

Fluoridation Guidance Manual

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State of Louisiana
Department of Health and Hospitals
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1. INTRODUCTION

Louisiana's Community Water Fluoridation Program was established to improve the oral health, and therefore the general health, of the people of Louisiana. Community Water Fluoridation (CWF) is the adjusting of naturally occurring fluoride in public drinking water to the optimal level that offers maximum protection against tooth decay. The optimal level for was determined by over 60 years of scientific study which has shown that people who consume optimally fluoridated water have between 20% and 40% fewer cavities than those who do not consume optimally fluoridated water. The Centers for Disease Control and Prevention (CDC) has called CWF one of ten great public health achievements of the 20th century. CWF has been proven to be safe and effective and has the endorsement of virtually every public health organization in the world. Further information resources including a link to the American Dental Association's "Fluoridation Facts" can be found in the Appendix of this manual.

The need in Louisiana for improved oral health is great. Fifty-six of Louisiana's parishes have a shortage of dental professionals. . In 2008, studies revealed that almost 66% of third grade children had already had at least (1) cavity in their lifetime; 42% had *untreated* cavities at the time of these studies. In Louisiana, only about 29% of the population has fluoridated drinking water; compared to almost 72% nationally. In FY 2008-2009, Louisiana spent \$115 million on Medicaid for the reimbursement of dental services.

When it comes to improving oral health, CWF is cost effective. It has been estimated that every \$1 dollar spent for CWF saves \$38 in future dental costs. Based on national figures, it is also inexpensive: the average initial cost to fluoridate a public water system is roughly \$16 per customer with operating costs of less than \$2 per person per year.

In July 2008, the Louisiana Legislature passed Act 761, which mandated that public water systems (PWS) with more than 5000 service connections fluoridate their water. The mandate was conditional on the State locating and proving funding for the engineering, procurement and construction of the required facilities as well as the fluoride chemical for the first six months of operation. The law also authorized the Louisiana Department of Health and Hospitals to rewrite rules and regulations governing fluoridation. Fluoridation rules and regulations can be found in the Louisiana Administrative Code (LAC) Title 48:V.1101, 1303-1315 and LAC 51:XII.317, copies of which are included in the appendix of this manual. These rules became effective on January 20, 2010.

2. PURPOSE

The purpose of this Fluoridation Guidance Manual is to assist public water systems as well as public water system operators in the adjustment and maintenance of fluoride levels to the optimal level within the specified range. The manual intends to accomplish this by helping PWS and PWS operators better understand what is required of them by rule and by providing information resources, contact information and certain procedures.

Every fluoridating PWS should have and maintain a copy of this Manual as well as copies of the technical manuals and guides referenced herein. Hard copy updates and revisions will be supplied as the need arises and this manual is available in electronic format upon request.

3. STATE'S RESPONSIBILITIES

It is the responsibility of the state to promote CWF with the intent of increasing the number of Louisianans that receive optimally fluoridated drinking water for the purpose of improving oral health in the state. To that end, the DHH promulgates rules and regulations as authorized by the state legislature that are intended to ensure that fluoridating PWS are delivering optimally fluoridated drinking water in a consistent and safe manner. The current rules define optimal fluoride levels, regulate equipment design parameters, require certain operator safety equipment, require daily sampling of fluoride levels and monthly reporting of these samples. In addition, the rules also define the present mandate concurrent with the state's responsibility to identify funds for the implementation of the mandate.

Louisiana's CWF Program is housed in the Oral Health Program/ Center for Community and Preventive Health/Office of Public Health in the Louisiana Department of Health and Hospitals. The Fluoridation Program personnel include the fluoridation engineer and the fluoridation community coordinator. It is the CWF Program's responsibility to provide information, community outreach, grant funding, assistance in plan review, assistance in permitting, assistance in operator training, technical help and general program oversight. Plan review, permitting and operator training are done in conjunction with the Office of Public Health engineering central and district/regional offices.

