



The Corporation of the Municipality of Arran-Elderslie

Staff Report

Council Meeting Date: January 9, 2023

Subject: SRWS.23.01 Drinking Water Quality Management Standard Review and Updates for 2021

Report from: Scott McLeod, Public Works Manager

Appendices:

1. Quality Management Policy
2. Quality Management System Representative
3. 2021 Owner Communications

Recommendation

Be It Resolved that Council hereby,

1. Accepts report SRWS.23.01 which includes Drinking Water Quality Management Standard (DWQMS) review and updates for 2021.

Report Summary

The report is provided to Council on a yearly basis in conjunction with DWQMS to provide an annual review of the Water & Sewer Operations Division of the Public Works Department. Sign-off sheets are included in the report, and the annual reports can be found on the Arran-Elderslie website for review.

It should be noted that this report was delayed being presented to Council due to staffing changes, the replacement of the DWQMS representative, reduced available Council dates due to fall election, etc. This report includes similar background information as previous annual reports. It is the intention to bring the 2022 annual report forward by the summer of 2023 once all information is available.

Background

The Municipality of Arran-Elderslie has an Operation Plan which is part of the Drinking Water Quality Management Standard.

Every year, as part of the DWQMS requirement a management review is conducted. This report will highlight the Management Review and Annual Water & Wastewater Reports. Typically, in the past Annual Ministry of the Environment Conservation and Parks (MOECP) water inspections are also included, but those results have not been received yet, and will be forthcoming at a future council meeting.

Analysis

1. Incidents of Regulatory Non-Compliance:

The MOECP has conducted the Tara Drinking Water System Inspection and the Arran-Elderslie Inspection both on the same day July 28, 2021. Both inspections were done on-site with proper Covid protocols followed. The MOECP has also switched to a new online system that has been slow in sending out the "Inspection Rating Reports" for these inspections. At this point the Municipality has received the Inspection Report that indicates no "Actions Required" or "Recommended Actions" and a Council report will be forthcoming in the future once these "Inspection Rating Reports" are received from the MOECP

2. Incidents of Adverse Drinking Water Tests:

The Arran-Elderslie Drinking Water System has one (1) adverse microbiological sample taken in the 2021 calendar year. The sample occurred on August 11, 2021, at the Arena East Lift Station in Chesley. The results found two (2) total coliforms in a distribution sample. Subsequent re-samples were completed indicating no adverse conditions, authorities were notified, and the event resolved. AWQI number #155020 was issued for the event.

The Tara Water System had zero (0) adverse microbiological sample taken in the 2021 calendar year. However, there was one (1) AWQI incident. On May 19, 2021, the Tara Drinking Water System, lost system pressure. The Tara water tower was out of service for scheduled maintenance. The system was being pressurized by online wells, running on standby generator power. The Generator failed, causing a loss of system pressure. Staff took 13 distribution residual tests, repaired the generator, brought the wells back online and restored system pressure. Authorities were notified and the event resolved. AWQI number #154085 was issued for the event.

3. Deviations from Critical Control Point Limits & Response Actions:

The following are considered critical control points from the Risk Assessment completed on the water system: Low Chlorine Residual, Chlorine Pump Failure, Ultra-Violet Failure, Power Outage, Chlorine Contact Time Issues, Watermain Breaks, and Low Distribution Pressure.

In 2021, the Arran-Elderslie Water System had an operator respond to four (4) alarms, three (3) of which were related to critical control points. These alarms included one (2) High POE Turbidity, and one (1) power outage related. There was also one (1) wastewater alarms.

Paisley Water had zero (0) alarm for a critical control point.

Staff had additional Three (3) wastewater alarms in Paisley all due to Power Outages.

An operator responded to an additional Eleven (11) alarms for the Tara Water System, nine (9) of which were critical control point alarms. Those included two (2) power related, One (1) turbidity alarm, three (3) pressure related and three (3) chlorine related. Additional alarms included two (2) calls for water main breaks.

