The State of New Hampshire
Department of Environmental Services
Robert R. Scott, Commissioner

January 12, 2026

Kathryn Coyle
Rockingham County Complex
Brentwood, NH, 03833
via email: lmattila@co.rockingham.nh.us

Subject: Rockingham County Complex, PWS 0284010
Sanitary Survey 2025

Dear Ms. Coyle:

On September 5, 2025, the New Hampshire Department of Environmental Services (NHDES) Drinking Water and Groundwater Bureau (DWGB) conducted a sanitary survey on the drinking water system served by the Rockingham County Complex (RCC). The purpose of the survey was to review the capacity of the water system's sources, treatment, distribution, and management to continually produce safe drinking water. I would like to thank Dan Carlisle, chief water operator, and Christian Girard, operator in training, and Jude Gates, Senior Director of Facilities, Planning, & IT, for their assistance in conducting this survey.

SUMMARY

The RCC water system is operated by competent and professional operators who continue to keep a well-maintained system. The water system is in compliance with all water quality standards, including those for lead and copper.

This sanitary survey did not identify any major deficiencies. The following is a list of items that we recommend the managers of the water system consider to maintain compliance, and continue to provide an acceptable level of service to the system's customers:

1. Plan for the incorporation of chemical safety equipment at the water treatment plant (WTP).
2. Schedule cybersecurity assessments on a triennial basis and implement recommended actions.
3. Incorporate Asset Management methods into your Facilities Plan.
4. Develop a plan to replace aging meters.
5. Locate an additional bacteria sample site at the new complex building.
6. Update the 2011 NHDES sanitary survey letter located via link on your website with this one.

SYSTEM DESCRIPTION

General

The RCC water system provides domestic water to a new county building housing the county Sheriff's Department and dispatch headquarters, Department of Community Corrections, County Attorney's office, Registry of Deeds, and also maintains service to a nursing home, county jail, assisted living facility, and other offices of the county complex in Brentwood. The total population served is estimated at approximately 1,450 people. This is based upon an estimated 300 residents at the jail, 215 at the nursing home, 45 at the assisted living facility, 715 employees at all facilities, and a connection to an age restricted development of 106 residential units.

The water system consists of three gravel packed wells (GPWs), one WTP, one finished water storage tank, and distribution piping with associated piping and appurtenances.

Water Supply Sources

The average daily use has consistently been approximately 60,000 GPD. This is supplied by three gravel-packed wells (GPWs) as follows:

Source	NHDES Source ID	Well Depth (feet)	Safe Yield (gpm)	Pumping Rate (gpm)
GPW 2	002	52	150	120
GPW 3	003	63	150	120
GPW 4	006	82	151	120

GPW 4 was recently placed online in January 2026. Preliminary raw water sampling indicated that this well has very high levels of iron, above 8 mg/L. GPW 2 has slightly elevated levels of chlorides and very low levels (below regulatory limits) of PFAS contamination. GPW 3 is operated as the primary well and GPW 2 and GPW 4 act more as backup wells because of water quality. The wells are rehabilitated regularly based upon any observed decline in performance and are capable of pumping 150 gpm but are throttled back with variable speed drives due to the hydraulic limitations.

Treatment

The WTP was upgraded in 2025. Two new, six-foot diameter and 70-inch tall, greensand filter vessels with 24-inches of media, 12-inches of anthracite, and 12-inches of gravel base replaced the existing greensand filter vessels. Design flow is 120 gpm per vessel, or 4.25 gpm/square foot, operating in parallel.

The WTP uses potassium permanganate ($KMnO_4$) addition as pretreatment for removal of iron and manganese. The greensand filters are followed by two, 160-gpm ion exchange water softeners operating singly (one serves as a duty filter while the other backwashes) for hardness removal. Aeration follows for pH elevation and corrosion control prior to discharging to the 80,000-gallon clear well. Finally, soda ash (Na_2CO_3) and sodium hypochlorite (NaOCl) are injected into the high lift pump discharge piping after the clearwell.

As expressed by NHDES during the design review phase, the greensand filters may not be able to handle the full flow with GPW 4 online at such elevated levels of iron. Recommendations by NHDES included maintaining the use of the $KMnO_4$ chemical feed system for either regenerative backwashes or as the primary oxidant instead of switching to chlorine, using anthracite cap on the media (which was incorporated), or adding a third filter to reduce loading.

Chemical treatment is summarized as follows:

Chemical	Purpose	Bulk Storage	Day Storage (gal)
$KMnO_4$	Oxidation of iron and manganese	50 lb bags	50
NaOCl	Disinfection	55 gal drum	50
Na_2CO_3	pH and alkalinity adjustment	50 lb bags	Unknown

The greensand filter backwash cycle is triggered manually or when the differential pressure reaches 6 psi. The water softeners were upgraded in 2017 and operate singly and are rejuvenated automatically after each 210,000 gallons of water treated. Backwash water flows to two sludge tanks in series then to lagoons, with decant conducted to the wastewater treatment plant.

Pumps, Pumping Facilities and Controls

Typical weekly operation of the facility includes Monday and Tuesday full operation, partial operation Thursday and Friday to top off storage tank, and shutdown on weekend. The wells are activated either manually or according to the clear well level at the WTP. An emergency generator with emergency transfer switch is capable of operating any of the wells. The dual, 120 gpm finished water pumps operate in a lead/lag configuration based on pressure at the finished water tank and transfer water from the clearwell into distribution prior to filling the tank.

