

THE CORPORATION OF THE CITY OF SARNIA
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ENGINEERING AND OPERATIONS DIVISION

OPEN SESSION REPORT

TO: Mayor and Members of Council

FROM: David Jackson, General Manager of Engineering and Operations

DATE: March 11, 2024

SUBJECT: Summary Report for Sarnia Drinking Water Distribution System

Recommendation:

For Council's Information

Background:

Under the Safe Drinking Water Act, O. Reg. 170/03, Schedule 22, City Council must be informed annually of the status of their water distribution system by the operating authority. A summary report is prepared to highlight and expand upon the Sarnia Distribution Systems 2023 Annual Report which is enclosed in this document. In addition, the annual reports are posted on the City of Sarnia's website and are available upon request at the Public Works Office (651 Devine Street).

Comments:

This report is prepared for City Council as owners of the Sarnia Distribution System in accordance with Schedule 22 of O. Reg. 170/03 for the reporting period of January 1, 2023 – December 31, 2023, to review a summary of water quality information. The system is operated in accordance with the requirements outlined in MDWL 037-101 and DWWP 037-201.

Sampling and Monitoring Programs:

During the four quarters of 2023, 1048 Microbiological test samples, 263 HPC samples, 16 reportable lead distribution samples, 4 THM samples, 4 HAA and 2091 chlorine residual samples were taken on a demand of 10.3 million m³ (cubic meters) of water.

Ministry of the Environment Conservation and Parks (MECP) – Annual Inspection

There was one annual MECP inspection in the 2023 calendar year. The inspection was unannounced and took place on October 3, 2023, reviewing the period of September 1, 2022 – August 31, 2023. The inspection received a final rating of 89.12%.

Non-Compliance with Regulatory Requirements:

One non-compliance was cited from the October 3, 2023 inspection indicating “All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit”. The watermain in question was disinfected and then tested. The super chlorination of the new watermain had an initial concentration of 168 mg/L. After 24 hours of disinfection the concentration dropped to 104 mg/L, which is a decrease of 64 mg/L or 38%. The 2020 Watermain Disinfection Procedure states the maximum allowable decrease in chlorine concentration is 40% of the initial chlorine concentration to a maximum of 50 mg/L. In this case the decrease was within the 40% criteria but exceeded the 50 mg/L criteria. If the maximum allowable decrease in chlorine concentration is exceeded at any of the sampling points, the disinfection procedure must be repeated. The additional disinfection process requirement was missed but additional sampling was completed. The watermain in question was not put in service until a passing final report and certificate of analysis of the water samples was received.

Corrective action: The Super Chlorination chart included in the City of Sarnia Watermain Standards Division 4.1 was revised and circulated to all applicable staff specifying “Maximum allowable decrease is 40% of the initial chlorine concentration to a maximum of 50 mg/L” to provide an additional reminder to staff in the field. Upon receiving the non-compliance retraining was provided to the operators. Re-training of The City of Sarnia’s Watermain Disinfection Procedure is being provided to all staff responsible for watermain operating procedures prior to the 2024 construction season. The operating authority will be reviewing the potential for a secondary verification of disinfection values via fillable forms generated on City Works that may identify values outside of the acceptable range.

Drinking Water Quality Management Standard (DWQMS)

The Drinking Water Quality Management Standard is the Quality Management Standard approved under S. 21 of the Safe Drinking Water Act, 2002 (SDWA), and complements this legislative and regulatory framework by endorsing a proactive and preventive approach to assuring drinking water quality. This approach includes consideration of 21 elements that are

fundamental to ensuring the long-term sustainability of a Drinking Water System.

The DWQMS undergoes a surveillance audit (selected elements of the DWQMS) once every year and a reaccreditation audit (all elements of the DWQMS) once every three years.

SAI Global conducted a surveillance audit on November 21, 2023. One minor non-conformance and seven OFI's (opportunities for Improvement) were documented as the result of this audit.

Non-Conformance with Regulatory Requirements:

One minor non-conformance was cited from the November 21, 2023, surveillance audit as "No evidence was provided to demonstrate a review of infrastructure took place that considers risk assessment outcomes". Element 14 Review and Provision of Infrastructure did not indicate the consideration of risk assessment outcomes during the infrastructure review process.

Corrective Action: Element 14 was revised to reference the consideration of Element 8 risk assessment outcomes. The associated procedure was also revised to include an Infrastructure Review Meeting template which prompts the review of the most recent risk assessment. The operating authority implemented and conformed to the procedure by conducting an Infrastructure Review meeting on February 15, 2024, that referenced the December 8, 2023, Risk Assessment Ratings. The findings of the infrastructure review will be communicated in the meeting minutes via email to the Owner Representative, as well reported to the Owner (by including infrastructure needs and long-term forecast of major infrastructure maintenance, rehabilitation, and renewal activities in the next budget presentation).

In addition, the DWQMS undergoes an annual internal audit that was conducted by Acclaims Environmental on September 21 – 22, 2023 reviewing the period of August 19, 2022 – September 22, 2023. The internal audit detected two non-conformities and seven OFI's.

Two non-conformities were cited from the September 21-22, 2023, internal audit consisting of the following:

1. The results of the management review, the identified deficiencies, decisions, and action items have not been reported to the Owner as required by Element 20.

2. The procedure for tracking and measuring continual improvement of the quality management system is not effectively implemented as required by Element 21.

Corrective Action: The results of the 2022 Management Review Meeting were provided to the Owner Representative, the City’s Chief Administrative Officer to address the non-conformity; new protocol was discussed of how communication will be established henceforth. The Continual Improvement Log was revised to include more descriptive fields encouraging a detailed evaluation of events and documentation of corrective actions.

There was staffing turnover in the City’s Public Works Compliance Coordinator position in 2023. The position has been filled and the 2024 budget included funding for additional redundancy for this position.

Lead Testing

The “Lead Removal Program” has replaced the “Corrosion Control Program” under the Municipal Drinking Water License as of November 2022. The City of Sarnia’s Lead Reduction Plan remains in effect as required by MDWL 037-301. A total of 73 private, 69 combined and 51 City-owned Lead Water services have been removed since 2020. The City of Sarnia replaces lead services as encountered during reconstruction, repair and maintenance projects. There were two sample periods in 2023 with a total of 16 regulatory distribution samples collected.

Annual volume record of the Lambton Area Water Supply System January 1, 2023 – December 31, 2023

Month/Year 2023	Volume (m³)
January	806,734
February	671,839
March	795,848
April	769,114
May	966,932
June	1,156,031
July	1,014,131
August	1,027,267
September	872,828
October	803,942
November	741,855
December	749,912
2023 Year Total	10,376,433
2022 Year Total	11,417,742

The Lambton Area Water Treatment Plant has a rated maximum daily flow rate of 181,844 m³/day. LAWSS total flow was recorded as 17,682,909 m³ for 2023, the City of Sarnia's proportion of the normal flow rate is approximately 59%.

Consultation:

The annual report has been posted on our website to fulfill a requirement of the Safe Drinking Water Act. The annual report is attached to this report.

Financial Implications:

There are no additional costs from this report. All costs associated with the supply, testing and reporting of the water system are included in the 2022 operating budget.

Reviewed by:

David Jackson
General Manager of Engineering and
Operations

Approved by:

Chris Carter
Chief Administrative Officer

This report was prepared by Haley Majovsky, Public Works Compliance Coordinator

Attachment: January 1, 2023 – December 31, 2023 Annual Report.pdf