Massachusetts Department of Public Health

Community Water Fluoridation Information for Water Operators

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Introduction

This training is intended for Massachusetts water operators who work with Public Water Systems (PWS) and adjust fluoride levels for safe drinking water consumption. The slide deck will address fluoride reporting forms and issues, the Water Fluoridation Reporting System (WFRS), My Water's Fluoride (MWF), tips for managing non-optimal fluoride levels, 2023 challenges and the new 2024 CWF quality awards criteria.

If you have any questions, email oral.health@mass.gov.

Overview

- Community Water Fluoridation (CWF) Statement
- CWF Reporting Forms
- Water Fluoridation Report System and Documentation Process
- Reports and Reporting Form Issues
- My Water's Fluoride Reporting Levels
- System Challenges
- Protocols and Processes
- 2024 CWF Quality Awards Criteria

Community Water Fluoridation (CWF)

The Massachusetts Department of Public Health strongly supports community water fluoridation as a safe, cost-effective, and proven practice promoting good oral health. Today, over 4 million people in Massachusetts receive the benefits of community water fluoridation.

The Office of Oral Health (OOH) also recognizes water operators' hard work and dedication to providing communities with the oral health benefits of optimally fluoridated water.

Benefits of Fluoride

- For over 75 years, people in the United States have been drinking water with added fluoride and enjoying the benefits of better dental health. Water fluoridation is beneficial for reducing and controlling tooth decay and promoting oral health across the lifespan.

- Evidence shows that water fluoridation prevents tooth decay by providing frequent and consistent contact with low fluoride levels.

- Fluoridated communities reduce tooth decay by 25% in children and adults compared to communities that do not have fluoridated water sources.

- Additional evidence shows that school children living in communities where water is fluoridated at the optimal level of 0.7ppm have, on average, 2.25 fewer decayed teeth compared to children living in non-fluoridated communities.

Water Fluoridation Reporting System

What is the Water Fluoridation Reporting System (WFRS)?

- WFRS is an online tool that helps states manage the quality of their water fluoridation programs. WFRS information is also the basis for national reports that describe the percentage of the U.S. population who receive fluoridated drinking water through community water systems.

- Massachusetts has 132 fluoridated communities with 79 adjusted water systems that report fluoride levels to the OOH. Monthly fluoride reports are sent to the OOH and results are put into WFRS. WFRS is managed by the Centers for Disease Control and Prevention (CDC).

CWF Fluoride Reporting Form A

Fluoridation Report A

Purpose: This form is to be used by the PWS to document finished fluoride concentrations from treatment plants. All pumping fluoridated sources MUST be tested daily for fluoride at the distribution system's entry point or after the fluoride application point.

Fluoride Reporting Form A

MASS/DEPARTMENT OF PUBLIC HEALTH DAILY FLUORIDATION REPORT **DPH-FL-A (Daily)**

Month of ____ Year of _____ Page __ of ___ (Use the same form daily for one month for each source or manifolded or combined sources)

Section I. PWS INFORMATION:

1. PWS Name: _____ 2. PWS ID# : _____ 3. City/Town or District: _____
4. Source(s) Fluoridated/MassDEP Source Code/Location ID: _____
5. Is the Source(s) Manifolded? Yes ☐ or No ☐ 6. List the location **or** Mass DEP location ID# for the daily sample: _____

Section II. PWS CHEMICAL USE INFORMATION:

1. Type of fluoride used: NaF ☐ Na_2SiF_6 ☐ H_2SiF_6 ☐.
2. What is the purity of the fluoride compound? _____%. ***(From shipping container or hydrometer test rounded to nearest unit).***
3. Are all fluoride-metering pumps protected by **two (2)** operating anti-siphon (back-pressure) valves? Yes ☐ No ☐
4. Was each anti-siphon valve disassembled and inspected in the last 12 months? Yes ☐ Date _____ or No ☐ Explain: _____
5. Was the fluoride test meter calibrated each day before use? (See Note 2) Yes ☐ or No ☐ Explain: _____
6. Do you require on site technical assistance? Yes ☐ or No ☐ If yes, explain: _____

Section III. DAILY RESULT

DAYS of the month	Gallons of Water Treated (To nearest 1,000 gals)	Amt. Fluoride Added (lbs)	Saturator [1] Volume of Make Up Water Added Gals ☐ or Cu Ft ☐	Calculated Fluoride Ion Dosage (ppm)	Results of Fluoride Test by PWS (ppm) [2,3]	Name of tester and Comments E.g. Reason(s) for not fluoridating or sampling. Changes in product or batch mixing day etc.
1						
2						
3						
4						
5						
6						
7						
8						

Reporting Form A Issues

Form A

- Fluoride results are not averaged at the end of the month.

