



The Corporation of the Town of Parry Sound

## **Council Report and Recommendation**

### **Open or Closed Agenda:**

Open

### **Section 239 (2), Municipal Act, Subsection:**

### **Council Meeting Date:**

June 2, 2015

### **Subject:**

Fluoride in Town's Drinking Water

### **TOMRMS File Number:**

E08 - Waterworks

### **Spokesperson(s) Name and Title:**

Peter Brown, Director of Public Works

### **Department:**

Public Works

## **Report Recommendation**

### **By-Law:**

### **Resolution:**

#### **Direction (For Direct Staff Follow-Up):**

That Council direct staff to notify the Ministry of Health that it is the Town's intention to cease adding fluoride to the Town of Parry Sound's municipal water system, effective September 1, 2015; and

That a 21 day Notice Period be invoked to provide the public an opportunity to provide input; and

That the report and recommendation be considered at the July 7th Council meeting.

That staff be directed to prepare a bylaw authorizing the ceasing of adding fluoride to the Town's municipal water system.

#### **Direction (For Open Council Resolution):**

#### **Direction (For Open Council By-law):**

### **Purpose:**

To respond to public concerns regarding the use of fluoride in the municipal water system.

### **Identify Relationship to Strategic Priorities:**

Core Service	Yes
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Key Performance Objectives (KPOs)      No  
New Service, Project or Program      Yes  
Does This Item Relate to Council's Strategic Priorities?      Yes

## **Background/Report:**

Over the past several months, the Town of Parry Sound has received letters of concern from the public regarding the use of fluoride in the Town's municipal drinking water system. As well, some members of Council have also expressed concern over the use of fluoride.

The use of fluoride has been in the media all across Canada and the United States, with some municipalities choosing to have the chemical removed completely from its water supply.

Water fluoridation is the adjustment of the fluoride concentration in fluoride deficient water supplies to a level recommended for optimum oral health. Fluoride has been used in drinking water in North America to prevent dental decay for over 60 years. And to be clear, water fluoridation does not affect the quality of potable water; it does not affect the colour, or taste.

As everyone is aware, there are thousands of reports and articles on the use of fluoride, outlining both the advantages and disadvantages. Anyone with internet access will find that it is almost information overload when one types in "fluoride in drinking water".

I offer some of the advantages of fluoride in drinking water found on line:

- The Local Health Units in Ontario have conducted extensive research on community water fluoridation. The evidence from their research confirms the safety and effectiveness of artificially enhancing fluoride in drinking water to optimal levels (spring 2009).
- The Ontario Medical Association found no reason for health concerns and approved a policy that supports the addition of fluoride to drinking water (October 2010).

I have included various attachments pertaining to the fluoride debate.

Currently, the Town of Parry Sound abides by the Ministry of Health protocol of fluoridation in drinking water. The therapeutic range is 0.60ppm - 0.80ppm. The maximum acceptable concentration is 1.5ppm.

The Tony Agnello Water Treatment Plant utilizes hydrofluosilicic acid, which is delivered in plastic totes to the plant when required. The cost to fluoridate Parry Sound water for material alone is approximately \$5,000 per year. There is ongoing maintenance on the equipment, and in 2015 the Town will have to spend upwards of \$20,000 to upgrade the pumps and pipe system.

This cost does not include the proposal to place this chemical in a separate room. I mention this because of the inherent hazard to the operators who have to handle the chemical. I will explain this in a following paragraph under safety of the chemical.

## **The chemical**

Fluoride (or hydrofluosilicic acid) is the diluted version of fluorosilicic acid.

Fluorosilicic acid is a waste product of the phosphate fertilizer industry and has been known to contain toxins and heavy metals and radioactive materials.

## **Safety of the chemical**

Attachment #1 to this report is the Material Safety Data Sheet (MSDS). The first words one reads is DANGER! CORROSIVE! This chemical is highly dangerous to work with. Staff have to wear personal protective equipment each time the chemical is decanted. It has been shown to etch glass and degrade the paint on walls in the plants. It is not a safe chemical. I believe that the Town may be placing the staff at risk when they are exposed to it. I have attached some photos of the room that houses the chemical. As you can see, the panel and equipment is considerably deteriorating, and the walls and equipment have the etched film on it.

Many municipalities have completely or are in the process of reorganizing their chemical feed systems, separating chemicals used in water treatment into specific rooms designed and built just for the chemical. Parry Sound currently does not have this luxury. When the plant was built it was standard procedure to place all chemicals in the same room (as long as they did not react to one another). If we continue to use this chemical, Public Works will have to plan for such a design in the very near future, resulting in a significant cost to our ratepayers. Ministry of Environment inspectors have commented about the location of fluoride in the past. There is considerable expense involved in relocating the chemical to a room that would be construed as safe. The Town would have to bring in the original Engineer to redesign the rooms and piping layout.

As the Director of Public Works, I feel that it is important to identify the facts regarding the chemical and how it is dispensed. What happens after the chemical is distributed into the system is always up for debate. As mentioned earlier all one has to do is go on line and type in the word "fluoride".

