Crowdsource Meeting

September 3, 2024

Dwayne Roadcap, Director, Office of Drinking Water



Background Information

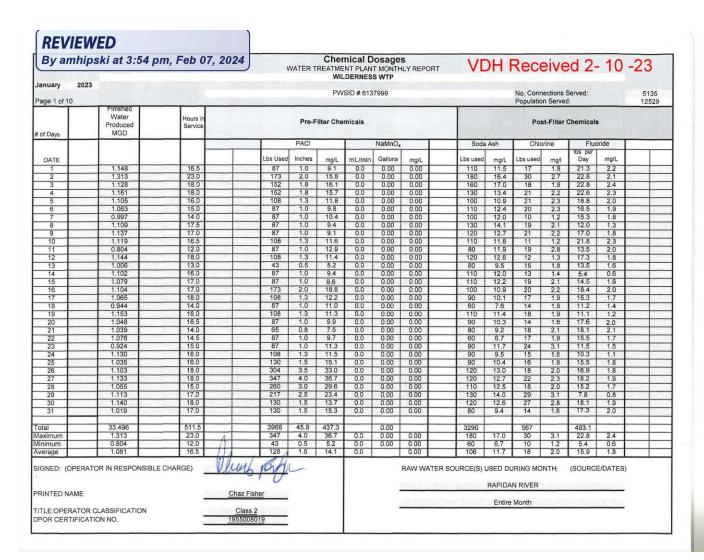
Wilderness Water Treatment Plant (Event 8/21/24 – 8/27/24)



- Typical Surface Water Treatment System (Rapidan River)
- Serves total population of about 13,000 (Typical Demand = 1.2 MGD)
- Typically operates 14 18 hours per day
- Multiple subdivisions, few restaurants, commercial, industrial
 - Pre-filter (Alum, Sodium Permanganate)
 - Post-filtration (Soda Ash, Chlorine, Fluoride)
 - Filter Turbidity = 0.06 0.08 NTU
 - Filter hours 9.5 to 30.5 hours (head loss before 4.1 to 7.2)



Typical Monthly Operation Report



Source Water

- pH = 7.0 7.5
- Iron = $0.40 0.6 \,\text{mg/l}$
- Mn = 0.03 0.098 mg/l
- Alkalinity = 22 25 mg/l
- Hardness = 16 20 mg/l
- 5.9 53.9 NTU, mostly less than 10 NTU

Finished Water

- Free Chlorine Residual = 1.4 2.2 mg/l
- Alkalinity = 32 35 mg/l
- Hardness = 18 22 mg/l



Source of Odor Being Considered

Described by customers in different ways - "WD-40," "Gasoline," "Diesel," "Mechanics shop"

- Water Treatment Plant (WTP) release
 - Checking for fluid leaks with submersible pumps and equipment
 - Physical, integrity inspections of equipment
 - Reviewing MSDS sheets of fluids at WTP
 - Inspected basins, sampling for possible organic cause of odor
- Upstream release (sewage treatment plant, pipeline, industrial, stormwater overflow, farms)
 - No fish kills observed
 - No sheens, no spills
 - No rain events near time of odor
- Upslope release (construction at intake)
 - Interviewed contractor on scene, inspected intake
- Bad actor



Contaminants Observed To Date

BCEE - Bis(2-chloroethyl) ether- (13.7 ug/L) on 8/21/24 (one sample out of many)

* Colorless, non-flammable liquid used as a solvent

Isovanillin (8 - 10 ug/L) on 8/27/24 (preliminary)

- Human nose can detect in range of 8 100 ug/L
- Ingredient in WD-40

TPIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate) on 8/27/24 (preliminary)

• May be a false positive

Chloromethane (2.38 ug/l) on 8/22/24 (one sample out of many)

* Moves rapidly to air; Half-life of 2.5 hours



Ongoing Investigation

- Additional field investigation (WTP, riverbank, stream, hillside visual and olfactory)
 - Collected and saved prior sampling to the extent possible
- Chromatograph, spectrometer, high resolution scan performed to date
- Bacterial strain sampling to identify if organic component to odor
- Additional sampling (at each point from plant entry through distribution system)
- Conversations and help from academics and experts in Taste & Odor
- Outreach to law enforcement



Questions for You -

- What questions do you have?
- What other ideas should we consider?