30	2,760,000	18.75		0.55	0.1
31	3,060,000	20.60		0.54	0.2
Totals	89,510,000	611.1			
Average	2,887,419	19.7			

- If fluoride was not added on any day, a reason must be stated in the comment area.

21	230000	0	10		0.73	
22	0	0	0		0	
23	0	0	0		0	
24	607000	0	24		0.7	
25	536000	0	22		0.72	

CWF Fluoride Reporting Form B

Fluoridation Report B (DPH-FL-B)

Purpose: This form is to be used by the PWS to document fluoride concentrations in the distribution system of the PWS.

- **At least four (4) distribution samples per month**. One water sample from a tap(s) that represents the water from the distribution entrance point. At least one (1) distribution sample should be collected at a location(s) at a school or located within =1-2 miles upstream or downstream of a school.
- If the system is providing water to other consecutive PWS, it must evenly distribute its 4 weekly distribution samples across the entire combined distribution system.

Reporting Form B Issues

Form B

- The school sample is not collected, and/or the school sample is not documented on the form
- Four distribution samples are not collected

Fluoride Reporting Form B

MASS/DEPARTMENT OF PUBLIC HEALTH **DPH-FL-B (weekly)**
WEEKLY DISTRIBUTION SYSTEM FLUORIDATION REPORT Month of _____

Section I. INSTRUCTIONS:

Each week during the month, the PWS must collect at least 1 sample from a tap(s) in its distribution system for a total of at least 4 distribution samples per month. At least one distribution sample should be collected at a location near a school. If the system is providing water to other consecutive PWS it must evenly distribute its 4 samples across the entire combined distribution system.

Section II. PWS INFORMATION:

PWS Name: _____ 2. PWS ID#: _____ 3. City/Town or District: _____
List all contributing Fluoridated Source(s) /MassDEP Source Code/Location ID: _____

Which days of the month were distribution samples collected and analyzed?	Distribution System Samples Collected and Analyzed with PWS Analytical Equipment. (Equipment must be acceptable to MassDEP and DPH			Results of Weekly Fluoride * Test (ppm) analyzed by PWS	Name of Tester & Comm e.g. reason(s) for not sampling Use additional paper if necessary
	Sample Location # or name	Sample Address	SPLIT SAMPLE Check (✓) if this distribution sample will be split for analysis?		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

CWF Fluoride Reporting Form C

Fluoridation Report C (DPH-FL-C)

Purpose: This form is to be used by the PWS to evaluate the accuracy of the PWS fluoride testing equipment or laboratory. Each month, at least one (1) distribution sample MUST be split and analyzed by the PWS and a Massachusetts-certified laboratory.

Fluoride Reporting Form C

MASS/DEPARTMENT OF PUBLIC HEALTH **DPH-FL-C (monthly)**

MONTHLY DISTRIBUTION SYSTEM SPLIT TESTING FLUORIDATION REPORT

Month of _____, 20__ __ **Page __ of __**

The data from this report will be used to evaluate the accuracy of the PWS fluoride testing equipment or laboratory.
Each month, at least one (1) distribution sample must be split and analyzed by the PWS and a Mass. laboratory certified for fluoride.[1]
Any questions, please call the Mass DPH Fluoridation Program at 617-624-5573.

Section I. PWS SAMPLING INSTRUCTIONS (PWS are required to take the following actions)

1. Collect a fluoride sample from the location checked on Form FL-B.
2. Divide the sample into two. The PWS must analyze one portion ("A") for fluoride using Std. Methods approved analytical method for fluoride analysis. e.g. specific ion or colorimetric method. The other portion of the sample ("B" or "split sample") must be sent for analysis within 96 hours of collection to a laboratory that is certified by MassDEP for fluoride analysis. [1]
3. Record below, in Section II, all requested information for portion "A".

Section II. PWS INFORMATION: (To be completed and signed by PWS)

1. PWS Name: _____ 2. PWS ID#: _____ 3. City/Town or District: _____
4. List all contributing fluoridated source(s)/MassDEP Source Code/Location ID: _____
5. Name of PWS operator performing sample analysis: _____
6. Make and Model # of PWS fluoride analyzer: _____

Sample # or Location Name & Address from Form FL-B	Bottle #	Results (PPM) (To the nearest 0.1)	Sample Collector's Name (Print)	Date Sample Collected by PWS	Date Sample Analyzed by PWS

I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.
Name of PWS operator or responsible party: _____ Signature: _____ Date: _____
Phone #: _____ Fax#: _____ Email address: _____

Section III. LABORATORY ANALYTICAL INFORMATION: (To be completed and signed by Lab)

