DAVIS COUNTY BOARD OF HEALTH

A REGULATION REGARDING DRINKING WATER FLUORIDATION

Davis County Board of Health

Regulation Regarding Drinking Water Fluoridation

Section 1.0 Purpose

To regulate the application of fluoride to Drinking Water Supplies for the purpose of promoting public health through the protection and maintenance of dental health.

To ensure that Optimal Fluoride Levels in Drinking Water Supplies are maintained.

To ensure the safe application and storage of fluoride compounds.

Section 2.0 Applicability

This regulation applies to all Public Drinking Water Supplies in Davis County, pursuant to the order issued by the Davis County Health Department requiring Public Water Supplies to fluoridate.

Compliance with these regulations does not preclude compliance with other applicable local, state, and federal laws.

Section 3.0 Authority

This regulation is promulgated by the Davis County Board of Health as authorized by *26A-121(1)(a) Utah Code Annotated* and *19-4-111 Utah Code Annotated (1953)* as amended.

Section 4.0 Powers and Duties

The Davis County Health Department (DCHD) shall be responsible for the administration of this regulation. In addition to any other lawful powers and duties, DCHD shall:

4.1 Require fluoridation of Public Drinking Water Supplies at Optimal Fluoride Levels in Davis County;

4.2 Require the submission of reports of fluoride addition and analysis, including the Calculated Dosage;

4.3 Provide fluoride surveillance;

4.4 Take distribution samples for fluoride analysis (these samples are in addition to the Public Drinking Water Supply's required samples);

4.5 Perform any and all acts permitted by law that are necessary for the successful implementation of this regulation.

Section 5.0 Definitions

5.1 **Bureau of Laboratory Improvement:** A Bureau within the Utah Department of Health, responsible for establishing and enforcing standards for laboratories.

5.2 **Calculated Dosage**: The calculated amount of fluoride (mg/L) that has been added to a water system. The calculation is based on the total amount of fluoride (weight) that was added to the water system and the total amount of water (volume) that was produced.

5.3 **Control Range**: A range within which adjusted fluoridated Public Drinking Water Supplies shall operate to maintain Optimal Fluoride Levels.

5.4 **Director:** The Director of the Davis County Health Department or an authorized representative.

5.5 **Distribution Sample**: A water sample taken from the Distribution System of the Public Drinking Water Supply that is representative of the water quality in the system.

5.6 **Distribution System**: A collection of pipes, valves, fire hydrants, storage tanks, and reservoirs that carries water from the water source(s) or treatment plant that delivers water to its customers.

5.7 **Division:** The Utah Division of Drinking Water that is a part of the Utah Department of Environmental Quality.

5.8 **Drinking Water Project**: Any addition to or modification of the facility or facilities of an existing or new Public Drinking Water Supply, for the purpose of Water Fluoridation.

5.9 **Executive Secretary**: The Executive Secretary of the Drinking Water Board, State of Utah, as appointed and with the authority outlined in *19-4-106* of the *Utah Code Annotated*.

5.10 **Milligrams/Liter**: or mg/L, also equal to parts per million (ppm).

5.11 **Monitoring, Fluoride**: The regular analysis and recording of the fluoride ion content in the drinking water.

5.12 **Optimal Fluoride Level**: A fluoride concentration (mg/L) based on the annual average of the maximum daily air temperature in the geographical area of the

fluoridated water system, as recommended by recognized health authorities for prevention of dental caries.

5.13 **Overfeed, Fluoride**: Any measured level of fluoride above the control range of the Public Drinking Water Supply. Different levels of response are expected from the operator depending on the extent of the overfeed.

5.14 **Public Drinking Water Supply (PDWS)**: A system that provides piped water to the public for human consumption. To qualify as a Public Drinking Water Supply, a system must have 15 or more service connections or must regularly serve an average of at least 25 of the same individuals daily, 6 months or more per year.

5.15 **Sanitary Survey**: An on-site inspection of a water system's facilities and operation. The Survey can be conducted by the Division of Drinking Water, Local Health Departments or other qualified individuals authorized in writing by the Executive Secretary. The Survey consists of a review of operating methods and records and a physical inspection of facilities and equipment.

5.16 **Split Sample**: A distribution water sample taken by the water plant operator or authorized personnel, who analyze a portion of the sample and records the results on the monthly operating report. The operator or authorized personnel then forwards the remainder of the sample to a certified laboratory for analysis.

