Minden Drinking Water System

Waterworks # 210000194
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The Township of Minden Hills

Reporting Period of January 1st – December 31st 2024

Issued: February 24, 2025

Revision: 0

Operating Authority:

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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 does not serve more than 10,000 residence and the annual reports will be available to residents at the Township of Minden Hills Municipal Office. Notification will be at the Municipal Office and copies provided free of charge if requested. The Township of Minden Hills Administration Office is located at 7 Milne Street in Minden, Ontario.

Compliance Report Card

Drinking Water System Number: 210000194
Drinking Water System Name: Minden DWS
Drinking Water System Owner: Township of Minden Hills
Drinking Water System Category: Large Municipal Residential
Period Being Reported: January 1, 2024 - December 31, 2024

Health & Safety	# of Events	Date	Details
Number of Incidents	0	N/A	N/A

Drinking Water	# of Events	Date	Details
MECP Inspections	1	May 8, 2024	Announced Detailed Drinking Water Inspection - Final Inspection Rating of 100%
AWQI's	0	N/A	N/A
Number of Non-Compliances	0	N/A	N/A
Number of Boil Water Advisories	0	N/A	N/A

System Process Description

Raw Source

The Minden Water Treatment Plant is supplied with raw groundwater from two non-GUDI wells: Well # 1 and Well # 2.

Treatment

The treatment system consists of the following:

- Two drilled groundwater production wells deemed non-GUDI
- Raw water flow meters
- Chemical feed system consisting of two metering pumps for iron and manganese sequestering with sodium silicate and two metering pumps for primary and secondary

disinfection with sodium hypochlorite solution
- Chlorine contact chamber
- Continuous online free chlorine residual monitoring of treated water prior to entering the distribution system
- 1500 cubic meter elevated water storage tower
- Standby power generator at pumphouse

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi
Sodium Silicate	Iron and Manganese Sequestering	Swish

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There was no adverse water quality incidents during the reporting period.						

Non-Compliance

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliances during this reporting period.				

Flows

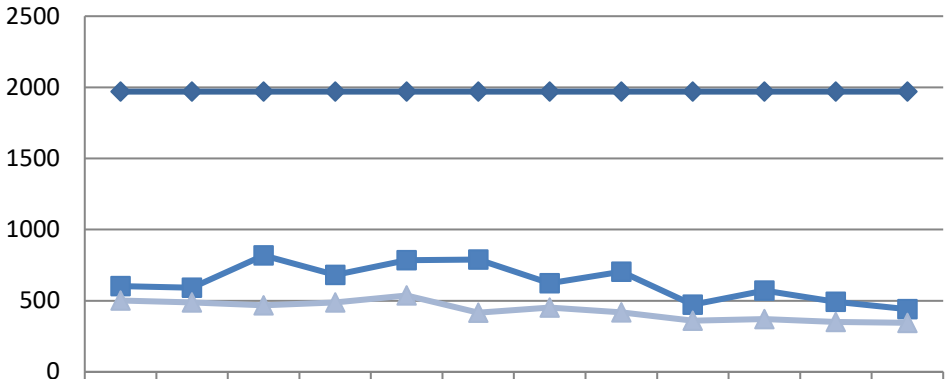
The Minden Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2024 Raw Flow Data will be submitted to the Ministry electronically under permit No. P-300-1204962529.

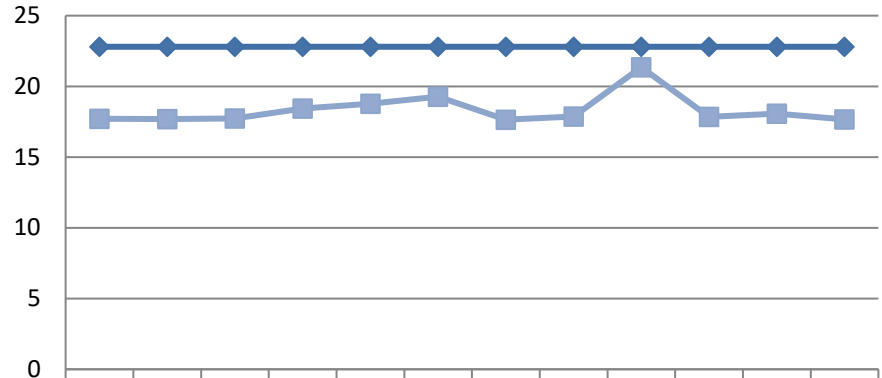
Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m3/d)	1970	1970	1970	1970	1970	1970	1970	1970	1970	1970	1970	1970
Max Flow (m3/d)	602	592	818	681	784	789	623	703	473	572	492	441
Avg (m3/d)	501	489	468	489	537	416	451	418	360	371	350	345

