



The Corporation of the Municipality of Arran-Elderslie

Staff Report

Council Meeting Date: September 27, 2021

Subject: SRW.21.35 Drinking Water Quality Management Standard Review - 2020

Report from: Scott McLeod, Public Works Manager

Appendices:

1. Quality Management Policy
2. Quality Management System Representative
3. SLD 12- 2021 Owner Communications

Recommendation

Be It Resolved that Council hereby,

1. Accepts report SRW.21.35 which includes the Drinking Water Quality Management Standard (DWQMS) updates, and the Annual Reports for the Water & Wastewater system, and agrees to sign-offs in SLD 12 Communications as well as the Quality Management Policy, and Quality Management System Representative.

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.

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 on May 13, 2021 and the Arran-Elderslie Inspection was conducted June 17, 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 final reports for these inspections. At this point the Municipality has received very little information in regard to the inspection findings, and a Council report will be forthcoming in the future once these inspections are received.

2. Incidents of Adverse Drinking Water Tests:

The Arran-Elderslie Drinking Water System has one (1) adverse microbiological sample taken in the 2020 calendar year. The sample occurred on June 1, 2020, at the Albert Street Lift Station in Paisley. The results found two (2) total coliform in a distribution sample. Subsequent re-samples were completed indicating no adverse conditions, authorities were notified and the event resolved. AWQI number #150127 was issued for the event.

The Tara Water System also had one (1) adverse microbiological sample taken in the 2020 calendar year. The sample occurred June 8, 2020, at the Tara Well #2 & 3 Point of Entry (POE) sample. The sample showed one (1) total coliform on the POE sample. Subsequent re-samples were completed indicating no adverse conditions, authorities were notified and the event resolved. AWQI number #150195 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 2020, the Arran-Elderslie Water System had an operator respond to five (5) alarms, three (3) of which were related to critical control points. These alarms included one (1) low chlorine residual, and two (2) power outage related. There were also two (2) wastewater alarms.

Paisley had an additional one (1) alarm for a critical control point for a chemical

pump failure.

Staff had additional two (2) wastewater alarms in Paisley and a call-out for an emergency locate.

An operator responded to an additional twenty-six (26) alarms for the Tara Water System, twenty (20) of which were critical control point alarms. Those included seven (7) power related, six (6) for UV related problems, three (3) turbidity alarms, two (2) pressure and chlorine related each. Additional alarms included two (2) calls for leaks, two (2) related to temperature equipment failures, and one each for an emergency locate, and residential complaint related to discolouration caused by the Fire Department.

Overall, Staff responded to thirty-five (35) alarms in the 2020 calendar year, from the thirty-two (32) alarms responded to in 2019. Though most systems remained fairly consistent, the Tara water system saw a large spike in call outs. This can be attributed to the rehab work that was completed on both well #2 and well #3. Staff saw pressure, turbidity, and UV alarms increase drastically after this work was completed. The cleaning of the aquifer likely contributed to the sharp increase. 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 in April of 2020. 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 in October 2020. The review for these audits has become extremely difficult with the current 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. Nevertheless, the inspections went very well with a lot of these types of minor non-conformance and opportunity for improvement issues being addressed. Staff work to a resolution of these improvements and implemented necessary changes.

An External Audit was conducted for the DWQMS on November 13, 2020. This was a surveillance audit conducted off-site with just a document review due to the Covid pandemic. The external audit found no minor or major non-conformances, and six (6) opportunities for improvement that Staff reviewed and took into consideration for implementation.

6. Results of Emergency Testing:

In conjunction with the review of the DWQMS manual in April 2020, 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:

The last two years have seen both the BMTS fibre project and now the EPCOR gas project will be keeping locates within the department extremely busy. 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 is 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. We are also part of the Emergency Planning through the County. With the purchase of our camera, we seem to be at an increasingly large amount of storm water issues within the Municipality.

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, numbers of water main and service leaks, new services connected in each town, and meters of water main replaced. The 2020 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:	2020 Usage of 215,079m ³ or 226m ³ per connection
	2019 Usage of 205,358m ³ or 217m ³ per connection
Paisley:	2020 Usage of 110,147m ³ or 203 m ³ per connection
	2019 Usage of 101,813m ³ or 190m ³ per connection
Tara:	2020 Usage of 109,911m ³ or 215m ³ per connection
	2019 Usage of 110,492m ³ or 218m ³ per connection

** The Arran-Elderslie Water Plant sold nearly 3300m³ of bulk water last year, those numbers have been excluded from the above figures.

