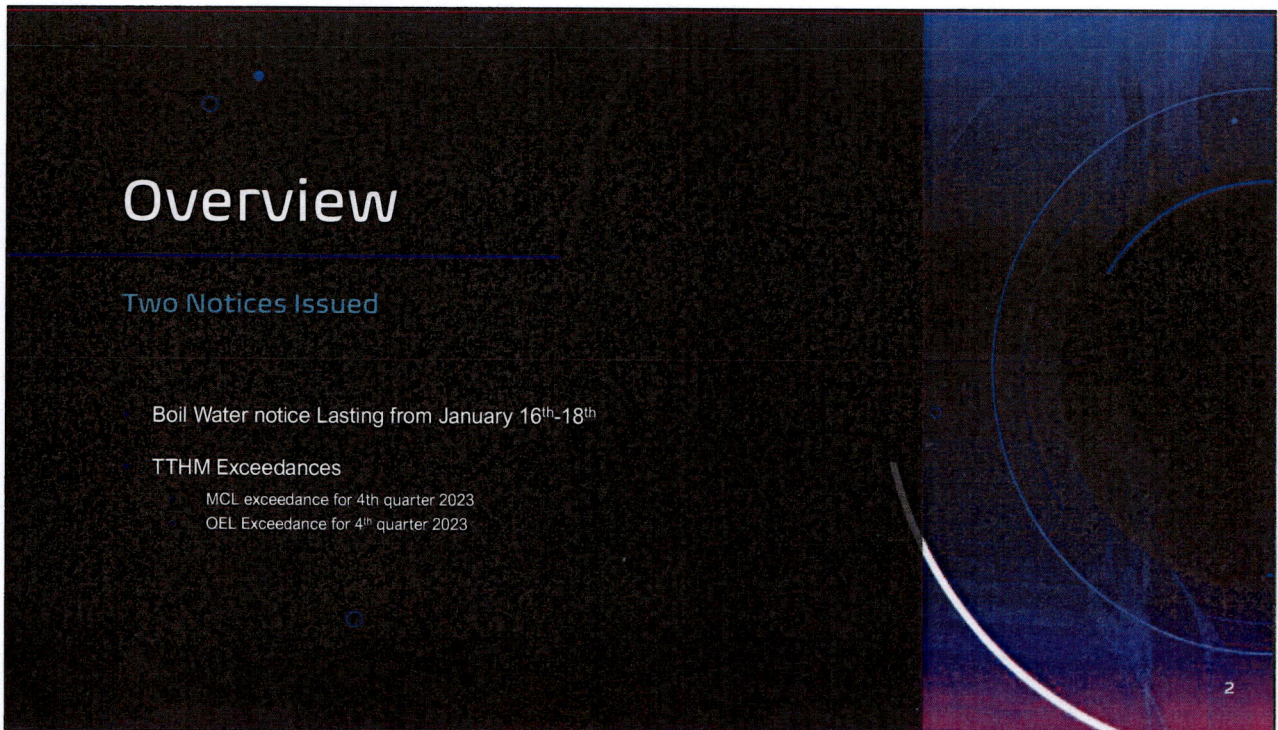


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Boil Water Notice

Required when:

- Bacteriological tests fail
- Pressure drops below 20 PSI

Poor Communication	Loss of System Pressure	One tank out of service for maintenance
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Poor Communication

<h3>City</h3> <ul style="list-style-type: none">• Staff failed to monitor tank levels during freezing weather• City currently does not have SCADA monitoring capabilities• Public Education- Fliers were mailed and posted but didn't reach near enough population.	<h3>Water Plant</h3> <ul style="list-style-type: none">• Operations did not notify us of high demand• Plant SCADA failed due to frozen sensor
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Loss of System Pressure

Public running faucets

Fliers recommended dripping faucets at a rate of 5 drops per minute

News broadcast were recommending running the faucets with a pencil tip stream

Water Plant reported feeding 1500 GPM

1500 GPM x 1440 minutes (One 24-hour period) = 2.16 MGD (Million Gallons Per Day)

This flow rate exceeds our usual January flows that average between 1.3 to 1.6 MG

