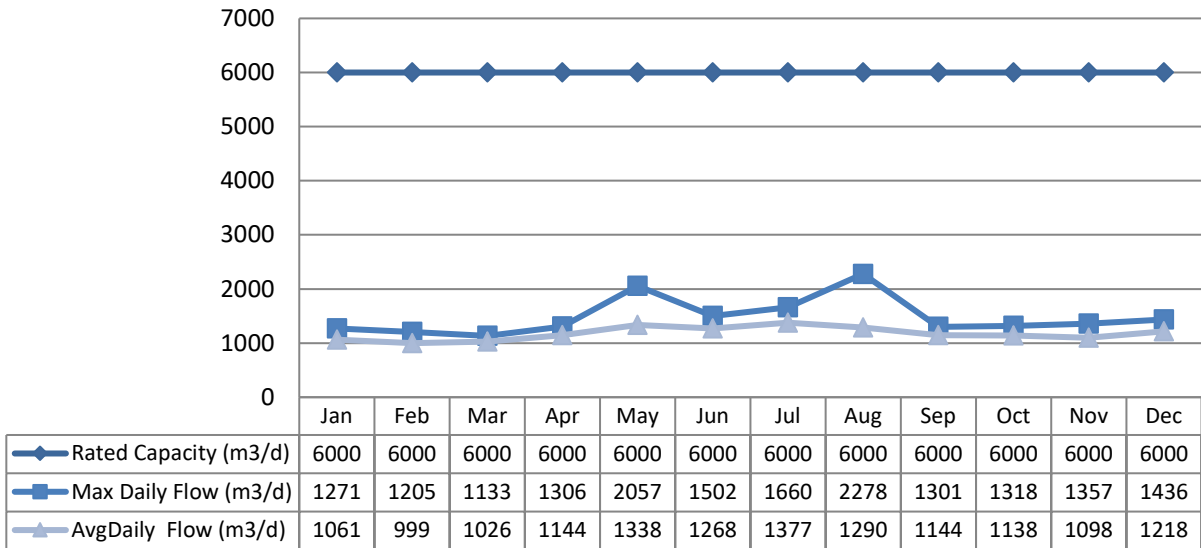


Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence Number: 169-101 Issue Number: 4.