Overall, Staff responded to nineteen (19) alarms in the 2021 calendar year, from the thirty-five (35) alarms responded to in 2020. Though most systems remained consistent, the Tara water system saw a large decrease in call outs. Well maintenance projects that originally caused an increase in call outs appear to now be paying dividends in call volume. The Tara water tower maintenance also added a few alarms during the project but will assist in long term reduction of alarms. Additionally, extreme weather events continue to contribute to both power and wastewater related alarms.

4. Risk Assessment Process of DWQMS:

The risk assessment process for both the Arran-Elderslie and Tara Drinking Water System was completed internally by Staff on April 7, 2021. This process was completed in relation to internal training for the DWQMS and was thought to be a good process to complete as part of the training for new Staff members. This is triggered every three (3) years for review purposes.

5. Internal and Third-Party Audit Results:

An Internal Audit was conducted by Staff on April 22, 2021. The review for these audits has become extremely difficult with the Covid pandemic. It was difficult to meet with Staff in person to conduct interviews. It was also difficult to get new signatures completed into the current manuals with remote meetings etc. Notwithstanding, the inspections went very well with a lot of these types of minor non-conformance and opportunity for improvement issues being addressed. Staff worked to find a resolution of these improvements and implemented necessary changes.

A Systems Audit was conducted for the DWQMS on November 8, 2021. This was a surveillance audit conducted off-site with just a document review due to the Covid pandemic. The systems audit found no minor or major non-conformances, and two (2) opportunities for improvement that Staff reviewed and took into consideration for implementation.

A full re-accreditation audit was conducted by SAI Global from November 30, 2021 to December 2, 2021. These larger in-depth audits are conducted every three (3) years. Normally they are conducted onsite, but with Covid, it was conducted mostly online, with facility tours conducted using video, and operator and DWQMS representative interviews conducted via Zoom. This Audit identified two (2) minor non-conformances and four (4) opportunities for improvement. The two (2) minor non-conformances were resolved early in 2021 and the OFI's taken into consideration and implemented if staff felt they were appropriate. Once the minor non-conformances were addressed, the Auditor closed the audit, finding the DWQMS to be fully in compliance.

6. Results of Emergency Testing:

In conjunction with the review of the DWQMS manual in April 2021, Staff also reviewed all emergency policies.

Again, with new Staff hired it was believed that reviewing all policies would be best to get Staff familiar with Emergency Response Plans. These ERPs relate directly to the risk assessment review we completed allowing Staff to look at each ERP.

7. Operational Performance:

Over the last two years, the EPCOR gas project has required staff assistance with locates. Staff are marking all water and wastewater mains and services as well as hydrants, valves etc.

The Arran-Elderslie Water & Sewer Operations Division of the Public Works Department currently employs three (3) certified operators and one (1) operator in training. The Division has seen extensive increase in locate volume. As a group, the Division was asked to obtain information from various infrastructure to comply with the Asset Management Plan. The GIS program has largely run through the Water & Sewer Operations Division of the Public Works Department over the last two years. In addition, the Division is also part of the Emergency Planning through the County.

8. Roles, Responsibilities and Authorities of the Owner and Top Management:

SLD-9 is the section of the Operational Plan that lists the roles and responsibilities of everyone's position and is included in this report. This has been included for the second consecutive year to highlight the importance of each of the roles and responsibilities. There are training opportunities that exist for Council and Management to take a course through the Walkerton Clean Water Centre pertaining to these roles.

9. Summary of Key Performances Element 15:

DWQMS Element 15 is the infrastructure, maintenance, rehabilitation, and renewal portion of the operational plan. The following key performance indices will be highlighted in this review: water per capita, number of water mains and service leaks, new services connected in each town, and meters of water main replaced.

The 2021 water numbers are the recorded numbers processed through the treated water at each water plant or site. The following numbers indicate approximate usage by Arran-Elderslie water users:

Chesley: 2021 usage of 204,203m³ or 214m³ per connection
 2020 Usage of 215,079m³ or 226m³ per connection

Paisley: 2021 Usage of 115,700m³ or 213 m³ per connection
 2020 Usage of 110,147m³ or 203m³ per connection

Tara: 2021 Usage of 116,965m³ or 229m³ per connection
 2020 Usage of 109,911m³ or 215m³ per connection

10. Water Main Breaks and Service Leaks 2021

The Chesley distribution system had three service leaks in 2021: two due to gas service installation and one due to old poly line. Five additional services were added to the system.