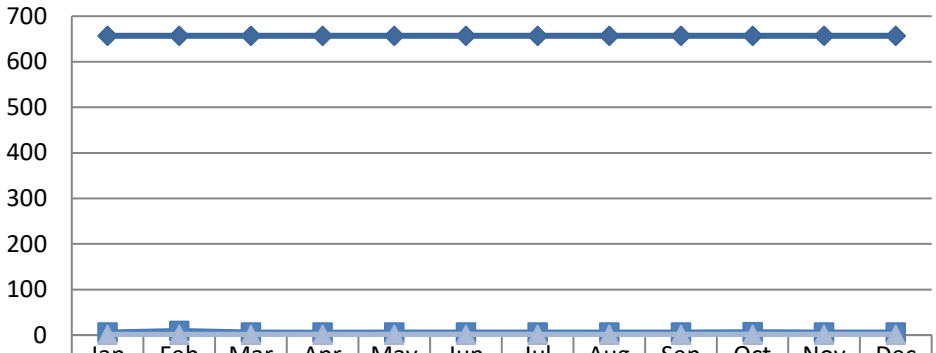
Monthly Rated Flows (L/s)
Max allowable rate – PTTW- Well #1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
Max Rate (L/s)	17.7	17.7	17.7	18.4	18.8	19.3	17.6	17.9	21.4	17.9	18.1	17.7

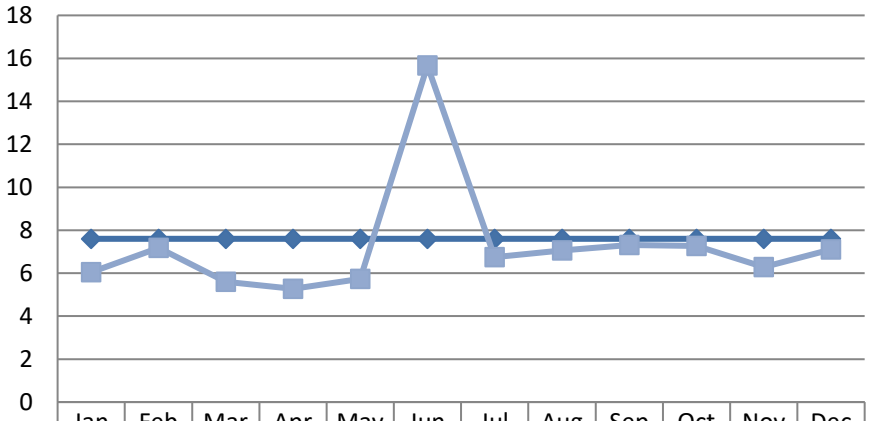
Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #2



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m3/d)	657	657	657	657	657	657	657	657	657	657	657	657
Max Flow (m3/d)	5.3	9.0	5.5	5.3	5.9	5.7	5.8	5.3	5.6	6.2	5.4	5.8
Avg (m3/d)	0.9	0.7	0.6	0.8	0.7	0.9	0.9	0.5	0.7	0.9	0.7	0.8

Monthly Rated Flows (L/s)
Max allowable rate – PTTW- Well #2



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Max Rate (L/s)	6.1	7.2	5.6	5.3	5.7	15.7	6.7	7.1	7.3	7.3	6.3	7.1

