Audit Objectives

1. Determine if water quality levels comply with the Safe Drinking Water Act and Environmental laws.

2. Determine if customer complaints are monitored and performed on a timely basis.

3. Determine if a contingency plan is in place for incidents recorded on-site.
Audit Methodology

- Reviewed federal, state, and local Safe Drinking Water laws and the United States Environmental Protection Agency regulations and laws.
- Requested and reviewed mandatory reporting and water quality test records to ensure compliance with requirements and contaminants levels.
- Obtained and reviewed customer complaint logs to determine areas of improvement and analyzed the response time.
- Discussed and documented internal incidents process to determine if a contingency plan was in place for incidents recorded.
- Performed a tour of the water purification process at the Moore’s Bridges Treatment plant and documented the process.
Water Quality Overview

Going on 150 years of uninterrupted water delivery, the City of Norfolk obtains its raw (untreated) water from 8 reservoirs, 2 rivers, and 4 deep wells. The map below shows the location of each water source. From these sources, raw water is pumped to one of the Department of Utilities' two water treatment plants (Moore's Bridges and/or 37th Street (aka Kristen M. Lentz)) Treatment plants, where it is filtered and disinfected. Once tested to meet water quality standards, Norfolk's drinking water is pumped on demand to the customer's tap, including customers in Virginia Beach and Chesapeake (serviced through the Lake Gaston pipeline, owned by the City of Norfolk).
In town reservoirs hold 2 billion gallons of water.

Western reservoirs hold 13 billion gallons of water.

Nearly 87,000 annual water quality tests were conducted from reservoirs, treatment plants, homes and distribution systems.

50% of bottled water is repackaged tap water.

36 ounces of water is needed to produce one 12-ounce plastic water bottle.

Bottling water produces 2.5 million tons of carbon dioxide yearly.

One billion dollars of plastic is dumped in U.S. landfills every year.
Water Quality Statistics

Raw Water Consumption (over 10 years)

|------|------|------|------|------|------|------|------|------|------|------|

FY2021

- *21,156,180* Raw Water Consumption (in '000)
- *19,384,252* Total Water Consumption (in ‘000)
- *587,930* Capital Assets
- *57,960* Avg Daily Delivery
- *67,514* Water Customer Accounts
- *50,320* Min Daily Pumpage
- *72,090* Max Daily Pumpage

*(gallons in thousands)*
Water Quality Achievements

✓ Department of Utilities won in 2015 and 2019 the Virginia Top Ops competition, a jeopardy-style trivia contest to determine who has the most knowledgeable operators in the state. Winners then competed in the nationals.

✓ Department of Utilities received the HRSD (Hampton Roads Sanitation District) platinum award for perfect compliance with wastewater discharge permit for 6 consecutive years.

✓ Department of Utilities received VDH Virginia Optimization Program award for excellence in filtration for 7 successive years.
Water Quality Achievements (continued)

Norfolk wins prize for best-tasting tap water in Virginia

Utilities won top prize in “Best of VA Tap Water Taste Test” at the 2021 Water Works Association Distribution System Rodeo in VA Beach.

Water Samples were judged by:
1. Clarity
2. Odor
3. Flavor
4. Aftertaste

Norfolk is now eligible to represent the Commonwealth in the national American Water Works Association ACE Conference in June 2022.

Expert panels rated Norfolk as the best tap water from across the state.

NORFOLK, Va. - The City of Norfolk reportedly has the best-tasting water in Virginia.

Photo by: Ryan Bead/Scirpps National News Team

By: Web Staff
Posted at 6:05 PM, Oct 09, 2021 and last updated 12:59 PM, Oct 10, 2021
Water Quality Certifications FY19-21

Certified Environmental Laboratory

City of Norfolk
Office of the City Auditor
Management Response - Internal Discrepancies

Recommendation #1

Management ensures Corrective Action forms are kept in a secure location via a system database (i.e., WADS) or division drive to ensure records are maintained and easily accessible.

Finding #1

During a walkthrough of the Moore's Bridges water treatment plant, we noticed the WADS system database did not track Corrective Action forms, used to document discrepancies when testing water internal process controls. Management manually documented forms and stored them via a manual binder that can be inaccessible or destroyed in an emergency or fire.

Management Response:

All discrepancies are documented on a "Corrective Action" form. WQ prints the completed "Correction Action" form, documents a resolution for each corrective action, and collects the signatures of responsible personnel. The completed forms are stored in the secure fire-proof laboratory location. WQ will ensure the completed "Corrective Action" documents are scanned into the secured H2OLAB folder on the (K:) drive to enhance current data retention practice.

Recommendation #2

Management performs a cost-benefit analysis to determine if the system database is efficient for tracking discrepancies. (i.e., what is the cost for adding corrective actions into WADS? Does the cost outweigh the benefit?)