5.17 **Surveillance, Fluoride**: The regular review of monitored data and Split Sample results to ensure that fluoride levels are maintained by the Public Drinking Water Supply in a specific geographic area. The review is conducted by a source independent of the Public Drinking Water Supply, and as designated by the Director.

5.18 **Water Fluoridation**: The act of adjusting the fluoride concentration in the drinking water of a Public Drinking Water Supply to the Optimal Level.

Section 6.0 Fluoride Compounds and Application Equipment

6.1 Plan Reviews

The Drinking Water Project must conform to the *Utah Administrative Code, R309*. The addition and/or changing of fluoridation equipment require a review of plans and specifications with written approval from the Executive Secretary. A Project Notification form must also be completed and submitted to the Division of Drinking Water.

The construction of a Drinking Water Project shall not begin until complete plans and specifications have been approved in writing by the Executive Secretary.

6.2 Evaluation of Fluoride Equipment

Prior to the operation of fluoridation equipment for which a plan approval was obtained, an operational permit will be required. This operational permit is granted by the Executive Secretary.

An ongoing evaluation of fluoridation equipment shall be conducted at the time of any Sanitary Survey of any Public Drinking Water Supply that adds fluoride to its water prior to distribution.

6.3 Fluoride Compounds

Sodium fluoride, sodium fluorosilicate, or fluorosilicic acid may be used to fluoridate Public Drinking Water Supplies. Fluoride Compounds shall conform to the applicable American Water Works Association (AWWA) standards and/or American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) Standard 60. Other fluoride compounds that may be available must be approved by the Executive Secretary.

6.4 Chemical Feed Equipment and Methods

Chemical feed equipment and methods shall conform to the pertinent rules of the Drinking Water Board as found in *R-309* of the *Utah Administrative Code* and any other applicable local, state, and/or federal regulations.

Section 7.0 Operator Safety

7.1 Compliance with UOSHA

The design of the plant shall be in accordance with the Utah Occupational Safety and Health Act (UOSHA). The designer and Public Drinking Water Supply management are responsible to see that applicable UOSHA standards are incorporated into the facility design and operation.

7.2 Storage and Emergency Procedures

7.2.1 Storage of Fluoride Compounds

Fluoride compounds shall be isolated from other chemicals to prevent contamination. Compounds shall be stored in covered or unopened shipping containers. Space shall be provided for an adequate supply of chemicals and for dry storage conditions. Unsealed storage units for fluorosilicic acid shall be vented to the atmosphere at a point outside any building. Bags, fiber drums and steel drums shall be stored on pallets.

Material Safety Data Sheets (MSDS) shall be posted at all chemical injection sites.

7.2.2 Accidental Release

In the event of an uncontained or accidental release to the environment in excess of five gallons, operators are to follow the "Accidental Release Measures" instructions found on the MSDS. The Davis County Environmental Health Division shall be notified immediately.

Section 8.0 Fluoride Levels

8.1 Optimal Fluoride Levels

Fluoride levels shall be maintained throughout the Distribution System between the Control Range of 0.8 to 1.4 mg/L with an annual average of 0.9 mg/L.

Optimal Fluoride Levels and Control Ranges as established by this regulation shall be reviewed annually by the Davis County Health Department and adjusted accordingly.

Compliance shall be determined by taking the annual average of the monthly reports submitted by the Public Drinking Water Supply as required in Section 8.2. Split Samples and the calculated dose shall be taken into consideration to determine the validity of submitted sample results. Results of samples collected by the Davis County Health Department that are determined by laboratory analysis, in a lab certified for fluoride analysis may also be taken into consideration to determine compliance.

8.1.1. Review

A 2007 review of Section 8.1 above has determined that as of May 1, 2007 the Control Range shall be 0.7 to 1.0 mg/L with an annual average of 0.8 mg/L.

8.1.2. Review

A 2010 review of Section 8.1.1 above has determined that as of November 8, 2010 the Control Range shall be 0.6 to 0.8 mg/L with an annual average of 0.7 mg/L.

8.2 Monitoring

8.2.1 Sampling

Fluoride levels shall be determined daily at representative points in the Distribution System. When there are several zones or areas, the sample sites can be rotated from day to day, providing the entire system is covered in one week. If only one source is used for an area, and there is no mixing of this source with other water, fluoride levels

can be determined at the source, providing monitoring takes place at a point sufficiently distant to allow complete mixing.

