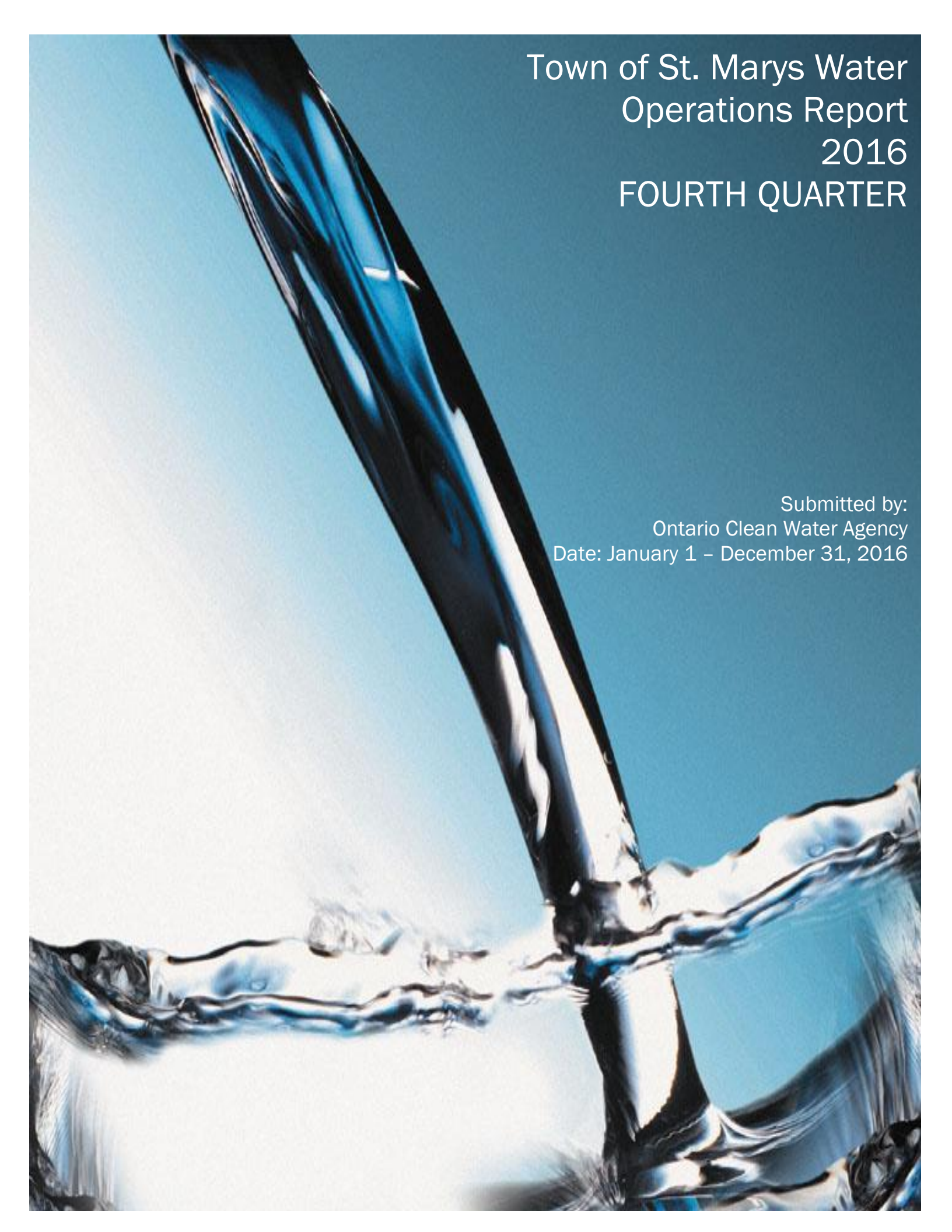




Town of St. Marys Water Operations Report 2016 FOURTH QUARTER

Submitted by:
Ontario Clean Water Agency
Date: January 1 – December 31, 2016

Facility Description

Facility Name: St. Marys Water Treatment Plant
Operations Manager: Renee Hornick (519) 274-0997
Business Development Manager: Jackie Muller (519) 643-8660
Facility Type: Municipal
Classification: Class 2 Water Distribution and Supply
Title Holder: The Corporation of the Town of St. Marys