To be clear, I am not a scientist, nor an expert on the health related issues pertaining to the advantages and disadvantages of the use of fluoride in drinking water. I suspect there will be groups before Council tonight and in the near future offering their opinions on this subject.

I am offering this report and recommendation based on my observations and reading about the hazards of the chemical to the staff members who are tasked with dispensing it in its raw form.

It is a very hazardous chemical for water staff to handle. It is an expensive chemical to process in that it needs its own room, its own pipe and pumping system, with specific parameters and restrictions. And it is a hazard in its original form when it arrives at the Water Treatment Plant. And for these specific reasons I am recommending that it be removed from the Town of Parry Sound drinking water.

## **Advantages and/or Disadvantages of Recommendation:**

### **Advantages**

Will eliminate the hazards (to staff) associated with fluoride.

Will save our ratepayers a minimum of \$5,000 annually (the cost of the chemical).

Will eliminate the requirement and therefore, the significant cost, to re-locate the chemical.

### **Disadvantages**

May affect resident's dental health, depending on what you read.

### **Alternatives:**

Do nothing, continue to fluoridate the water.

### **Cost/Financial Impact:**

\$5,000 per year in chemical costs.

Unknown costs in retrofitting room to house chemical safer.

### **Included in Current Budget:**

### **Attachments:**

Attachment #1 - Material Safety Data Sheet

Attachment #2 - Provincial Protocol for the Monitoring of Fluoride Levels

Attachment #3 - Simcoe Muskoka District Health Unit Position on Fluoridation

Attachment #4 - Muskoka Citizens Opposing Fluoridation

Attachment #5 - Fluoridation Room Pictures

(Accessible format available upon request)

## **CAO's Comments**

### **Recommends Council Approval:**

Yes

### **Recommends Council consider staff recommendation with the following comments:**

This RR should bring the fluoride debate to a head. There is no apparent overt threat to public health - if there was, the decision to remove fluoride treatment would have been made by higher authorities.

There are two primary issues identified as the basis for recommending elimination of fluoride: safety of staff and pending capital costs to properly store and handle the product. These issues are to be weighed against the value of optimum oral health for our residents.

It is recommended that Council defer making a decision to give the general public an opportunity to provide input now that the report and recommendation has been received by Council.

09.3.2

**MATERIAL SAFETY DATA SHEET****HYDROFLUOSILICIC ACID 23%****MSDS ID:** AC0025**Revised:** 07-24-2008**Replaces:** 10-27-2005**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** HYDROFLUOSILICIC ACID 23%  
**MSDS ID:** AC0025  
**Synonyms:** Hydrofluorosilicic Acid; Fluorosilicic Acid; Fluosilicic Acid; Hexafluosilicic Acid; HFS; FSA; Silicate(2-), hexafluoro-, dihydrogen  
**CAS Number:** 16961-83-4  
**Chemical Family:** Inorganic Acid  
**Formula:** H<sub>2</sub>SiF<sub>6</sub>

**DISTRIBUTED BY:**  
 Hydrite Chemical Co.  
 300 N. Patrick Blvd.  
 Brookfield, WI 53008-0948  
 (262) 792-1450

**EMERGENCY RESPONSE NUMBERS:**  
 24 Hour Emergency #: (414) 277-1311  
 CHEMTREC Emergency #: (800) 424-9300

**MANUFACTURED BY:** Solvay Fluorides, LLC

**2. HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW:** DANGER! CORROSIVE. Causes severe burns to eyes, skin, and respiratory tract. Harmful if inhaled. Harmful if swallowed. Contact with water may generate toxic, irritating and corrosive gases.

**Physical State:** Liquid.  
**Color:** Colorless.  
**Odor:** Pungent.

**POTENTIAL HEALTH EFFECTS**

**Routes Of Exposure:** Eyes. Ingestion. Inhalation. Skin. Absorption.

**Target Organs:** Respiratory System. Kidneys. Liver. Eyes.

**Eye Contact:** CORROSIVE-Causes severe irritation and burns. Causes: watering. redness. swelling. May cause: serious eye damage. permanent eye damage. blindness.

**Skin Contact:** CORROSIVE-Causes severe irritation and burns. Causes: painful irritation. redness. swelling. severe burns. Effects may be slow to heal.

**Skin Absorption:** Absorption may cause: shock. hypocalcemia following the extent of the lesions.

**Inhalation:** CORROSIVE-Causes severe irritation and burns. Causes: spasmodic cough. difficulty breathing. May cause: chemical pneumonitis. pulmonary edema. Inhalation of high concentrations may cause: hypocalcemia. nervous problems (tetany). cardiac arrhythmia (heart irregularity). Prolonged or repeated contact may cause: sore throat. nose bleeds. chronic bronchitis.

**Ingestion:** CORROSIVE-Causes severe irritation and burns. May cause severe burns to the: mouth. throat. May cause: perforation of the esophagus. perforation of the stomach. throat edema. suffocation. abdominal cramps. nausea. vomiting (bloody). bloody diarrhea. coughing. difficulty in breathing. convulsions.



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unconsciousness. coma. cardiopulmonary arrest. hypocalcemia with nervous disorders (tetany) and cardiac rhythm disorders. general symptoms having a severe prognosis.