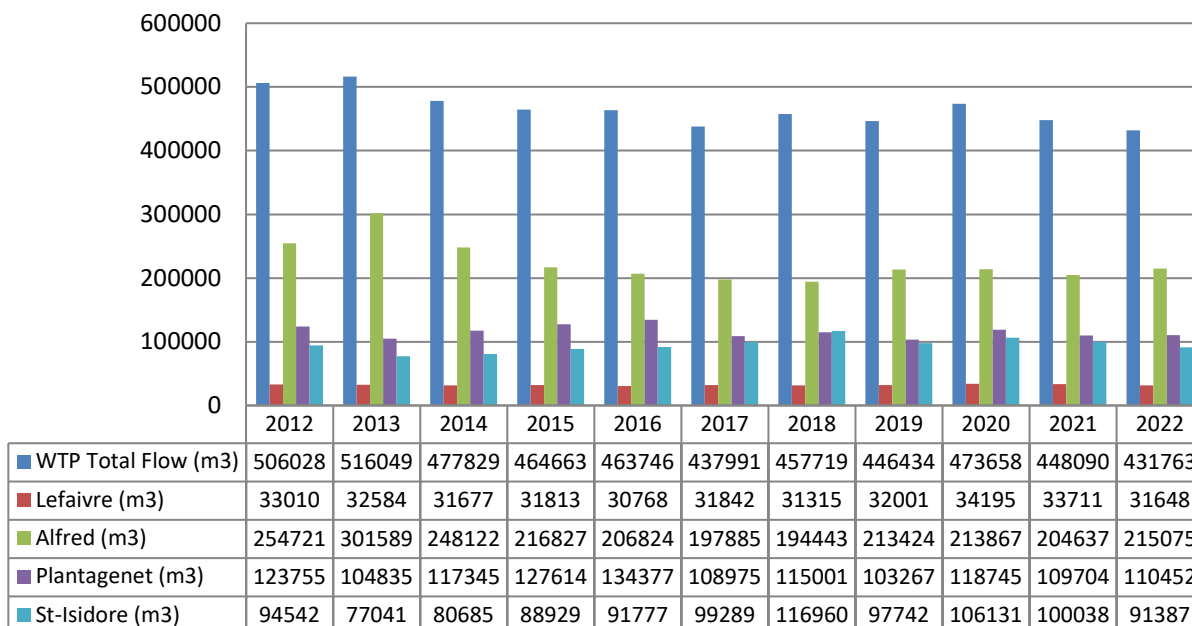
Monthly Rated Flows

Rated Capacity – MDWL WTP 6000 m<sup>3</sup>/d



Annual Total Flow Comparison

Total Annual flow (m<sup>3</sup>)



## Regulatory Sample Results Summary

### Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw Water	52	0	63	10	8400		
Treated Water	52	0	0	0	0	2	4
Distribution Water	313	0	0	0	0	2	76

### Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) – RW	165	1.76	34.4
Turbidity, In-House (NTU) – TW	254	0.1	0.32
Turbidity, On-Line (NTU) – Filter #1A	8760	0.03	0.38
Turbidity, On-Line (NTU) - Filter #1B	8760	0.01	0.33
Turbidity, On-Line (NTU) - Filter #2A	8760	0.03	0.34
Turbidity, On-Line (NTU) - Filter #2B	8760	0.03	0.52
Turbidity, On-Line (NTU) – Actiflo Filter #1	8760	0.03	0.42
Turbidity, On-Line (NTU) – Actiflo Filter #2	8760	0.01	0.55

Free Chlorine Residual, On-Line (mg/L) – TW	8760	0.74	3.0
Free Chlorine Residual, On-Line (mg/L) – Lefaiivre	8760	0.61	3.52
Combined Chlorine Residual, On-Line (mg/L) – Alfred	8760	0.67	2.98
Combined Chlorine Residual, On-Line (mg/L) – Plantagenet	8760	1.07	2.98

NOTE: spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O.Reg 170/03

NOTE: For continuous monitors use 8760 as the number of samples.

### Inorganic Parameters

These parameters are tested as a requirement under 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O.Reg 169/03
- MDL = Method Detection Limit

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Antimony: Sb (ug/L) - TW	2022/09/15	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2022/09/15	0.3	25.0	No	No
Barium: Ba (ug/L) - TW	2022/09/15	11.0	1000.0	No	No
Boron: B (ug/L) - TW	2022/09/15	<MDL 5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2022/09/15	<MDL 0.01	5.0	No	No
Chromium: Cr (ug/L) - TW	2022/09/15	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2022/09/15	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2022/09/15	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2022/09/15	<MDL 0.05	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2019/01/17	<MDL 0.1	1.5	No	No
Nitrite (mg/L) - TW	2022/01/10	0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/04/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/07/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/10/11	0.1	1.0	No	No
Nitrate (mg/L) - TW	2022/01/10	0.2	10.0	No	No
Nitrate (mg/L) - TW	2022/04/04	0.4	10.0	No	No
Nitrate (mg/L) - TW	2022/07/04	0.2	10.0	No	No
Nitrate (mg/L) - TW	2022/10/11	0.2	10.0	No	No
Sodium: Na (mg/L) - TW	2020/01/20	24.30	20	N/A	N/A

\*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified mg/L 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.