Service Information

Area(s) Served: Separated Town of St. Marys
Population Served: 6,800

Capacity Information – Well No. 1

Total Design Capacity: 5,184 (m³/day)
Total Annual Flow (2015 Data): 356,733.8 (m³/year)
Average Day Flow (2015 Data): 1,243.01 (m³/day)
Maximum Day Flow (2015 Data): 3,504.15 (m³/day)

Capacity Information – Well No. 2A

Total Design Capacity: 5,184 (m³/day)
Total Annual Flow (2015 Data): 420,380.4 (m³/year)
Average Day Flow (2015 Data): 1,464.74 (m³/day)
Maximum Day Flow (2015 Data): 3,249.25 (m³/day)

Capacity Information – Well No. 3

Total Design Capacity: 5,184 (m³/day)
Total Annual Flow (2015 Data): 326,164.2 (m³/year)
Average Day Flow (2015 Data): 1,144.44 (m³/day)
Maximum Day Flow (2015 Data): 3,379.62 (m³/day)

Operational Description

Each of the Pump Houses No. 1, 2A and 3 houses a vertical turbine pump, each rated at 60L/s capacity. These draw water from the three wells. Water passes through the air release valves, a backflow check valve, pressure gauges, the primary UV light disinfection unit, flow meter, the chlorine gas injection point, and actuator control valve and then into the contact chamber piping located underground.

COMPLIANCE AND EXCEEDANCES SUMMARY:

There have been no compliance or exceedance issues to date.

OCCUPATIONAL HEALTH & SAFETY:

There have been no health and safety issues to date.

GENERAL MAINTENANCE AND PLANT ACTIVITIES:

General maintenance includes monthly generator tests, greasing equipment and preventative maintenance.

FIRST QUARTER

January

6: Curney Mechanical was onsite at all well houses to complete the annual inspection of backflow preventing devices.

8: OCWA operational staff replaced a section of ½" copper line at Well #1 which provides water to lubricate the well pump packing.

11: Well #2 – Operational staff noticed water dripping between well pump and pipe, fixed the issue by tightening up bolts between fittings.

19: Curney Mechanical was onsite at Well #1 to complete the annual inspection on two (2) temporary backflow preventing devices used at the Baseball Hall of Fame.

22: Well #2 - Unable to connect to SCADA, contacted IT department and they were able to fix issue remotely.

February

10: Well #3 – Operational staff replaced ball valve on CL2 analyzer line due to pinhole leak.

11: Well #2 – Curney Mechanical was on site replacing backflow as current one that is leaking could not be fixed.

March

1: Well #3 – Operational staff noticed a ground fault on well pump. OCWA Electrician called in to look at and replaced fuse, rubber taped power feeds.

3: Booster station set off by an industry– testing fire alarm.

8: Well #2 – Operational staff changed both UV sensors.

14: Well #2 – Operational staff had a plumber repair copper analyzer line due to pinhole.

14: Well #2 – Verbatim started going into random checks. Pierce Services was contacted and is looking at fixing issue.

15: Well #3 – OCWA Electrician was on site to troubleshoot pump fault issue and found faulty patch cord.

16: Well #3 – VFD solutions were on site troubleshooting pump fault issue. Changed ground fault sensitivity and changed patch cord.

24: Well #3 – OCWA Electrician was on site trouble shooting pump fault issue again.

28: Water Tower generator was running due to power outage.

SECOND QUARTER

April

4: Well #3 – Operator noticed Cl2 alarm not working properly, contacted OCWA IT and later tested through SCADA.

5: Well #1 – H2Flow was on site to perform annual UV maintenance of cleaning sleeves and checking seals.

5: Well #2 –Pierce Services was onsite to install temporary verbatim until the other one is fixed. H2Flow performed their annual maintenance on the UV system (cleaning sleeves and looking at seals). Tested verbatim by creating false alarm on SCADA.

5: Well #3 – H2Flow was on site to perform annual UV maintenance of cleaning sleeves and checking seals.

11: Well #3 – Noticed higher than normal chlorine due to high back pressure caused by closed valve on Queen Street. The well was back flushed causing the low pressure in the West end of town.

