

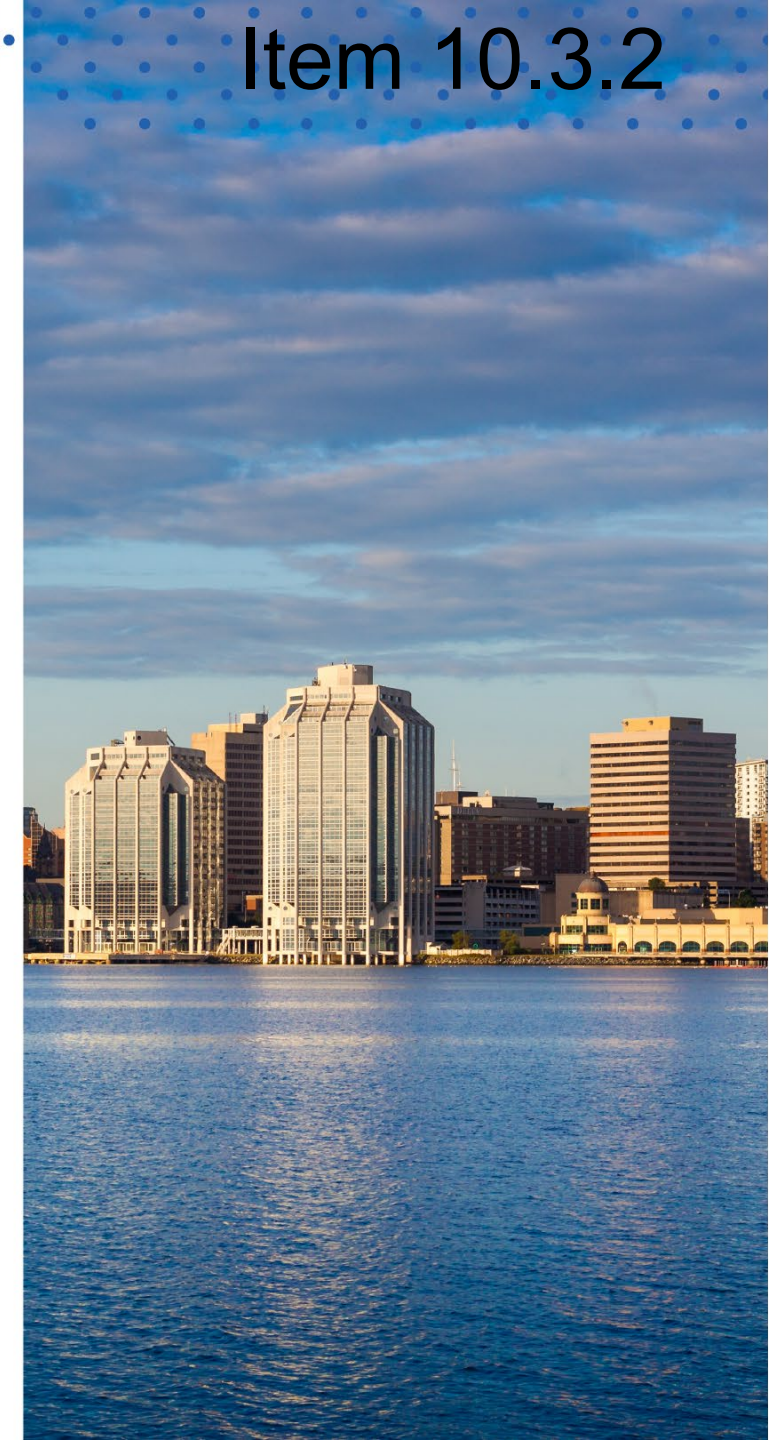


Fluoridation at Halifax Water

HALIFAX Environment & Sustainability Standing
Committee

March 6, 2025

**STRAIGHT from
the SOURCE**



Halifax Water Purpose

*To supply and safeguard sustainable high -
quality water services.*

Regulatory requirements for Fluoride

- Health Canada develops guidelines and sets Maximum Acceptable Concentrations (MACs) for drinking water that are then adopted by Nova Scotia Environment and Climate Change (NSECC)
- The addition of fluoride is **not** a regulatory requirement in NS
- Fluoridation in NS is regulated by NSECC through operating approvals
 - Only the MAC for fluoride (1.5 mg/L) is regulated by NSECC, not the optimal concentration (0.7 mg/L)
- Per NSECC “...*The fluoridation of drinking water supplies is a decision that is made by each municipality, in collaboration with the province. The decision may also be taken in consultation with residents. For communities wishing to fluoridate their water supply, the optimal concentration of fluoride in drinking water to promote dental health has been determined to be 0.7 mg/L. Health Canada has established the guideline for fluoride in drinking water as a MAC of 1.5 mg/L. Water containing fluoride at, or below, this MAC does not pose a risk to human health.*” [Fluoride | Inspection, Compliance and Enforcement](#)