Lab name: _____ MassDEP Lab Cert.#: _____ Lab phone: _____
Lab address: _____
Is this lab certified by MassDEP for fluoride analysis? Yes ☐ No ☐. If no, is a subcontracted lab used? Yes ☐ No ☐
Subcontracted lab name: _____ Sub lab MassDEP Cert #: _____
Is this subcontracted laboratory certified by MassDEP for fluoride analysis? Yes ☐, No ☐

Sample Location No.	Sample Location Name & Address	Bottle #	Lab sample ID#	Results (PPM) (To the nearest 0.1)	Detection limit	Analytical Method	Date Analyzed

My certified analytical results for the sample listed by the PWS as 01F is _____._____ _____ PPM.
Check the correct answer: ☐ **My laboratory** result is **Within** +/- 0.1 of the result listed by the PWS for 01F.
☐ **My laboratory** result is **Not Within** +/- 0.1 of the result listed by the PWS for 01F.*

Reporting Form C Issues

Form C

- The form is sent in without lab results, or form C is missing from the report submission
- OOH was not notified within seven days, as stated on Form C, when the split sample was not within +/-0.1ppm
- Month-to-month PWS and lab results not with +/-0.1ppm are submitted without an indication of an internal protocol to address the not within results

Additional Reporting Form Issues

- Submission is missing forms
- Incorrect monthly reports submitted to the OOH
- Low fluoride readings or no fluoride added and no explanation in the comment area of the form
- Forms are sent as separate PDFs or some other format. Reports should be sent as one PDF with the following naming format – *Town Name-PWS Number-Month and Year*
    - For example: Acton-2002000-September 2023
- Reports must be submitted via email to oral.health@mass.gov
- Reports must be received on the 10th day of the following month
    - Example: February reports will be due on or before March 10th

Documenting in WFRS

Information from the CWF Reporting Forms are input into WFRS by OOH.

Monthly Testing					Monthly Split Samples		
Average	High	Low	Sufficient Samples	In Range	PWS Split Results	State Split Results	Sample Date
0.70	0.80	0.70	☑	☑	0.69	0.71	APR 5

Image Credit: https://nccd.cdc.gov/DOH_WFRS/Shared/FluorideDataEntry_ByMonth.aspx

Average

- These are the results of the fluoride test average on Form A (multiple wells are averaged together as one monthly average)

High and Low Reading

- These readings are pulled from monthly fluoride reports

Documenting in WFRS Continued

Sufficient Samples Check Box

There must be a sample for each day of the month to be considered sufficient samples.

In Range Check Box

Form A monthly average must be in the range of 0.6-0.8 ppm as close to the optimal 0.7 ppm.

Monthly Split Sample

This information comes directly from Form C results of **the PWS split** , and **Lab split results** with sample date.

My Water's Fluoride Information

My Water’s Fluoride (MWF) allows consumers to learn about the fluoride level in their drinking water. A snapshot of what can be accessed through MWF

- Fluoridation status
- Fluoridation levels by city and town
- The number of people served
- The water source

As of June 1, 2023, the OOH turned MWF from a basic level report to an advanced level report.

- Advanced level displays all reports in MWF, the Fluoridation Status Report (with operational summary), Natural Systems Report Fluoridation status report, Operational Report, and the Average Fluoride Levels Report.

Addressing Common Problems

Water Operators have shared internal protocols or processes for addressing non-optimal fluoride levels, including:

1. The split sample is not within +/- 0.1ppm.
   - Re-test the same sample if it is available
     This can be set up as a standing order with the lab
   - Complete a more involved look at your system
2. When the monthly average fluoride (form A) is less than 0.6ppm or greater than 0.8 ppm
   - Troubleshoot the system
   - Calibrate the instrument in question
   - Clean out the saturator
   - Contact DEP for technical support

System Challenges

Many Communities have experienced system challenges

Workforce Challenges

- Key positions are vacant
- Loss of historical knowledge when folks retire
- New employees
- A limited number of staff trained on fluoride and reporting systems

Equipment Challenges

- Aging equipment
- Critical equipment updates and repairs that take fluoride offline for months
- Temporary suspensions due to product shortages

2024 New CWF Quality Awards Criteria

The criteria for CWF Quality Awards have been updated for 2024

1. Adjusts the fluoride concentration of their drinking water
2. Achieves a monthly average fluoride level that is within the optimal range for a minimum of 9 reporting months within a calendar year
    - Where the optimal range is defined as 0.6-0.8 ppm, with the goal of falling as close to the optimal fluoridation level of 0.7 ppm as possible
3. Documents their fluoride levels in the CDC's Water Fluoridation Reporting System
    - The Office of Oral Health requires timely reporting of monthly data from water operators to manage this requirement on their behalf.

THANK YOU

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