

Amended
WATER CONSERVATION PLAN
SOUTH WEARE WATER ASSOCIATION
WATER SYSTEM

EPA # 2452030

Weare, New Hampshire 03281

September 2011
Amended January 10, 2012

System Overview:

The South Weare Water Association (SWWA) operates a joint Community Water System (CWS), formerly being two separate systems. The Hoit Mill and South Weare Mobile Home Park are located north of Route 114 in the Town of Weare. The Water Association's system presently serves 41 mobile homes at South Weare Mobile Home Park and 17 apartment units and 21 single family manufactured homes in Hoit Mill. The water system will not be enlarged beyond the 78 existing units.

The South Weare Water Association had three (3) active bedrock wells prior to 2011. Well No. 1 is a 1,025 foot deep bedrock well, Well No. 2 is a 1,205 foot deep bedrock well, and Well No. 3 is a 1,105 foot deep bedrock well. New Well No. 4 is 1,500 feet in depth. The general water system layout consists of the four bedrock wells, the Hoit Mill Pump House and distribution system, the South Weare Mobile Home Park Pump House and distribution system, and the 2-inch PVC transmission main which connects the Hoit Mill distribution system to the South Weare Mobile Home Park Pump House. All well water is metered at the Hoit Mill pump house and is stored in a buried 10,800 gallon steel atmospheric storage tank. Arsenic removal equipment is provided for Well No. 3 and Well No. 4. Water is boosted to the distribution system via twin, 5 h.p. booster pumps. Excess pressurized water is stored in an 1,800 gallon hydropneumatic tank. The system operates on a demand basis. Floats control well pump operation, and pressure controls booster pump cycling.

The 2-inch PVC water main connecting from the 4 inch water distribution main in Hoit Mill is controlled to automatically provide a 12-15 gallon per minute (gpm) flow of water to South Weare MHP Pump House. A flow control valve, solenoid control valve, and 1-inch water meter were installed on the new water service to the pump house. Floats in the South Weare MHP Pump House are used to open and close the solenoid valve. The flow control valve maintains a 12 to 15 gpm flow into the 20,000 gallon buried steel atmospheric storage tank. Water is boosted to the South Weare MHP via twin, 5 h.p. booster pumps. Excess pressurized water is stored in a 2,800 gallon hydropneumatic tank. This system operates on a demand basis. Floats control the solenoid valve on the 2 inch PVC supply line, and pressure controls booster pump cycling.

The Source Capacity required for the water system has been calculated as 46,800 gallons per day (32.5 gpm). In ground irrigation / lawn watering is not allowed. The 1997 Source Capacity is based upon 156 bedrooms at 150 gallons per bedroom per day. The 78 units require an average flow of 16.25 gallons per minute (gpm) based on 24 hours. The minimum total well capacity based on a 2.0 Safety Factor is 32.5 gpm. The existing well capacity in 1997 was Well No. 1 (14 gpm), Well No. 2 (7.5 gpm), and Well No. 3 (15 gpm). The well yields of 36 gpm have fallen significantly since 1997 to less than 10 gpm. Well No. 4 was drilled to supplement the existing three (3) bedrock wells.

The Preliminary Well Siting Report for new Well No. 4 was approved by the NHDES DWGB on May 13, 2011. The 48 hour pump test for new Well No. 4 was completed on August 5, 2011 and the final report was submitted to the NHDWGB on September 7, 2011. Bedrock Well No. 4 has

a pumping capacity of 3 gpm. All of the wells have a 200-foot sanitary protective area. Existing Bedrock Wells No. 1, 2, and 3 will continue to provide water to the two communities.

The plan outlined below addresses the requirements of the NHDES Water Conservation Plan.

Project Owner.

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Project Contact

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Company: **South Weare Water Association**
Phone Number: 603-529-0612

In accordance to NHDES Administrative Rule EnvWq 2101.04, Water Conservation Rules, South Weare Water Association will conduct the following water conservation measures subsequent to approval of the new bedrock well.