The Paisley distribution system had one service leak in 2021. In addition, five new services were installed in Paisley. The Paisley Trunk watermain also added two household service connections

The Tara distribution system had nine (9) water main breaks which included 5 small poly watermain leaks and 3 cast iron watermain breaks and one pvc watermain break. There were no service leaks in 2021. An additional nine (9) services, in the Chestnut Hill Development, were connected to the system.

11. Water Main Replacement in 2021

Moorefield Excavating replaced undersized cast iron water mains on 6th Street SE from 1st Ave S. to 2nd Ave SE. As well as 4th Ave SW between 4th St SW and 3rd Street Sw. This project was in conjunction with Sewer main and lateral replacement as well as a new road surface and curb /sidewalk replacement.

Arran-Elderslie Staff completed a project on Alma Street in Paisley. This removed an undersized two-inch water main which had several breaks and provided no fire protection. Municipal staff installed a six-inch water main for fire protection. In addition, one vacant lot was also serviced for possible future development.

Arran-Elderslie Staff also completed a project on Maria Street in Tara, from Brooke Street East to River Street. This project replaced a cast iron watermain that had had multiple watermain breaks in the previous 5-6 years. In addition, CC Underground replaced the river crossing under the Sauble River between River Street and Maria Street. This project eliminated a significant weak area of Tara's distribution system as the river crossing was undersized and old.

12. Raw Water Supply and Drinking Water Quality Trends:

The Arran-Elderslie and Tara Drinking Water System has undergone extensive work in the past few years to ensure reliability and production of the raw water supply in each town.

The Arran-Elderslie system has had motors replaced in both the CP#2 and CP#3 wells in the past four years. Included in these jobs is rehabilitation work within the well, and a review of overall condition like piping and check valves.

As mentioned in many of the past management reviews, CP#1 well had continued to have on-going issues. The capital budget for 2021 has money set aside to begin the process of exploring for another water source within the Community Park area. This process is ongoing and was included in the 2022 budget. In June of 2021, the Community Park Well #1 was taken offline. The well, drilled in 1948, continued to have on-going issues with static levels within the well. Then a second failure on the well occurred when large amounts of air were being pushed into the water plant on each start-up of CP#1. This could be caused by a failed check valve or hole within the well house piping. It was determined by Staff that CP#1 be taken offline and that efforts be put forward to finding an alternative water source rather than expensive rehabilitation work. CP#2 and CP#3 ran very well through the hot days of summer with no issues for demand.

The Tara Drinking Water System has also seen extensive work completed to the wells in the past few years. In October 2019, a new wet-end pump was installed at Well #2 in Tara, and the well piping was shortened by twenty (20) feet. In June of 2020, Well #3 in Tara had the pump, motor and three lengths of pipe replaced within the well. This work completed contributed to a large amount of call-outs for the Tara Drinking Water System, in 2020, Problems such as turbidity on start-up, filter related plugging and issues lead to an increase in alarms once the wells were put back into service. After some initial problems, the systems ran relatively well, and alarms are down significantly in 2021.

In 2021 staff conducted testing at Well #3 in Tara This would have given Arran-Elderslie the opportunity to have it deemed a Non-GUDI well If sampling criteria and results were deemed to be successful. Staff have since decided against this option. Throughout the course of the 2021 calendar year, Tara Well #3 has seen three (3) separate instances of E-Coli on the raw water sample. The current treatment process at Well #3 would be best left alone for efficient and safe treatment of the water.

13. Status and Follow-Up from previous reviews:

As mentioned earlier, Staff are moving forward to seek an alternative drinking water source in the community park for the Arran-Elderslie supply, as a replacement for CP#1

The Water & Sewer Operations Division of the Public Works Department continues to lead the GIS program in Arran-Elderslie. Again, this summer a student was hired to move the program forward and get data collected. This process has greatly benefitted Staff with the Ontario One Call locate process. The data collected has allowed Staff to use some of the basic maps for things like the EPCOR gas project. Staff are hoping in the future to streamline this project to make all mapping applications for locates more efficient.