Schedule 15 Sampling:

The Schedule 15 Sampling is required under O.Reg 170/03. This system is under reduced sampling. No plumbing samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	2	4	34	47	N/A	N/A
pH	2	4	6.8	7.1	N/A	N/A
Lead (ug/L)	2	4	0.02	0.05	0.001	N/A

Organic Parameters

These parameters are tested annually as a requirement under O.Reg 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Alachlor (ug/L) - TW	2022/09/15	<MDL 0.3	5.0	No	No
Azinphos-methyl (ug/L) - TW	2022/09/15	<MDL 1.0	20.0	No	No
Benzene (ug/L) - TW	2022/09/15	<MDL 0.5	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2022/09/15	<MDL 0.006	0.01	No	No
Bromoxynil (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
Carbaryl (ug/L) - TW	2022/09/15	<MDL 3.0	90.0	No	No
Carbofuran (ug/L) - TW	2022/09/15	<MDL 1.0	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2022/09/15	<MDL 0.2	2.0	No	No
Chlorpyrifos (ug/L) - TW	2022/09/15	<MDL 0.5	90.0	No	No
Diazinon (ug/L) - TW	2022/09/15	<MDL 1.0	20.0	No	No
Dicamba (ug/L) - TW	2022/09/15	<MDL 1.0	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2022/09/15	<MDL 0.5	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2022/09/15	<MDL 0.5	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/09/15	<MDL 5.0	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2022/09/15	<MDL 0.2	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/09/15	<MDL 1.0	100.0	No	No
Diclofop-methyl (ug/L) - TW	2022/09/15	<MDL 0.9	9.0	No	No
Dimethoate (ug/L) - TW	2022/09/15	<MDL 1.0	20.0	No	No
Diquat (ug/L) - TW	2022/09/15	<MDL 5.0	70.0	No	No
Diuron (ug/L) - TW	2022/09/15	<MDL 5.0	150.0	No	No
Glyphosate (ug/L) - TW	2022/09/15	<MDL 25.0	280.0	No	No
Malathion (ug/L) - TW	2022/09/15	<MDL 5.0	190.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Metolachlor (ug/L) - TW	2022/09/15	<MDL 3.0	50.0	No	No
Metribuzin (ug/L) - TW	2022/09/15	<MDL 3.0	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/09/15	<MDL 0.5	80.0	No	No
Paraquat (ug/L) - TW	2022/09/15	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2022/09/15	<MDL 0.05	3.0	No	No
Pentachlorophenol (ug/L) - TW	2022/09/15	<MDL 0.2	60.0	No	No
Phorate (ug/L) - TW	2022/09/15	<MDL 0.3	2.0	No	No
Picloram (ug/L) - TW	2022/09/15	<MDL 5.0	190.0	No	No
Prometryne (ug/L) - TW	2022/09/15	<MDL 0.1	1.0	No	No
Simazine (ug/L) - TW	2022/09/15	<MDL 0.5	10.0	No	No
Terbufos (ug/L) - TW	2022/09/15	<MDL 0.5	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2022/09/15	<MDL 0.5	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/09/15	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2022/09/15	<MDL 10.0	230.0	No	No
Trichloroethylene (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
2,4,6-Trichlorophenol (ug/L) – TW	2022/09/15	<MDL 0.2	5.0	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA) ug/L) - TW	2022/09/15	<MDL 10.0	100.0	No	No
Trifluralin (ug/L) – TW	2022/09/15	<MDL 0.5	45.0	No	No
Vinyl Chloride (ug/L) – TW	2022/09/15	<MDL 0.2	1.0	No	No
<b>Distribution Water</b>					
Trihalomethane: Total (ug/L) Annual Average – DW	2022/10/11	46.67	100	No	No
HAA Total (ug/L) Annual Average – DW	2022/10/11	36.05	80	No	No

MAC = Maximum Allowable Concentration as per O.Reg 169/03

<MDL = Below the laboratory detection level

### Additional Legislated Samples

Date of order or Municipal Drinking Water Licence	Parameter	Date Sampled	Result	Total Chlorine residual	Unit of Measure
MDWL #169-101 Issue Number: 3	Suspended Solids	2022/01/06	3.00	0.0	mg/l
		2022/02/01	25.0	0.0	mg/l
		2022/03/01	10.0	0.0	mg/l
		2022/04/05	12.0	0.0	mg/l
		2022/05/03	3.00	0.0	mg/l
		2022/06/01	96.5	0.0	mg/l
		2022/07/05	3.00	0.0	mg/l
		2022/08/03	4.00	0.0	mg/l
		2022/09/07	3.00	0.01	mg/l
		2022/10/04	3.00	0.0	mg/l
		2022/11/01	4.00	0.0	mg/l
		2022/12/06	9.00	0.0	mg/l
		<b>Annual Average</b>	<b>16.95</b>	-	mg/l

