

**Additional Information regarding
Total Trihalomethanes in the Narragansett Water Systems
05/03/2021**

Total trihalomethanes (TTHM) are a group of disinfection byproducts that form when chlorine compounds that are used to disinfect drinking water react with naturally occurring organic material that is found in source water. They are colorless, and will evaporate out of the water into the air. Levels of TTHMs generally increase in the summer months due to the warmer temperatures, but can also be effected by seasonal changes in source water quality or by changing amounts of disinfection chemicals that are added to the water. Water systems often can experience temporary increases in TTHMs due to short-term increases in chlorine disinfection. Chlorine disinfection increases can occur when there is a water main break, when water systems are under repair, when changes occur in source water quality, or when there is a potential microbial (bacteria) problem or threat, such as the September 2018 bacterial contamination in the Suez water system, and resulting boil water advisory and increased chlorine disinfection chemical application.

We are required by federal and state law to sample for TTHMs on a quarterly basis (once every three months) within the water distribution system because we use chlorine to disinfect the water. Drinking water standards are set to protect against potential negative health effects from drinking water containing certain chemicals and Maximum Contaminant Levels (MCL) in drinking water are set so that the amount consumed does not exceed safe levels. Some MCLs address the daily amount consumed (for chemicals that pose an immediate risk), and others address the amount averaged over a long period of time (for chemicals that pose a long-term risk). Control of TTHM levels must be maintained while also applying appropriate levels of disinfectant in the water necessary to treat the water for contaminants and avoid bacterial issues. The United States Environmental Protection Agency and RI Department of Health have set an MCL for TTHMs of 0.080 parts per million (ppm) or milligrams per liter (mg/L) as a running annual average. The TTHM MCL is set at a level to balance the immediate risk of bacterial contamination and the long-term risk of health effects such as cancer.

Based on the available information, long term consumption of TTHM in drinking water above the MCL may increase the risk of certain types of cancer (e.g., bladder, colon, and rectal) and other adverse effects in some people. The degree of risk for these effects will depend on the TTHM level and the duration of exposure. In general, young children may be more susceptible to the effects from any chemical exposure, such as TTHM, because their ability to metabolize chemicals is not mature and because their exposures may be greater for their size than in adults. Because some data indicate that disinfection byproducts may increase the risk of developmental effects, women who are pregnant or may become pregnant may wish to avoid consuming water containing TTHM and other disinfection byproducts exceeding the drinking water standard. **The MCL for TTHM is based on potential cancer risks following a lifetime of drinking the water. Consumption of water with TTHM levels somewhat above the MCL for limited durations, for example, while corrective actions are being taken to lower the levels, is not likely to significantly increase risks of adverse health effects for most people.**

If you are concerned about TTHM consumption and want to reduce your exposure further, you can use bottled water or employ point-of-use home water treatment systems on delivery lines in the house (faucet mount, pour-through pitcher style, or plumbed-in filter units). Any filter used should be certified by National Sanitation Foundation (NSF), Underwriters Laboratories (UL) or the Water Quality Association (WQA) to remove TTHMs (look for the seals on the box). Information on selecting a water treatment system that is right for you can be obtained from NSF International at www.nsf.org or 1-800-673-8010.

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- The Maximum Contaminant Level (MCL) regulated standard for TTHMs is 0.080 milligrams per liter (mg/l); compliance is based on Locational Running Annual Average (LRAA) of sample results from previous 4 calendar quarters. 0.080 mg/l = 0.080 parts per million = 80 parts per billion.
- Sampling locations for regulatory compliance reporting must represent maximum residence time (i.e. longest time for water to be in the system, which represents the probable 'worst case' location for TTHM conditions) per RIDOH regulations.
- Point Judith compliance reporting sampling location is U.S. Coast Guard Light House Station, 1460 Ocean Road, March (Q1) 2021 sample was 0.0647 mg/l, LRAA (Q2 2020 thru Q1 2021) was 0.0818 mg/l (1.8 parts per billion above regulatory compliance MCL)
- Results for non-reporting sample locations in the Point Judith system were below the regulatory compliance MCL as follows:
 - SUEZ connection 106 Point Judith Road – Q1 sample result 0.0456 mg/l, LRAA 0.0485 mg/l
 - Kinney Avenue tank 1 Old Point Judith Road – Q1 sample result 0.0507 mg/l, LRAA 0.0688 mg/l
 - Point Judith tank 1075 Point Judith Road – Q1 sample result 0.0498 mg/l, LRAA 0.0650 mg/l
- North End (SUEZ supply area only) reporting sampling location is Coffee & Bagel Connection, 1175 Boston Neck Road, and represents maximum residence time per RIDOH regulations, March (Q1) 2021 sample result was 0.0624 mg/l, LRAA (Q2 2020 thru Q1 2021) was 0.0810 mg/l (1 part per billion above regulatory compliance MCL)
- Results for non-reporting sample locations in the North End (SUEZ supply area only) system were below the regulatory compliance MCL as follows:
 - SUEZ connection 121 West Bay Drive – Q1 sample result 0.0469 mg/l, LRAA 0.0590 mg/l,
 - North End tank 1170 Boston Neck Road – Q1 sample result for 0.0624 mg/l

Corrective Action Status 05/03/21

- Meetings were conducted with RIDOH in March 2020 and in April 2021 to review our corrective action plans, RIDOH confirmed that we are taking appropriate steps to restore compliance
- Mechanical mixer was installed at the Point Judith tank in May 2020, TTHM results improved from prior year for all subsequent samples except December (Q4) 2020
- RIDOH conducted Sanitary Survey inspections of our water systems in June 2020, no deficiencies were observed in Point Judith or North End (SUEZ supply area only) systems
- Upgraded hydraulic model to be completed and calibrated May 2021
- Water sampling to be conducted during summer conditions (early July 2021) to determine chlorine decay and TTHM formation rates throughout the water systems for input into the hydraulic model, initial modeling and assessment report to be completed by mid-August, implementation plan for improvements to be developed as appropriate based on assessment report
- Hydrant flushing being conducted April – May 2021 in both systems to remove organic material and sediment that accumulates in the water main
- Public notices are issued within 30 days of receipt of quarterly sample results if LRAA exceeds regulatory compliance MCL (we do not wait for RIDOH to issue violation notice)

Point Judith Water System
TTHM Sample Results (ug/l)¹

Sample Point	Q2 2020	Q3 2020	Q4 2020	Q1 2021	LRAA ²
ENTRY FROM SUEZ ³	38.0	68.3	42.2	45.6	48.5
PT JUDITH TANK ³	54.7	83.6	71.9	49.8	65.0
KINNEY TANK ³	58.6	91.1	74.8	50.7	68.8
PT JUDITH DBPR ₁	68.3	99.8	94.2	64.7	81.8

1 - Micrograms per liter (TTHM regulated standard = 80 ug/l)

2 - LRAA - Locational Running Annual Average

3 - Non-reporting sample location

North End Water System
TTHM Sample Results (ug/l)¹

Sample Point	Q2 2020	Q3 2020	Q4 2020	Q1 2021	LRAA ²
ENTRY FROM SUEZ ³	54.1	70.5	64.5	46.9	59.0
NORTH END TANK ³	*	*	*	62.4	62.4
NORTH END DBPR ₂	65.2	96.5	99.7	62.4	81.0

1 - Micrograms per liter (TTHM regulated standard = 80 ug/l)

2 - LRAA - Locational Running Annual Average

3 - Non-reporting sample location

* - Not sampled (LRAA = average of available results)