Guidance for *R309-535. Facility Design and Operation: Miscellaneous Treatment Methods.*

R309-535-5. Fluoridation.

Maximum Contaminant Levels for Fluoride.

- *A public water system may not exceed the primary maximum contaminant level for fluoride of 4.0 mg/L per R309-200-5(1)(c). A public water system that exceeds the secondary maximum contaminant level of 2.0 mg/L must issue the public notification required by R309-220-11.*

Local Testing, Monitoring, and Reporting Requirements.

- *A public water system that adds fluoride to drinking water should comply with the testing, monitoring, and reporting requirements established by the local health department.*

Optimal Fluoride Concentration in Drinking Water.

- *In Salt Lake and Davis counties, the local health departments have established the optimal level of fluoride in drinking water and the fluoridation monitoring and reporting requirements. Currently, the U.S. Department of Health and Human Services recommends an optimal fluoride concentration of 0.7 mg/L in drinking water to reduce cavities and tooth decay*

General Requirements for all Fluoridation Installations – Acid Spills.

- *Acid-resistant floor coating or a containment structure should be provided for areas likely to have acid spills.*

General Requirements for all Fluoridation Installations - Secondary Containment.

- *Secondary containment may consist of curbs, sumps, double-walled tanks, etc.*
- *Fluorosilicic acid and sodium fluorosilicate solutions both have low pH and are corrosive.*

General Requirements for all Fluoridation Installations - Means to Measure.

- *The means to measure the solution level in a tank may include a liquid level indicator, a calibrated level gauge on the side of a translucent tank, weight scales, etc.*

General Requirements for all Fluoridation Installations - Fluoride Injection.

- *The design should minimize localized corrosion near the injection point.*

General Requirements for all Fluoridation Installations - Day Tank to Minimize Fluoride Overfeed.

- *The intent of the day tank is to limit the fluoride supply to the feed pump, especially if a large-size bulk tank is present. It is recommended that the day tank be sized to hold no more than 3 days of supply.*

General Requirements for all Fluoridation Installations - Secondary Controls Instead of a Day Tank for a Facility without an Operator.

- *For example, a fluoridation facility without operators on site may use secondary controls based on both the bulk tank liquid level sensor and the treated water fluoride level.*

General Requirements for all Fluoridation Installations - Fluoride Feed Pump: Avoid Flooded Suction Line.

- *To avoid fluoride overfeed, a flooded suction line should be avoided for the fluoride feed pump. The elevation of a fluoride feed pump should be based on pump priming requirements and suction head limitations.*

Additional Requirements for Fluorosilicic Acid Installations - Separate Rooms for Fluoride Control and Operation.

- *It is recommended to have a separate room for the fluoride operating area due to possible damage from fluoride chemicals and vapors to other equipment.*

Additional Requirements for Fluorosilicic Acid Installations - Neutralizing Chemical for Acid Spills.

- *The immediate use of a neutralizing chemical to handle an accidental acid spill is only suitable for small quantity spills during operation or maintenance, for example, minor spillage from the quick connect during unloading. For large quantity acid spills, secondary containment is the primary means of containing the acid to allow proper handling of the acid later on.*

Additional Requirements for Fluoride Saturator Installations – Sodium Fluorosilicate: Poor Solubility.

- *]Sodium fluorosilicate should not be used in saturators due to its poor solubility.*