Lynden Municipal Water System
Public Update Drop-in Session

Cancelled due to COVID-19
Thursday, March 26, 2020 4 to 7 p.m.

Information Boards

Hamilton
New Lynden Plant Process Flow Diagram
Construction Images

New reservoir under construction
Aerial of new reservoir
Rebar installation for the new reservoir
New access road and new municipal well
New plumbing and electrical conduit before floor slab is poured
New treatment plant building
Construction Images

- New backup diesel generator
- New access road and municipal well FDL03
- Primary and backup control units
- Piping and valves for high lift pumps
- Piping and valves for municipal wells
- Hypochlorite disinfection storage tanks and chemical pumps
- New odour control and CO2 systems
Over time, a layer of build-up forms naturally on the inside of water pipes. What is this build-up made of? It depends on the water chemistry. Sometimes the build-up is hard like the scale in your kettle. Sometimes the build-up is soft, like the plaque on your teeth. Softer build-ups are easier to remove.

Watermains in Lynden are either plastic or cement-lined iron. The small pipes leading to your home are copper. Last year, we cut out some pipes from Lynden to find out what the build-up is made of.

Lynden’s build-up contains common minerals like calcium, iron, silicon, and aluminum. These can be naturally occurring in the water, or may come from the pipe material.

The layer also contains sulphur and barium, which are less common. These occur naturally in Lynden’s groundwater.

Very small amounts of other metals, including lead, were also trapped in the build-up.

The build-up in Lynden is soft and can be disturbed easily—this is why lead has occasionally been detected in your tap water.
It's important to clean the pipes regularly to keep the build-up from getting too thick. This also helps keep the water clean. There are different ways to clean out the soft build-up from Lynden's pipes.

Choosing a pipe cleaning method for Lynden
Up until now, the pipes in Lynden had not been cleaned because there were no hydrants in the town and the treatment plant could not supply enough water.

We carefully considered different pipe cleaning options and chose flushing as the most practical option for Lynden. Ice pigging may be tried in the future but it is not yet commercially available in Ontario.
New Post Hydrants & Isolation Valves

The flushing post hydrants and valves that were installed in Lynden in 2019 were placed close enough together to provide good flushing while also keeping the number of new hydrants and valves to a minimum.
Did flushing remove the build-up?
Yes. We took samples of flushwater to find out what was being removed from the pipe. Flushing was continued until the water ran clear and had a safe level of chlorine.
We flushed most of the system in 2019, but we’ll need to flush again to get more of the build-up out of the pipes.

The new well will have different water chemistry compared to now. This change can cause the build-up to soften and flake off. The entire system will be flushed again when the new well and treatment plant are started up.

After that, the system will be flushed each year to keep the build-up from getting too thick. Flushing will be easier than before because the new reservoir will be able to supply more water compared to now.

Ice pigging may be tried if it becomes available in Ontario.

Is all of the build-up gone?

No. We cut out pipes after flushing to find out if the build-up layer was still there and if so, what was in it. The top layer of the build-up was removed but the bottom layer remained.

In the three pipes we cut out, lead was not detected within the build-up that remained after flushing.
The water source for the community of Lynden is groundwater from two wells located 1.5km east of the Lynden community on Governors Rd. The aquifer that supplies the two municipal wells is protected by more than 20 metres of clay deposits.

The process to locate a second well involved the following tasks:

- Private Water Well Survey and Implementation of Monitoring Program
- Drilling, soil sampling and well construction
- Step drawdown test
- 72-hour Constant Rate Aquifer Test
- Regulation 170/03 Chemical Analysis
- Groundwater under Direct Influence of Surface Water evaluation
Well Head Protection Area:
- The area around the municipal wells where land use activities have the potential to affect the quality of water that flows into the well.
- Protecting this area around a well, helps protect a healthy supply of water now and in the future.
- Significant drinking water threats are primarily associated with agricultural activities, the use of septic systems and handling, and storage of fuel associated with residential dwellings.
The raw groundwater has very low concentrations of naturally occurring lead, well below the maximum allowable concentration (MAC) and most of the time it's undetectable.

Raw water quality results:
- Elevated hydrogen sulfide - typical for the area, exceed the aesthetic objective of 0.05 mg/L.
- Low hardness - soft water. The hardness levels is below the Operational Guideline range of 80 to 100 mg/L as CaCO3.
- Low levels of barium in FDL03, higher in FDL01 (below MECP objectives)
- Low levels of lead (well below MECP objectives, ranged from below the detection limit of 0.001 mg/L up to 0.0016 mg/L.)
- Sodium levels require notification of Ministry of Health for sodium restricted diets (typical for the area)
- pH levels high (typical for the area)
Lynden Water Sampling & Analysis

Water Quality

Continuous chlorine residual analyzers and a turbidity analyzer are provided to monitor water quality at the well station. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.
Does the ongoing 2011 Drinking Water Advisory remain in place?
Yes, the advisory will remain in place. It states:
Consuming drinking water with slightly elevated lead concentrations for a short period of time is not a health risk.
However, considering the prior history of intermittent increased lead levels in the Lynden Drinking Water System, the Medical Officer of Health recommends that a precautionary approach be taken. Accordingly, all users of the Lynden Drinking Water System are advised as follows:

**DO NOT USE TAP WATER TO:**
- Drink.
- Make meals such as soup, stew, pasta, instant hot cereal, etc.
- Make ice, juice, coffee, tea, puddings or other mixes, especially infant formula.

**TAP WATER CAN BE USED TO:**
- Wash fruits and vegetables, provided they are dried off prior to eating.
- Wash dishes, provided they are dried off with a clean towel prior to use.
- Shower and bathe.
- Wash hands, flush toilets, and laundry.
- Brush teeth, provided rinse water is not swallowed

The City of Hamilton provides water filters that meet NSF Standard #53 for lead removal at no cost to residents. These filters reduce lead concentrations in tap water to acceptable levels, provided the filter is used according to the manufacturer’s instructions. Residents who wish to receive these filters are asked to contact the City of Hamilton at 905-546-2489.

Will the Drinking Water Advisory be lifted once construction of the new treatment plant is completed?
Public Health Services will consider removing the Drinking Water Advisory once satisfied that there are no further potential intermittent health risks to the users of the Lynden Drinking Water Supply. The Drinking Water Advisory will remain in place for a minimum 1 year after the new treatment plant is operational to allow Hamilton Water to operate the new treatment plant, conduct testing and complete distribution system flushing to ensure any residual lead sediment within the system is removed. After 1 year of operation of the new system with acceptable test results from the treatment plant and distribution system, Public Health Services will have the necessary data to consider removing the precautionary Drinking Water Advisory from Lynden.

Residents will be notified directly when the Advisory is lifted, until then the Advisory remains in place.
If you have questions about the information provided, please email ww_csr@hamilton.ca