



Report to Council

Department: Infrastructure Services
Division: Environmental Services
Date: September 16, 2024
Prepared by: Rob Mackie, C. Tech
Manager, Environmental Services
Report Number: Environmental Services-2024-06
Subject: Lead in Drinking Water
Number of Pages: 5

Recommendation(s)

That Environmental Services 2024-06 entitled, "Lead in Drinking Water" prepared by Rob Mackie, Manager, Environmental Services dated September 16, 2024 be received

Purpose

At its Regular Meeting of Council on May 6th, 2024, Council Resolved the following:

R-24-05-191

That Council direct Administration to prepare a report on information regarding lead pipes in the Town of Essex.

Moved by Mayor Bondy
Seconded by Councillor Verbeek

Background and Discussion

Lead is a naturally occurring metal that is found in rock and soil. However, it is not typically present in large surface water sources such as Lake Erie. Therefore, it is not typically present in treated water from water treatments plants such as the Harrow-Colchester Water Treatment Plant. However, the risk of lead in municipal drinking water comes from the corrosion of lead components within the Drinking Water System (DWS) or private plumbing systems that are made from lead. Lead services (pipes) and lead joints were commonly used as an acceptable construction material in areas of the DWS that were constructed prior to 1955. Lead is more likely to be present in the plumbing systems of homes that were constructed prior to 1975, as the National Plumbing Code of Canada considered lead an acceptable material until this time.

As an industry, we now know that ingesting lead from drinking water is toxic to humans at well documented levels of exposure. Effects that have been studied include reduced cognition, increased blood pressure and renal dysfunction in adults, as well as adverse neurodevelopmental and behavioural effects in children. The strongest association observed to date is between increased Blood Lead Levels (BLLs) in children and reductions in intelligence quotient (IQ) scores. *(Lead in Drinking Water, 2017, Federal-Provincial-Territorial Committee on Drinking Water)*

In 2007 The Ministry of Environment (MOE), now the Ministry of Environment, Climate Change and Parks (MECP) made a series of changes to regulations regarding sampling and testing of lead in drinking water. Lead testing was made mandatory for both the municipal DWS and private plumbing under the Safe Drinking Water Act, 2022 (SDWA).

Guideline Values for Lead in Drinking Water

In accordance with O.Reg. 170/03, the Maximum Allowable Concentration (MAC) for lead under the SDWA is 0.01mg/L, which is the legislative requirement our DWS must adhere to in Ontario.

Health Canada has set a guideline value for lead at 0.005 mg/L which is one of the lowest in the world.

Sampling

In 2008, the Town of Essex began their Lead sampling plan as a requirement of Ontario Regulation 170/03 under the SDWA. Samples were taken from the DWS as well as private plumbing systems. The findings are included in **Table 1**.

Table 1: 2008 Lead Sampling

Date of Sampling Round	Number of Samples taken	DWS Samples Taken	Private Plumbing Samples Taken	Exceedance in Private Samples	Exceedance in DWS samples	Percentage above .001 mg/L
December 07 - April 2008	42	20	4	2	1	4.34%
June 2008 - October 2008	44	22	4	0	0	0.00%
December 08 - April 2009	46	26	4	1	0	2.17%
June 2009 - October 2009	46	28	4	2	0	4.00%
December 2010 - April 2011	22	8	2	1	0	4.17%
June 2011 - October 2011	22	8	2	0	0	0.00%

As governed by O.Reg. 170/03, the Town of Essex moved to a reduced sampling plan in 2010, as the sampling met the criteria outline by the MECP, which can be found below.

A system serving a population of 50,000 or more people may be able to reduce the number of sampling locations and the frequency of sampling and testing if:

- *In four consecutive periods of semi-annual testing – not more than 10 per cent of plumbing sample results exceeded the lead standard of 10 micrograms per litre.*

Additionally, a system serving less than 50,000 people may be eligible for an exemption from lead sampling if:

- *Your system is doing reduced sampling, or has been doing plumbing sampling according to an approved relief granted by the ministry and*
- *Less than 10 per cent of plumbing sample locations from two consecutive periods of reduced sampling exceeds the standard, including both “winter” and “summer” periods.*

If your system is exempt from plumbing sampling for lead you are still required to sample from your distribution system as follows:

- *Sample for pH and alkalinity every “winter” and “summer” period each year.*
- *Sample for lead once every three years, both “winter” and “summer” periods.*

Through rigorous sampling, the Town of Essex became **exempt** from lead testing as required under the SDWA after October 2011.

The last time that lead was sampled in our DWS in accordance with the above was in July 2023 and will occur again in 2026. Samples taken in 2023 showed that the **Town’s DWS had** samples ranging from 0.00015-0.00044 mg/L which are well below the legislative requirement of 0.01mg/L **as well as Health Canada’s guideline value** of 0.005mg/L.

Lead Service Lines

Records of Town owned water services installed prior to 1955 show there should not be any existing Lead Services within our DWS, as they have all been replaced during capital **watermain replacement projects**. The **Town of Essex’s Environmental Services department** does not keep records of private service line materials. However, if a Town owned water

service is discovered to be lead, Town staff will investigate if the private property portion of the water service is made of lead as well. If lead is discovered on private property, written notification is provided to the property owner, with an information package from Health Canada.

When discovered, the Environmental Services department replaces the Town owned portion of the lead water line and provide the opportunity for the homeowner to utilize the site contractor for possible savings when replacing their portion, at their expense.

Consultations

Kevin Girard, Director, Infrastructure Services

Link to Strategic Priorities

- Embrace asset management best practices to build, maintain, and continuously improve our municipally owned infrastructure.
- Leverage our Town's competitive advantages to promote jobs and economic investment.**
- Take care of our natural environment and strengthen the sense of belonging to everyone **who makes Essex "home"**.
- Deliver friendly customer service in an efficient, effective, and transparent manner while providing an exceptional working environment for our employees.
- Build corporate-level and community-level climate resilience through community engagement and partnership and corporate objectives.

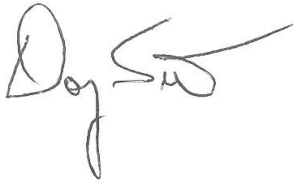
Report Approval Details

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This report and all of its attachments were approved and signed as outlined below:



Kevin Girard, Director, Infrastructure Services - Aug 16, 2024 - 9:00 AM



Doug Sweet, Chief Administrative Officer - Aug 16, 2024 - 9:14 AM