The South Weare Water Association Water System will include four (4) bedrock wells:

- Total Source Capacity Required under Env-Ws 372 46,800 gallons (32.5 gpm)
- Average Daily water has been calculated at 23,400 gallons per day (16.3 gpm).

Source Meters:

The meters for Well No. 1, Well No. 2, and Well No. 3 were originally positive displacement meters. The positive displacement meters were in service for more than 10 years, and were recently replaced with 1-inch turbine type water meters (GPI Model 01N31GM) meters manufactured by Great Plains Industries of Wichita, Kansas. The same meter was placed on Well No. 4.

- Raw water from Well No. 1 and Well No. 2 will be metered prior to the 10,800 gallon steel atmospheric storage tank in the Hoit Mill Pump House.
- Raw water from Well No. 3 and Well No. 4 will be metered prior to the required arsenic removal equipment at the Hoit Mill Pump House.
- Source meters will be tested or replaced every 5 years per AWWA Standards.
- The source water meters will be selected, installed and maintained as described in "Manual of Water Supply Practices, Water Meters Selection, Installation, Testing and Maintenance", document identification number AWWA M6, 1999 as required by (Env-Wq 2101.04 (d)).

Leak Detection Program:

South Weare Water Association is choosing to implement a leak detection program using discharge meters, rather than implementing a metering and water auditing program.

The distribution system consists of 4-inch and 2-inch PVC water main with ¾-inch and 1-inch domestic services. Information on the location of water mains and services within Hoit Mill and the South Weare MHP is limited. The as-built drawing for the 2-inch transmission main from Hoit Mill to the South Weare MHP Pump House is available.

The leak detection program will use distribution meters installed in the Hoit Mill and South Weare MHP Pump Houses. The Hoit Mill distribution meter will record all water entering the Hoit Mill System and the transmission main to the South Weare MHP Pump House. The South Weare MHP distribution meter will record all water entering the South Weare MHP distribution system.

- A data recorder and a compatible 1 ½ -inch positive displacement water meter will be installed on the discharge side of the two (2) 5- hp booster pumps in the Hoit Mill Pump House within 3 years of the date of the Water Conservation Plan approval. The data recorder shall record all of the water entering the South Weare Water Association water system ever 24 hours. The data recorder will also record water usage during the late overnight hours (1am-3am) at a rate of at least 1 reading every 5 minutes to determine if there is unusual high flow at those hours.
- A data recorder and a compatible 1 ½ -inch water meter will be installed on the discharge side of the two (2) 5- hp booster pumps providing pressurized water to the South Weare Mobile Home Park within 3 years of the date of the Water Conservation Plan approval. The data recorder shall record water usage for the 41 units in the South Weare MHP every 24 hours. The data recorder will also record water usage during the late overnight hours (1am-3am) at a rate of at least 1 reading every 5 minutes to determine if there is unusual high flow at those hours.
- Distribution meters will be tested or replaced every 5 years per AWWA Standards.
- The distribution water meters will be selected, installed and maintained as described in "Manual of Water Supply Practices, Water Meters Selection, Installation, Testing and Maintenance", document identification number AWWA M6, 1999 as required by

(EnvWq 2101.04 (d)).

- The make, model, and size of the proposed distribution meters and data recorders to be installed will be submitted to DES for review and approval prior to installation.
- The flow information on the data recorders must be downloaded and stored on a computer and compiled monthly.

Night Flow Analysis:

As part of the Leak Detection Program; South Weare Water Association will retain the services of a trained professional to conduct an initial acoustical leak detection survey, and to prepare a water system map showing the location of water mains, mainline valves and service boxes within. The leak detection survey will be performed within 3 years of the date of the Water Conservation Plan.

