

# WHY IS MY DRINKING WATER DIRTY?



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# IMPORTANT!

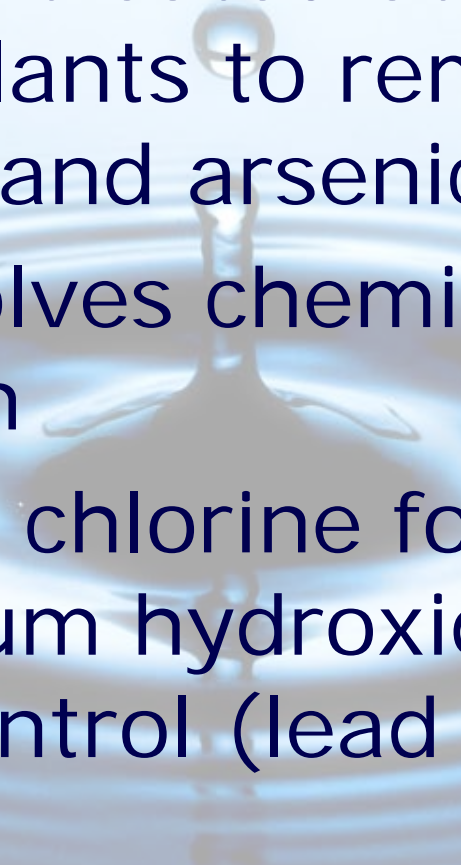
- 💧 Ayer's water is SAFE to drink
- 💧 We test for hundreds of regulated contaminants every year
- 💧 We test for iron, manganese, pH and chlorine daily to optimize the treatment plant
- 💧 We test for harmful bacteria at 14 locations every month

# Ayer's Water Supply

- 💧 Water is pumped from 5 wells in 2 different locations
- 💧 We supply 1.4 million gallons per day on average and as much as 2.8 million gallons per day during the summer
- 💧 The well water is high in dissolved iron, manganese and arsenic – typical of New England groundwater
- 💧 Water is moderately “hard”



# Water Treatment

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- The water is treated at 2 water treatment plants to remove the iron, manganese and arsenic
  - Process involves chemical oxidation and filtration
  - We also add chlorine for disinfection and potassium hydroxide for corrosion control (lead & copper)

# Water Quality Standards

- 💧 “Dirty water is related to secondary standards (non-health related)
- 💧 Recommended iron (Fe) standard is 0.3 mg/L
- 💧 Recommended manganese (Mn) standard is 0.05 mg/L
- 💧 Grove Pond Wells “raw water” range:
  - Fe – 0 (Well 8) to 7.3 (Well 6)
  - Mn – 0.5 (Well 8) to 4.9 (Well 1)