**Medical Conditions Aggravated By Exposure To Product:** No data available.

**Other:** Chronic exposure at high concentrations can cause bone fluorosis. Seriousness of lesions and prognosis of intoxication depend directly on the concentration and duration of exposure.

**Cancer Information:** This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

**Potential Environmental Effects:** See Section 12.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS Number</u>	<u>OSHA Hazard</u>	<u>% by Wt.</u>
Water	7732-18-5	NO	75 - 77 %
Hydrofluosilicic Acid	16961-83-4	YES	23 - 25 %

## 4. FIRST-AID MEASURES

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. If there is difficulty opening the lids, administer an analgesic eye wash (oxybuprocaine).

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Keep warm (blanket); provide clean clothing.

**Inhalation:** Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY. Keep warm and quiet.

**Ingestion:** If swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Rinse mouth with fresh water. DO NOT give anything to drink. If the subject presents nervous, respiratory or cardiovascular disorders: administer oxygen.

**Note to Physicians:** ALL TYPES OF CONTACT SHOULD BE TREATED IMMEDIATELY.

## 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** Not flammable. Not combustible. Use extinguishing agents appropriate for surrounding fire. DO NOT USE: Water.

**Fire Fighting Methods:** Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers and disperse vapors. Water spray may be useful in minimizing or dispersing vapors. Contact with water liberates hazardous gas.

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**Fire And Explosion Hazards:** Product may react with some metals (ex.: Aluminum, Zinc, Tin, etc.) to release flammable hydrogen gas.

**Hazardous Combustion Products:** Thermal decomposition may release: Hazardous fumes or hazardous decomposition products.

## 6. ACCIDENTAL RELEASE MEASURES

**Spill Clean-Up Procedures:** CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Shut off source of leak if safe to do so. Keep upwind of leak or spill. Use water spray to control vapor. Contain spills immediately with inert materials (e.g., sand, earth). Place in non-leaking containers for immediate disposal. Dilute with plenty of water. To avoid excess fuming, do not apply water directly onto the spillage, but upstream or on a run off. Neutralize with an alkali (sodium carbonate, lime, etc.) Absorb spill with inert material and dispose of properly. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

## 7. HANDLING AND STORAGE

**Handling:** Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Provide tight electrical equipment well protected against corrosion. Use only equipment and materials which are compatible with the product. Use in closed system. Handle in small quantities under a lab hood. Preferably transfer by pump or gravity.

**Storage:** CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Keep in a diked area. Highly corrosive to most metals with evolution of hydrogen gas.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines:

<u>Component</u>	<u>OSHA PEL</u>	<u>OSHA STEL/C</u>	<u>ACGIH TWA</u>	<u>ACGIH STEL/C</u>
Water	Not Estab.	Not Estab.	Not Estab.	Not Estab.
Hydrofluosilicic Acid	*2.5 mg/m <sup>3</sup>	Not Estab.	*2.5 mg/m <sup>3</sup>	Not Estab.

**Note:** \* Exposure Limit for Fluorides, as F.

**Engineering Controls:** General room ventilation and local exhaust are required. Maintain adequate ventilation. Do not use in closed or confined spaces. Avoid creating dust or mist. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

**Eye/Face Protection:** Wear chemical safety goggles and a full face shield while handling this product.

**Skin Protection:** Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Butyl rubber.

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**Respiratory Protection:** Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH-Approved air-purifying respirator with: Acid gas cartridge. In a confined or poorly ventilated area, wear: NIOSH-Approved self-contained breathing apparatus. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

**Other Protective Equipment:** Eye-wash station. Safety shower. Rubber apron. Rubber boots. Protective clothing.

**General Hygiene Conditions:** Wash with soap and water before meal times and at the end of each work shift.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Liquid.

**Color:** Colorless.

**Odor:** Pungent.

**Boiling Point (deg. F):** 227.3 (Decomposes at 226F)

**Freezing Point (deg. F):** < - 22

**Melting Point (deg. F):** N.D.

**Vapor Pressure (mm Hg):** from 22.5 @ 68 F

**Vapor Density (air=1):** > 1

**Solubility in Water:** Completely miscible

**pH:** 1 @ 100 g/l

**Specific Gravity:** 1.32 @ 68 F

**% Volatile (wt%):** N.D.

**Evaporation Rate (nBuAc = 1):** N.D.

**VOC (wt%):** 0

**VOC (lbs/gal):** 0

**Viscosity:** N.D.

**Flash Point:** Not combustible.

**Flash Point Method:** N.A.

**Lower Explosion Limit:** N.D.

**Upper Explosion Limit:** N.D.

**Autoignition Temperature:** No Data

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.

**Conditions To Avoid:** Avoid heating the product to its decomposition temperature.

**Incompatible Materials:** Metals. Strong oxidizing agents. Glass.

**Hazardous Decomposition Products:** Hydrogen gas. Hydrogen fluoride.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur under normal conditions. May react with certain metals to produce flammable hydrogen gas. Explosive mixtures in contact with alkaline materials (Na, K, Li). Reacts violently with water.