11: Booster – Booster was running due to issues at a south end industry. Issue was fixed within one hour and booster turned back on afterwards.

12: Well #2 – Operator adjusted valve due to back pressure caused by broken valve on Queen Street. Operator adjusted chlorine feed rate to compensate for higher than normal flows due to broken valve and watermain on Pellisier Street. Feed rate was adjusted back to normal operating dose by end of day. Operators received multiple alarms due to issues caused by watermain break on Water Street.

12: Well #3 – Operator noticed low chlorine level due to closing the valve on Queen Street and after the watermain break on Pellisier Street. Operator adjusted chlorine feed rate due to pressure issue from closed valve on Queen Street.

12: Booster – Booster was running due to issues at a south end industry. Booster was able to reset right away.

18: Well #3 – Performed alarm testing with OCWA IT due to chlorine not shutting down at set point.

21: Booster – Booster station was shut off for Georgian Bay flow testing. Booster turned back on within one hour.

27: Well #2 – Pierce Services was onsite to install repaired verbatim.

28: Well #2 – Discovered a blown bulb for the UV disinfection replaced both bulbs.

May

9: Well #3 – Well manually shut down when chlorine reached 0.50, main valve closed. No alarm received, OCWA IT was contacted and issue was resolved.

17: Well #2 – Cubberly plumbing fixed copper line for analyzer.

17: Well #3 – Received UV alarm due to power outage. Original chlorine injection line hooked back up and put into service. Alarm was received due to chamber being drained causing a drop in pressure and low water alarm.

18: Well #3 – Well was back flushed before start up as a precaution due to chlorine injection line installation.

19: Well #2 – Replaced UPS for PLC panel due to current one being faulty. Operator also received an alarm for UV failure and turbidity due to UPS failing. Well was not running at time of failure.

19: Well #3 – Replaced chlorine injection line and small section of wire with schedule 80 pipe.

24: Well #3 – Replaced fittings on chlorine gas injection line.

26: Well #3 – Discovered a crack in chlorine gas vacuum line – fixed immediately.

June

8: Well #2 – Well tried to start but unable due to low rate start up. Tried resetting VFD drive by turning off the power causing an alarm. Pierce Services contacted to resolve issue.

9: Well #1 – IWS performed a flow test for future maintenance.

9: Well #2 – Troubleshooting well start up issues. Required multiple starts and stop due to maintenance.

10: Well #1 – Pierce Services onsite looking at flow meter issue. Changed low rate on SCADA from 86 to 87 and high rate from 92 to 94. Flow rate issue believe to be a SCADA issue.

10: Well #2 – Pierce Services and electrician onsite with VFD specialist to analyze well start up issues. Multiple alarms received while troubleshooting. Faulty drive found and fixed.

20: Well #3 – Rebuilt injection unit. Received alarm due to UV failure upon start up due to number two bulb failure. H2Flow contacted.

22: Well #3 – H2Flow on site to review UV bulb issue, found water in sleeve, replaced seal. UV and pressure alarm received during maintenance. Received low chlorine alarm and an alarm due to UPS fail issue now believed to be electrical problem. Operator discovered blown fuse inside PLC panel, fuse and cap were replaced.

24: Well #3 – Chlorine heads cleaned due to low chlorine issue. Received alarm due to low chlorine.

28: Well #3 – Replaced broken diaphragm and fitting, chlorine now working as it should. UV sensor reference check performed, received minor UV alarm due to check.

- 29: Service repair at 106 Peel Street South
30: Well #1 – Re-sampled for raw and treated due to Purolator shipping error.

THIRD QUARTER

July

- 4: Valve replacement at Queen Street East and Thames Street
5: Valve replacement at Queen Street East and Thames Street – East side of Thomas Street
11: Service repair at 23 Millson Crescent
14: Capped “T” for old hydrant lead at Queen Street East off of James Street
23: Well #2 – Received UV failure alarm – new VFD is currently on order to resolve the issue
25: Valve replacement at Queen Street East and Water Street South
26: Well #3 – Received a UV alarm/pump fail to start alarm reset UV alarm
27: Well #3 – Alarm received due to power failure, reset alarm – all ok
27: Valve repair at Queen Street East and Wellington Street
29: Well #3 – Received VFD fault alarm – all ok