# Ayer's Drinking Water Before and After Treatment



# What Causes the Dirty Water?

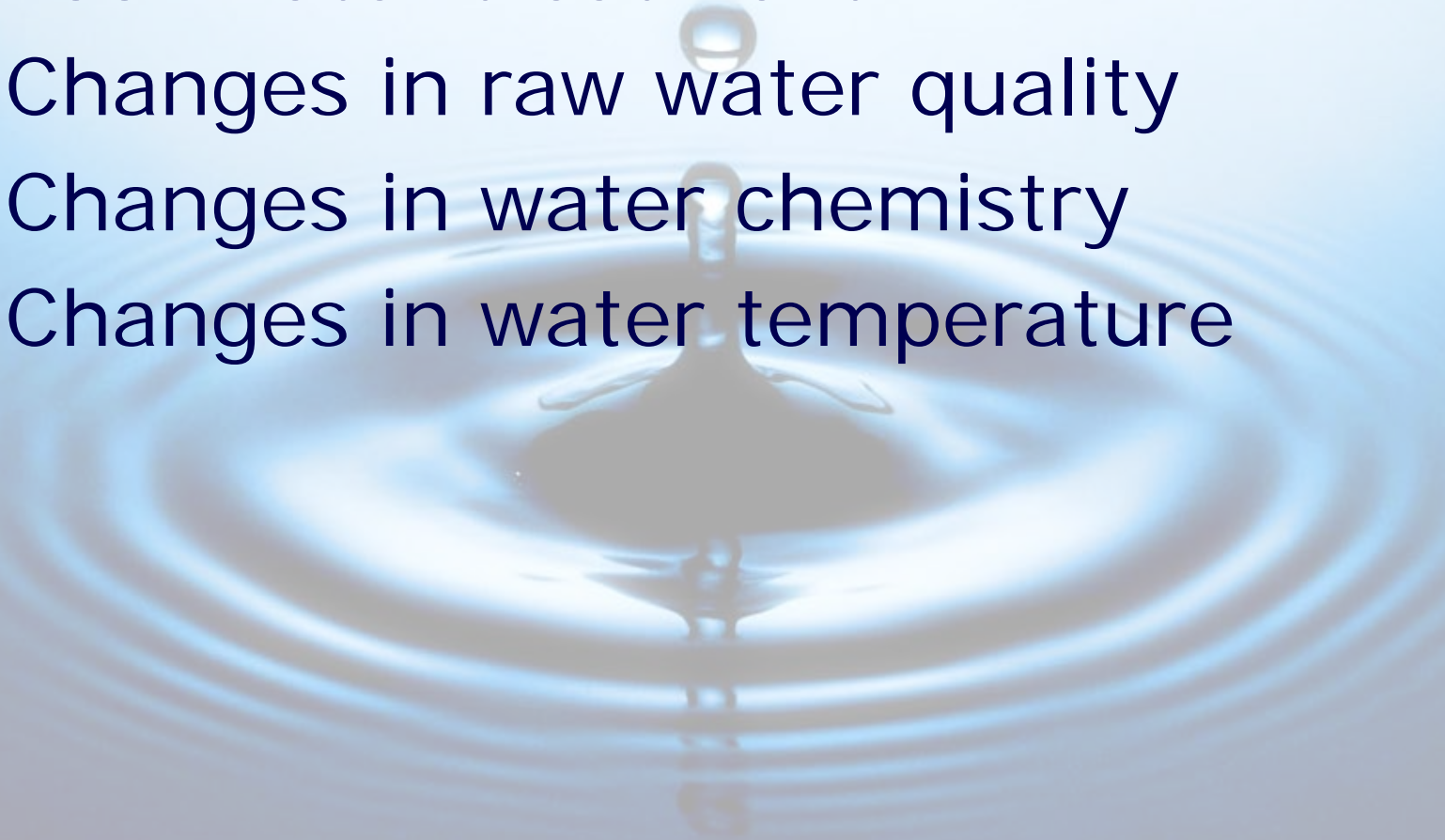
The main cause is from sediments, iron, manganese build up in the pipes loosened by:

- Changes in chemical dosage at WTP
- High flows from irrigation and pipe breaks
- Construction activities
- Sediments and bacteria in your house water plumbing and water heater



# More Dirty Water Causes

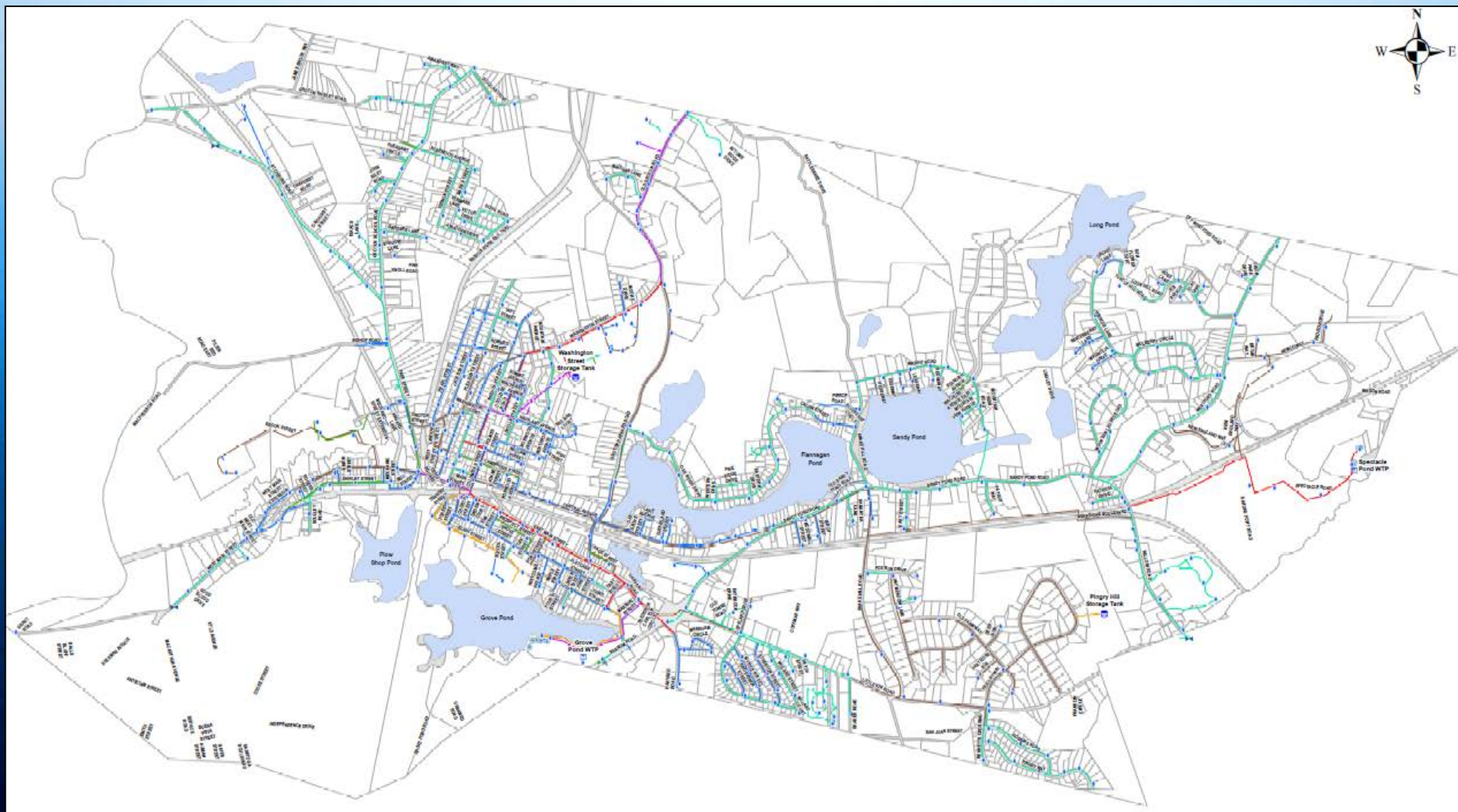
- 💧 Poor water treatment
- 💧 Changes in raw water quality
- 💧 Changes in water chemistry
- 💧 Changes in water temperature