Guidelines for Canadian Drinking Water Quality

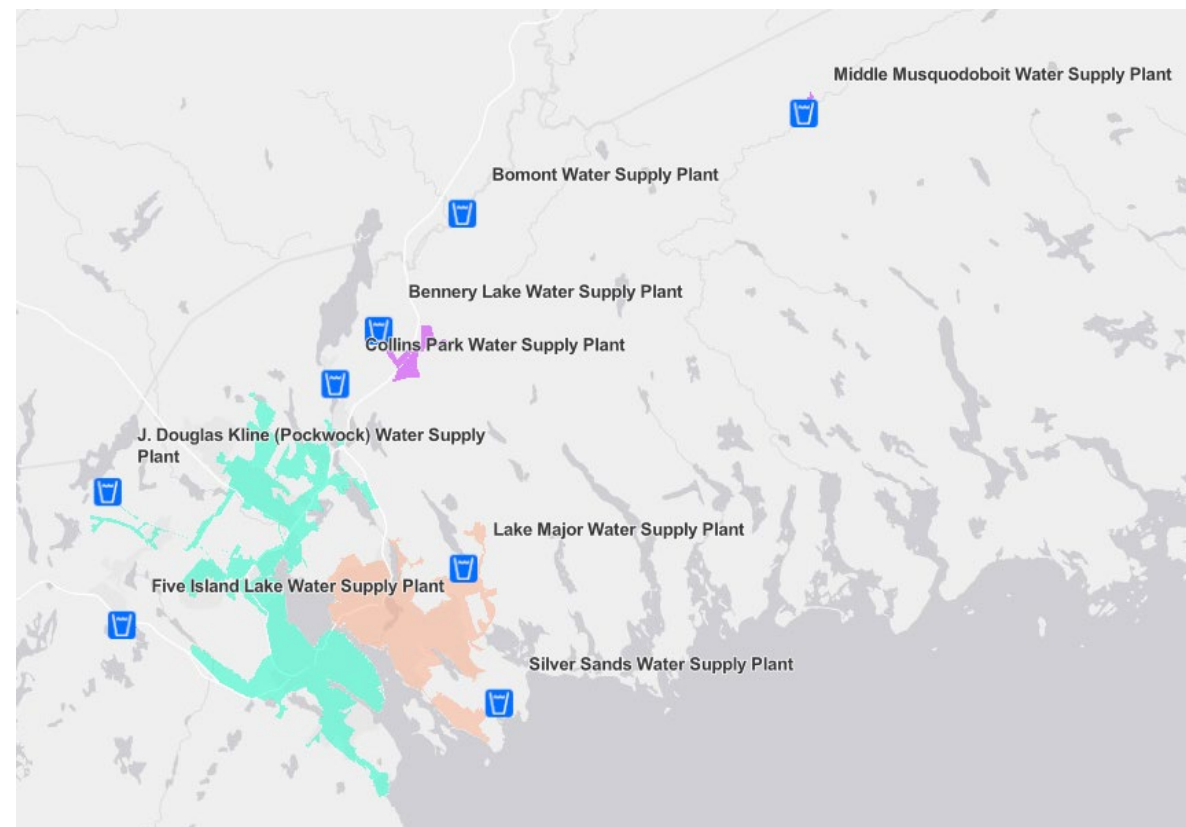
Guideline Technical Document

Fluoride



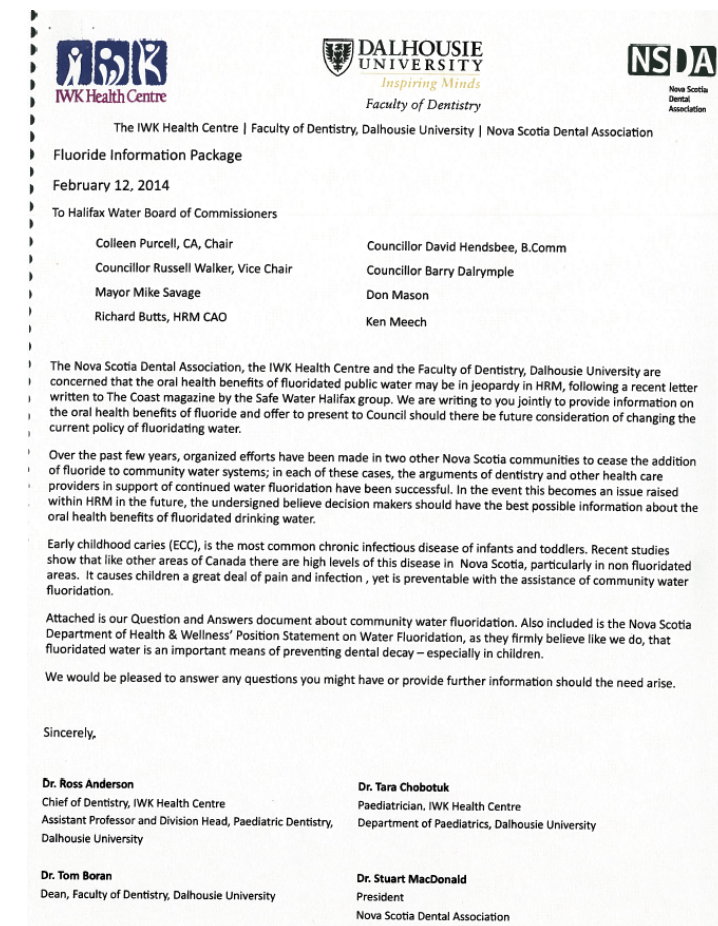
Fluoride at Halifax Water

- Fluoridation began in the 1950's at Halifax Water at the encouragement of the public health office
- Halifax Water's operational target for fluoride is 0.7 mg/L, Health Canada's recommended concentration for optimal dental health benefits
- Fluoride is added to Pockwock and Lake Major systems. It has never been added to any small system:
 - Bennery
 - Five Islands
 - Silver Sands
 - Middle Musquodoboit
 - Collins Park
 - Bomont



Board Endorsement of Fluoridation

- **November 2013:** Local group submits letter “Halifax Water should stop poisoning us” on fluoridation to media outlets
- **February 2014:** IWK Health Centre, Faculty of Dentistry (Dalhousie) and Nova Scotia Dental Association submit a Fluoride Information Package to Halifax Water Board following the letter, highlighting the importance of fluoride in preventing dental decay
- **March 2014:** Halifax Water submits information report to the Board, noting that “Halifax Water continues to support fluoridation of drinking water as a beneficial public health practice for decreasing dental cavities and protecting oral health”
- **April 2014:** An additional report submitted to Board recommending that “the Halifax Water Board endorse the continuation of the practice of drinking water fluoridation”. **Decision to endorse the continuation of fluoridation moved by Board.**



Notification and level of service

- When fluoridation was endorsed in 2014, there was no establishment of levels of service and notification requirements. Halifax Water continued to follow past practice.
- Notification:
 - As per Operative Approval requirements, Halifax Water notifies NSECC when there is a change in the fluoridation process, both when it is shut off or turned on.
 - NSECC is the conduit to the Medical Officer of Health (MOH) through Environmental Health Consultants for any public health related issues related to drinking water.
 - In General, NSECC in consultation with the MOH will issue any required drinking water advisories, directives, or required communications, depending on the issue.
 - Halifax Water has reported all changes to fluoridation to NSECC and was operating as though this information was being communicated to the MOH.
- Level of Service:
 - Where Fluoride is not a regulatory requirement, fluoridation systems are not redundant.
 - When there are issues with the system, it is shut down until repairs can be made. This can be days to months and even years depending on the scale of the issue.

