

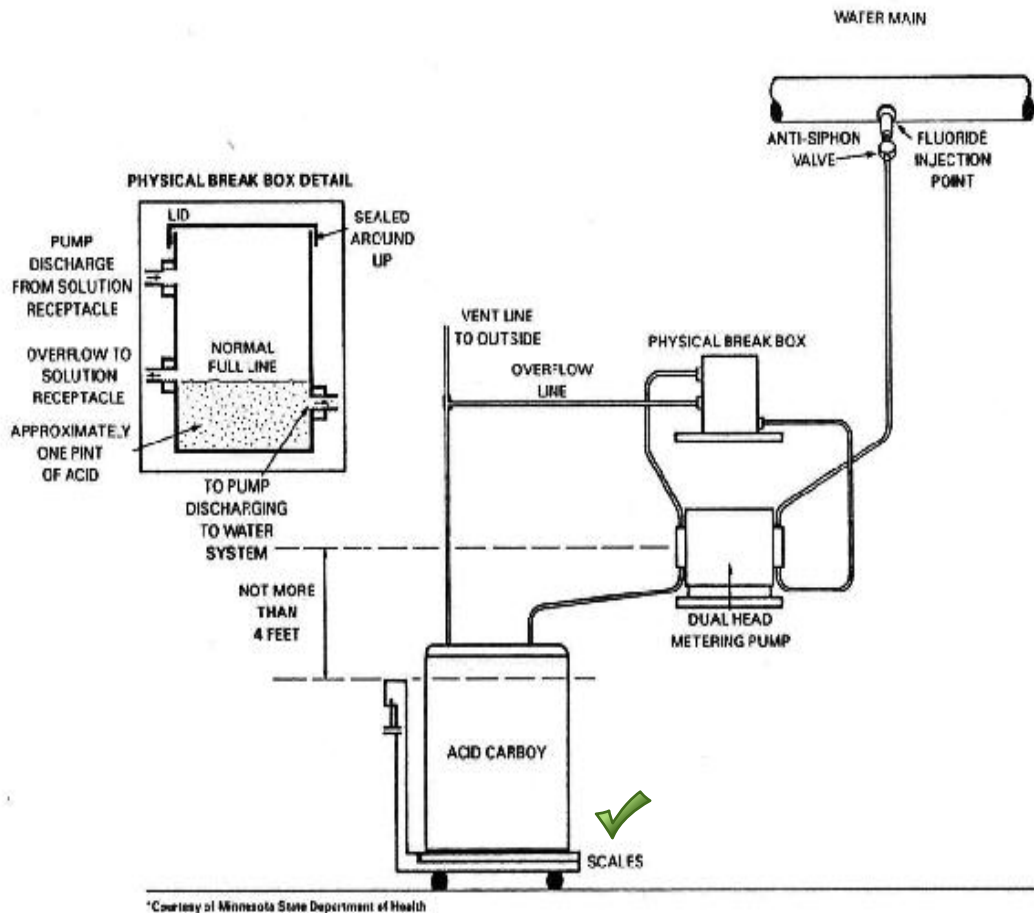
Minnesota Water Works Operations Manual

**US Environmental Protection Agency, Office of Drinking Water
Minnesota Department of Health and Minnesota Training Coalition**

**Minnesota Department of Health
Minnesota Rural Water Association**

Third Publication Date: Summer 2001
Second Publication Date: Summer 1997
First Publication Date: Spring 1994

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- d. Whenever possible, full-strength chemical should be fed. If it isn't, a method for diluting the acid with water is needed. The dilution can be done manually; otherwise, a transfer pump is required to move the acid needed to make up the solution from the storage tank to the dilution tank. A water source is also needed and must be protected from cross-connection.
- e. When working on the fluoridation system, the operator needs to use safety equipment consisting of neoprene apron, gloves, and goggles.
- f. Ventilation must be provided. An exhaust fan and solution-tank vents help protect against indoor acid fumes which could etch glass and corrode electrical equipment. All tank vents should be terminated outside the building.

1. Use safety equipment such as neoprene goggles, gloves, and an apron when handling acid or any of the fluoridation equipment.
2. Splashed acid is dangerous to the body, especially the eyes. An eye-wash station must be located close to the fluoridation equipment.
3. Keep storage containers and tanks clearly labeled and chemicals separated.
4. Keep your chemical area clean and free of obstructions. An accident is less likely in a clean area.

OPERATIONAL REPORTS

MDH requires a monthly operation report from each water supply. Information essential to the proper operation of fluoridation system are listed on the monthly report form. The following should be conducted on a daily basis:

1. Analysis of the treated water for fluoride content.
2. Determination of water pumpage from meter readings.
3. Amount of fluoride solution used per day.
4. A record made of the findings on the MDH report. At the end of the month, the report should be sent to MDH.

On a quarterly basis the operator must submit a fluoridated water sample to MDH for analysis. MDH will analyze this sample, and the result of MDH's analysis can be used to check the accuracy of the result that the operator gets on a sample taken at the same time.

TESTING FOR FLUORIDE CONCENTRATION

This can be done in one of two ways:

1. By the SPADNS method, which measures the change of color intensity in the SPADNS reagent when a sample containing fluoride is added. The change can be measured by comparison with color standards provided with a SPADNS test kit or by photometric measurements using a color meter. Some chemicals other than fluoride may interfere with the SPADNS test result and cause faulty readings. Polyphosphate is the most common chemical used in drinking water that will give you a false high reading.
2. By use of a fluoride electrode and a meter that indicates the fluoride concentration. Other chemicals usually do not interfere with this test method.



MINNESOTA DEPARTMENT OF HEALTH
Section of Water Supply
and Well Management

See instructions on reverse side to complete form.

Fluoridation Monthly Report

PWS ID #	Month of
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Name of Facility	Street	
City	County	Zip Code
Signature	Title	Phone #
Fluoride Chemical Used	Raw Water Fluoride Concentration mg/l	Water Source

Date	Meter Reading (1000 gal.)	Pumpage (1000 gal.)	Amount of Solution or Compound Used Per Day (gal. or lbs.)	Fluoride Analysis	
				Tested Fluoride Concentration (mg/l)	Sampling Point on Distribution System
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
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Copy to be sent back each month to: Minnesota Department of Health, Public Water Supply Unit,
925 S.E. Delaware Street, P.O. Box 59040, Minneapolis, Minnesota 55459-0040.

**INSTRUCTIONS FOR FILLING OUT OPERATION REPORT
OF WATER FLUORIDATION PLANT**

**Column
Number**

- 1** **Daily water meter reading in thousands of gallons.**

- 2** **Pumpage in thousands of gallons: daily meter reading minus the previous day's meter reading.**

- 3** **The total number of gallons of fluoride solution used per day or the total pounds of fluoride compound used if you are using sodium silicofluoride.**

- 4** **Your tested fluoride concentration of the treated water. These tests are to be run daily. Do not composite samples.**

- 5** **Sample location: the sample is to be taken on the distribution system and at different locations each day.**

NOTE: THE RAW WATER FLUORIDE CONCENTRATION SHOULD BE TESTED MONTHLY.

COMMENTS:
