



Laytonsville Fall Update Community Meeting

Thursday, November 9, 2023

Agenda

- Project Team Introductions
- Overview of Low Chlorine Issue
- Updates and Next Steps
- Questions and Answers

Project Team

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Background - Laytonsville

- Plan for Town of Laytonsville issued in 2015
- Area on wells and septic
- In 2015, WSSC Water agreed to bring public water to developing area due to failing septic systems
- Drinking water only due to cost of installing sewer collection system, and it allowed for expanding existing septic systems

Background - Distribution System

- Building out involved installing pipe system and storage tank
- Pump station distributes **1.72 million gallons per day (MGD)**
- Storage tank has **500,000-gallon capacity**
- Tank capacity based on domestic storage, fire protection, emergency storage
- Property records indicate Barberry/Birdie lanes homes built 2019-2020

Background - Chlorination / Odors

- Free chlorine (Cl_2) is added at treatment plants
- Residual disinfectant protects water from microbial activity in distribution system
- Required to maintain 0.1 mg/L residual chlorine or heterotrophic plate counts less than 500 /mL
- Low chlorine is localized issue and can be caused by heat, low use, end of water main lines
- Normally resolved through targeted hydrant flushing
- Odors can be associated with many things, including low chlorine, water heater, sewer line. Naturally occurring compounds can also cause odors

Project Map



Low Chlorine Issue

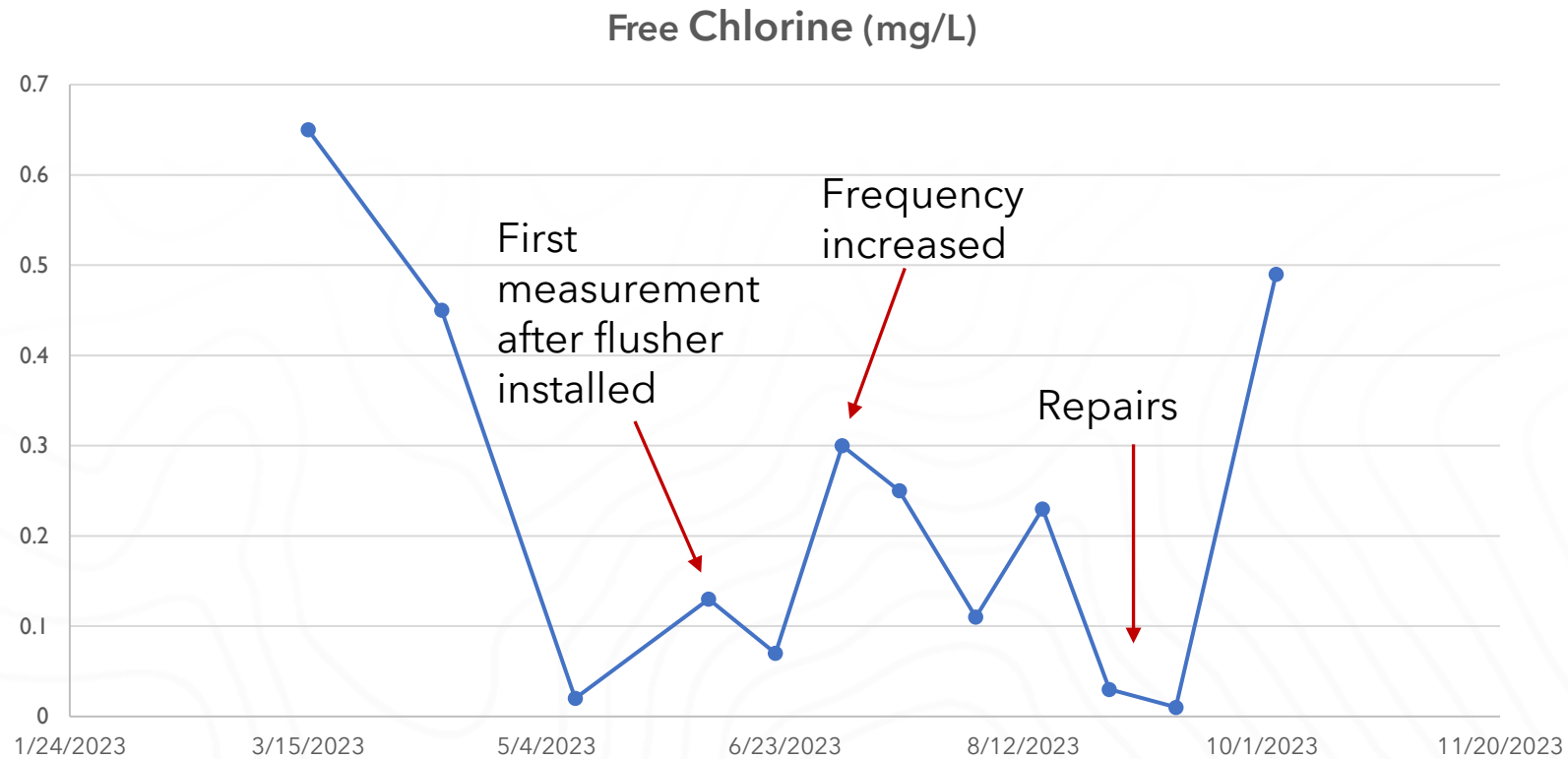
- Water quality complaints from Birdie/Barberry lanes: **Summer 2021**
- Low chlorine at some ends of lines, but all locations meet minimum detectable chlorine residual as required by Maryland Department of the Environment (MDE)
- No evidence of total coliform contamination
- Started flushing hydrants, checking chlorine levels
- Unidirectional Flushing (UDF) completed: **Fall 2021**
- Improved water quality for limited duration
- Issues subsided in winter - began again in summer
- **2022**: more flushing, began routine hydrant checks
- Extensive sampling
- Evaluation of alternative measures to improve chlorine

Summer 2023 Corrective Actions

- Modified water flow
- Installation of automatic flusher on Birdie Lane
- Monitored hydrants for chlorine and bacteria
- Conducted biweekly chlorine checks (June - August)
- Chlorine tests will continue through winter

Summer 2023 Outcomes

- Automatic flusher is effective



Next Steps

- Considering placing automatic flushers in targeted locations within the community
- Evaluating the use of a new flushing method
- Working with an independent consultant
 - Evaluating economic and technical feasibility of options
- Recommendations will be finalized this coming winter
- Long-term plan expected to be finalized in the spring

Plumbing Findings

- Several home inspections conducted since March 2023
- Inspections consisted of examining on-property plumbing, sewer odors and black residue

Observation and Findings

- Sewer odor noticed **mainly** in infrequently used bathrooms, washing machines and some toilets
- Black residue noticed on faucet heads in kitchens, bathroom sinks and interior of toilets
- Homes are on septic system
- Identified copper piping inside of homes
- Service line coming into the home is black polyethylene
- Black polyethylene is known for deterioration, which can cause black particles in water
- Homes have a Pressure Reducing Valve

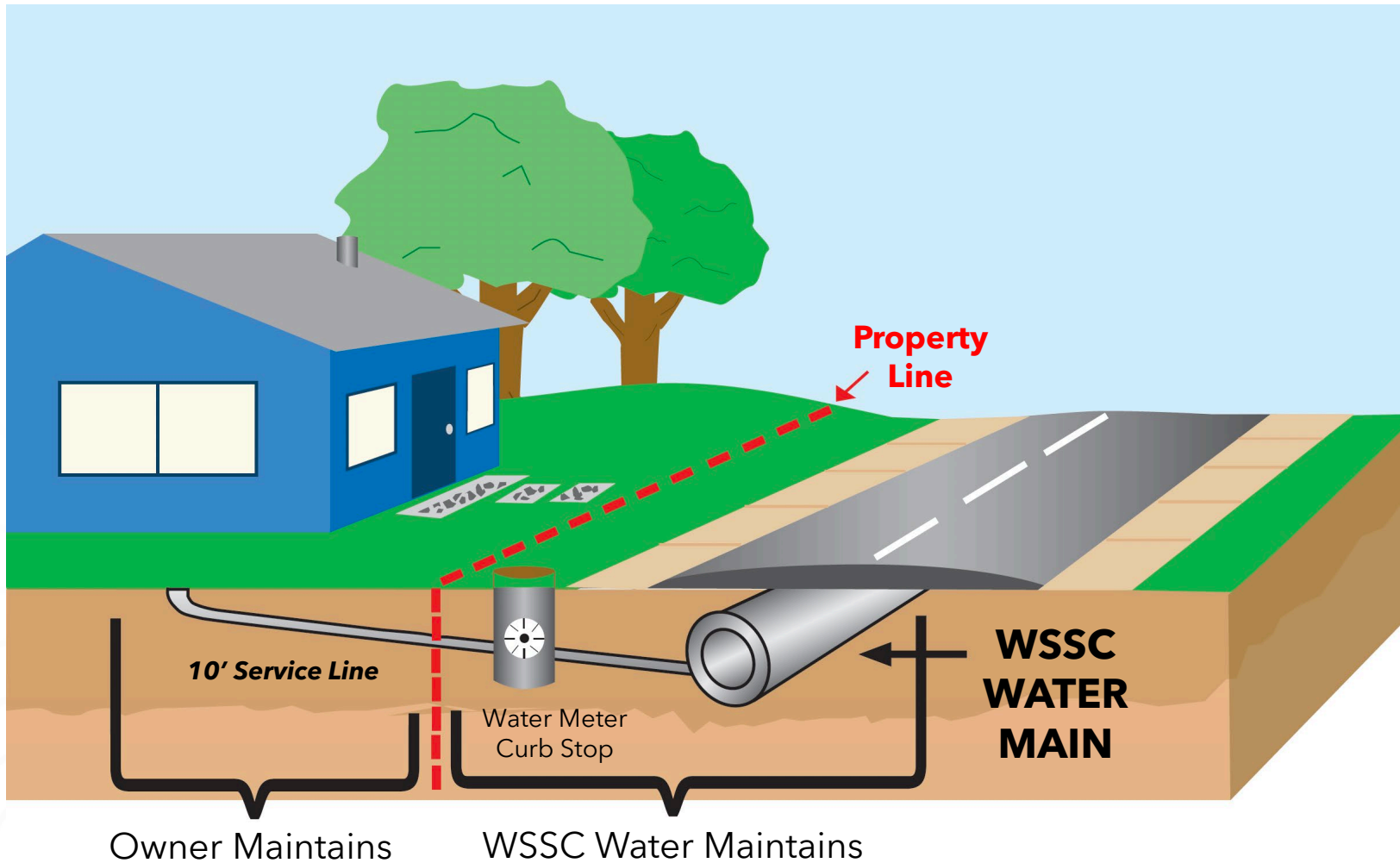
Plumbing Findings

Recommendations

- Collect samples of **black residue** to confirm if they are the black polyethylene material
- **Homeowners should run water in infrequently used bathrooms at least once per week for 1-2 minutes to ensure that the p-trap does not go dry, which allows sewage smell to enter the home**
- A rotten egg smell from the washing machine can occur naturally due to normal usage (mold, mildew, dirt and soap)
- Homeowners must periodically clean the washing machine and or contact the manufacturer for instructions
- Ensure septic system is on a routine inspection/maintenance schedule
- Some customers experienced low pressure in some areas of the home, which could be the result of low flow fixtures or an issue with the Pressure Reducing Valve (PRV)
- If concerns pertaining to low pressure continue, a plumber should be contacted to examine the PRV

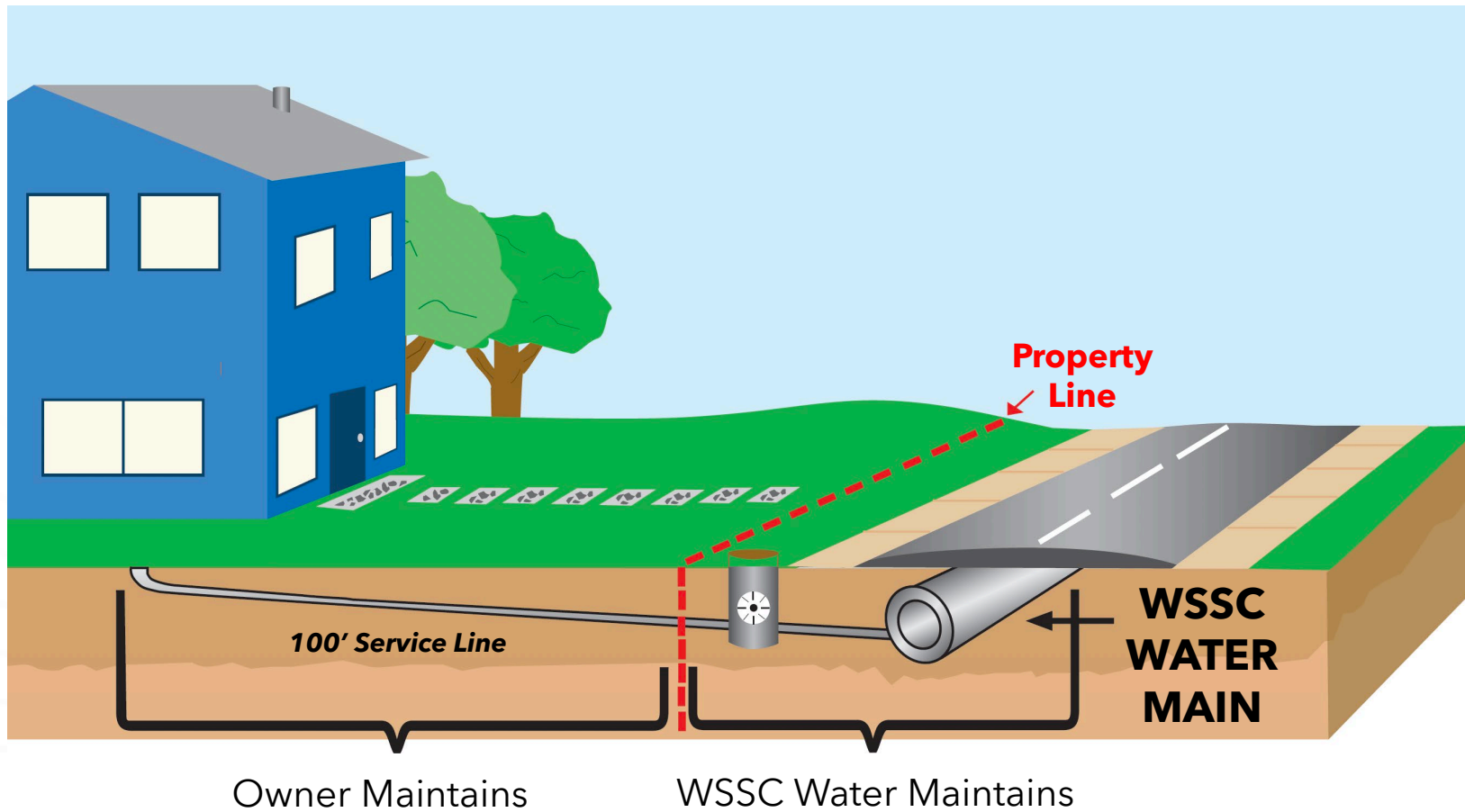
Understanding Chlorine and Residential Water Use

- WSSC Water maintains chlorine levels in the distribution main
- Water age and heat impact chlorine levels as it travels through service line and on property
- Water quality inside property is dependent on use and other factors:
 - Length of service line
 - Amount of internal plumbing and number of fixtures on property
 - Pressure Reducing Valves and low-flow design
- Potential barriers to good water quality on property:
 - Low or infrequent occupancy
 - Not using all fixtures/faucets
 - Low flow design



- Assumptions: 1" service line kitchen faucets can have different flow rates:
- Max: 2.2 gal/min
 - Common: 1.75 gal/min
 - Low Flow: 0.8 gal/min
 - Toilets: 1.6 gal/flush

Service line	Gal in line
10 ft	0.4
50 ft	2.0
100 ft	4.1
200 ft	8.2



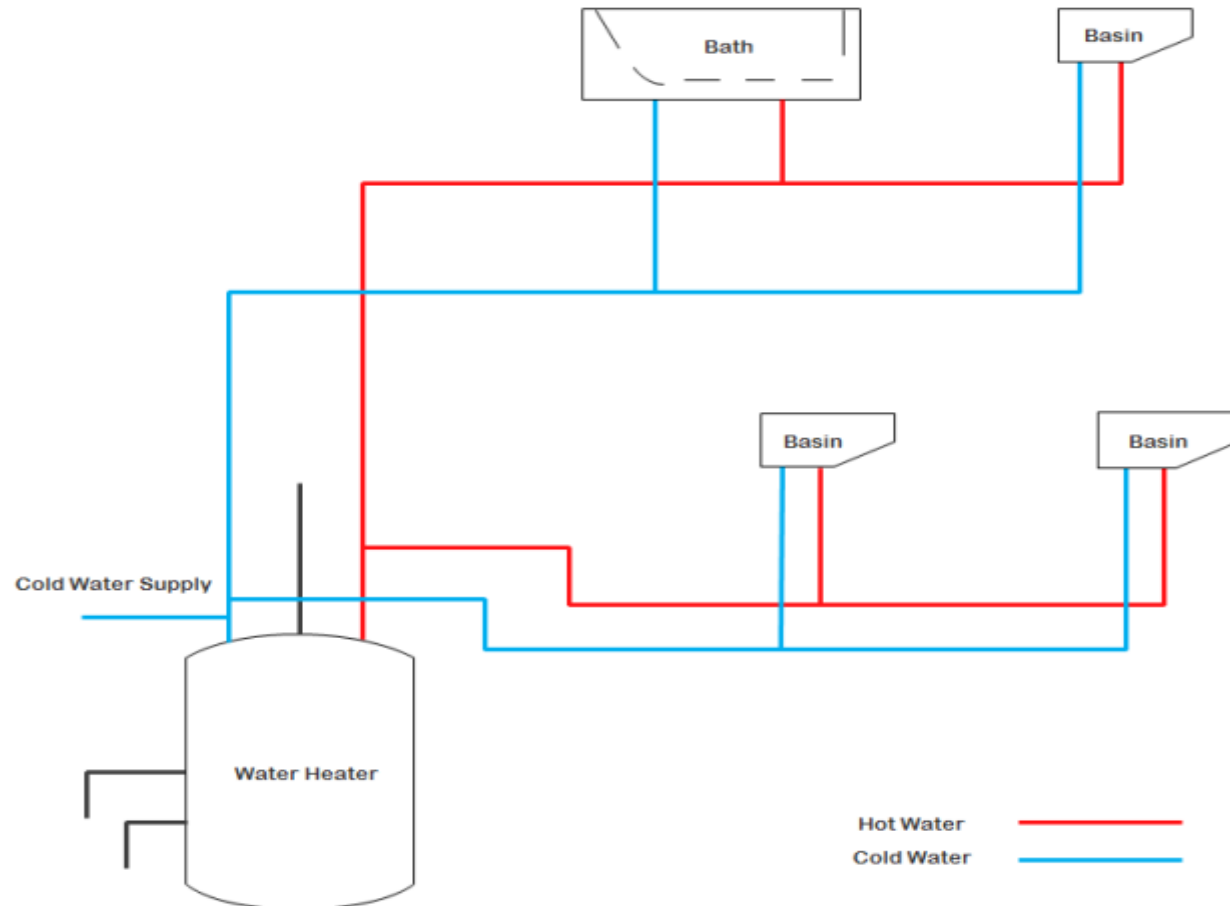
Example 1:

- 50-ft line
- 2.2 gal/min rate
- <1 min to turn over water in line

Example 2:

- 200-ft line
- 0.8 gal/min (low flow)
- 11 minutes to turn over water in line

Plumbing Inside the Home



- Improve internal water quality by rotating through bathrooms, use all showers/fixtures regularly
- Flush after periods of stagnation, especially in the summer

Internal use example:

- 100 linear feet of plumbing from point of entry to furthest bathroom
- Bathroom use: 1 flush per day (1.6 gal) and handwashing for 1 min (0.8 gal) = 2.4 gal. use/day
- Water has been in house for 1.7 days



Questions?

