The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

October 20, 2015

AMENDED
WATER CONSERVATION PLAN APPROVAL

Donald Ware
Pennichuck Water Works Inc
25 Manchester St., PO Box 1947
Merrimack, NH 03054

Subject: **Amherst, Souhegan Woods (PWS ID: 0072070)**
Instream Flow Program – Water Conservation Plan

Dear Mr. Ware:

On June 2, 2014, the New Hampshire Department of Environmental Services ("DES") received a Water Conservation Plan (the "WCP"), signed on June 2, 2014, for the Souhegan Woods community water system located in Souhegan, New Hampshire. Pursuant to RSA 483:9-c and Env-Wq 1900, Protection of Instream Flow on Designated Rivers, Souhegan Woods is an affected water user on the Souhegan River and is required to implement a water management plan. The submitted WCP is part of the water management plan.

This Amended Water Conservation Plan Approval is being issued as condition #2, below has been amended.

DES approves the WCP based on the following conditions, to be implemented no later than the date of this WCP Approval, unless otherwise noted:

1. Meters shall be installed on all existing and new sources, water consuming processes prior to distribution unless otherwise stated in the WCP, and transfers.

2. All source meters, distribution meters, and any other meters measuring water consuming process prior to distribution shall be read on a monthly basis.

3. All meters shall be tested and maintained, as proposed in the WCP. Specifically, source meters shall be tested and calibrated every two years and service meters shall be tested and calibrated every 10 years.

4. All meters shall be installed per the manufacturer's instructions or American Water Works Association standards.

5. Service meters shall be read on a quarterly basis.

6. Customers shall be billed on a quarterly basis.

7. Residents shall be charged based on the amount of water each residence uses and the rate shall be structured so that the cost per gallon(s) is either constant or increasing with the amount of water used.

8. A water balance, the difference between the system input volume and the metered authorized consumption, shall be reported annually to DES. The water balance shall be reported by March 1 for the prior year using the online reporting tool.

9. Leaks shall be repaired within 60 days of discovery.

10. An outreach and education program shall be implemented as proposed in the WCP. Specifically, water efficiency materials shall be included in mailings once to twice a year.

11. Monthly production volumes shall continue to be reported to the DES Water Use Registration and Reporting Program on a quarterly basis.

12. Every three years from the date of this WCP Approval, a *Water Conservation Plan Ongoing Compliance Reporting Form* shall be submitted to DES documenting how the system has maintained compliance with the WCP. The following records shall be maintained by the water system to include with the report:

    a. A leak log including the date a leak was discovered, the date a leak was repaired, the type of leak (ex. water main, service line, hydrant, valve), the approximate size of the leak (gpm), and the nearest address to the leak.

    b. The title of water efficiency materials distributed and the date of distribution.

    c. Date of installation and replacement of all meters, as well as testing and calibration records.

13. Revisions to the Plan shall not be implemented without further approval from DES.

The online *Annual Water Balance Reporting Form* and the *Water Conservation Plan Ongoing Compliance Reporting Form* may be located by going to the DES website, www.des.nh.gov, clicking on the "A-Z List" in the top right corner of the page, and scrolling down to Water Conservation

Sincerely,

Wayne Ives
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Sincerely,

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NHDES Water Use & Conservation
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Report Form for
Water Conservation Plans