August

- 5: Well #3 – Pierce Services electrical contractor onsite replacing the reactor which may be related to the ground fault alarms
8: Well #2 – New VFD installed
9: Well #3 – Received pump fault alarm – all ok
11: Well #3 – Received pump fault alarm – all ok. Festival Hydro investigated the transformer that is onsite to see if this is related to the pump faults. They confirmed everything is ok.
12: Well #3 – Forman Electric onsite checking grounding, volts, capacitors etc. to see if this is related to the pump faults.
13: Well #3 – Forman Electric onsite to install new capacitors to see if this will resolve the issue of pump faults
19: Tie-in of two (2) watermains at Queen Street West to Thomas Street
23: Well #2 – Adjustments to singer valve made to regulate flow through the system
25: Well #2 – Installed VFD filter
29: Well #3 – Repairs to pinhole leak in chlorine analyzer
30: Valve repair at 190 Widder Street East

September

- 7: Well #2 – Repaired small leak on chlorine suction line
12: Well #1, #2 and #3 – H2Flow onsite to do annual maintenance on UV system
13: Well #2 – Replaced UPS
16: Well #1 – Installed fuses for VFD filter
16: Well #2 – Replaced capacitors and blown fuse for VFD
16: Service repair at 424 Queen Street East
16-20: Well #1 – Well taken offline for IWS for well inspection including videoing the well and inspecting the well pump
21: Well #3 – Received pump fault alarm – all ok.
23: Received UV alarm related to low flow issue. Cleaned singer valve parts as low flow may be the issue for the alarm.
29: Well #3 – Received low flow alarm related to singer valve not opening. A new valve is on order.
30: Well #1 - Replaced UPS for SCADA

FOURTH QUARTER

October

- 4: Well #1 – Well chlorinated after well inspection completed
5: Two (2) valves repaired on Queen Street East
7: Well #1 – Pump fault issue – related to SCADA issue that has been resolved
11: Well #2 – Replaced fuse for UV Trojan touch screen

12: Well #3 – Alarm received due to VFD fault – reset all ok
13: Well #3 – Installed cooling fans in VFD cabinet
20: Well #3 – Installed rented well motor to see if ground fault issues are due to motor
20: Well #3 – Installed new UPS
27: Valve replacement on St. John Street and Queen Street East
27: New service installation on 23 St. George Street at empty lot

November

6: ¾" copper service repair on 5 Millson Crescent
7: Well #1 – Replaced CI2 injector
14: Well #2 – High chlorine alarm caused by lower flow rate
15: Service replacement at 190 Widder Street East
16-17: Bell on-site to do repairs to telephone line
21: New watermain testing from Emily Street to James Street
21: New 1" service installed at 299 Queen Street West
30: Valve replacement on Park Street and Church Street

December

8: Valve replacement on North valve at Tracy Street and Park Street
12: Well #3 – Currently using reference check sensor for UV system as primary sensor has failed
12: New "T" and valve installed at Ardmore Street and Westover Street
15: Well #1 – Sommers onsite doing annual generator maintenance
21-22: Took samples for Ardmore Street and Westover Street for final connection

PREVENTATIVE MAINTENANCE WORK ORDERS GENERATED												
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
59	55	53	57	56	90	55	52	50	56	54	23	660

All work orders were completed on schedule.

WATERMAIN BREAKS:

Location	Date
Watermain repair on Wellington and Queen Street – 133 Queen Street	January 7, 2016
Watermain repair at 113 Jones Street West	February 22, 2016
Watermain repair at 113 Queen Street	April 1, 2016
Watermain repair on Pellisier Street	April 12, 2016
Watermain repair on Water Street South and Jones Street	April 13, 2016
Watermain repair at 270 Jones Street	June 27, 2016
Watermain break at 106 Peel Street South	June 29, 2016
Watermain repair at 190 Widder Street	December 16, 2016

ALARMS / CALL-INS:

FIRST QUARTER

February

20: Well #1 – Operational staff were called out to a door alarm. Operator checked security and found all was ok.

23: Well #1 – Operational staff received a UV alarm at 07:00 hrs.

23: Well #3 – Operational staff were called out at 20:00 hrs due to ground fault alarm.