4. WATER SYSTEM'S RESPONSIBILITIES

The primary responsibility of any fluoridating PWS is to make every effort to ensure the safe, effective, and consistent delivery of optimally fluoridated water. This effort should include proper equipment design and installation, correct equipment operation, regular equipment maintenance and the stocking of adequate, properly stored chemical supplies. PWS management, their technical representatives and operators should be familiar with the “Ten State Standards”, a link to which is provided in the appendix, as well as the additional requirements of LAC Title 48:V.1101, 1303-1315, a copy of which is included in the appendix. PWS must require that their personnel responsible for the operation the fluoridation equipment be properly trained in the overall fluoridation process, the specifics of their particular equipment, the use of required safety equipment, the sampling, testing and proper reporting of fluoride levels as well as actions to be taken in the event of upsets. To ensure correct and consistent operation, PWS are encouraged to develop and adopt Standard Operation Procedures (SOPs). SOPs should include not only routine procedures, but also actions to be taken in case of accidents, spills or overfeeds. The CDC’s “Recommended Fluoride Overfeed Actions for Public Water Systems” (adapted for use in Louisiana) is included in the appendix.

PWS management and staff should also become familiar with the real risks/benefits of CWF in such a way that any public concerns, fears or misconceptions can be addressed in an informed way. The American Dental Association’s “Fluoridation Facts” is an excellent publication that addresses most questions. A link to this publication is included in the appendix and a hard copy can be provided upon request. For PWS that are initiating CWF, the program will notify appropriate health professionals in the distribution area. It is up to the PWS, however, to inform the public as it sees fit. The program can provide guidance and assistance with public notification and strongly recommends that the PWS utilize the Program to help develop the process.

5. OPERATOR RESPONSIBILITIES

The operator is a critical link in the safe, effective and consistent delivery of optimally fluoridated drinking water. It is the responsibility of the operator to completely understand and safely operate his/her system for consistent results within regulated limits. The operator should be aware of all hazards whether to the operator, personally, to the environment, as in the case of a spill, or to the public, in the event of a misfeed. Equipment, although it is designed to be fail safe and/or redundant, does malfunction and it is the responsibility of the operator to identify problems as they develop, notify management and assist in the planning of corrective actions. The operator is also responsible for their personal safety; they should understand the specific dangers of mishandling fluoridation chemicals and should know and use the required

safety equipment. The operator should be properly trained in the sampling and, as required, the testing and reporting of fluoride levels to the program. Operators should be very familiar with procedures, SOPs and emergency procedures as well as statute requirement.

Operators should also become familiar with the real risks and benefits of CWF in such a way that any public concerns, fears, or misconceptions can be addressed in an informed way. The American Dental Association's "Fluoridation Facts" addresses most questions. A link to this publication is included in the appendix, and a hard copy can be provided upon request.

6. REQUIREMENT TO FLUORIDATE

Under current law, PWS with more than 5000 service connections are required to initiate CWF when notified by the state that funds have been identified and are available. A PWS can opt out under very specific conditions as outlined in the rule involving a public referendum.

PWS that do not fall under the mandate may apply for grant money for the purpose of initiating fluoridation.

7. REQUIREMENT FOR CONTINUED OPERATION

PWS that have more than 5000 service connections that were fluoridating prior to ACT 761 are required by rule to continue until a public referendum is held in accordance with the ACT's provisions.

PWS that do not fall under the mandate are required to continue fluoridation unless the PWS governing body resolves to discontinue.

PWS that begin fluoridation as mandated must continue until a public referendum is held in accordance with the Act's provisions.

Grant funds may be available to assist all PWS continue fluoridation.

8. ENGINEERING AND OPERATIONAL GUIDES

Any new fluoridation installation or modification of an existing installation must be designed in accordance with the "Recommended Standards for Water Works, 2003 Edition" (aka the "Ten State Standards"). Additional requirements are put forth in LAC Title 48:V.1101, 1303-1315. The CDC's Morbidity and Mortality Weekly Report (MMWR) entitled "Engineering and

Administrative Recommendations for Water Fluoridation 1995” and American Water Works Association (AWWA) “Water Fluoridation Principles and Practices M4, Fifth Edition” are excellent sources of further information.

9. OPTIMAL FLUORIDE LEVEL

The optimal fluoride level for the state is .8 mg/L or ppm or as determined by the CDC. Any daily value between .7 and 1.2 mg/L or ppm is considered to be in the optimal range. Should the fluoride level exceed 4.0 mg/L or ppm the level violates the Environmental Protection Agency (EPA) Maximum Containment Level, (MCL) and r Safe Drinking Water regulations mandate that the violation be reported..