Small Community Water Systems

February 2014

PROJECT NAME: Souhegan Woods Community Water System

TOWN/CITY: Amherst, NH **DATE:** 6/2/2014

EPA ID #: 0072070

I. Introduction

A. Contact Information

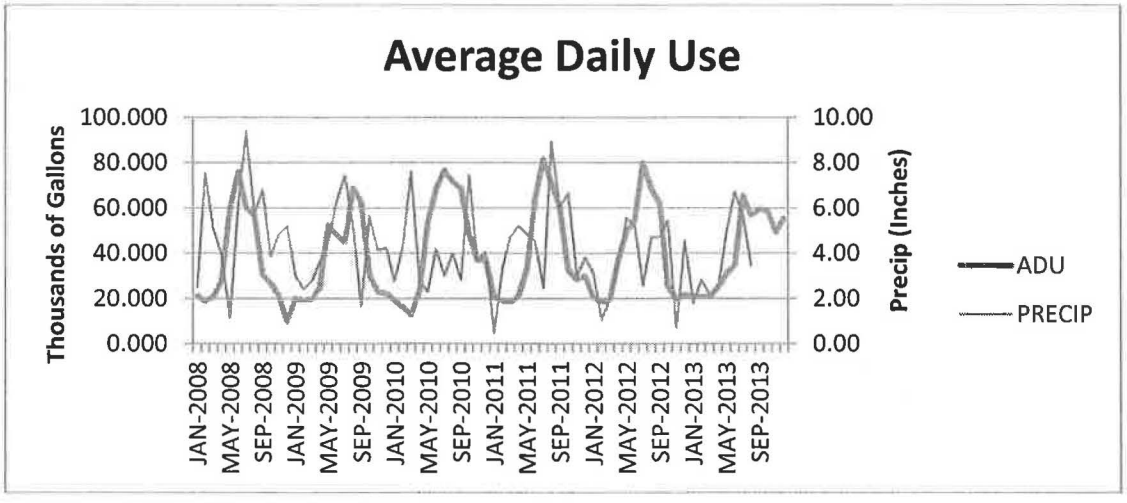
1. Name and location of system: **Souhegan Woods CWS, Amherst NH**
2. Owner of system and mailing address: **Pennichuck Water Works**
   PO Box 1947, Merrimack, NH 03054
3. Name and mailing address of designer of the water conservation plan:
   Victoria Hawkes, Water Supply Engineer
   Pennichuck Water Works
   PO Box 1947, Merrimack, NH 03054

B. System Overview

1. Reason for new source: **Souhegan Woods CWS is developing a Water Conservation Plan because it is part of the Instream Flow Program for the Souhegan River**
2. Number of connections existing and proposed for each of the following classes:
   a) Residential; **116**
   b) Industrial/commercial/institutional; **0**
   c) Municipal: **0**
3. Description of any connections that currently receive or will receive more than 20,000 gpd: **There are no connections that receive over 20,000 gpd.**

C. Water Use Trends and Supporting Data / Population Trends

1. Existing, if applicable, and anticipated seasonal fluctuation in water use and reason for fluctuation**: Water demand is higher in the summer months due to increased water demand for lawn irrigation. Historically, the well pump runs about 5 hours per day during the winter months with a low of approximately 20,000 gallons per day and approximately 17 hours a day during the summer months with a high of approximately 70,000 to 80,000 gallons per day. It is expected that this pattern will continue.**



2. Anticipated growth in population and seasonal fluctuations in population: **The development Souhegan Woods CWS provides water to is fully developed so a growth in population is unlikely. In addition, the homes are typically four season homes so there is a low anticipated seasonal population fluctuation.**
3. Maximum day yield of existing sources based on 24-hour pumping.
4. Average daily water use: **2010-2013 50,000gpd.**

WATER USE REGISTRATION & REPORTING DATA SUMMARY						
YEAR	TOTAL ANNUAL PUMPAGE	PURCHASED FROM MVD	TOTAL WATER USE BY QUARTER (KGAL) pumpage and purchased from MVD			
			Q1	Q2	Q3	Q4
2008	13,160.62	-	1,856.00	4,970.06	4,558.88	1,775.68
2009	13,323.16	242.35	1,775.49	3,824.26	5,438.54	2,527.23
2010	16,287.27	3158.06	1,649.61	4,725.60	7,765.66	5,304.45
2011	14,699.25	2286.64	1,757.26	3,581.87	7,989.97	3,656.78
2012	14,583.77	4725.12	1,847.47	4,313.00	8,542.00	4,606.41
2013	15,234.28	6633.26	1,909.59	2,766.72	8,753.74	8,437.49