26: Well # 3 – Operational staff received an alarm due to ground fault. OCWA electrician was notified and on site at 13:00 hrs to investigate the issue. A blown fuse in the line filter cap was found.

March

23: Well #3 – Received a call our at 02:20 hrs due to ground fault, alarms were reset and well restarted. At 12:45 hrs well alarmed out again do to ground fault and OCWA electrician was notified.

SECOND QUARTER

April

6: Received a call due to discoloured water at 35 Wellington Street N property.

8: Received a call due to water leak at 186 Ardmore – Lang owned property.

11: Well #2 – Received a high chlorine alarm due to broken valve on Queen Street. Well was back flushed and residuals were taken from distribution system.

12: Well #1 – Received low chlorine alarm caused by broken valve on Queen Street. Operator started to backflush contact chamber at hydrant out front to increase residuals. Adjusted feed rate to compensate for higher than normal flow rate due to broken valve.

12: Received booster station alarm – reset, all ok.

12: Well #3 – Received alarm due to low chlorine.

14: Well #2 – Received multiple UV alarms. Upon inspection, discovered that singer valve was not opening – adjusted valves and UV operating as it should.

14: Emergency locates requested for 580 James Street South.

24: Well #2 – Operator received UV alarm due to low dosage.

24: Well #1 – Operator received a low battery alarm for UPS.

May

4: Well #3 – Received alarm due to UV failure.

18: Received a call for low water pressure at the Cheese shop.

20: Well #3 – Received alarm due to chlorine gas leak. Well was not running at the time, operator turned chlorine tanks off for the night.

31: Well #3 – Received alarm due to UV failure.

June

8: Received a call to shut off the water on Church Street for Lavis Construction.

10: Well #3 – Received an alarm due to pump fault and UV failure.

11: Booster Station – Received a booster pump running alarm because the Fire Department was using water for fire at an industry.

13: Well #3 – Received an alarm on well start up. The electrical department was on site to look at the issues with the pump fault alarms.

21: Well #3 – UV alarm received due to failing UPS in the PLC panel. Town of St. Marys contacted to replace the UPS.

THIRD QUARTER

July

8: Operator called in to turn on valves for Turner Plumbing.

9: Operator called in to shut off water at 477 Jones Street East & turn back online.

9: Operator received a call due to a sink hole in home owners driveway at 139 King Street North.
10: Well #2 – UV failure alarm
23: Well #2 – VFD failure alarm
28: Well #3 – UV and VFD pump fault alarms

August

8: Well #3 – Pump fault alarm
15: Service repair at 23 Millson Street
20: Operator received a call for Widder Street East – no water – this is related to an internal issue

September

10: Service leak at 224 Thomas Street
21: Well #3 VFD and UV fault alarms
24: Well #1 pump fault alarm

FOURTH QUARTER

October

7: Well #1 – UV alarm
16: Well #1 – UV alarm
17: Booster station alarm
23: Booster station alarm

November

9: Operator called out to Stone Willow Inn due to discoloured water – all ok.
13: Well #2 – High Cl2 alarm
15: Well #3 – Major UV alarm
17: Booster station alarm
18: Booster station alarm

December

No alarms or call-ins for the month of December.

COMPLAINTS & CONCERNS:

There have been no complaints or concerns reported to date.

DWQMS UPDATE:

Management Review – May 11, 2016
Internal Audit – April 28, 2016
External Audit – September 15, 2016
Accreditation Status – Full Scope Entire Accreditation Expires November 2017

REGULATORY INSPECTIONS:

The last MOECC Inspection occurred on September 7, 2016.

APPENDIX A – PERFORMANCE ASSESSMENT REPORT:

See attached.