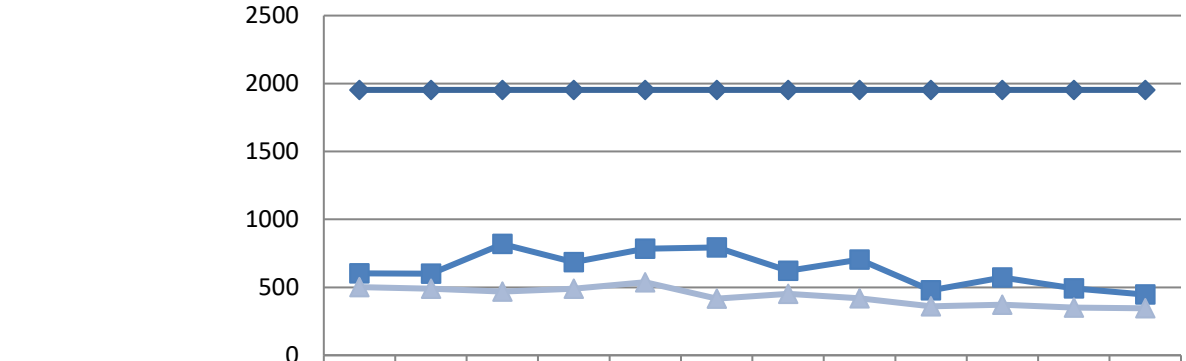
Note: The above table shows exceedances in instantaneous peak flow rate (L/s) in June. The actual PTTW limit is 456L/min. June spike occurred as a result of flow meter calibrations.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence (MDWL). The Minden DWS does not have a treated flow meter so the total raw water flows are used.

Monthly Rated Flows

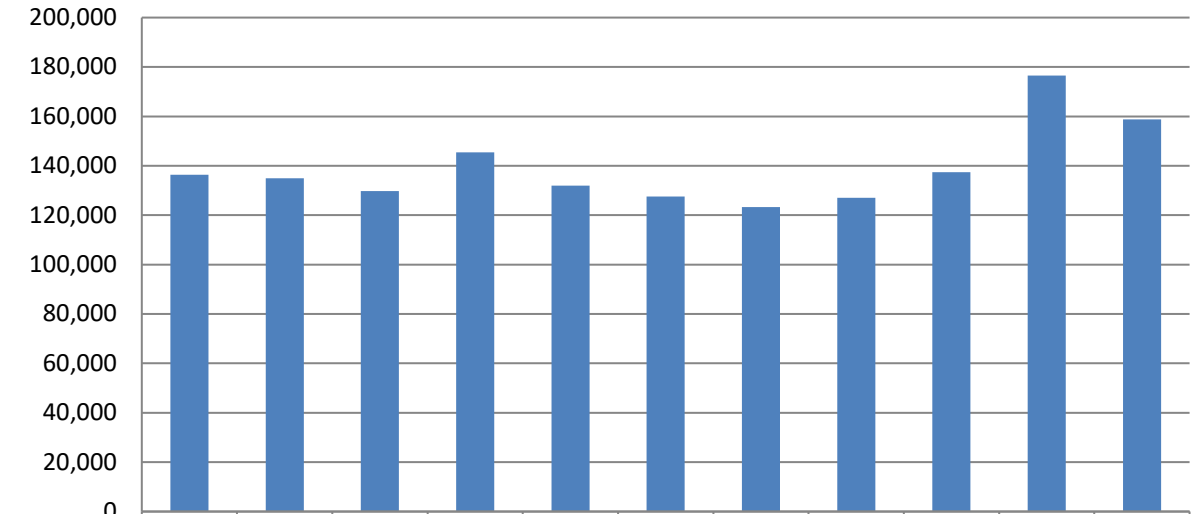
Rated Capacity – MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m3/d)	1953	1953	1953	1953	1953	1953	1953	1953	1953	1953	1953	1953
Max Daily Flow (m3/d)	602	601	818	686	784	794	623	703	478	572	492	446
Avg (m3/d)	502	490	469	490	538	416	452	419	361	372	351	346

Annual Total Flow Comparison

Total Annual m3



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
WTP (m3)	136,309	134,984	129,791	145,493	131,922	127,549	123,330	127,062	137,371	176,517	158,74

Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		No. of Samples Collected	Range of HPC Results	
		Min	Max	Min	Max		Min	Max
Raw Well 1	53	0	0	0	0			
Raw Well 2	54	0	0	0	0			
Treated	53	0	0	0	0	53	0	4
Distribution	160	0	0	0	0	159	0	20

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Chlorine	8760	0.00	5.00
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

Note: Record the unit of measure if it is **not** milligrams per litre.
Note: For continuous monitors 8760 is used as the number of samples**.** 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

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 every 3 years 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.