Additionally, with the high demand we were not refilling the storage tank which led to low pressure

Tank capacity

George St .5 MG

Village .5 MG (offline for maintenance)

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Village Tower

The TCEQ required annual inspection revealed the need to clean and paint the interior of Village tower

It was scheduled to be done at this time to avoid having a storage tank down during peak times in the summer

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Steps to prevent future issues

Improved communication

Staff level

Internally

With external partners (Water Plant)

Public Awareness

Installation of SCADA monitoring equipment

Being addressed in the rehab of GST

Pressure gauge being installed in Public Works Admin building for monitoring

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Trihalomethanes & HaloAceticAcids

Definitions

Trihalomethanes are a group of volatile organic compounds that are formed when chlorine, added to the water during the treatment process for disinfection, reacts with naturally occurring organic matter in the water.

MCL – Maximum Contaminant Level

LRAA – Locational Running Annual Average

OEL – Operational Evaluation Report

MCL = 80 µg/L

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MCL Exceedance

518 W George St

LRAA = 130 µg/L

- Quarter 1 102 µg/L
- Quarter 2 122 µg/L
- Quarter 3 109 µg/L
- Quarter 4 186 µg/L

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MCL Exceedance

312 Rouen Dr.

LRAA = 123 µg/L

- Quarter 1 104 µg/L
- Quarter 2 135 µg/L
- Quarter 3 102 µg/L
- Quarter 4 152 µg/L

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MCL Exceedance

503 Sanddollar.

- Quarter 1 102 µg/L
- Quarter 2 126 µg/L
- Quarter 3 103 µg/L
- Quarter 4 175 µg/L

LRAA = 127 µg/L



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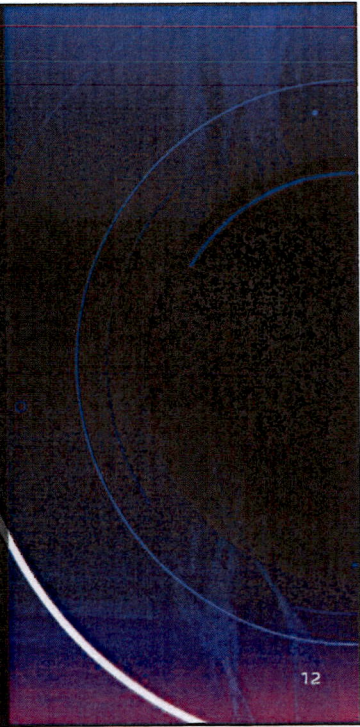
11

MCL Exceedance

521 S Virginia St.

- Quarter 1 89.8 µg/L
- Quarter 2 122 µg/L
- Quarter 3 95.8 µg/L
- Quarter 4 168 µg/L

LRAA = 119 µg/L



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Possible Solutions

Advanced Treatment techniques (Water Plant)

Introduce an oxidizer during first treatment train.

Chlorine Dioxide

Potassium Permanganate

Activated Carbon filtering

Reverse Osmosis

Distribution System

Aeration (Off Gassing)

Pump sprayers draw from bottom of the tank and sprinkle water at the top and volatized trihalomethanes are vented out of the tank.