# Ayer's Water Distribution Piping

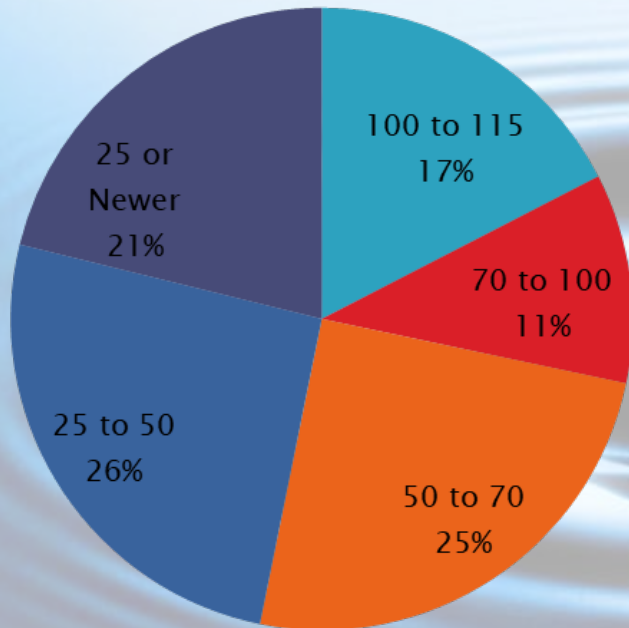
- 💧 48 Miles of pipe ranging in size from 4-inch to 16-inch
- 💧 Original pipes installed **1898**
- 💧 17 miles of unlined cast iron pipe
- 💧 18.5 miles of AC (asbestos-cement) pipe
- 💧 38 Dead end pipes of various lengths





# Old Unlined Cast Iron Pipe (This is the biggest problem)

Pipe Age– Years





# **This Summer was the Dirty Water “Perfect Storm”**

- 💧 Inadequate Fe & Mn removal at WTP due to media clogging
- 💧 Shutting off Well 8 (best well) due to PFAS contamination and using Well 1 (worst well)
- 💧 Maintenance to Wells 6 & 7 required them to be out of service for several weeks
- 💧 Several periods of hot weather



Figure 2 - Example of media mounding around perimeter of tank (Filter 3)



Figure 4: Example of iron "mud balls" from Filter #3 at Grove Pond



# What is the Ayer DPW Doing?

## Water Treatment

- 💧 Designing a PFAS Removal Plant at Grove Pond
- 💧 Cleaning filter media to improve Fe & Mn removal
- 💧 Optimizing chemical dosages
- 💧 Accelerating Media Replacement Capital Project
- 💧 Minimizing use of GP Well 1