A monthly Split Sample shall be taken for comparison analysis and submitted to a lab that is certified by the Bureau of Laboratory Improvement for fluoride analysis.

8.2.2 Analytical Methods

Analysis of fluoridated water shall be done with a fluoride specific ion electrode test or with the colorimetric method (SPADNS) if there are no interfering compounds. Continuous monitors can also be used, providing they are installed at a representative point in the Distribution System. Instructions provided by the manufacturer for analytical equipment shall be followed.

8.2.3 Reporting

The Public Drinking Water Supply, *that adjust the fluoride content of their water,* shall submit monthly reports to Davis County Health Department, P.O. Box 618, Farmington, Utah 84025. The monthly report shall contain the following information: results of daily Fluoride Monitoring, including the address and description of the sampling point, results of the Monthly Split Sample, and the Calculated Dosage. Copies of this report should also be made available to the Utah State Department Of Health, Oral Health Program. The Public Drinking Water Supply as required by Utah Administrative Code, R309, shall also report any chemical addition to the Division of Drinking Water.

8.3 Overfeeds

8.3.1 Response to Overfeeds

Fluoride Level	Actions
0.1 mg/L above Control Range to 2.0 mg/L	1. Leave the fluoridation system on. 2. Determine malfunction and repair.
2.1 mg/L to 4.0 mg/L	1. Leave the fluoridation system on. 2. Determine malfunction and repair. 3. Notify supervisor and report the incident to the Davis County Health Department.
4.1 mg/L to 10.0 mg/L	1. Determine malfunction and immediately attempt repair. 2. If the malfunction is not found and corrected immediately turn off the fluoridation system. 3. Notify supervisor and report the incident to the Davis County Health Department immediately (same day). 4. Take water samples at several points in the Distribution System and test the fluoride content. Retest if results are still high. 5. Determine malfunction and repair. After the repair is complete, with supervisor's permission, restart the fluoridation system.
10.1 mg/L or greater	1. Turn off the fluoridation system immediately. 2. Notify supervisor and report the incident immediately (same day) to the Davis County Health Department.

	3. Take water samples at several points in the Distribution System and test the fluoride content. Retest if results are still high. Save part of each sample for a state laboratory to test. 4. Determine malfunction and repair. 5. With supervisor's and the Davis County Health Department's permission, restart the fluoridation system

8.3.2 Public Notification

Public notification may be required in accordance with *Utah Administrative Code, R309* if fluoride levels reach 2 mg/L.

8.4 Underfeeds

Should the Public Drinking Water Supply fluoridation equipment malfunction or be taken off-line, and the optimum level of fluoride be affected, the following steps shall be taken:

1. **For less than two consecutive weeks:**

   No action need be taken if the equipment is off-line.

2. **For** greater than **two consecutive weeks, up to six months:**

   The Public Drinking Water Supply shall contact the Davis County Health Department in writing with a proposed plan of action and an anticipated correction date by week three.

3. **For more than six months:**

   A community action program shall be ***initiated.*** This would include informing health professionals about the situation prior to any public information being released. The public shall then be fully informed through a news release from the Davis County Health Department.

Section 9.0 Training

A minimum six-hour fluoridation-training course, recognized by the Davis County Health Department, shall be completed by at least one operator in charge of the fluoridation system(s) before operation begins. There must be at least one trained operator that is in charge of the fluoridation system at all times. A biannual fluoridation course shall be required to maintain certification. Training shall include, but is not limited to the following: operator safety, fluoride analysis, and reporting requirements.

Section 10.0 Penalties

Any person who shall violate any provision of the Regulation or who shall refuse to comply with a lawful order or notice from the Davis County Health Department is subject to civil and criminal penalties as provided by *26A-1-12 Utah Code Annotated (1953)* as amended and any other law.

Section 11.0 Effective Date

These regulations may be amended in accordance with provisions of the Utah Code. Any proposed amendments will be addressed by public hearing, with final review, approval and vote of the Davis County Board of Health.

The Davis County Board of Health shall be responsible for oversight in enforcing the provisions of these regulations.

These regulations have been adopted by the majority vote of the Davis County Board of Health on this 7th day of October 2010.

Signed: _____
Ron Garrison, Chairman
Davis County Board of Health

Witness: _____
Lewis R. Garrett, M.P.H., Director
Davis County Health Department