



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner



December 8, 2015

via E-mail

COLIN ROBERTSON
DOCKHAM SHORES ESTATES WATER CO
361 WEIRS RD
GILFORD NH 03249

Subject: CWS: GILFORD: DOCKHAM SHORES ESTATES: PWS # 0882190
SANITARY SURVEY

Dear Mr Robertson:

On November 23, 2015, the New Hampshire Department of Environmental Services, Drinking Water & Groundwater Bureau (DES) performed a sanitary survey inspection of the subject public water system (PWS) pursuant to RSA 485 and Env-Dw 717 and 720. Under these statutes and rules, DES has the responsibility and authority to conduct sanitary surveys of public water systems in New Hampshire.

A sanitary survey consists of a physical review of the main elements of the water system to verify its capability to reliably produce safe drinking water. The eight sanitary survey elements evaluated are: well sources, treatment, distribution, storage, pumping, data records, management and operations.

In attendance at time of the inspection: Amy Rousseau, DES Sanitary Surveyor
Colin Robertson, Dockham Shores Estates Water Co.

SIGNIFICANT DEFICIENCIES

Pursuant to Env-Dw 103.52, a significant deficiency is one that "...can directly and adversely affect a public water system's water quality or that can reduce the water system's reliability and ability to deliver safe drinking water to its customers...". During the survey, the significant deficiencies listed below were observed.

- **Atmospheric Tank Emergency Fill Pipe** - All community water systems with atmospheric storage are required to have the means of accepting an emergency bulk water delivery in the event of pump failure, distribution piping leaks etc. The atmospheric storage tank should be equipped with a capped filler pipe (lockable, if on the exterior) to accommodate water delivery by tank truck. Currently, the filler pipe is covered with a torn caeren that can allow the potential entry of contaminants (dirt, water, insects, snakes, rodents, etc.) into the tank.

www.des.nh.gov

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In order to avoid a violation: within 30 days of the date of the sanitary survey, all significant deficiencies must be corrected or have a Corrective Action Plan (CAP) submitted to the Department for approval. A CAP identifies the work that will be performed, along with a time frame by which the work will be completed.

Env-Dw 717.21 requires that the PWS owner notify us in writing upon the correction of significant deficiencies. Notification must be made within 30 days of completing the corrective action. We request that you provide a photograph with your submittal. Notifications by email submittals are preferred but not required.

SYSTEM DESCRIPTION

Dockham Shores Estates obtains its water from two bedrock wells. Bedrock well # 1 (BRW 1-001), located 50 feet north of bedrock well # 2 is 295 feet deep and yields 30 gallons per minute. The well casing is six inches in diameter and is 42 feet in length. Bedrock well # 2 (BRW 2-002), located 1,000 feet west of the pump house, is 290 feet deep and yields 50 gallons per minute. That well casing is also six inches in diameter with an unknown length. The wells are located about 250-300 feet off Route 11B, out behind house #375. At this site there is a wooden boxed electrical panel, a metering pit, and a yard hydrant source sampling faucet for each well.

Water is pumped from the two bedrock wells, through the metering pit, past the source sampling tap yard hydrants, and over to the underground pump house located on the corner of Margaret Way and Robertson Drive. In the pump house, water passes through ultraviolet radiation for disinfection and a cartridge filter for particulate removal prior to entering a 16,000 gallon atmospheric storage tank. Duplicate 5 HP variable frequency drive booster pumps transfer water to a WellxTrol WX-251 (62 gallon) pre-charged pressure storage tank followed by a DEP sample tap. Treated water is distributed to 60 single family residences serving approximately 150 people.

SANITARY PROTECTIVE AREA

All public water supply system wells require a sanitary protective area (SPA) or protective well radius, under the control of the well owner, within which no septic tanks, leach fields, oil, debris or other hazardous materials may be located or stored. The SPA for your water system is a 200' radius around the well. Currently, the area contains residences 165' from the well heads. Per Env-DW 406.12 (f), permanent buildings are an acceptable use of the SPA and will not be sited as a significant deficiency.

The water system's potential for reduced monitoring and future waivers from a portion of its chemical monitoring requirements shall be diminished by the location of buildings, roadways, parking lots, and other such construction within the well's protective radius.