# What is the Ayer DPW Doing?

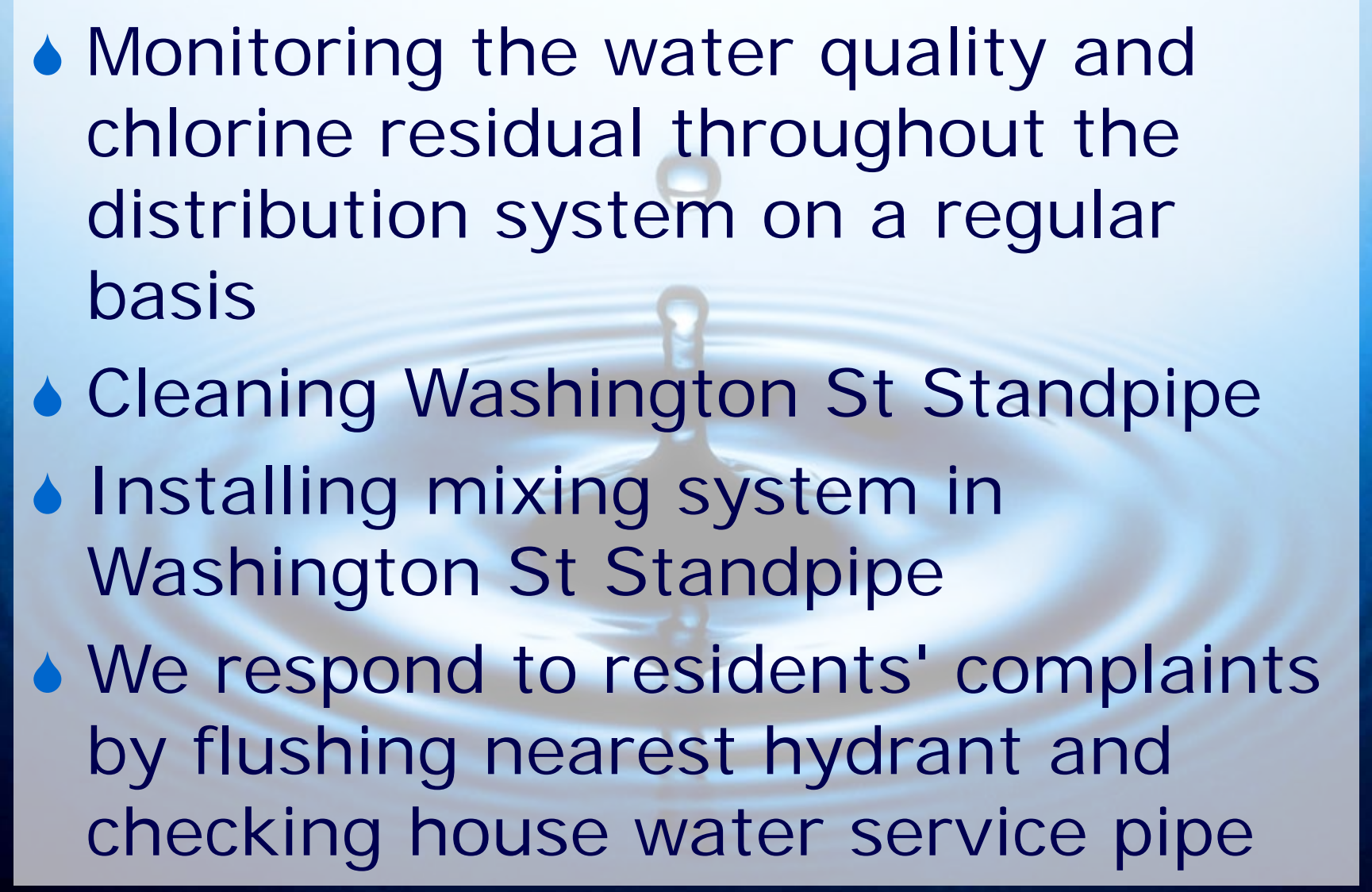
## Water Distribution System

- 💧 Starting the fall flushing program on October 9
- 💧 Replacing \$300K of water pipes every year
- 💧 Installing auto flushing hydrants at several dead ends in system



# What is the Ayer DPW Doing?

## Water Distribution System

- 
- A background image showing concentric ripples on a light blue surface, with a small droplet visible in the center, creating a sense of water movement.
- 💧 Monitoring the water quality and chlorine residual throughout the distribution system on a regular basis
  - 💧 Cleaning Washington St Standpipe
  - 💧 Installing mixing system in Washington St Standpipe
  - 💧 We respond to residents' complaints by flushing nearest hydrant and checking house water service pipe