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## 11. TOXICOLOGICAL INFORMATION

**LD50 Oral:** No Data  
**LD50 Skin:** No Data  
**LC50 Inhalation:** Rat: 850 - 1070 mg/m<sup>3</sup>/1 h

Oral: LC100 (guinea pig): 80 mg/kg (2% solution)

Chronic toxicity:

Inhalation, Prolonged exposure, rat, Target Organs: Respiratory system, kidney, liver, eyes, observed effect, (hydrofluoric acid)

Genetic toxicity in vitro:

In vitro, Animal testing did not show any mutagenic effects.

Remarks:

Corrosive effect linked to acid properties of the product.

Chronic exposure may entail dental or skeletal fluorosis.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Information:** Acute Toxicity:

Fishes, *Salmo gairdneri*, LC50, 96 h, 51 mg/l (Fluorides)

Remarks: 10 mg HF/l: pH = 3.15; 100 mg HF/l: pH = 2.65

Crustaceans, *Daphnia magna*, EC50, 48 h, 97 mg/l (Fluorides)

Remarks: fresh water

Crustaceans, *Mysidopsis bahia*, EC50, 96 h, 10.5 mg/l (Fluorides)

Remarks: salt water

Chronic Toxicity:

Fishes, *Salmo gairdneri*, LC50, 21 Days, from 2.7 - 4.7 mg/l (Fluorides)

Crustaceans, *Daphnia magna*, NOEC, 21 Days, 3.7 mg/l (Fluorides)

Algae, *Scenedesmus* sp., EC50, 96 h, 43 mg/l (Fluorides)

**Chemical Fate Information:** Mobility:

-Air: mobile in aerosol form.

-Water: considerable solubility and mobility.

-Soil/sediments (Fluorides): absorption on mineral soil constituents. Conditions: slightly acid pH.

Persistence and degradability:

Abiotic degradation:

-Air: neutralization by natural alkalinity.

-Water/soil (Fluorides): complexation/precipitation of inorganic materials. Degradation Products: aluminum/iron/calcium/phosphate complexes and/or precipitates as a function of pH.

-Water/soil: ionization/neutralization.

Biodegradation:

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-The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential:

-Bioconcentration: log Pow  
not applicable (ionizable inorganic compound)  
-(Fluorides)  
accumulation into vegetable leaves.

Remarks:

-No specific data.

-Harmful to aquatic organisms.

-Hazard for the aquatic environment is limited due to product properties:  
-low chronic toxicity.

-Product fate is highly depending on environmental conditions: pH, temperature, oxidoreductive potential, mineral and organic content of the medium...

## 13. DISPOSAL CONSIDERATIONS

**Hazardous Waste Number:** D002

**Disposal Method:** Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. Since emptied containers retain product residue, follow label warnings even after container is emptied.

## 14. TRANSPORTATION INFORMATION

**DOT (Department of Transportation):**

**Proper Shipping Name:** FLUOROSILICIC ACID

**Hazard Class:** 8

**Identification Number:** UN1778

**Packing Group:** II

**Label Required:** CORROSIVE

## 15. REGULATORY INFORMATION

### U.S. FEDERAL REGULATIONS

**TSCA Inventory Status:** All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

**SARA Title III Section 311/312 Category:**

**Immediate (Acute) Health Hazard:** Yes

**Delayed (Chronic) Health Hazard:** Yes

**Fire Hazard:** No

**Sudden Release Of Pressure Hazard:** No

**Reactive Hazard:** Yes

**SARA Section 302/304/313/HAP:**

Component

CERCLA RQ

SARA RQ

SARA TPQ

SARA 313

U.S. HAP

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Water	N.A.	N.A.	N.A.	NO	NO
Hydrofluosilicic Acid	N.A.	N.A.	N.A.	NO	NO

NSF/ANSI Standard 60 Maximum Use Level: 6 mg/L.

## U.S. STATE REGULATIONS

California - The following components are listed under Proposition 65:

Lead (0.02% max.)

Wisconsin - The following components are listed as a Wisconsin HAP:

Fluorides (inorganics), as F.

## 16. ADDITIONAL INFORMATION

### Hydrite Rating System

Health: 3\*

Flammability: 0

Reactivity: 1

\* = Chronic Health Hazard

### NFPA Rating System

Health: 3

Flammability: 0

Reactivity: 1

Special Hazard: None

### MSDS Abbreviations

N.A. = Not Applicable

N.D. = Not Determined

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

C = Ceiling Limit

N.E./Not Estab. = Not Established

MSDS Prepared by: NAO

Reason for Revision: Changes made throughout the MSDS.

The data in this Material Safety Data Sheet relates to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which HYDRITE CHEMICAL CO. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.

# Protocol for the Monitoring of Community Water Fluoride Levels, 2014

## Preamble

The Ontario Public Health Standards (OPHS)<sup>1</sup> are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)<sup>2</sup> to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

## Purpose

This protocol applies to boards of health whose jurisdiction includes community water systems to which fluoride is added. It has been developed to provide direction to boards of health in monitoring community water fluoride levels and taking specific action in accordance with the level of fluoride in the water. It outlines the action(s) required when fluoride levels are below the therapeutic range (TR) of 0.6 to 0.8 ppm or above the Maximum Acceptable Concentration (MAC) of 1.5 ppm (mg/L).

