Santa Rosa Post Fire Water Quality Contamination

WateReuse N. CA Chapter Meeting
May 18, 2018
Post-fire Water Quality Advisory

Fountaingrove Area

• Odor complaint 11/08/2017

• Issued advisory 11/10/2017

• Additional precautions issued 1/23/2018
Water Contamination

• Benzene - indicator chemical for post-fire contamination

• Range of contaminants related to fire damage

<table>
<thead>
<tr>
<th>Benzene</th>
<th>California State Maximum Contaminant Level (MCL)</th>
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<tbody>
<tr>
<td>State Water Resources Control Board Regulatory and Water Quality Levels</td>
<td>1.0 ppb</td>
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Initial Action

- Notified customers
- Isolated advisory area
- Notified the California Division of Drinking Water
- Developed an action plan for sampling and flushing
- Reached out to partner agencies and experts
Expanded Investigation

• Extensive sampling throughout advisory area and the entire water system
• Additional health advisories issued 1/23/2018
• Providing bottled drinking water
• Adjusting water bills
Post Fire Water Quality Investigation

Legend
- Do Not Drink / Do Not Boil Advisory Area
- Benzene Detection:
  - < 1 ppb
  - 1 - 5 ppb
  - 5 - 25 ppb
  - 25 - 100 ppb
  - 100 - 500 ppb
  - > 500 ppb

The maximum allowable level of benzene in drinking water is 1 part per billion (ppb). Each data point on this map represents the most recent sampling data for each sample location. Samples are being taken daily and this map will need to be updated as new sample results are available.

Map Date: 2/22/2018
Water Quality Advisory

• Do not drink, cook, or brush teeth with tap water.
• Do not let pets consume tap water.
• Limit shower time, use lukewarm water, and ventilate the area.
• Limit use of hot water
• Use a dishwasher to wash dishes
• Wash clothing in cold water
• Do not take baths
• Do not use hot tubs or swimming pools
Communications

- In-Person
- Door Tags
- News Release
- eNewsletter
- Social Media
- Website
Santa Rosa Water Post-fire Water Quality Investigation

Water Quality Sampling Results

- Sample Station
  Samples taken at sample stations are representative of drinking water quality supplied to homes and businesses in the area.

Investigative Sampling Results for Benzene

- Below MCL
- Above MCL

Water samples taken from water services are for investigative purposes and not representative of water quality in the area. Investigative samples are being used to help in the City's efforts to resolve the issue. Benzene is a regulated chemical with an established California MCL (maximum contaminant level) of 1.0 ppb (part per billion) for drinking water.

Water Quality Advisory Area

Fire Perimeter
The Investigation

• What are the Possible Sources?
• Steps taken to Identify the Sources
• What Sources can we Rule Out?
• What is the Source of Contamination?
• What is the extent?
• What are the options for restoring the system?
Samples and Testing

- Over 4,000 water samples
  - 200 samples analyzed for over 70,000+ chemicals
- Soil samples
- Material samples and analysis
Chemical Testing - Leachability

- Determination of leach potential of piping and ancillary equipment
- Identification of contaminants and byproducts leached from materials impacted by fire damage
- Samples are placed in ultrapure water for a minimum of 69 hours using a zero headspace extraction (ZHE) vessel to prevent loss of volatile compounds during leaching
- The leachate is then analyzed for organic compounds including benzene
Sources of Contamination

• Leaching from Plastics
• Backflow of
  • Burned/Melted Plastics
  • Soot/Ash/Fire Debris
Extent of the Contamination

• Outside the Advisory Area
  • In Some Service Lines
  • Not in the Mains
• Inside the Advisory Area
  • In All Service Lines
  • In Mains
Options for restoring the system

- Flushing
- Pigging
- Surfactants
- Treatment/Filtration
- Partial Replacement
- Full Replacement
IF Full Replacement

• Construction Challenges
  • 5 miles of water main
  • 350 service lines
  • 70 fire hydrants
  • 210 valves

• Rebuilding Challenges
  • Timeline for rebuild

• Funding Challenges
  • Est Costs $30-40 million
Where we are today

- Finishing investigation
- Temporary on-site options to facilitate re-building
- Exploring options to expedite construction
- Exploring funding options
Questions?

THANK YOU!
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