Should the level of fluoride exceed 4.0 mg/L or ppm, the EPA requires that the level be reduced to 2.0 mg/L or ppm prior to consumption. 2.0mg/L or ppm is the Secondary Maximum Containment Level (SCML).

10. REPORTING REQUIREMENTS

Each day, at a location that is representative of the distributed water, the level of fluoride shall be measured and recorded. These daily records shall be kept and reported to the program on the Fluoride Monthly Report Form included in the appendix. The report should be sent to the fluoride engineer each month before the 10th day after the close of the month. Once per month the PWS shall provide a split sample result. Half of the sample shall be tested for fluoride level by a DHH Certified laboratory (a link to the list of DHH certified laboratories can be found in the appendix): the other half shall be tested by the PWS’s standard practice. The results shall be submitted on the Fluoride Monthly Report Form.

The Fluoride Monthly Report Form may be submitted online. The form is available electronically upon request. If the monthly report is emailed to the fluoridation engineer, it is suggested that a “read receipt” is requested.

Each month the program enters reported data into the CDC’s national database, the Water Fluoride Reporting System (WFRS). The public has limited access to this data through a webpage entitled “My Water’s Fluoride. A link to this page is included in the appendix. Each year, the CDC presents a certificate to each PWS that maintains fluoride levels within the optimum range for the previous 12 consecutive months.

These reporting requirements are specific only for fluoride levels below the EPA's MCL of 4.0 mg/L.

11. INSPECTION

DHH Safe Drinking Water Program is responsible for conducting inspections of PWSs. The results of the inspection will be provided to the PWS on the Fluoride Inspection Report Form, a copy of which can be found in the appendix.

Conditions that are discovered that are out of compliance may warrant the PWS to request grant funds and assistance in the corrective action process.

12. SYSTEM UPGRADES / MODIFICATIONS

Any system upgrade or modification must go through the same approval process as a new installation. PWS should not modify an existing system without prior approval.

13. ACTIONS IN CASE OF OVERFEEDS

Refer to the Louisiana specific CDC's "Recommended Overfeed Actions for Public Water Systems" located in the appendix. PWS should list their particular contact information on the form where required.

14. ACTIONS IN CASE OF INGESTION

Refer to the CDC's "Recommended Emergency Actions for Persons Who Ingest Fluorosilicic Acid" and "Recommended Emergency Actions for Persons Who Ingest Dry Fluoride Chemicals" located in the appendix.

15. APPENDIX

- 1. Contact Information**
- 2. Louisiana Administrative Code Title 48:V.1101, 1305-1315**
- 3. Fluoride Monthly Monitoring Report Form**
- 4. Fluoride Inspection Report Form**
- 5. Recommended Overfeed Actions for Public Water Systems**
- 6. Recommended Emergency Actions for Persons Who Ingest Fluorosilicic Acid**
- 7. Recommended Emergency Actions for Persons Who Ingest Dry Fluoride Chemicals**
- 6. Links**

LINKS

The links below are to information referenced in this Guide. In some instances they may be directly down loaded from their respective websites; in other cases they allow the PWS information for purchasing the publication. Some publications may be available at no charge through the Program but quantities are limited on a first come first served basis. Contact the fluoridation community coordinator for further information.

1. American Dental Association's "Fluoridation Facts";

http://www.ada.org/sections/professionalResources/pdfs/fluoridation_facts.pdf

2. "Recommended Standards for Water Works, 2003 Edition" (aka, the "Ten State Standards") http://www.dutchessny.gov/countygov/departments/health/reports/hd10s_tatepreface.pdf

3. Centers for Disease Control and Prevention (CDC) Mortality and Morbidity Weekly Report (MMWR) "Engineering and Administrative Recommendations for Water Fluoridation 1995"

<http://www.cdc.gov/mmwr/PDF/rr/rr4413.pdf>

4. American Water Works Association's "Water Fluoridation Principles and Practices M4, Fifth Edition"

<http://apps.awwa.org/ebusmain/OnlineStore/ProductDetail/tabid/55/Default.aspx?ProductID=6698>

5. DHH Certified laboratories:

<http://dhh.louisiana.gov/offices/?id=204>

6. "My Waters Fluoride"

<http://apps.nccd.cdc.gov/MWF/index.asp>