The existing SCADA system is not connected to the internet. Alarms including low water level, pump failure, low and high chlorine and pH at the wells, treatment plant, and are transmitted to the County's dispatch center. Chlorine and pH residual goals are 0.9 mg/L to 1.0 mg/L and 8.0 pH units, respectively.

Distribution System

The distribution system in the county complex consists of approximately 2 miles of primarily of ductile iron pipe with a small amount of pit cast iron pipe. Distribution system flushing is conducted every 3 months due to restricted cast iron main in certain sections.

The RCC has a plumber onsite and a State approved Cross Connection Control plan on file with NHDES. There are approximately 50 testable backflow prevention devices within the complex which are tested by county personnel twice annually. There is a separate fire-fighting water system which draws from an impoundment on Ice Pond Brook. However, there is no connection with the potable water system.

According to the operator, the master meters are calibrated annually. Service meters are installed on every building and read monthly. The operator indicated that some of the service meters are over 20 years old. Typical life expectancy for service meters is 10 years.

Finish Water Storage

System storage is provided by a 500,000-gallon elevated steel tank constructed in 1979. The tank exterior (only) was painted in 2017 and the tank was last inspected in 2024.

Monitoring, Reporting, and Data Verification

Water quality monitoring records show that the system is in compliance with current standards including compliance with bacterial standards, and action levels for lead and copper.

Water System Management & Operations

The operators are very knowledgeable of the components of the water system. Staff have located most of the water distribution components via GPS locator and developed a work-in-progress map of the system. The RCC does not have a traditional Asset management Program, but developed a similar Facilities Plan to evaluate the capacity and condition of all the components of the water system. This document help the managers identify current water system infrastructure limitations and identify what improvements are most needed both on an annual and a five-year basis.

A triennial cybersecurity assessment is a new NHDES DWGB requirement due to risks that are very real in the drinking water industry. The RCC performed an assessment in 2025.

Staffing and Operator Certification

The RCC is required to have operators certified at the Grade 2 treatment and Grade 1 distribution levels. The department employs two operators who are certified as follows:

Operator	Certificate No.	Treatment Level	Distribution Level
Daniel Carlisle III	3023	II	I
Mark Pettingill	2781	-	I

A technical worker is also onsite 24-hours per day to be available as needed. Also, in addition to the operators listed, Christian Girard is currently an operator in training for the RCC.

ACKNOWLEDGEMENTS

We commend the RCC for upgrading treatment and installing a new well to maintain sufficient capacity to treat and supply safe drinking water to the community. The RCC maintains efficient operations and has quality management of the system.

RECOMMENDATIONS

Below are areas where improvements or operating adjustments are recommended, some of which could lead to significant deficiencies in the future if not addressed:

Treatment

1. The WTP contains several hazardous chemicals when they come in contact with skin and/or eyes. Emergency showers, washdown stations, or at the very minimum portable eyewash bottles are standard safety equipment that should be considered for installation at all locations where chemicals are stored or injected.

Water System Management and Operation

2. Under the Water System Management and Operation element of the sanitary survey, NHDES requires systems to have a cybersecurity assessment performed regularly. The current standard is to have an assessment a minimum of every three years. NHDES DWGB is not privy to the results of the assessment but will ask the system to confirm if the provided recommendations are implemented. Cybersecurity risks are a substantial threat to both public health and the system's financial assets. Most importantly, the **risks are real** for any size system. If you would like more information on anything cybersecurity related, please contact Brenda Leonard at mailto:brenda.j.leonard@des.nh.gov or tel:+6032710867.
3. NHDES recommends incorporation of asset management methods into your Facilities plan. Asset management programs are built to help get the most value from each of your assets and have the financial resources to rehabilitate and replace them when necessary, helping to achieve and maintain the desired level of service at the lowest appropriate cost. This begins with an inventory of all above grade and below grade assets, performing a condition assessment and life expectancy for each asset, developing a cost of replacement, and prioritizing replacements. An asset management plan could also incorporate water service meters. Contact Kaitlin Curits at mailto:kaitlin.e.curtis@des.nh.gov or tel:+16032712472 to learn more about asset management.

Distribution System

4. The typical life expectancy for older service meters is 10 years, with newer technology lasting closer to 15 years. With some service meters over 20 years old, we suggest that these meters be budgeted for replacement. Older meters slow down, sometimes completely stopping, creating a larger discrepancy in water balance and a loss of revenue. Meter replacement should be included in any asset management initiative.
5. The addition of the Rockingham County Municipal Building creates the need for an additional sampling location for the system. We recommend that the RCC review its sampling locations and add a bacteria sampling site as necessary to help protect every customer.

General

6. The RCC website links the 2011 NHDES sanitary survey letter. We would recommend removing or updating with the latest survey letter.

If you have any questions please contact me at mailto:Randal.A.Suozzo@des.nh.gov or tel:+16032711746.

Sincerely,

Randal A. Suozzo

Randal A. Suozzo, P.E.
Drinking Water and Groundwater Bureau

ec: Jude Gates, Dan Carlisle; RCC