OPERATOR CERTIFICATION VERIFICATION

Required Certification Grade(s) For Water System: D / T 1A

<u>System's operator:</u>	<u>License #:</u>	<u>Certification Grade (s):</u>
Colin Robertson	863	D 11, T 1

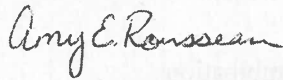
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FUTURE CONSTRUCTION OR EXPANSION

Be advised that, under RSA 485:8 (Approval of Construction or Alteration), no new construction, addition or alteration involving the source, treatment, distribution or storage of water in any public water supply system can begin without approval by the Department.

In addition to any significant deficiencies listed above, enclosed are recommendations for system improvements. The ownership and operation of a public water supply system involve many significant responsibilities. Our main concern is to protect the public health. It is also our intention to work with you in solving any water related problems that your system may have. Should you have any questions, please contact me at 603-271-0893 or by e-mail at amy.rousseau@des.nh.gov.

Sincerely,



Amy Rousseau
Drinking Water and Groundwater Bureau

Enclosed: Recommendations for System Improvements

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RECOMMENDED SYSTEM IMPROVEMENTS

The following recommended system improvements and operation and maintenance procedures are noted below to assist you in improving the water system's reliability in providing water to its users.

Frost Free Yard Hydrants

Your water system was observed to include frost free hydrants (stop and waste valves) at the well heads for obtaining source samples from each of your two wells. Beginning July 2011, the NHDES, with reference to the International Plumbing Code (IPC) recognizes such a fixture as a cross connection, and the distribution system would need to be protected with an appropriate backflow device. **The following excerpt is from the 2015 IPC:**

608.7 Valves and outlets prohibited below grade. Potable water outlets and combination stop and waste valves shall not be installed underground or below grade. Freeze proof yard hydrants that drain the riser into the ground are considered to be stop-and-waste valves.

Exception: Freeze proof yard hydrants that drain the riser into the ground shall be permitted to be installed, provided that the potable water supply to such hydrants is protected upstream of the hydrants in accordance with Section 608 and the hydrants are permanently identified as nonpotable outlets by approved signage that reads as follows: "Caution, Nonpotable Water. Do Not Drink".

The NHDES is currently advising systems of the risks associated with these fixtures and recommending that systems consider alternative fixtures. NHDES is also researching policies used by other states relative to the prohibition of such devices in the distribution system and may develop a policy for prohibiting these fixtures.

Gate Valves

To ensure that gate valves are in working order, routine maintenance and exercising are required. Frequently, in older systems, there is an inadequate knowledge of valve location, or if known, these valves have become inaccessible due to subsequent construction, (i.e. buried under roadways). This makes routine maintenance impossible and greatly slows down emergency response. If a break occurs in a water main, crews must first locate nearby valves before they can shut the section down. This increases both the amount of time that the system is inoperable and the danger of extensive contamination to the system.

It is therefore recommended that routine valve inspections be conducted once a year in which the following tasks are performed:

1. Verify the exact location of all valves boxes.
2. Inspect the valve stem and nut for damage and possible leakage.
3. Close the valve fully, and record the number of turns to the fully closed position.
4. Reopen the valve and reestablish flow.
5. Clean the valve box cover seat.

Attachment A

Records should be upgraded to include a means to easily identify the location of all valves. Records should also include measurements from at least two reference points, the type of valve, and the number of turns required to open or close the valve.

Flushing

Distribution systems are normally flushed once a year through the blow-offs. In some water systems, the flushing must be done more often to keep sediment and sand in the piping under control. The flushing should be done during time of minimum water use. The frequency of flushing should be such that it prevents legitimate consumer complaints. Each gate valve on the water system should be turned annually to counteract mineral buildup and the subsequent jamming of the valve.

Leak Detection Survey

At least once a year the system should be checked for leakage. This can be accomplished in the following way. The water system's customers should be asked not to use any water between midnight to 6:00 A.M. on a particular evening. The water system operator should check system usage during this period by noting the usage on the meter or any change in the water level in your vented storage tanks (supply sources turned off). If there is any significant system demand, this can be attributed to leakage.

It is important to note that the force from this leakage sets in motion sand particles in the soil that will abrade the general area of the pipe ultimately to the point of total failure. The noise of this running water can normally be heard through the use of geophones, even though the leak has not surfaced. Intermediate and larger municipal water systems in your area likely have geophones and may be willing to loan them to you. If not, please contact our office for a list of contractors with this or more specialized types of equipment.