Management Response:

The cost is losing storage space on the (K:) drive, the benefit is the documents will be housed on a protected database. The benefit outweighs the cost. Scanning the documents to the (K:) drive is efficient for tracking discrepancies.
Management Response- Customer Complaints

Recommendation #1

We recommend the Department develop a tracking mechanism to ensure complaints are adequately documented, tracked, and resolved in compliance with internal policies and practices.

Management Response:

1. The goal is to test within 24 hours of receiving a call. The Chemist works with the customer to accommodate the water test request. Samples not taken within 24 hours result from the customer scheduling them for a later date. Because the samples must be taken from inside the home, if a customer is not available within 24 hours, the Chemist will ask the customer when it will be a good time for us to come and take a sample, which could be days or weeks from the day the customer calls.

2. The samples without data cards or letters would not have a data card or letter because samples were not collected, or information was not provided by the customer. However, if the information was provided by the customer, it would be typed into WADS. Information provided is entered into the “Complaint Summary” form (see Supporting Documents attachment). Information provided to the customer is based on the FAQ’s information that is provided on the City’s website and SOP #909 (see Supporting Documents attachment).
Management Response- Customer Complaints (continued)

It appears internal procedures are not adhered to for water quality customer complaints, from receiving and documenting the complaint via data cards, entering the complaint in the WADS database, and resolving the complaint. We randomly tested 15 complaints and reviewed 93 complaints to ensure internal water quality procedures and practices were followed. We noted the following:

1. 2 of 15 samples were not tested within 24 hours per internal practices.
2. 4 of 15 samples did not have data cards per internal practices (the explanation was provided by management, but there was no supporting documentation to verify the information was accurate)
3. 42 of 93 water complaints were not sampled for water quality or indicated if the complaint was resolved.

Finding #2

Management Response:

3. To enhance the process of tracking resolved complaints, the department’s WQ division will work with the Utilities Programmer/Analyst to determine if on the WADS water quality complaints summary form an option can be added labeled “Complaint Resolved” with a drop-down option of “Yes/No” to include the date the complaint was resolved. Will also determine if an option can be added labeled “Letter Sent” with a drop-down option of “Yes/No” to include the date the letter was sent. On the complaint summary form the division will determine if the option can be added to show the date complaint is resolved and the date the letter is sent if a letter is sent. It should be noted, however, this proposed change in WADS does not confirm the previous non-compliance with the Departments’ goals and objectives, as well as with the City’s business policy, and should be viewed as an enhancement to the already established excellent customer service and creditable reputation of the Department of Utilities.
Management’s Corrective Action Response

**Corrective Action to Finding #1**

**Recommendation #1:** Management ensures Corrective Action forms are kept in a secure location via a system database or division drive to ensure records are maintained and easily accessible.

- Corrective Action forms are scanned and stored in the H2O Lab folder on the K: drive as of 4/13/22.

**Corrective Action to Finding #1**

**Recommendation #2:** Management performs a cost-benefit analysis to determine if the system database is efficient for tracking discrepancies.

- The laboratory's State Certification requires corrective actions. Our Corrective Action process has been inspected by the State auditor and approved. A physical copy that contains signatures of all personnel involved ensures that laboratory staff take ownership, implement corrections, and are held responsible to know the updated information. Signatures on the corrective action are training documentation.

**Corrective Action to Finding #2**

**Recommendation #1:** Department develops a tracking mechanism to ensure complaints are adequately documented, tracked, and resolved in compliance with internal policies and practices.

- Addition of a dated complaint ‘Resolved’ option with a yes or no check box and a dated ‘Letter Sent’ option with a yes or no check box, allows Complaint Summaries to be better documented when closed. These additions were put into effect on 5/5/22.
Governmental Auditing Standards

Compliance with GAGAS

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Statement of Independence

Norfolk City Code Chapter 11 states, the City Auditor is appointed by City Council, and employees under the City Auditor serve exclusively at the will of the City Auditor. Accordingly, the Office of the City Auditor members are independent of City Management and thus independent per GAGAS requirements.

Data Reliability

We relied on the data from the Department of Utilities WADS system and the Commonwealth of Virginia for accuracy when conducting this audit. The extent of our evaluation was dependent upon the expected importance of the data to the final report, strengths or weaknesses of any corroborating evidence, and anticipated level of risk in using the data. We determined the information provided to be reliable and, therefore, the level of risk from using this information to be low.

Internal Controls

We obtained an understanding of significant internal controls within the context of the audit objective. We assessed whether internal controls were properly designed and implemented and performed procedures to obtain enough evidence to support the effectiveness of those controls. The extent of our assessment was dependent on the Water Quality internal processes and compliance with state laws. Our results indicated some opportunities for improvements, but none of the deficiencies are considered material weaknesses.
We thank the Department of Utilities for its cooperation and responsiveness to requests during the audit.

*If you have any questions, please contact Tammie Dantzler at tammie.dantzler@norfolk.gov or 757-664-4044.*
Thank you!