Refer to the *Child Health Program, Oral Health Guidance Document, 2009* (or as current)<sup>3</sup> for additional resources.

## Reference to the Standards

The statutory basis for this protocol is the HPPA<sup>2</sup>, section 7. Other relevant legislation includes the Safe Drinking Water Act (SDWA)<sup>4</sup> and O. Reg. 170<sup>5</sup> under the SDWA.

**Table 1: identifies the OPHS standards and requirements to which this protocol relates.**

Standard	Requirement
Child Health	Requirement #14: The board of health shall review drinking water quality reports for its municipal drinking water supply(ies) where fluoride is added. These reports shall be reviewed at least monthly and, where necessary, action shall be taken in accordance with the <i>Protocol for the Monitoring of Community Water Fluoride Levels, 2008</i> (or as current).



## Operational Roles and Responsibilities

### 1) Detection/investigation/identification

The board of health shall:

- a) Contact all operators of public drinking-water systems, advise them of the protocol, and request that fluoride concentration data be sent to the board of health on a monthly basis for all water supply systems that are to be monitored for fluoride.
- b) Have a procedure in place for receiving and reviewing all reports on fluoride concentrations in local drinking water.
- c) Review recorded fluoride levels upon receipt.
- d) Contact the operator of the water system for an explanation and institute a contingency water monitoring plan if the reported monthly average fluoride levels are below the TR or above the MAC.

### 2) Notification/management

The board of health shall:

- a) Implement the following if the fluoride concentration is below 0.6 ppm for more than 90 days:
  - i) Ensure that the medical officer of health submits a report to the board of health;
  - ii) Determine the need to notify all primary health providers to inform them of the low fluoride concentration, and inform the public through the media;
  - iii) Using current scientific evidence and local surveillance data, determine whether segments of the community at high risk for dental decay require fluoride alternatives, and provide or ensure the provision of such alternatives; and
  - iv) Request notification from the operator of the water system when the fluoride concentration is returned to 0.6 to 0.8 ppm, and notify primary health providers and the public.
- b) Implement the following upon notification of water fluoride levels exceeding the MAC:
  - i) Determine the need to notify primary health providers and the public; and
  - ii) Request notification from the operator of the water system when the fluoride concentration is returned to 0.6 to 0.8 ppm, and determine the need for notification of primary health providers and the public based on action(s) taken in 2b) i).

## References

1. Ontario. Ministry of Health and Long-Term Care. Ontario public health standards 2008. Toronto, ON: Queen's Printer for Ontario; 2008 [cited 2013 Jul 05]. Available from: [http://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/docs/ophs\\_2008.pdf](http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/ophs_2008.pdf).
2. *Health Protection and Promotion Act*, R.S.O. 1990, c. H.7. Available from: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90h07\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h07_e.htm).
3. Ontario. Ministry of Health Promotion. Child Health Program Oral Health Guidance Document. Toronto, ON: Queen's Printer for Ontario; 2010. Available from: [http://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/docs/guidance/ChildHealth.pdf](http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/guidance/ChildHealth.pdf).
4. *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32. Available from: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_02s32\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_02s32_e.htm).
5. *Drinking Water Systems*, O. Reg. 170/03. Available from: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_030170\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_030170_e.htm).

## Additional Resources

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## MUNICIPAL WATER FLUORIDATION

### Position of the Simcoe Muskoka District Health Unit

April 2009

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#### OVERVIEW

*The Board of Health for the Simcoe Muskoka District Health Unit concludes that optimally fluoridated drinking water should be available to all residents on municipally supplied drinking water systems.*

Water fluoridation is the adjustment of the fluoride concentration in fluoride deficient water supplies to a level recommended for optimal oral health. Fluoride has been used in drinking water to prevent dental decay for more than 60 years. More than 400 million people in more than 60 countries receive the benefits of water fluoridation.<sup>1,2</sup> In Canada, 42.6 per cent of the population has access to fluoridated public water supplies.<sup>3</sup> In Ontario, 70.3 per cent of its population is covered by community water fluoridation.<sup>3</sup>

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#### HEALTH EFFECTS

The health focus report *Oral Health in Simcoe and Muskoka* released by the Simcoe Muskoka District Health Unit in January 2009 clearly demonstrates the seriousness of dental decay in local children. The oral health of 5, 7, 9 and 13-year-olds in Simcoe and Muskoka ranked in the bottom 15 to 30 per cent of the 36 health units surveyed in Ontario. It also highlights the significant challenges faced by young adults, adults and seniors to access preventive dental care and early treatment of dental problems due to the cost of dental care. About 154, 000 people in Simcoe Muskoka do not have dental insurance.<sup>4</sup>

People in areas with less than optimal levels of fluoride in drinking water regularly show poorer dental health than areas where it has been in use. Studies prove that water fluoridation continues to be effective in reducing tooth decay by 20 to 40 per cent.<sup>5</sup>

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#### RESEARCH

Research on community water fluoridation is extensive. Researchers in many different countries have published their findings in recognized peer-reviewed professional journals. The evidence from this research confirms the safety and the effectiveness of artificially enhancing fluoride in drinking water to optimal levels.