The Municipality has once again signed a three-year contract with SAI Global in August of 2021. This covers three external audits, and as mentioned earlier in this report in late 2021 the re-accreditation audit of the DWQMS system was conducted, and the DWQMS system was re-accredited.

The new workshop/office beside the Arran-Elderslie water plant is complete and the necessary changes to the DWQMS to indicate where files and records are being stored has also been completed.

14. Changes that could Affect the DWQMS:

The Arran-Elderslie and Tara Drinking Water System both had the license for each system updated in early 2021.

This work was completed in-house which included an updated water financial plan completed by the Water and Sewer Operations Division and the Treasury department. The DWQMS had an internal audit, external systems audit and re-accreditation audit conducted in 2021.

15. Consumer Feedback:

There were no written complaints from Arran-Elderslie ratepayers in 2021. Often, Staff receive calls from the municipal office or ratepayers and quick response times often diffuse or resolve problems quickly. The new Citizen Request Portal introduced in 2022 will assist in monitoring and tracking inquiries and response times.

16. Resources needed to Maintain the DWQMS:

As mentioned previously, resources have been spent this year to update the licenses for both the Arran-Elderslie and Tara Water systems. However, this was handled internally through the Water and Sewer Division and Finance Department.

Re-accreditation of the DWQMS was completed. This again involved Staff time to prepare documents and send them off and have on-site interviews with the auditing team. In addition, the re-accreditation itself was a six thousand five hundred (\$6,500) dollar expense.

17. Results of Infrastructure:

Included in the report is SLD-14 for the 2021 season. This table is completed based on MOECP compliance, grants, upgrades, and financial plans. The installation of the UV system at the Paisley Sewage Plant began and substantial completion of that project ended in July 2021. Further projects this year included the installation of a new six-inch water main at Alma Street in Paisley to coincide with the work completed on Nelson Street last year, removing an old, undersized water main. The Municipality teamed up with CC Underground to directionally drill under the river in Tara from Maria to River Street and through the Brook Street East intersection. Upon completion of this work, Staff completed a new eight-inch water main on Maria Street. This replaced a line believed to be installed in 1948 that was the original feed to the Tara water tower. This line has had several breaks over the years and was a much-needed replacement. Moorefield excavating also replaced water main on 6th Street SE in Chesley, and water and sewer replacement on 4th Avenue SW in Chesley.

The Tara water tower was brought offline in the spring and new cathodic protection was added to the now 12-year-old vessel. Camera work was performed on the Paisley water tower reviewed for integrity.

18. Operation Plan Currency, Content and Updates:

The DWQMS was reviewed by Staff in early April 2021 with new hires, and the team was able to review the entire manual. New Risk Assessment guidelines were also reviewed to ensure compliance. Additional time was spent on SOP 20 as guidelines had changed again for the water main break procedure. New traffic policies implemented by the Arran-Elderslie Health and Safety committee were also reviewed. The group went out and completed a hands-on Emergency Response Plan to test a new policy implemented for water tower rescue procedure. Staff have updated their First Aid and CPR as needed with Management setting up a rotating schedule. Obtaining training to maintain drinking water certificates has been very difficult for Staff during Covid. Most courses were cancelled in 2021 for in-person training, but staff will continue to be diligent to obtain the proper training via online courses.

19. Additional Suggestions:

With natural gas now in the area, transferring heat over in some facilities as well as looking at installing natural gas generators will be reviewed in conjunction with financial plans.

Link to Strategic/Master Plan

This report aligns with the DWQMS SLD-12 Owner Communications, and SLD-20 Management Review. It also links to the Water and Sewer Financial plans.

Financial Impacts/Source of Funding

The DWQMS document requires Staff resources on a yearly basis. The Ministry of Environment Conservation and Parks requires external audits for accreditation. Internal audits are conducted both by Arran-Elderslie personnel, and by sharing resources with neighboring municipalities. These all require changes, and staff time to review and implement recommendations.

Municipal staff have completed the financial plans internally for the water system and are finalizing a sewer financial plan as well. This process aligns with both the Arran-Elderslie and Tara Drinking Water System license approvals that again were completed internally in early 2021.

Approved By: Sylvia Kirkwood, CAO