

Salisbury-Rowan Utilities

FAQ for Total Organic Carbon Violation Notice

1. What is TOC?

TOC stands for Total Organic Carbon. The carbon comes from organic mixtures - like soil and minerals – that are present in the Yadkin River, which is where we get the water that is treated to become drinking water. All water has naturally-occurring organic carbon and it is not toxic or harmful. We treat water to remove some of the organic carbon, but most drinking water, including bottled water, has organic carbon in it.

2. What is the TOC test?

Every three months, Salisbury-Rowan Utilities' (SRU) employees take a sample of water from the Yadkin River and a sample of water from the water treatment plant and test them both for organic carbon. We compare the amount of carbon in treated water to the amount of carbon in river water to see how much carbon was removed. This gives us what's called a "Removal Ratio." Our samples are sent out to a commercial lab. SRU (and the State) receive these results approximately two to four weeks later. This is just one of many tests we use to see how well the treatment process is working; many tests are run more frequently, some as often as every 15 minutes. As of January 2023, we are testing TOC monthly to ensure our treatment process meets water quality standards.

3. Can you explain the violation in a simpler way?

The EPA and State of North Carolina set standards related to water quality. One of those standards requires that we remove a certain amount of the naturally-occurring organic carbon that is in the untreated "raw" water from the Yadkin River. Every three months, we compare the amount of carbon in treated water to the amount of carbon in river water to see how much carbon was removed. This gives us what's called a "Removal Ratio."

To be in compliance with water quality rules, we have to have a removal ratio of at least 1.0. Our removal ratio dropped to 0.99 when the fourth quarter sample was collected.

SRU employees immediately investigated to determine why our treatment process did not meet the TOC requirements and determined that the river water had a lot more organic carbon than usual at the time of the sample. For example, there are usually about 2-3 milligrams per liter of TOC in the water before we treat it, but during the time we sampled there were almost 5 milligrams per liter before treatment.

Another factor about why the treatment process did not meet the TOC requirement was that the cooler temperature of the raw water made part of the treatment process less effective. We discovered that the treatment process could be improved by increasing the water's pH.

SRU employees made changes to the water treatment process on January 8, 2023, to meet the State requirements during the next sampling period. SRU was notified by the State (by phone) on the evening of January 23, 2023 of the pending notice of violation. SRU employees took follow-up TOC tests on January 25, 2023, to confirm the treatment changes had improved TOC removal. On January 25, 2023 our TOC removal rate was 1.07, which met the State's required removal rate. We are now sampling monthly to ensure ongoing compliance with the removal requirement of Total Organic Carbon.

4. Has this ever happened before?

No, this is the first TOC violation SRU has ever received.

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5. Why weren't customers notified before now?

SRU was not aware that the State would be issuing a notice of violation until January 23, 2023. By then, SRU employees already had made changes to the treatment process. The actual notice of violation arrived at the SRU office via U.S. Mail on February 13, 2023. As this was our first TOC notice at our treatment facility, we waited for guidance from the state on specific wording and the process for proper public notification. SRU coordinated with other city departments on the most efficient way to share the public notice with all of our customers.

6. Is/was my water safe to drink and do I need to use bottled water?

There's no need to use bottled water. We have already corrected the issue that led to the violation and follow-up water samples meet all State and Federal water quality standards.

Organic carbon doesn't cause any health effects. We reduce the amount of TOC in water because it can interact with chlorine (used to disinfect the water) and form something called "disinfection byproducts." Drinking water containing disinfection byproducts in excess of the maximum contaminant level (set by the EPA) may lead to adverse health effects, liver or kidney problems, and nervous system problems, and may lead to an increased risk of getting cancer.

7. If my water is safe, why did SRU mail out the violation notice?

State and Federal regulations require SRU to notify all customers when a drinking water standard is not met, even if the situation has already been resolved.

8. I don't live in Salisbury – why did I receive this notice?

State and Federal regulations require SRU to notify all customers when a drinking water standard is not met. Since SRU provides water to the East Spencer, China Grove, and Northeast Rowan County water systems, the notice was sent to customers in these systems as well.

9. Can you test my water?

Individual tap water cannot be tested for TOC removal, because it is based on the amount of carbon in our "raw" (Yadkin River) water compared to the amount of carbon in water at the treatment plant, sampled immediately after treatment. Although you can contact a private lab and purchase a test to check your tap water for organic carbon, it wouldn't provide any information about TOC removal.

10. Is there a way I can see the results of other water quality tests SRU performs?

We publish a Consumer Confidence Report annually; it is available online at <https://salisburync.gov/waterreport>