Since 1997, there have been 18 major reviews of water fluoridation and the effect of fluorides conducted in Europe,<sup>6,7</sup> the United Kingdom,<sup>8,9</sup> Ireland,<sup>10</sup> Australia,<sup>11-13</sup> the United States<sup>14-18</sup> and Canada<sup>19,20</sup>. In Canada most recently, the Institut national de santé publique du Québec<sup>21</sup> released its report, "Water fluoridation: An analysis of the health benefits and risks." As well, Health Canada released the "Findings and Recommendations of the Fluoride Expert Panel,"<sup>22</sup> as did the Government of Canada with the "Joint Government Response to Environmental Petition Number 221: Petition to Discontinue Water Fluoridation."<sup>23</sup> The major conclusions from all these reviews and reports are:

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- Water fluoridation is still effective against caries (dental cavities) even when other sources of fluoride, e.g. toothpastes, topical fluorides, are used.
  - Water fluoridation benefits all residents served by community water supplies, regardless of their social or economic status.
  - Water fluoridation is safe. Credible scientific research finds no evidence of increased risk of cancer, bone disease, kidney disease, fluoride toxicity, thyroid suppression or birth defects.
  - Credible scientific research finds no evidence that adding fluoride to the drinking water has negative environmental impacts.
  - The only adverse effect linked to community water fluoridation is the possibility of higher rates of dental fluorosis (in its mildest form consists of fine white filamentous striations across the crowns of teeth) – if inadvertent ingestion of other fluoride sources (fluoridated toothpaste, fluoride supplements) is not controlled.

The scientific evidence demonstrates that of all the available fluoride delivery options, community water fluoridation is preferred.

- It is the most equitable method, reaching:
  - rich and poor,
  - recent immigrants,
  - long-time residents, and
  - advantaged and disadvantaged equally.
- It is the most efficient method, in terms of overall costs and population compliance.

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## **EXPERT SUPPORT FOR FLUORIDATION**

The weight of evidence has prompted many health organizations to endorse the effectiveness of community water fluoridation in reducing dental decay. Many national and international dental, allied health and other organizations have issued these endorsements. These include:

- the Canadian Association of Public Health Dentistry<sup>24</sup>
- the Canadian Dental Association<sup>25</sup>
- the Canadian Paediatric Society<sup>26</sup>
- the Canadian Medical Association<sup>27</sup>
- the American Dental Association<sup>1</sup>
- the British Dental Association<sup>28</sup>
- the Australian Dental Association<sup>29</sup>
- the World Health Organization.<sup>30</sup>

In 1999, the U.S. Centers for Disease Control listed fluoridation as one of the “ten great public health achievements of the century.”<sup>31</sup>

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## **CANADA – Support for Fluoridation**

### **Government of Canada**

The Government of Canada provided its response to a petition to stop community water fluoridation in the document "Joint Government of Canada Response to Environmental Petition No. 221" and states:

"The fluoridation of drinking water supplies is a well-accepted measure to protect public health and is strongly supported by scientific evidence. Fluoride is used internationally to protect dental health. It has been added to public drinking water supplies around the world for more than half a century, as a public health/dental health measure. The use of fluoride in the prevention of dental caries continues to be endorsed by over 90 national and international professional health organizations including Health Canada, the Canadian Dental Association, the Canadian Medical Association, the World Health Organization and the Food and Drug Administration of the United States." (March 18, 2008)

Other information it provides includes the following:

- There is no science to support an increase in risk for bone cancer or any other cancers associated with water fluoridation.
- There is no science to support an increased risk of fluoride toxicity for those who drink more than average quantities of water or to potentially susceptible sub-populations.
- The weight of the credible scientific evidence does not support a link between exposure to fluoride in the drinking water and thyroid suppression.
- Water that is optimally fluoridated does not pose a problem with respect to moderate dental fluorosis for any age group. Rather, it is the use of fluoride supplements (tablets, drops, lozenges) and the ingestions of fluoridated toothpaste at a critical age that is of concern.
- Fluoridation additives certified for use in drinking water are not classified as hazardous waste in Canada. Fluorosilicate compounds are not present in drinking water as they break down completely to release fluoride ions. Any impurity in the additive is below levels that could pose a risk to human health. Water treated with these certified additives would present no health risk to the consumer from fluoride or any impurity.

"Joint Government of Canada Response to Environmental Petition No. 221: Petition to Discontinue Water Fluoridation."

<http://www.fptdwg.ca/English/e-fluoridation.html#petition>

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### **Canadian Association of Public Health Dentistry**

"The Canadian Association of Public Health Dentistry recognizes the benefits of community water fluoridation, and recommends it as a safe, effective and economical public health measure. It generates most difference in communities with a significant prevalence of dental caries. Continuing research into fluoridation is expected and recommended." (February 2005)

"Fluoridation of Community Water Systems."