- Any leaks found during the survey will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.
- Leak detection will be conducted in accordance with “Manual of Water Supply Practices M36, Water Audits and Loss Control Programs” (American Water Works Association, 2009).
- Once leaks found during the initial Leak Detection Survey have been repaired, a baseline flow will be determined at the two (2) pump houses by recording water usage between the nighttime hours of 1 AM and 3 AM for a week at a rate of at least 1 reading every 5 minutes. The nighttime water usage of the South Weare MHP (System No. 2) will be subtracted from the nighttime water usage coming from the Hoit Mill Pump House (Total System) to determine the nighttime water usage for the Manufactured Homes and the Apartment Building (System No. 1).
- For the first year; the nighttime water usage (7 day period) for System No. 1 and System No. 2 will be measured, downloaded and analyzed each month. The 12 consecutive months of nighttime flow data for each System will be analyzed to determine the baseline for comparison.
- Once baseline flows are established, values triggering further leak detection efforts will be established for nighttime water usage for either System above the nighttime baseline for that System based on .
- Once 1 year (12 consecutive months) of data for both Systems has been obtained, readings will continue at a rate of at least 1 reading every 15 minutes between 1AM and 3AM. Data will downloaded and analyzed monthly. Baseline flows will be compared to actual flows to determine if the difference falls within leak detection trigger values and further analyzed for patterns of flow.
- If analysis indicates leak detection is warranted, a visual inspection will be completed first. If the leak is not found; a leak detection professional will be brought in to find the leak.
- Any leaks found by the leak detection professional will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.

Pressure Management:

The water system was designed consistent with water system industry standards and regulation and consistent with other public health and safety considerations in regards to minimum and maximum operating pressures as required by (EnvWq 2101.04 (n)). Pressures in the system range from 50 to 80 psi.

Intentional Water Loss:

The water system does not intentionally allow for water loss using bleeders or the intentional overflow of atmospheric storage tanks.

Educational and Outreach Initiative:

- SWWA will distribute water conservation literature from NHDES and AWWA to its residents at least twice a year. The educational literature will be distributed with bills to the water users.
- SWWA will also post literature regarding water conservation practices at the bulletin board at the mailboxes for the South Weare MHP and the bulletin board at the apartment building laundry room.

Water Use Restrictions:

South Weare Water Association CWS presently has limited water available for uses other than domestic. Water use restrictions have been in place and will continue to be enforced by the SWWA Board of Directors.

- All water use within the SWWA is monitored and controlled by the SWWA Board of Directors. Fines for illegal water uses will be levied by the SWWA Board of Directors.
- Washing of motor vehicles including cars, camper trailers, recreational vehicles, and farm vehicles is not allowed at any time.
- Sprinkler systems / lawn irrigation is not allowed. Gardens may be watered by hand a maximum of 15 minutes per day.
- Pressure washing of homes is allowed once a year.
- Swimming pools may not be filled or replenished using water provided by the SWWA. Homeowners must provide a receipt from a pool water company for all water used to fill or replenish swimming pools.
- Inspection of each water service entrance is required prior to November of each year for adequate insulation and operation of heat tapes.
- Homeowners shall monitor and repair leaks and running toilets in their homes to conserve water.

Reporting and Implementation:

- SWWA CWS will submit a report form supplied by the NHDES once every 3 (three) years documenting how compliance with the requirements of Env-Wq 2101 are being achieved.
- Activities outlined in this water conservation plan will be completed by the South Weare Water Association under the supervision of the water system certified operator.

Public Notification:

- Within seven days of submitting the conservation plan to DES, the applicant shall provide a copy of the application and report via certified mail to the Town of Weare Administrator, and the Southern New Hampshire Regional Planning Commission located in Manchester. The Town of Weare and the Southern New Hampshire Regional Planning Commission may provide the NHDES with written comments regarding the application within 21 days of receipt.
- The information provided to the Town of Weare will include a summary of the requirements of Env-Wq 2101 and will request that the Town of Weare amend local site planning requirements to reflect the requirements of Env-Wq 2101 or to promote water efficiency.
- Signed copies of the Certified Mail Return Receipts (the green card) will be forwarded to NHDES.