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Services Corporation

Florida Public Service Commission

Secondary Water Standards Workshop

October 8, 2020

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Common Ownership Utilities

Utility	County
Black Bear Waterworks, Inc.	Lake
Black Bear Irrigation Source	Lake
Brendenwood Waterworks, Inc.	Lake
Brevard Waterworks, Inc.	Brevard
Country Walk Utilities, Inc.	Highlands
Duval Waterworks, Inc.	Duval
Gator Waterworks, Inc.	Alachua
Harbor Waterworks, Inc.	Lake
HC Waterworks, Inc.	Highlands
Jumper Creek Utility Company	Sumter
Lake Idlewild Utility Company	Lake
Lake Talquin Waterworks, Inc.	Leon
Lakeside Waterworks, Inc.	Lake
LP Waterworks, Inc.	Highlands
Merritt Island Utility Company	Brevard
North Charlotte Waterworks, Inc.	Charlotte/DeSoto
Okaloosa Waterworks, Inc.	Okaloosa
Pine Harbour Waterworks, Inc.	Lake
Raintree Waterworks, Inc.	Lake
Royal Waterworks, Inc.	Broward
Seminole Waterworks, Inc.	Leon
Sunny Hills Utility Company	Washington
The Woods Utility Company	Sumter

EPA - Secondary Water Standards

- NSDWRs (or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply with the standard. However, states may choose to adopt them as enforceable standards.

https://www.epa.gov/sdwa/drinking-water-regulations-and-contaminants#Secondary

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FDEP - Secondary Water Standards

- No adverse health effects are generally associated with the secondary drinking water contaminants. At considerably higher concentrations than those listed in the standards, health implications may exist as well as aesthetic degradation.

https://floridadep.gov/water/source-drinking-water/content/secondary-drinking-water-standards

https://floridadep.gov/sites/default/files/drinking-water-standards-facts_0.pdf

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List of National Secondary Drinking Water Regulations	
Contaminant	**Secondary Standard**
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

Common Florida Secondary Water Issues

- Color
- Odor

BROWN/REDDISH COLOR

- Iron (Fe)
  - In raw water source (well)
    - Insufficient treatment
  - In Distribution System
    - Ferrous Piping
    - Cast Iron Piping (non coated)
    - Ductile Iron (loss of coating)
    - Galvanized Piping (non coated)

Mitigating Factors:

Water Age

Age of Piping

Piping material

Water Corrosivity

Microbial Activity (Bacteria)

BROWN/REDISH COLOR (cont.)

- Organic
  - In raw water source
  - Insufficient treatment
- Tanins
  - In raw water source
  - Insufficient treatment

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BLACK/GREY COLOR

- Hydrogen Sulfides
  - Ground source water
    - Insufficient Treatment
  - Distribution System
    - Microbial - Bacteria breakdown
    - Corrosion
- Manganese
  - Ground source water
    - Insufficient Treatment

WHITE/CLOUDY COLOR

- Air
  - Failed Hydro pneumatic System
    - too much air (compressor)
  - Cavitation of well pump
    - Low suction head
  - Temperature variance
    - dissolved oxygen saturation

WHITE/CLOUDY COLOR (cont.)

- Hydrogen Sulfides
  - Turbidity
    - Direct Chlorination of High Sulfur (H2S)
- Calcium
  - Turbidity
    - Precipitation of Calcium Carbonate

Odor (Smell)

- Hydrogen Sulfides
  - Number one cause in Florida
    - Loss of chlorine residual at plant
    - Chlorine degradation in distribution
      - Regrowth of sulfide reducing bacteria in distribution
      - Re-establishment in distribution
- Disinfection
  - Chlorine
    - High or low
  - Chloramination
    - Improper ratios (chlorine/ammonia)
- Organics
  - Chlorination – medical smell (chemical)

Mitigating Factors

- Water age (excess of 3 – 5 days)
  - Large storage
  - Sparsely populated customer base
  - Largely spread out distribution system (miles of mains)
  - Oversized pipes – primarily caused by fire flow requirements
  - Low water usage in system
  - Bacteria growth
- Customer issues
  - Hot water heaters
  - Galvanized steel / iron service lines or plumbing
  - Copper piping
  - Water Softeners
- Piping Material
- Sediment – line breaks, residuals in distribution system, drop in pressure

Cost Evaluation/Analysis

- Treatment costs relative to customer size
  - Upward pressure on water rates
- Main replacement costs
  - Upward pressure on water rates
- Flushing – increase expenses related to pumping (electric), chemicals
  - Excessive goes against conservation
- Chemical additives - sequestrant

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Competing Government Agencies

- Flushing - most common and cost effective
- Flushing is recognized as a normal maintenance practice of utilities to address water quality concerns throughout distribution systems in the United States.
- Recognized by the FDEP as a common utility practice to address distribution system maintenance
  - FDEP Requires a flushing plan
- Water Management Districts – encourages reduction in flushing
  - Only recognizes ten percent (10%) water usage for flushing
  - Reduction in Water Use Permits

Treatments

- Oxidation Vs. Removal
  - Oxidation – residuals still present in distribution system
  - Removal
  - Sequestation
- Filters
  - Type depends on cause
- Aeration – type depends on cause
  - Cascade
  - Open air
  - Force draft
  - Pack tower

(FDEP Rule 62-555.315(5)(a), F.A.C.)

Costs of Additional Testing

- Condition Specific
- Depends on cause / source
- Number of test sites – could be numerous in large distribution systems adding to costs
- Government mandated testing costs recoverable through rates
  - Confiscatory