<http://www.caphd-acsdp.org/P-statements.htm>

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**Royal College of Dental Surgeons of Ontario (RCDSO)**

The Royal College of Dental Surgeons of Ontario supports "the fluoridation of municipal drinking water as an important approach to oral health promotion and disease prevention. RCDSO joins the Canadian Dental Association in affirming its support for fluoridation of municipal water supplies as an economical and effective means of preventing dental caries for all age groups." (May 2003)

"Policy Statement – Water Fluoridation."

[http://www.rcdso.org/pdf/policy\\_statements/policy\\_fluoridation.pdf](http://www.rcdso.org/pdf/policy_statements/policy_fluoridation.pdf)

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**Canadian Dental Association (CDA)**

The Canadian Dental Association supports "fluoridation of municipal drinking water (at minimum levels required for efficacy as recommended by the Federal-Provincial Subcommittee on Drinking Water) as safe, effective and economical means of preventing dental caries in all age groups. Fluoride levels in the water supplies should be monitored and adjusted to ensure consistency in concentrations and avoid fluctuations." (November 2008)

"Position on Use of Fluorides in Caries Prevention."

[http://www.cda-adc.ca/files/position\\_statements/fluorides.pdf](http://www.cda-adc.ca/files/position_statements/fluorides.pdf)

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**Canadian Paediatric Society (CPS)**

The Canadian Paediatric Society states "there is no doubt that the use of fluoride decreases dental caries. On the other hand, it is clear that the ingestions of too much fluoride can result in varying degrees of fluorosis. Thus, in practice, the administration of fluoride should strike a balance between the two situations.

The position outlined in the present statement follows the principles agreed to at the Canadian Consensus Conference on fluoride held in 1997. Fluoride should continue to be added to municipal water supplies where natural concentrations are less than 0.3 ppm. A suitable trade-off between dental caries and fluorosis occurs around 0.7 ppm." (May 2002)

"Position statement on the use of fluoride in infants and children."

<http://www.cps.ca/english/statements/N/n02-01.htm>

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**CMA, Canadian Medical Association (CMA)**

The Canadian Medical Association by resolution states "That the Canadian Medical Association encourage programs to promote **fluoridation** of communal water supplies."

The CMA reviewed this resolution in February 2004 and determined it to still be relevant.

"Policy Resolution GC77-27 - Fluoridation."

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**The Public Health Agency of Canada (PHAC)**

“Current science continues to support water fluoridation as a safe, cost effective public health measure.” said Dr. David Butler-Jones, Canada’s Chief Public Health Officer. “I encourage Canadians to review respected and credible sources of information to reach their own conclusions about water fluoridation. Community water fluoridation has been identified by the United States Centers for Disease Control as one of the 10 great public health achievements of the 20th century.” (August 2008)

“Experts Support Water Fluoridation.”

<http://www.fptdwg.ca/assets/PDF/0808-press%20release%20caphd-phac-cdha.pdf>

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**Canadian Dental Hygienists Association**

Ms. Carol-Ann Yakiwchuk, President of the Canadian Dental Hygienists Association stated, “The use of fluoride is an important oral health promotion and disease prevention approach. Water fluoridation should be maintained and extended to additional communities where feasible.” (August 2008)

“Experts Support Water Fluoridation.”

<http://www.fptdwg.ca/assets/PDF/0808-press%20release%20caphd-phac-cdha.pdf>

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# PB Attachment #4 - Muskoka Citizens Opposing Fluoridation - Fluoride in Town's Drinking Water System

09.3.2

## MUSKOKA CITIZENS OPPOSING FLUORIDATION

[www.muskokacof.webs.com](http://www.muskokacof.webs.com)

### OVERVIEW

Muskoka Citizens Opposing Fluoridation (muskokacof), founded in July 2012, is a not-for-profit association of professionals, volunteers, and affiliates whose goal is to bring awareness to the community, with reference to credible scientific studies, regarding the health and environmental hazards of water fluoridation. We now have over 1,000 signatures on petitions, received in Muskoka, requesting that our District Councillors vote to stop artificial water fluoridation in our Municipal Water Supplies.

As of August, 2013, there have been 53 Canadian communities rejecting this industrial grade fluoride in their drinking water, the most recent, Windsor, ON, 2013. (1)

Our neighbouring towns, Orillia, researched the recent scientific studies and voted not to fluoridate the city water in 2012, and City of Barrie does not practice water fluoridation "With the referendum that took place in the 1960's, it was voted by the citizens of Barrie that fluoride not be added in the water." (2)

Our concerns include the steady increases in dental fluorosis (a visible sign of fluoride poisoning) (3), and other health risks associated with the ingestion and accumulation of fluoride. "Fluoride seems to fit in with lead, mercury, and other poisons that cause chemical brain drain. The effect of each toxicant may seem small, but the combined damage on a population scale can be serious..." (4)

"Several epidemiologic studies conducted in fluoridated and nonfluoridated communities clearly indicated that CWF (Community Water Fluoridation) may be unnecessary for caries prevention" (5)

Our exposure to fluoride has tripled over the years (6). Since pesticides and food fumigants contain fluoride, we are now over exposed to 'hidden' fluoride in our foods and beverages (7), as well as dental products. These other 'hidden' sources of fluoride seem to be ignored when proponents tell us that fluoridated water poses no health risk. However, if there is no doctor monitoring every individual's total daily dosage of fluoride, then why add more to the drinking water? And about 99% goes down the drain.

