City of Burnsville

Water Taste and Odor Update

11-3-2009

Water Quality Concerns

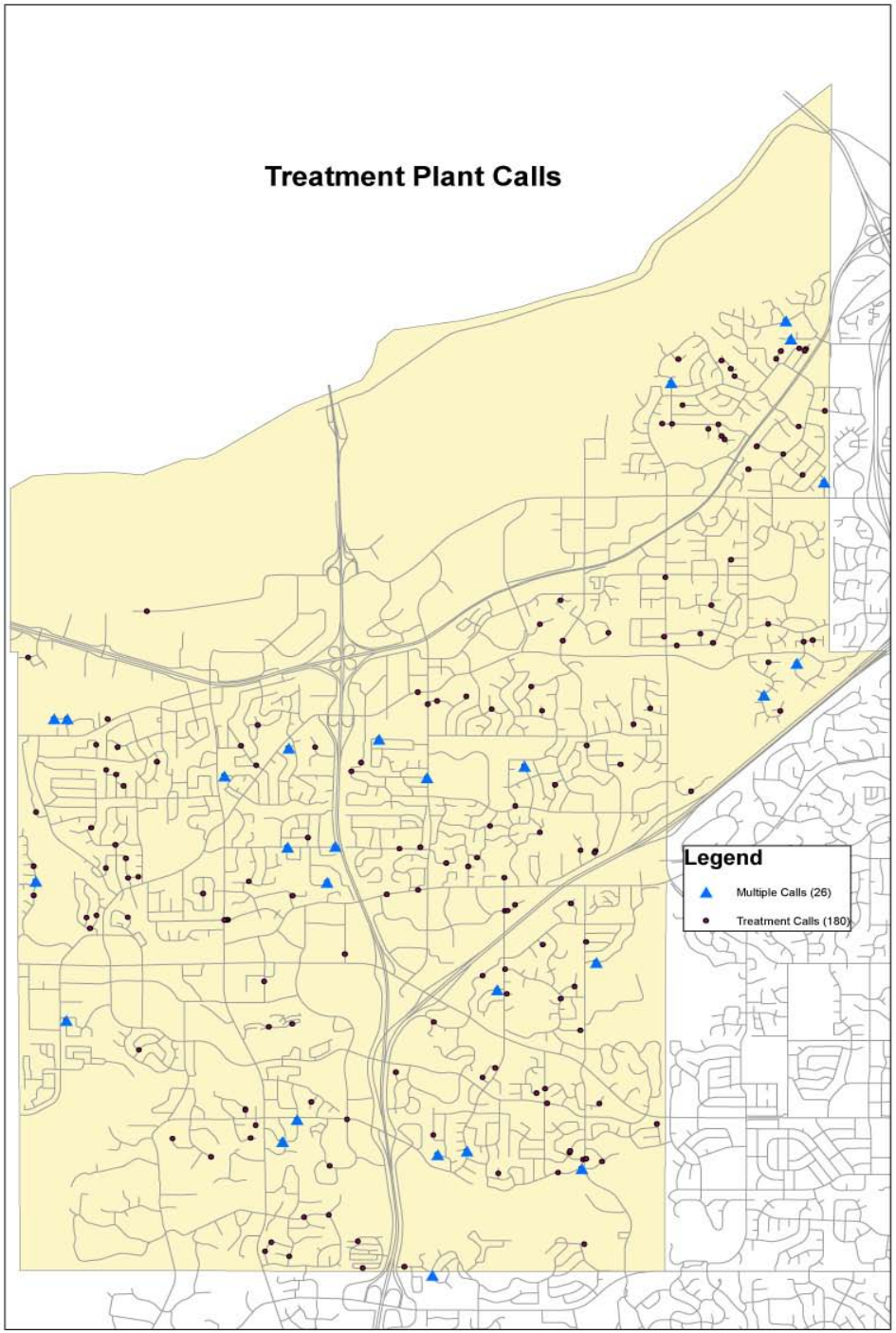
- The City's drinking water meets or exceeds all US EPA and MN Dept of Health safe drinking water standards.
- What we are dealing with: Taste and Odor Complaints
  - Musty Odor
  - Metallic Taste
  - Chlorine Taste and Odor

Taste And Odor

- T&O is an issue that many cities struggle with.
- It is complex issue that will require time and continued analysis to minimize.
- The City's drinking water meets or exceeds all US EPA and MN Dept of Health safe drinking water standards.

Analysis Objective

- Examine the water quality from the Kraemer Quarry (surface water reservoir), through the treatment process to each and every customer.
- Evaluate water quality at all segments of the water system.


Treatment Plant Calls
Legend
Multiple Calls (26)
Treatment Calls (180)

Initial Findings

- Surface water reservoir has an algae based organic component leading to taste and odor (T&O) problems from SWTP.
- The T&O is caused by seasonal Geosmin and MIB concentrations (detectable down to 1 part per trillion).
- The reservoir water quality has changed since the initial pilot testing.
- Chlorination equipment has not maintained a consistent dosage leading to taste and odors.
- Blending of the SWTP and groundwater plant has exposed new issues.

Available Treatment Techniques

- Cover reservoir
- Copper Sulfate Treatment at Reservoir
- Revise Reservoir Hydraulics
- Chlorine Dioxide
- Ozone
- Ozone + Peroxide
- Ozone + UltraViolet
- UltraViolet + Peroxide
- Permanganate
- Powdered Activated Carbon
- Granular Activated Carbon

What Has Been Done To Address T&O Concerns

- Relocated surface water plant chemical feed application points.
- Extensive evaluation of chemical types and dosages.
- Chlorine equipment has received monitoring updates.
- Powered Activated Carbon has been added at the surface water plant to control organic taste and odors.
- Increased water quality testing at customer locations.
- Targeted hydrant flushing in addition to normal fall hydrant flushing.

Where We Are Going

- Pilot Testing (started 10-26-09) for organic taste and odors. Utilize chlorine dioxide, carbon absorption, UV plus hydrogen peroxide.
- Upgrade chlorination equipment.
- Added real time chlorine residual monitoring from the blended discharge point.
- Added water quality data collection.
- Initiate a taste test panel (first meeting of taste test panel today Nov 3).

Proposed Short Term Actions

- Evaluate algae control at surface water reservoir.
- Evaluate how seasonal reservoir changes will affect water quality.
- Add real-time water quality monitoring in distribution system.
- Initiate a unidirectional flushing system next spring.
- Additional water quality data collection.

Taste Test Panel

- Assemble a taste test panel of City residents.
- Taste test panel to evaluate pilot results and treatment improvements.
- Involves community residents in the water quality improvement process.

Communication Plan

- Press Releases
  - Local Paper
  - E-mail Subscription Releases
- Website Updates
- Council Meeting Updates

Additional Taste and Odor Treatment Processes May Be Needed

- Toolbox of SWTP options include
  - Chlorine Dioxide
  - Powdered Activated Carbon and solids handling
  - Granular Activated Carbon
  - UV + Peroxide
- Future upgrades of groundwater treatment plant.