APPENDIX A

PERFORMANCE ASSESSMENT REPORT

From: 01/01/2016 to 31/12/2016

Flows:	01/2016	02/2016	03/2016	04/2016	05/2016	06/2016	07/2016	08/2016	09/2016	10/2016	11/2016	12/2016	<-Total-->	<-Avg-->	<-Max-->
Raw Flow: Monthly Total - Well #1 (m³)	31450.4	29643.71	36740.79	56399.41	47644.47	68434.94	63128.33	66450.8	18959.78	28153.03	28117.34	16332.67	491091.67		
Raw Flow: Monthly Avg - Well #1 (m³/d)	1497.64	1347.44	1469.63	2555.98	1905.78	2359.83	2338.09	2215.03	1690.53	1340.62	1338.92	1020.79		1731.69	
Raw Flow: Monthly Max - Well #1 (m³/d)	2637.51	3152.07	3149.58	3332.66	3463.86	3873.41	3692.93	3504.8	2917.26	2813.86	3017.77	2017.73			3873.41
Raw Flow: Monthly Total - Well #2 (m³)	34374.18	29037.42	33228.82	17994.64	34727.63	31112.16	30512.01	8288.68	58342.68	51566.76	48065.81	52456.54	429707.33		
Raw Flow: Monthly Avg - Well #2 (m³/d)	1432.26	1451.87	1748.89	1058.51	1736.38	1481.53	1695.11	1036.09	2083.67	2062.67	1780.22	1748.55		1609.64	
Raw Flow: Monthly Max - Well #2 (m³/d)	2503.2	3194.87	2730	2823.13	3274.85	3595.11	3500.27	1857.54	3337.21	3141.26	2777.44	3156.98			3595.11
Raw Flow: Monthly Total - Well #3 (m³)	23710.13	24272.04	22922.4	19709.66	18590.24	11685.18	13578.11	30193.89	16766.68	9356.08	9081.56	12469.23	212335.2		
Raw Flow: Monthly Avg - Well #3 (m³/d)	1030.88	1277.48	1146.12	938.56	929.51	730.32	714.64	1312.78	986.28	719.7	567.6	692.74		920.55	
Raw Flow: Monthly Max - Well #3 (m³/d)	2901.84	2863.25	2754.5	2220.71	2970.93	2630.52	2462.92	2685.52	2315.17	1258.33	1462.32	1746.15			2970.93
Raw Flow: Monthly Total - Total Raw Flow (m³)	89534.71	82953.17	82892.01	79369.01	95220.98	100010.97	72373.58	48625.04	35904.48	53874.99	82347.2	78934.22	912040.36		
Raw Flow: Monthly Avg - Total Raw Flow (m³/d)	2888.22	2860.45	2996.52	3174.76	3283.48	3704.11	3618.68	3241.67	3264.04	2835.53	2839.56	2631.14		3111.51	
Raw Flow: Monthly Max - Total Raw Flow (m³/d)	3734.59	3537.94	3591.02	4185.49	3947.94	4285.75	4208.43	3700.38	3594.23	3371.89	3492.2	3156.98			4285.75
Chemical Parameters:															
Treated: Max Nitrite - Treated Water #1 (mg/L)	< 0.003		< 0.003			< 0.003			< 0.003					< 0.003	
Treated: Max Nitrate - Treated Water #1 (mg/L)	1.59		3.72			0.992			0.49					3.72	
Treated: Max Nitrite - Treated Water #2 (mg/L)	< 0.003		< 0.003			< 0.003			< 0.003					< 0.003	
Treated: Max Nitrate - Treated Water #2 (mg/L)	0.402		1.25			0.633			0.348					1.25	
Treated: Max Nitrite - Treated Water #3 (mg/L)	< 0.003		< 0.003			< 0.003			0.004					0.004	
Treated: Max Nitrate - Treated Water #3 (mg/L)	0.408		1.02			0.616			0.265					1.02	
Distribution: Max THM - Distribution System (µg/l)	18			17			22			26					26
Bact Samples Collected:															
Raw Bact: # of samples - Well #1	4	5	4	4	5	4	4	5	2	3	5	4	49		
Treated Bact: # of samples - Treated Water #1	4	5	4	4	5	4	4	5	2	3	5	4	49		
Raw Bact: # of samples - Well #2	4	5	4	4	5	4	3	3	4	4	5	4	49		
Treated Bact: # of samples - Treated Water #2	4	5	4	4	5	4	3	3	4	4	5	4	49		
Raw Bact: # of samples - Well #3	4	4	5	4	5	4	4	5	4	5	5	4	53		
Treated Bact: # of samples - Treated Water #3	4	4	5	4	5	4	4	5	4	3	5	4			