Recent changes to Fluoridation – Pockwock

| Date | Action | Description |
|----------------------------|---|--|
| August 2021 | Fluoridation paused until further notice | <ul style="list-style-type: none"> Upgrades to the fluoride storage tank as well as equipment failure required Halifax Water to stop fluoridation until resolved. <ul style="list-style-type: none"> This information was communicated to NSECC |
| August 2021 to July 2022 | Fluoride out of service | |
| July 2022 to May 2023 | Fluoride online and communicated to NSECC | |
| May 2023 | Fluoridation paused until further notice | <ul style="list-style-type: none"> A leak occurred in the fluoride system and fluoridation paused until an investigation was completed. This was communicated to NSECC. |
| September 2024 | Fluoride remains out of service | <ul style="list-style-type: none"> Additional leaks were identified by Halifax Water staff, delaying the process of resuming fluoridation. |
| September to December 2024 | Fluoride remains out of service | <ul style="list-style-type: none"> Work continues to repair leaks, verify equipment is operational through testing, and staff training. |
| December 2024 | Fluoride online and communicated to NSECC | |

Recent changes to Fluoridation – Lake Major

| Date | Action | Description |
|-----------------------|--|---|
| 2019 | Fluoridation online | <ul style="list-style-type: none">Alum (2x) and fluoride (1x) tanks at Lake Major are vintage to facility, project initiated to investigate replacement requirements.Water quality changes also require addition of a third alum tankExisting tanks are inspected; 26 years remaining on alum tanks and 30 years on fluoride tank, however flange on fluoride tank show stress.Halifax Water decides against removing/replacing fluoride tank but proceeds with installing 3rd alum tank to improve operational resilience. |
| February 2020 | Fluoridation online | <ul style="list-style-type: none">Investigation determined flange on fluoride tank was cracked and integrity was jeopardized, Halifax Water decides to revisit fluoride tank replacement. |
| April to June 2020 | Fluoridation paused until further notice | <ul style="list-style-type: none">Roof leak caused equipment damage and fluoride was turned off.Operational decision made to keep fluoride offline until tank is replaced.<ul style="list-style-type: none">This information was communicated to NSECC. |
| June to December 2020 | Fluoride remains out of service | <ul style="list-style-type: none">Engineering work begins with consultant to decommission and remove fluoride tank and investigates other fluoridation chemicals.Decision made to continue with HFS instead of switching to NaF due to high capital cost and increased labour.Engineering work proceeds for design of fluoride tank replacement.Existing fluoride tank and associated equipment decommissioned. |

Recent changes to Fluoridation – Lake Major

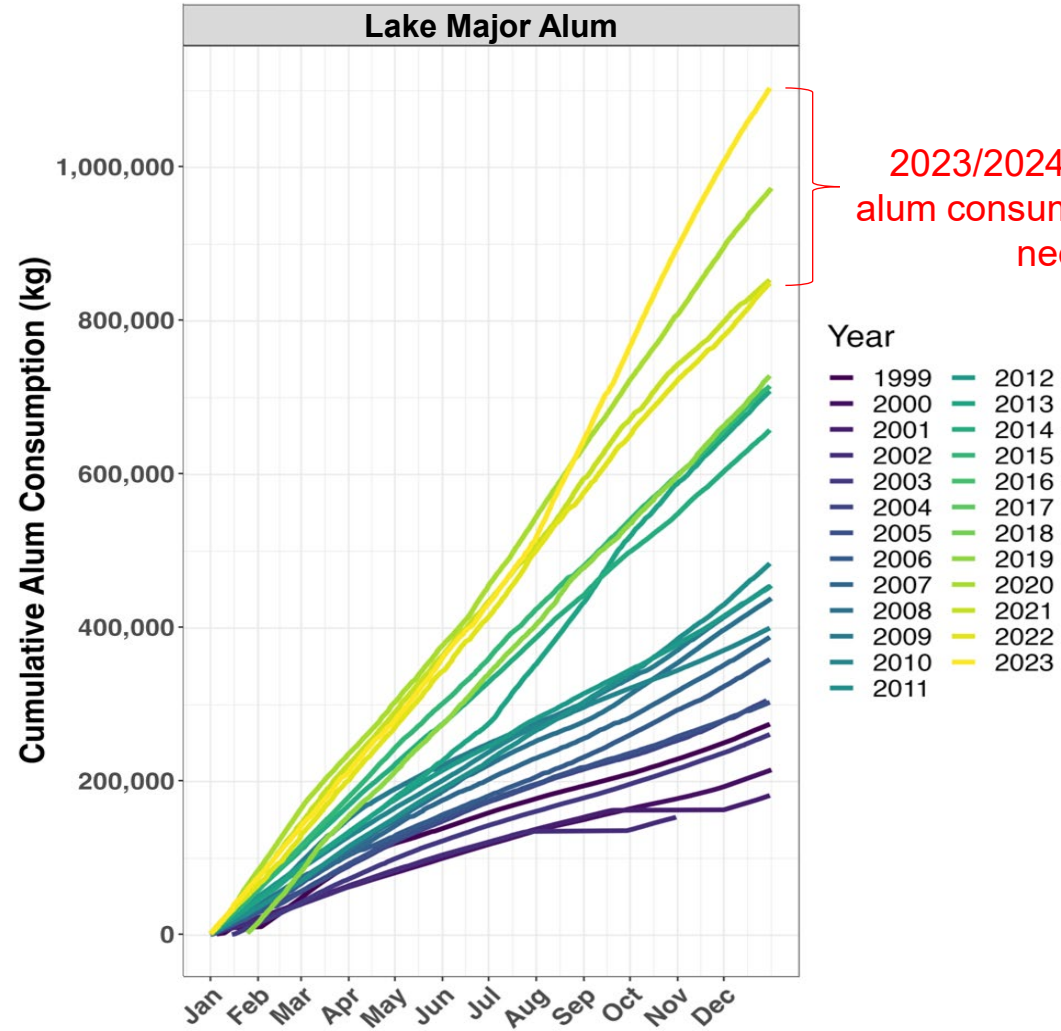
| Date | Action | Description |
|------|---------------------------------|--|
| 2021 | Fluoride remains out of service | <ul style="list-style-type: none">• 90% drawings for fluoride tank replacement submitted for review.<ul style="list-style-type: none">• COVID-19 restrictions in NS cause delays.• Fluoride tank replacement project merged with dedicated service water pumping project due to similar work (piping, valves, instrumentation) to reduce efforts for procurement and contracting. |
| 2022 | Fluoride remains out of service | <ul style="list-style-type: none">• Detailed design for fluoride tank replacement and dedicated service water project completed and prepared for tender. |
| 2023 | Fluoride remains out of service | <ul style="list-style-type: none">• Tender document for fluoride tank replacement and dedicated service water projects in progress.• Department re-organized, project manager reassigned which results in delays in tendering project. |