5. Maximum daily water use: **1998-2008 is 111,167 (August 2001)**

WATER USE REGISTRATION & REPORTING DATA SUMMARY					
WATER YEAR	AVERAGE DAILY USE BY SEASON (KGAL)			PEAK	
OCT-SEP	WINTER	SUMMER	CHANGE	MONTH	CHANGE
07-08	22.250	56.763	155.1%	74.795	236.2%
08-09	20.280	55.432	173.3%	69.868	244.5%
09-10	21.016	67.843	222.8%	77.976	271.0%
10-11	28.893	62.175	115.2%	83.136	187.7%
11-12	26.727	62.847	135.1%	81.198	203.8%
12-13	22.137	49.450	123.4%	66.744	201.5%

D. Source Meters
   1. Name designation of each water source: **Well 1 meter**
   2. Meter make, model, size, flow range, and date of last calibration for each existing source meter: **4" Neptune HP Turbine Meter, 10-1200 gpm, last calibrated on January 30, 2013**
   3. Meter make, model, size, and flow range for each new water source (if known): **N/A**
   4. Frequency that source meters will be tested/calibrated: **Every 2 years**
   5. Frequency that source meters will be read (at least every 30 days): **Monthly**
   6. Source meters are selected, installed, and maintained in compliance with "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance,"(American Water Works Association, 1999).

E. Water Consuming Processes and Distribution Meters

1. Does the system include water consuming processes prior to distribution into the water system? If so, what processes? **The station has a pH analyzer that consumes water. The waste water from the analyzer is piped to a drain in the station.**
2. If the system does include water consuming processes, to determine the amount of water input to the water system will the processes be metered or will a distribution meter be installed? **The amount of water consumed is minimal and therefore is not metered. Station operators can estimate the amount of water loss from the analyzer.**
3. Frequency that meters will be read (at least every 30 days): **Meters will be read monthly.**
4. Meters in this section will be selected, installed, and maintained in compliance with "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance,"(American Water Works Association, 1999).

II. System Side Management

A. Option A: Metering and Water Accounting

1. Service Meters
   a) How many un-metered connections exist? **0**
   b) Will separate irrigation meters be installed? **No**
   c) Frequency that service meters will be read (at least every 90 days): **Monthly**
   d) Description of all methods that will be used to read service meters: **Service meters are read using a drive by radio meter.**
   e) Expected number of days needed to read all service meters: **Less than one day**
   f) Proposed rate of meter testing and/or meter change out: **Residential meters are less than 10 years old. Typical residential meters are 5/8" Neptune meters. Residential meters are tested and/or changed out every 10 years.**
   g) Service meters will be selected, installed, and maintained in accordance with "Manual of Water Supply Practices M6, Water Meters- Selection, Installation, Testing, and Maintenance," (American Water Works Association, 1999).
2. Annual Water Balance and Water Audit
   a) Most recent water balance: **The most recent water balance was for 2013: System input volume was 20,068 ccf. Total metered water consumed by customers was 19,173. There is a loss of 895 ccf or 4%.**
   b) Frequency that water audit will be conducted (at least annually): **Each month Pennichuck develops a leakage report comparing the number of gallons produced from the wells (minus process water) to the number of gallons sold to customers. If the percent of water losses exceeds 15%, a leak detection survey will be implemented.**

c) **By March 1 of each year, an annual water balance (system input volume-volume consumed) for the prior year will be reported using the DES online reporting tool.**

d) **If the annual water balance is greater than 15% of the system input volume, Souhegan Woods CWS shall complete the following:**

i. **Complete a water audit calculated in accordance with "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (American Water Works Association, 2009).**

ii. **Prepare and submit a response plan to the department. The response plan shall identify how the water system intends to reduce water losses to below 15% within two years.**

3. Conservation Rate Structure and Billing

a) Description of proposed rate structure and timeline for implementation (no later than 5 years from source water approval for existing systems and prior to system startup for landlord owned systems). If unknown, provide a statement that the water system will adopt a rate structure that complies with 2101.04 (o) and that DES will be notified of the new structure no later than the first billing cycle: **The current PUC approved rate for Souhegan Woods CWS is $3.30 per 100 cubic feet plus a monthly metered rate based on the meter size. The unit price of water remains the same for any volume of water consumed by the customers.**

b) If irrigation meters are installed, will irrigation water be billed at a different rate? **Irrigation meters are not installed in Souhegan Woods**

c) Will a seasonal rate structure be utilized in addition to the general rate structure? **No**

d) Proposed billing frequency (minimum is quarterly): **Monthly**

e) Informative billing practices to be used (ex. water use in gallons / usage history).