10. Water Main Breaks and Service Leaks 2020

The Chesley distribution system had two service leaks, two services replaced and two additional services added to the system. In addition, in late 2019, services were added to the system from the Jeasnic Estate property.

The Paisley distribution system had one water main break and one service leak in 2020. In addition, one new service was installed in Paisley.

The Tara distribution system had three (3) water main breaks and one service leak in 2020. An additional seven (7) services were connected to the system all in the Chestnut Hill Development.

11. Water Main Replacement in 2020

In conjunction with the replacement of the bridge in Chesley, Moorefield Excavating replaced an old eight inch cast main from Elliott Park to the intersection at 4th Street in Chesley with a new twelve inch main. The project was about two hundred and ten meters (210m) in length at a cost of approximately eight hundred twelve dollars a meter (\$812.00/m).

In September of 2020, Arran-Elderslie Staff completed a project on Nelson 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 with two new hydrants for adequate fire protection on the street. In addition, five vacant lots were also serviced for possible future development. The project was two hundred and twenty meters (210m) in length at a cost of about four hundred ninety-three dollars a meter (\$493.00/m)

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 CP#2 and CP#3 well in the past three 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 has 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 should be forthcoming at the next council meeting. 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 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 could also explain the large volume of call-outs for the Tara Drinking Water System. 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 the 2020 Management Review, Staff informed Council of the possibility of doing further investigative work to Tara Well #3. This would have given Arran-Elderslie the opportunity to have it deemed a Non-GUDI well if sampling criteria and results 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.

The Water & Sewer Operations Division of the Public Works Department continues to lead the GIS program in Arran-Elderslie. Again, this summer we hired a student 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. This covers three external audits, and in late 2021 will also cover the re-accreditation of the DWQMS. In 2019, Staff looked at the possibility of going with a different firm, but in conversation with local municipalities it was deemed best to stick with SAI Global.

The new workshop being built beside the Arran-Elderslie water plant is about 80% complete and should hopefully be done by the end of October.

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 is due to be audited on November 5th of this year, and then two weeks

later the re-accreditation process will begin on the document. This process is required every three years and will be completed by SAI Global.

15. Consumer Feedback:

There were no written complaints from Arran-Elderslie ratepayers in 2020. An after hours call to the pager system resulted in one complaint of dirty water on Brook Street West in Tara. Upon investigation it turned out the Fire Department had been out on practice and was operating hydrants in the area. Often, Staff receive calls from the municipal office or ratepayers and quick response times often diffuse or resolve problems quickly.

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 Treasury.

Re-accreditation of the DWQMS is forthcoming in the next six weeks. This again involves Staff time to prepare documents and send them off, and possibly have on-site interviews with the auditing team. In addition, the re-accreditation itself is a six thousand five hundred (\$6,500) dollar expense this year.

17. Results of Infrastructure:

Included in the report is SLD-14 for the 2021 season. Because the report is being delivered later in the year than usual, we can provide a more comprehensive update to the projects completed this year. This table is completed based on MOECP compliance, grants, upgrades, and financial plans. In 2020, the completion of water main projects on Nelson Street in Paisley, and water and sewer replacement to coincide with the bridge replacement in Chesley. Re-hab work on several aquifers as previously mentioned, electrical upgrades included a new VFD on CP#3 well in Chesley. Standby power was installed at the 25 Sideroad meter chamber, and replacement of main electrical switch and louvers at the North End lift station. The legwork for the installation of the UV system to be installed 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 St. in Paisley to coincide with the work completed on Nelson St. last year, removing an old, undersized water main. The Municipality teamed up with CC Underground again this year 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 St. 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 St. SE in Chesley, and water and sewer replacement on 4th Ave 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. Smaller valve and electrical projects remain on the

agenda for the remainder of the 2021 season.

18. Operation Plan Currency, Content and Updates:

The DWQMS was reviewed by Staff in early April. With new hires, 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 did a hands-on Emergency Response Plan to test a new policy implemented for water tower rescue procedure. Many members of the Staff have updated their First Aid and CPR this year. Obtaining training to maintain drinking water certificates has been very difficult for Staff during Covid. Many of the courses have been cancelled in person, and Staff will continue to be diligent to obtain the proper training via online courses.

19. Additional Suggestions:

The Geotube sludge removal process should be completed at the Paisley Sewage Plant annually. The contents of the bags are being removed about every three (3) years now and trucked to the Arran landfill. It may be worthwhile for the Municipality to look at possibly setting up a bio-solids compost license. The recently purchased property adjacent to the Chesley landfill could be a viable spot. This would also cut down on Staff time for trucking our current compost to other sites.

With natural gas now entering 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 ties-in to both 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