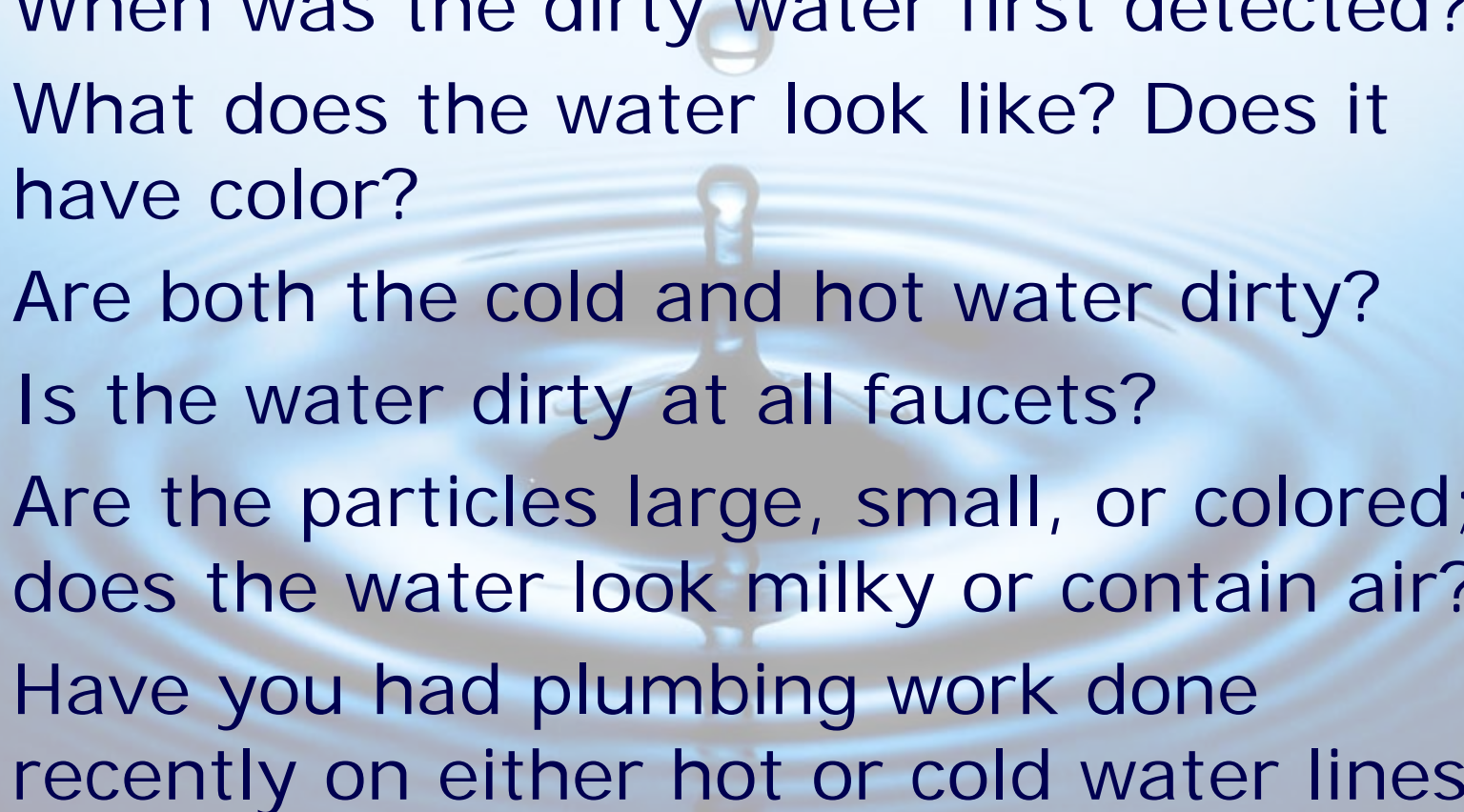
# What Can You Do to Help?

- Call the DPW 978-772-8240 and let us know what the problem is
- Check your house filter if you have one
- Don't put bleach in your washing machine
- Ayer DPW has "Red-B-Gone" to remove stains from clothes and fixtures
- Support DPW water improvement budget
- Be patient – We're working hard to give you the best water possible





# Please Report Your Water Issues

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- A background image showing a close-up of water being splashed, with a central droplet and concentric ripples spreading outwards. The water is clear and the lighting creates highlights on the surface.
- 💧 What is the location?
  - 💧 When was the dirty water first detected?
  - 💧 What does the water look like? Does it have color?
  - 💧 Are both the cold and hot water dirty?
  - 💧 Is the water dirty at all faucets?
  - 💧 Are the particles large, small, or colored; does the water look milky or contain air?
  - 💧 Have you had plumbing work done recently on either hot or cold water lines?

# Questions