Reverse Osmosis

High cost

Activated Carbon Filtering

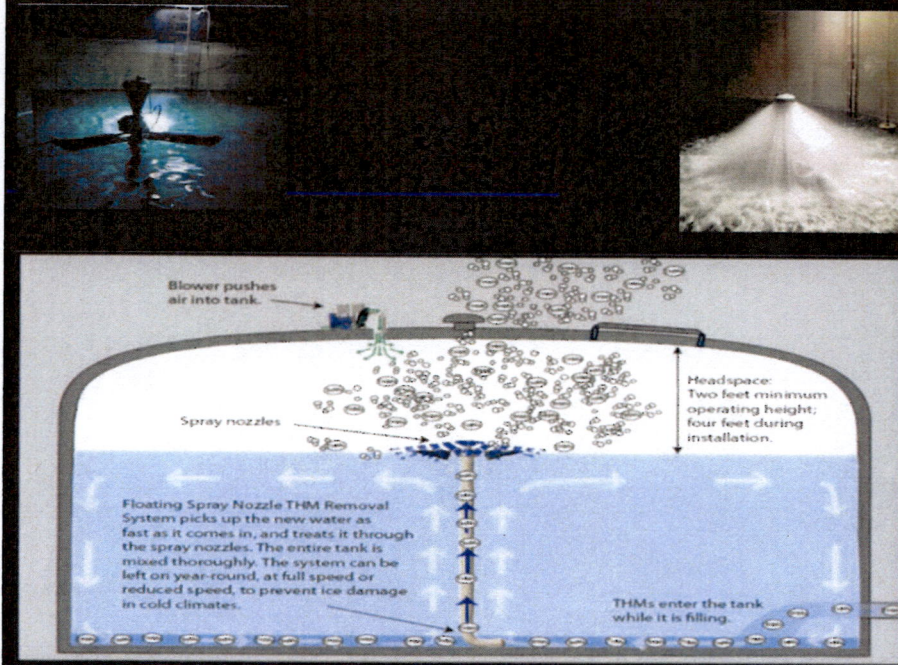
High maintenance cost

Chloramine reinjection

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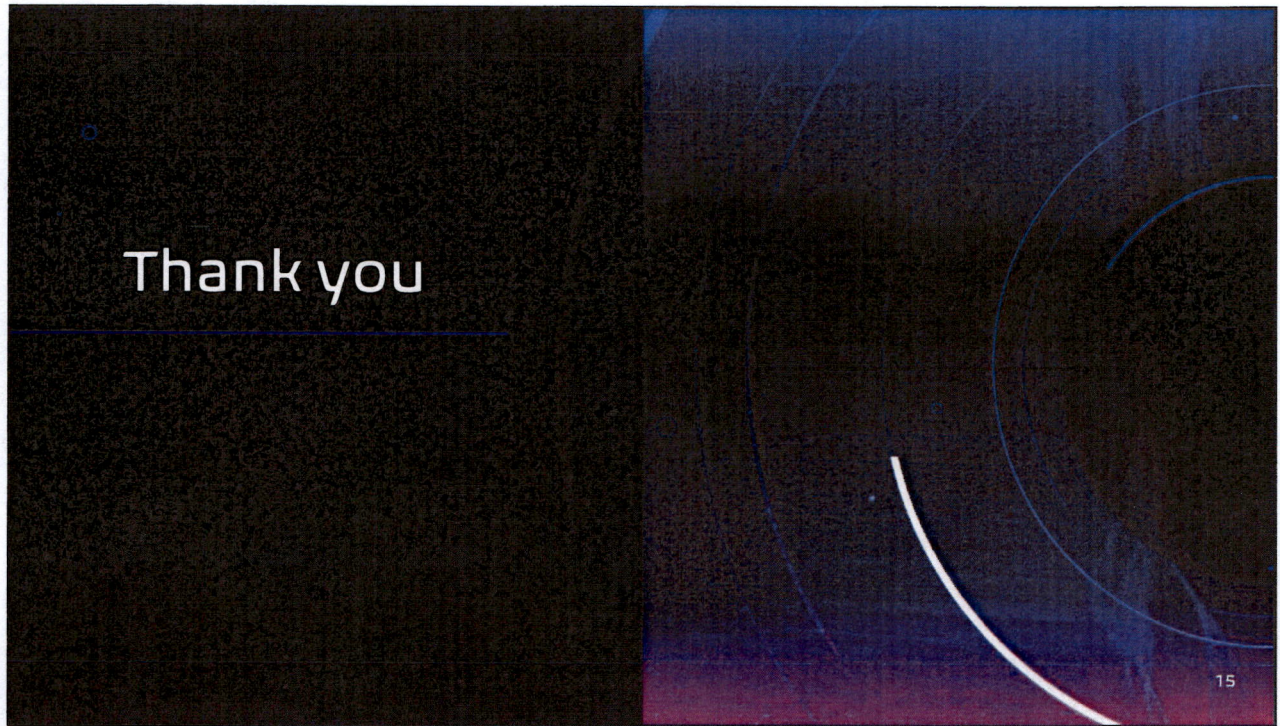
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Example for Distribution: Aeration



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