Recent changes to Fluoridation – Lake Major

| Date | Action | Description |
|-------------|---------------------------------|--|
| 2023 cont'd | Fluoride remains out of service | <ul style="list-style-type: none"> • Heavy rainfall events cause significant changes to source water quality in Lake Major. Alum dosing nearly doubled to maintain finished water compliance and operational resilience, putting strain on the existing storage capacity of alum. • Operational direction change from replacing fluoride tank to adding a 4th alum tank due need for additional alum capacity. Alum tank was deemed a priority over fluoride since alum was required to meet finished water regulatory requirements. <ul style="list-style-type: none"> • NSECC notified of this decision |
| 2024/25 | Fluoride remains out of service | <ul style="list-style-type: none"> • Raw water quality returns to normal in Summer. <ul style="list-style-type: none"> • Project tendered, contract executed. • Halifax Water staff begin discussions with Nova Scotia Medical Officer and of Health and the HW Board on fluoridation status. <ul style="list-style-type: none"> • Staff discuss options to resume fluoridation. |



Recent changes to source water quality – Lake Major



2023/2024: Increase in alum consumption, 4th tank needed

5 times higher alum required than when plant was commissioned

Fluoride reinstatement – Lake Major

- Halifax Water is currently evaluating the best path forward for both reinstating fluoride and minimizing operational risk.

Option 1

- **Pivot ongoing alum tank installation**
 - Ongoing alum tank installation would be reconfigured for fluoride. This option creates operational resilience and compliance risks during adverse raw water quality conditions.
- **Timelines**
 - ~ 1 Year
- **Approximate Cost**
 - < \$500 K
- **Fluoride Redundancy**
 - Not possible
- **Alum Redundancy**
 - No

Option 2

- **Retrofit existing orthophosphate chemical storage area and move orthophosphate to different part of the facility**
 - Existing room for orthophosphate would be reconfigured for fluoride, with orthophosphate being moved to a different area. This option allows for proceeding with the ongoing extra alum tank installation, reducing risk for non-compliance.
- **Timelines**
 - ~ 2 Year
- **Approximate Cost**
 - ~ \$1 M
- **Fluoride Redundancy**
 - possible
- **Alum Redundancy**
 - Yes