Parameter	Date	Result (ug/L)	Limit (ug/L)	Exceedance
Microcystin DM (ug/L) – RW & TW	June 7, 2022	<0.15	0.15	No
Microcystin DM (ug/L) – RW & TW	June 13, 2022	<0.15	0.15	No
Microcystin DM (ug/L) – RW & TW	June 20, 2022	<0.15	0.15	No

## Major Maintenance Summary

### Water Treatment Plant Maintenance

Date	Description
January 10	Replaced process water line back flow preventer
February	Service generators and recommend better battery charging system
March	Annual maintenance done on Actiflo process
March 17	Annual inspection of lifting devices
March 22	Emptied sludge tanks and hauled to the Alfred lagoon (150 m3)
March 29	Maintenance done on old clarifier, found cracked outlet pipe, replaced pipe, valve and actuator while clarifier was empty, should be could for 20 yrs.
April 3, 15 & 25	Power failures

Date	Description
April 26	Repair raw influent valve for Actiflo
May 17	Semi annual PRV inspections
May 19	Ecoflo biofilter sewage system inspection
May 31	System audit was performed and no non conformances were noted
July	SCADA repairs on several occasions
August 10	Replaced motor coupling on high lift pump number 37
August 28	Filter valve #2 on Actiflo failed, replaced motor brushes will monitor
November 8	Annual inspection of UV system
November 29/30	Turbidimeter scaling and calibration for old plant

### Distribution Maintenance

Date	Location Reference	Description
January 12	66 Pitre street	Repaired water service, pipe split on municipal side
January 21	Lefaiivre distribution	Preventive Boil Water Advisory in Lefaiivre due to power failure and generator not starting due to extreme cold (total 40 minutes) Reported to MECP and MOH and followed directives. PBWA rescinded on January 24 <sup>th</sup> .
January 25	410 Main street	Repaired water main leak main valve
February 6	Plantagenet distribution	Thaw 4 hydrants found frozen during inspection
April 28	Alfred tower	Repaired fence
May	Alfred-Plantagenet distribution	Flushing of distribution network was completed in Alfred and Lefaiivre
May 12	Alfred distribution	Water meter chamber was damaged during road grinding on Concession #3, chambers filled with gravel and pipe repaired. Similar work at chamber on Concession #2, water meters will be installed in homes instead.
May 21	Alfred-Plantagenet water systems	Major storm, power outages throughout the municipality for several days, OCWA staff were able to maintain power at all facilities with extra generators and monitored 24hrs a day, no loss of service
July	Plantagenet Distribution	Flushing of distribution hydrants completed
August 9	Plantagenet distribution	Replaced antenna and wire for communication from booster station
September	Alfred-Plantagenet distribution	All fire hydrants painted and coded according to last flow test results
October	Alfred-Plantagenet distribution	All fire hydrants painted and coded according to last flow test results

<b>Date</b>	<b>Location Reference</b>	<b>Description</b>
October/ November	Alfred-Plantagenet distribution	Flushed distribution systems and winterized all hydrants
November 2	Alfred Distribution	Fix valve bolts
November 9	Plantagenet Distribution	Fix Main Valve
December 8	Plantagenet Booster	Chlorine analyzer added to wonderware for trending

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## **Appendix A - WTRS Data and Submission Confirmation**



Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)

WTRS-WT-008

**Water Taking Data submitted successfully.**

**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 4354-AK4NJ9

Permit Holder: THE CORPORATION OF THE TOWNSHIP OF ALFRED AND PLANTAGENET.

Received on: Feb 8, 2023 8:08 AM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

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