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2023/01/05	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TW	2023/01/05	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2023/01/05	151.0	1000.0	No	No
Boron: B (ug/L) - TW	2023/01/05	35.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2023/01/05	0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2023/01/05	0.22	50.0	No	No
Mercury: Hg (ug/L) - TW	2023/01/05	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2023/01/05	0.07	50.0	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Uranium: U (ug/L) - TW	2023/01/05	1.07	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2023/01/05	0.2	1.5	No	No
Nitrite (mg/L) - TW	2023/01/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/04/09	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/07/02	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/10/01	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2023/01/03	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2023/04/09	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2023/07/02	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2023/10/01	<MDL 0.006	10.0	No	No
Sodium: Na (mg/L) - TW	2023/01/05	16.4	20*	No	Yes

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

*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 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	147	160	N/A	N/A
pH	2	4	7.95	8.08	N/A	N/A
Lead (ug/l)	2	4	0.01	0.16	10	0

Organic Parameters

These parameters are tested every 3 years 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.

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	2023/01/05	<MDL 0.02	5.00	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Atrazine + N-dealkylated metabolites (ug/L) - TW	2023/01/05	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2023/01/05	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2023/01/05	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2023/01/05	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2023/01/05	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2023/01/05	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2023/01/05	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2023/01/05	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2023/01/05	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2023/01/05	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2023/01/05	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2023/01/05	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2023/01/05	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2023/01/05	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2023/01/05	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2023/01/05	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2023/01/05	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2023/01/05	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2023/01/05	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2023/01/05	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2023/01/05	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2023/01/05	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2023/01/05	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2023/01/05	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2023/01/05	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2023/01/05	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2023/01/05	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2023/01/05	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2023/01/05	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2023/01/05	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2023/01/05	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2023/01/05	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2023/01/05	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2023/01/05	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2023/01/05	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2023/01/05	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2023/01/05	<MDL 0.2	100.00	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Triallate (ug/L) - TW	2023/01/05	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2023/01/05	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2023/01/05	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2023/01/05	<MDL 0.12	100.00	No	No
Trifluralin (ug/L) - TW	2023/01/05	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2023/01/05	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2024	15.4	100	No	No
HAA Total (ug/L) Annual Average - DW	2024	5.3	80	No	No

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

Additional Legislated Samples

There was no additional sampling required.

Major Maintenance Summary incurred to install, repair or replace required equipment

Work Order No.	Description
3064495	DEFERRED 5838, Minden Water Distribution, Hydrant Replacements HWY 35
3706641	Corporate Facility Workplace H & S Inspection Action Items 2023
3951754	5838, Minden Water Distribution, Fire Hydrant 88 (Hwy35 and Booth) Inoperable
3951756	5838, Minden Water Distribution, Main Valve 83C (Hwy 35 and Water) Need Repair
4094650	5838, Minden Water Distribution, Water Pressure Issue 6 McPherson St
4096003	5838, Minden WT, Distribution Parts, Purchase
4197073	5838, Minden Water Distribution, Purchase and Install Yard Hydrant at S outh End of Highway 35
3948200	5838, Minden Water Distribution, Hydrant Valve Repair 35 Orde St
3951751	5838, Minden Water Distribution, Valve 55 (Beside Post Office) Stuck Closed
3951753	5838, Minden Water Distribution, Valve 77 (In Front of Post Office) Housing Required Cap Stuck
3951755	5838, Minden Water Distribution, Fire Hydrant 13 (Lions Hall) Inoperable

4238253	5838, Minden WT, Replace Well 1 Level Monitor
3999307	5838, Minden WT, Alarm Dialer, Replacement
4052163	5838, Minden Water Distribution, Valve (40&41) Repair Intersection of Newcastle, Bobcaygeon & Milne
4095152	5838, Minden WT, Spare Chlorine Probe, Membrane Cap, Repair