# FLUORIDE MANAGEMENT INFORMATION FOR SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

## About Salt Lake City Public Utilities' Water Supplies

Salt Lake City Department of Public Utilities (SLCDPU) is committed to ensuring we provide high quality drinking water. We take our role in protecting public health, through the provision of clean and reliable water, seriously. The recent water contamination incident in Sandy City, caused by a failure of their fluoride feeding system, provides an important opportunity to examine our system and operations.

SLCDPU provides water to Salt Lake City, Mill Creek, Holladay, and Cottonwood Heights residents. In addition, there are small segments of SLCDPU's water system that extend into South Salt Lake, Murray, Midvale, and unincorporated Salt Lake County. A map of our service area is available on our website at https://www.slc.gov/utilities/.

The sources of water used in SLCDPU's water supply include surface water sources from City Creek, Parleys Creek, Big Cottonwood Creek, Little Cottonwood Creek, and Deer Creek Reservoir in Provo Canyon and a network of groundwater wells and springs along the east bench of Salt Lake County. The water sources used vary throughout the year depending on water supply and demand. Groundwater wells are typically used during the summer months to maintain water pressure and meet peak summer water demand. All of our water sources are protected and managed to prevent pollution and to maintain our high-quality drinking water supply. More detailed information regarding water quality is available on our website at https://www.slc.gov/utilities/water-quality/.

## What Fluoridation Requirements Apply to SLCDPU's System?

In the year 2000, residents of Salt Lake County voted to fluoridate drinking water. As a result, since October 2002 Salt Lake County Health Department Regulation #33 has mandated public water suppliers, such as SLCDPU, to fluoridate the water delivered to their customers. The purpose of Regulation #33 is to promote public health through the protection and maintenance of dental health. Salt Lake County Health Department is responsible for oversight of this regulation.

Water picks up a variety of minerals as it flows through the ground and over geologic features; therefore, fluoride is naturally present in our water sources. However, as these levels are below the regulatory mandate, SLCDPU adds additional fluoride to our water supply to meet the Health Regulation #33 requirement of 0.7 milligrams per liter (mg/L).

## How Does SLCDPU's Fluoridation Process Work?

Fluoridation equipment is installed at all of our surface water treatment plants (WTPs) and some of our well locations along the east bench of Salt Lake County. To supplement the naturally

occurring levels of fluoride that is already present in the water, hydrofluorosilicic acid (HFSA) is added to the water using calibrated feed pumps. These pumps dose the amount of HFSA needed to meet the required fluoride concentration of 0.7 mg/L. To ensure appropriate levels of fluoride are maintained, online water quality analyzers and manual testing are routinely performed.

### Could an accident similar to Sandy City's fluoride release occur within SLCDPU's water system? What are the safeguards to prevent an accidental fluoride release?

SLCDPU has always included safeguards to prevent accidental fluoride releases in the design of the system and its operation. These safeguards are incorporated in equipment design and operational protocols. Because of the redundancy in safeguards, operational controls, and system monitoring, there is a very low likelihood of a release of undiluted fluoride into SLCDPU's water system.

**Safeguards in equipment design:** The fluoride systems used require that the WTPs and groundwater wells be in operation with flowing water for the fluoride feed pump to function. The fluoride feed pumps will not work if there is no water flow. The fluoride feed pumps for wells and treatment plants also are flow-paced, meaning that the amount of fluoride added is accurately adjusted according to the amount of water flow. These design elements significantly reduce the risk of undiluted HFSA from being pumped into the drinking water distribution system. The equipment used to deliver fluoride to the drinking water is designed with real-time fluoride concentration alarms and is connected to sophisticated continuous online monitoring that will alert operators of any changes in the system. The fluoridation systems for groundwater wells typically operates utilizing a bulk holding tank and a day tank. The fluoride feed pump operates using the day tank, which is manually filled daily; thus providing an additional safeguard. Additionally, all of the chemical storage tanks have primary and secondary containment to prevent a release into the environment in the event of a spill.

**Safeguards in operational protocols**: SLCDPU performs regular testing of the water throughout our distribution system to verify that the fluoride levels are controlled to the prescribed level of 0.70 mg/L. Our emergency dispatch, water treatment plant operators, and a dedicated water distribution operator are on duty 24 hours a day, 7 days a week. These critical employees continuously monitor the fluoride and other components of the water system. In addition to these safeguards, operators also conduct a daily physical inventory of fluoride storage tanks to verify chemical usage. This verification of the inventory confirms the pump calculations match what was actually pumped into the water. Should an employee or contractor perform maintenance or repair work on the system, a secondary check is conducted to ensure the system continues to operate properly.

## Has SLCDPU Reviewed its Fluoride System and Emergency Protocols Since the Sandy City Fluoride Incident?

SLCDPU has reviewed available information reported by Sandy City and the media related to the recent accidental fluoride release and associated water contamination. We have already begun to apply lessons learned and will continue to analyze the incident as more information is available.

**When a water quality emergency has the potential to negatively impact public health and safety, such as a fluoride release to the water system, SLCDPU will request that the City's Emergency Operations Center (EOC) and Joint Information System (JIS) be established as soon as possible.** The activation of the EOC and JIS provide significant resources to define the scope of the emergency. Activation of the EOC and JIS ensures necessary steps are taken to notify the public of the event and relay any special instructions. It also ensures multi-agency coordination with other local, state, and federal agencies. For example, in the last two years, SLCDPU, along with the Salt Lake City Mayor, activated the Salt Lake City EOC and JIS twice for water emergencies. This included the large harmful algal bloom event in 2016 that affected Utah Lake and the Jordan River, and the intense storm event in 2017 that caused flooding in a portion of Salt Lake City. By quickly activating the EOC and JIS during these events, Salt Lake City and partnering agencies were better able to reach the public and provide emergency services in a timely manner.

The following specific actions are being taken by SLCDPU:

- SLCDPU regularly performs emergency exercises for water contamination events and will do so using lessons learned from the Sandy City incident;
- SLCDPU regularly performs emergency exercises specific to public communication during and after water contamination events and will do so using lessons learned from the Sandy City incident;
- Review of equipment and operational systems with the Sandy City incident in mind;
- Fluoride pumps not in use have been disconnected from a power source. This procedure will be included in standard operating procedures; and
- Fluoride feed pumps have been confirmed to default to the off position during a power outage.

For more information on Fluoride please visit or call:
Marian Rice, Water Quality and Treatment Administrator, SLCDPU at marian.rice@slcgov.com or 801-483-6765
Salt Lake County Health Department at 385-468-4100
Utah Division of Drinking Water at 801-536-4400
Center for Disease Control and Prevention