



Wildfires and Drinking Water Quality

With climate change, historical forestry management practices which have led to increased fuel loads and population growth near forested areas, wildfires in California have become more frequent and more severe. The San Francisco Public Utilities Commission operates a Regional Water System that relies on surface supplies located in three watersheds. Wildfires within any of these watersheds have the potential to impact the quality of these surface waters and the facilities that are critical to our operations.

SFPUC's surface water sources are located in three watersheds:

- 1) Hetch Hetchy Watershed in Yosemite National Park,**
- 2) Alameda Watershed near Sunol, and**
- 3) the Peninsula Watershed, south of San Francisco.**

Like all forested and open land, these watersheds are vulnerable to wildfires. One of the most significant fires near SFPUC's Hetch Hetchy Watershed was the Rim Fire in 2013. The Rim Fire started in Stanislaus National Forest and burned 402 square miles (257,000 acres) of the area. The Rim Fire came within a mile of Hetch Hetchy Reservoir but did not cause significant impacts to the SFPUC drainage area. In 2020, the SCU Lightning Complex Fire in the Alameda Watershed burned land surrounding San Antonio and Calaveras Reservoirs. SFPUC will closely track water quality conditions in the coming years to ensure treatment adjustments at Sunol Valley Water Treatment Plant are implemented, if needed.

The SCU Lightning Complex Fire resulted in low soil burn severity because of low fuel loading. The effect on the burned areas is described as similar to a prescribed burn. SFPUC staff worked on a monitoring plan which includes regularly schedule sampling for 6 months. Operational changes would be made based on the results of the sampling protocol.

When it is safe to do so, SFPUC staff will work with CALFIRE and others in the watershed on a post-fire assessment to determine what if any actions can be taken to minimize potential water quality impacts.

Winter rains that come after fires such as these could cause increased erosion into the reservoir which could increase the turbidity (amount of small particles) of the reservoir's water.

SFPUC staff regularly monitor for these conditions. All water from our Alameda County reservoirs will be filtered at the nearby Sunol Valley Water Treatment Plant prior to delivery to customers.

SFPUC will closely track water quality conditions in the coming years to ensure treatment adjustments at Sunol Valley Water Treatment Plant are implemented, if needed.

Our operators can make adjustments at the plant in response to changing water conditions when treating this water. The goal is to ensure that our customers' water supply remains unaffected by these fires.



SCU complex fire from August 2020

WATERSHED IMPACTS

When wildfires burn watersheds that contain drinking water reservoirs, there are several potential impacts that need to be monitored and mitigated by water utilities. These potential impacts include:

- Increase in erosion, causing increase in sediment and turbidity at treatment plants.
- Increase in nutrients, leading to an increase in algal blooms and algal byproducts in reservoirs, e.g., taste and odor contaminants like geosmin and MIB may increase during certain algal blooms.
- Increase in metals, such as, iron, manganese and other heavy metals from ash washing into the reservoir.
- Increase in organic concentrations from erosion and/or ash deposition, typically measured as total organic carbon (TOC) or dissolved organic carbon (DOC), which can increase disinfection byproducts (DBPs), e.g., trihalomethanes and haloacetic acids.
- Modification to the type of organics composing the TOC which can increase DBPs. Organic carbon resulting from fire is more humic and aromatic than pre-fire organic carbon and thus more likely to produce DBPs.
- Short-term effect from fire-fighting retardants used by aircraft (these potential impacts are typically from nutrients, such as nitrogen and phosphorus).



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WATER SYSTEM INFRASTRUCTURE IMPACTS

In addition to watershed impacts, drinking water systems can be directly impacted by wildfires when the wildfire covers areas occupied by treatment plants, storage tanks, and/or the distribution system. The Sunol Valley Water Treatment Plant and the Harry Tracy Water Treatment Plan are both located within watersheds that are vulnerable to wildfires. These facilities would be thoroughly investigated to ensure the highest level of quality in operations and water treatment after any wildfire impact.

CONSUMER RESOURCES: REGULATION/HEALTH

- CAL FIRE map
fire.ca.gov/incidents/2020/
- Air quality map for Bay Area
airnow.gov/

We're Committed to Quality: Our highly trained chemists, technicians and inspectors consistently monitor the water we serve—throughout our system, every day of the year. For additional information and materials, please visit sfwater.org/quality. For questions about YOUR water, please call 311. You can also visit 311.org.