Option 3

- **Implement Fluoride as part of long-term upgrades**
 - Fluoride would be incorporated into major long term capital upgrades at the facility.
- **Timelines**
 - ~ 5-10 Years
- **Approximate Cost**
 - < \$500 K
- **Fluoride Redundancy**
 - Possible
- **Alum Redundancy**
 - Yes

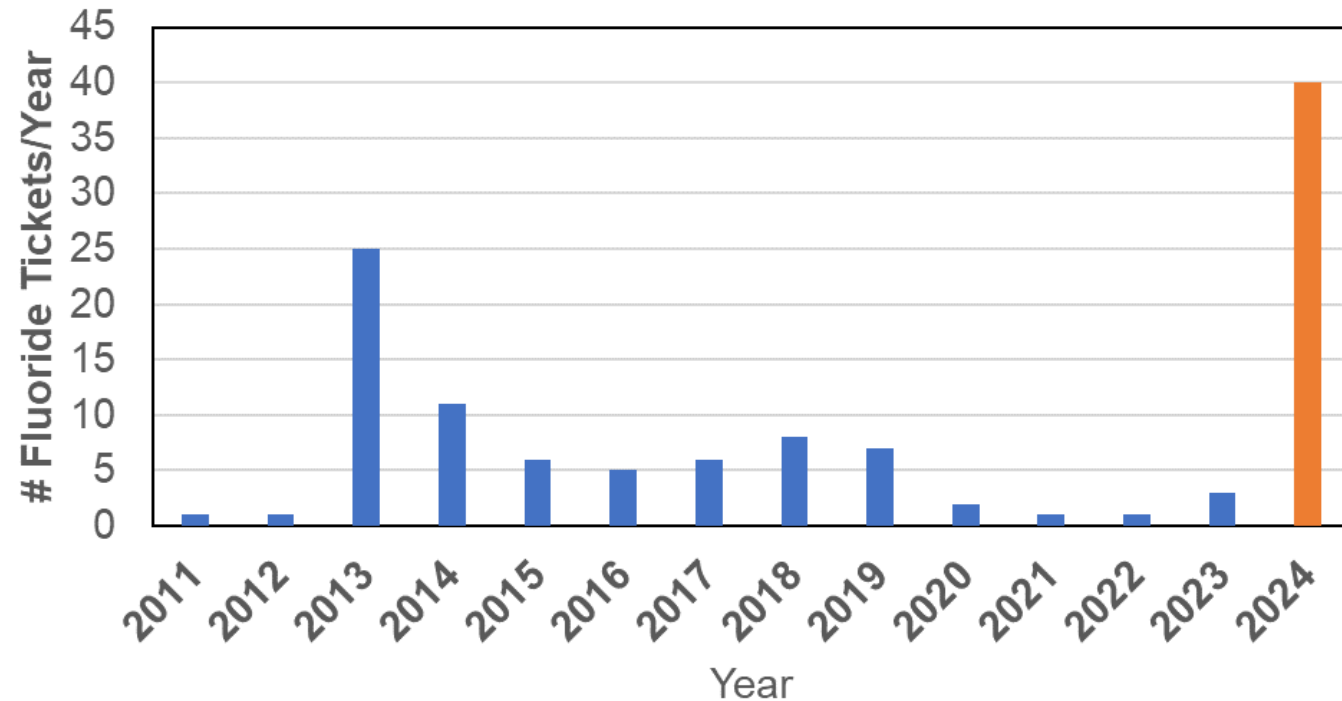
Other Costs and Considerations

Operational costs for fluoridation

- Pockwock: ~\$80,000 to \$100,000/year
- Lake Major: ~\$30,000 to \$36,000/year
- ~\$0.30 to \$0.40 per person annually

Community perception of community water fluoridation:

- Up until 2024 all related inquiries were by customers wanting fluoridation ceased.
- Since November 2024, there has been a split in opinion



Next steps

- Seeking input from the HW Board of Commissioners on fluoridation strategies March on 27, 2025, including:
 - Revisiting 2014 endorsement of fluoridation
 - Reinstatement options for Lake Major
 - Level of Service requirements – redundancy
 - Notification procedures
 - Fluoridation status updates are now provided in regular reporting to the Board
 - Customer notification to ensure ability for customers to adjust their behaviour knowing the status of fluoridation
 - Ensuring public health and dental association have information to adjust fluoridation programs, including fluoridation application in schools