B. Pressure Management

1. Existing minimum distribution pressure: **70 psi**
2. Existing maximum distribution pressure: **< 80 psi**
3. How is pressure currently monitored and how will pressure continue to be monitored? **Pressure gages at the station are used to monitor pressure leaving the station. If unusually low or high pressure is recorded, an alarm is relayed through the SCADA system to the Nashua Water Treatment Plant which is manned 24/7/365.**
4. What method will be used to reduce pressures in zones found to be in excess of 80 psi? **System pressures in Souhegan Woods do not exceed 80 psi. If that were to change, customer service applications require a pressure reducing valve at each residential meter with a pressure greater than 80 psi as well as a pressure release form signed by the customer.**

5. What will be the timeframe for reduction (at least within 1 year of source water approval)? **System pressures in Souhegan Woods are less than 100 psi. Pressure reduction is not necessary.**
6. If pressure reduction is not technically feasible, please explain why and describe what additional steps the water system will take to monitor and repair leakage within these zones? **N/A**

C. Intentional Water Loss
1. Are there "bleeders" used within the system at dead ends to improve water quality or prevent freeze-up? If yes, what looping opportunities exist? **No**
2. Are storage tanks intentionally allowed to overflow because of system hydraulics or water quality concerns? If yes, what opportunities exist for the installation of altitude valves or tank mixing systems? **No**

III. Consumption Side Management

A. Educational Outreach Initiative
1. Informational materials that will be used: **NHDES Consumer Confidence reports, seasonal newsletters developed by Pennichuck and an odd/even outdoor water use ban postcard.**
2. Rate of dissemination. **Consumer confidence reports and the odd/even water ban postcards are sent out annually. Customers will receive 1 or 2 Pennichuck Newsletters each year.**
3. Does the water system intend on becoming a WaterSense partner? **Pennichuck Water is currently a Water Sense partner.**
4. Will a rebate program be offered to replace older fixtures with WaterSense certified fixtures? **No**
5. Will customer audits be offered? **No**
6. Other outreach plans?

IV. Water Use Restrictions

A. What is the water system's plan relative to implementing water restrictions? **Pennichuck Water currently manages water demand by implementing an odd/even lawn irrigation restriction during the summer months. If pumping levels from the supply well get low, the well is shut off and the system runs exclusively off of the Merrimack Village District (MVD) water system.**

B. Who is responsible for enforcing restrictions? **Pennichuck Water is responsible for enforcing restrictions when the water supply is coming from the supply well. If well flows become too low and the system runs exclusively off of the MVD water system, Pennichuck is obligated to enforce the same level of restrictions as the MVD. MVD implements a year round odd/even outside water use ban.**

V. Reporting and Implementation

1. **The water system will submit a form supplied by DES once every three years documenting how compliance with the requirements of Env-Wq 2101 is being achieved.**
2. **Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.**

Public Notification Instructions

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 governing board of the municipality in which a proposed source is located, all municipalities that will receive water from the water system (if any), all wholesale customers (if any), and the regional planning commission serving the location of the proposed source. In most cases, only the municipality and the regional planning commission will require notification. All signed copies of the Certified Mail Return Receipt (the green card) must be forwarded to DES.

Additional Attachments

The applicant must provide the governing boards with a summary of the requirements of Env-Wq 2101, which may be found at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm, and request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 or to promote water efficiency.

Contact

Stacey Herbold, Water Conservationist
New Hampshire Department of Environmental Services
Drinking Water and Groundwater Bureau
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FAX: (603) 271-0656

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): Donald L. Ware

Owner Signature: Donald L. Ware Date: 6/2/2014