Other concerns are the unnatural, industrial-grade fluoride used in Muskoka's drinking water, hydrofluorosilicic acid, obtained from the phosphate fertilizer industry, containing other co-contaminants (8) which are officially characterized as 'Hazardous Waste' by the U.S. Environmental Protection Agency (EPA). There is NO safe consumption level for a cancer-causing chemicals which accumulate in the body.

The recent statement to end water fluoridation signed by over 4,000 medical, dental, scientific, and environmental professionals (9), and EPA unions representing over 7,000 environmental and public health professionals have called for a moratorium on drinking water fluoridation programs due to serious health risks. (10)(11) Many of these professionals, once promoters of water fluoridation, are now opposed.

It seems Public Health takes years to admit that we, especially babies and infants, should not be exposed to health hazards such as asbestos, DDT, alcohol, cigarette smoke, pesticides and fluoridated tap water.

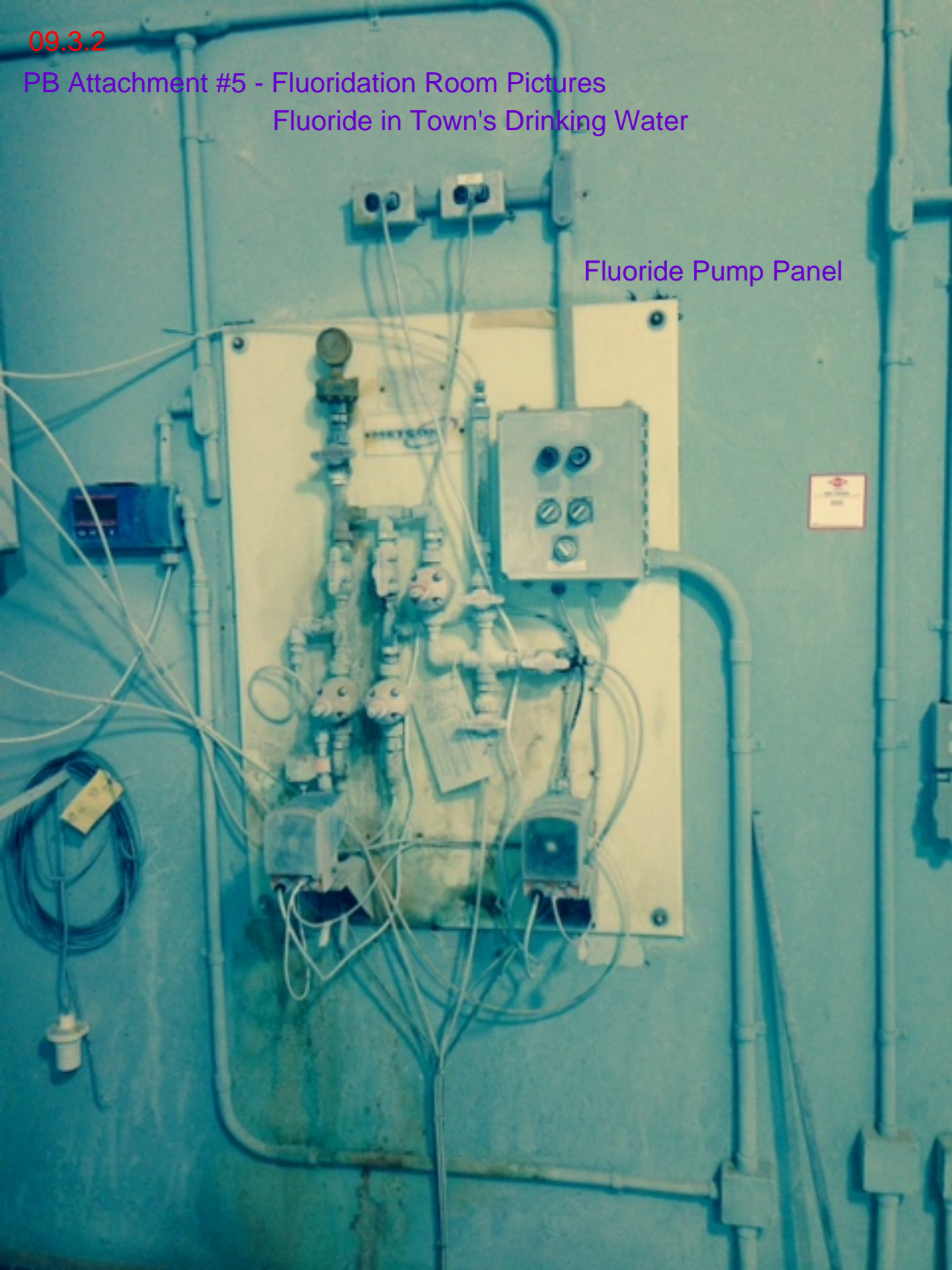
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09.3.2

PB Attachment #5 - Fluoridation Room Pictures  
Fluoride in Town's Drinking Water

Fluoride Pump Panel





Fluoride day tank - pumps fluoride into water system



Chemical room  
door - note the  
etching in the  
paint

