



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Robert R. Scott, Commissioner**

**WATER CONSERVATION PLAN APPROVAL**

August 24, 2017

Donald Ware  
Pennichuck East Utility Inc.  
PO Box 1947  
Merrimack, NH 03054

**Subject: Windham – PEU/Hardwood Heights Birch Hill (PWS ID #: 2542060)  
Water Conservation Plan, NHDES # 170004**

Dear Mr. Ware:

On August 21, 2017, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan (the “WCP”), signed on July 28, 2017, for PEU/Hardwood Heights Birch Hill located in Windham, New Hampshire. Pursuant to RSA 485:61 and Env-Wq 2101, community water systems seeking permits from DES for new sources of groundwater shall submit a water conservation plan to DES. Based on review of the WCP, DES has determined the WCP complies with Env-Wq 2101, *Water Conservation* rules.

Pursuant to Env-Wq 2101, the Town of Windham and the Southern New Hampshire Planning Commission were provided a copy of the WCP, along with other required materials.

DES approves the WCP based on the following conditions:

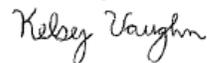
1. No later than source activation, all source meters, distribution meters, meters measuring water consuming processes, and any transfer meters and data loggers shall be installed.
2. Upon source activation, source meters and any other meters measuring water consuming processes prior to distribution shall be read monthly, no sooner than 27 days and no later than 33 days from the last meter reading.
3. All service connections shall continue to be outfitted with meters and outside read pads.
4. Service meters shall continue to be read at least quarterly.
5. A conservation rate structure shall continue to be implemented and residents billed at least quarterly.
6. All meters shall be installed per the manufacturer’s instructions or American Water Works Association standards.
7. Upon source activation, all meters shall be tested and maintained based on the schedule proposed in the WCP.

8. From the date of this approval, 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. The system shall continue reporting monthly source production volumes to the DES Water Use Registration and Reporting Program on a quarterly basis.
10. Within one year of source approval, a water conservation outreach and education program shall be implemented in accordance with the WCP.
11. From the date of this approval, all new non-metallic pipes installed in the system shall be outfitted with detectable tracer tape or detectable tracer wire, or be GPS located and maintained in a GIS system.
12. Every three years from the date of this 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. Proposed changes to the WCP shall not be implemented unless approved by 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](http://www.des.nh.gov)), clicking on the “A-Z List” in the top right corner of the page, clicking “Water Conservation,” and scrolling down to “Forms/Applications.”

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at [kelsey.vaughn@des.nh.gov](mailto:kelsey.vaughn@des.nh.gov).

Sincerely,



Kelsey Vaughn  
Water Conservation Program  
Drinking Water and Groundwater Bureau

ec: Chris Countie; Pennichuck East Utility Inc.  
Town of Windham  
Southern New Hampshire Planning Commission  
Steve Roy, Shelley Frost, Stacey Herbold; DES

**WATER CONSERVATION PLAN: PEU – Hardwood CWS**

A community water system seeking authorization for a new source of water must submit a water conservation plan to the New Hampshire Department of Environmental Services (NHDES) for approval demonstrating how the water system proposes to comply with water conservation standards pursuant to Env-Wq 2101, *Water Conservation* rules. PEU Hardwood CWS is an existing small community water system.

Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.

**I. Introduction**

**A. Contact Information**

1. Name and location of system: **Hardwood CWS**  
**North Lowell Road**  
**Windham, NH**
  
2. Owner of system and mailing address:  
**Donald Ware, Chief Operating Officer**  
**Pennichuck East Utility**  
**25 Manchester Street**  
**Merrimack, NH 03054**
  
3. Name and mailing address of preparer of water conservation plan:  
**Chris Countie, Water Supply Manager**

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: 7/28/17

**Pennichuck Water Works  
25 Manchester Street  
Merrimack, NH 03054**

**B. System Overview**

1. Brief description of the community being served (ex. number of units, apartments, partially attached condos, individual homes, shared common facilities, population, etc.): **Hardwood Community Water System provides domestic water via 40 connections to 115 condominium units in the Hardwood Heights and Birch Hill developments. The Condominiums are 2 and 3 bedroom units. PWW does not provide water for fire protection or irrigation.**
2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation: **The system uses three existing bedrock wells as the water supply. Well BRW6 is being developed to add to the system in order to provide enough supply to meet customer demands.**
3. Name designation of each proposed water source and any existing sources: **BRW3, BRW4, BRW5, BRW6 (proposed)**
4. Number of connections proposed for each of the following classes:
  - a) Residential: **40 connections serving 82 units at Hardwood Heights and 33 units at Hickory Lane**
  - b) Industrial/Commercial/Institutional: **0**
  - c) Municipal: **0**
5. The water system does not provide water to any consecutive water systems or privately owned redistribution systems.
6. There are no proposed connections that receive more than 20,000 gpd.
7. Please provide the following information based on metered source withdrawal volumes from the last complete year. Please report in gallons.

Year: **2016**  
Average daily use (ADU): **12,583** gpd  
Lowest ADU in the winter: **10,469** gpd  
Highest ADU in the summer: **15,644** gpd

**C. Transfer of Ownership**

1. The system ownership is not proposed to be transferred.

**II. System Side Management**

**A. Water Meters**

1. Source Meters

a) No later than the source activation date, meters will be installed on each new and any existing water source.

b) An irrigation well is not proposed.

c) Source meter information for each existing source and if known, for each proposed source:

Source Name: **Wells 3&4**

Source Meter Make: **Neptune**

Source Meter Model: **T-10**

Source Meter Size: **2"**

**Source Meter Installation Date: 10/23/2015**

Last Meter Test/Calibration Date: **New Meter**

**No later than source activation, the wells will be metered separately.**

Source Name: **Well 5**

Source Meter Make: **Neptune**

Source Meter Model: **T-10**

Source Meter Size: **2"**

Source Meter Installation Date: **10/23/2015**

Last Meter Test/Calibration Date: **New Meter**

Source Name: **Well 6 – Meter information be determined**

d) No later than the source activation date, source meters will be read every 30 days.

## 2. Distribution Meters

a) There are two master meters, one for each side of the system:

Meter Make: **Neptune**

Meter Model: **Compound T-10**

Meter Size: **3"x5/8"**

Source Meter Installation Date: **2015**

Last Meter Test/Calibration Date: **New Meter**

b) The distribution meter will be read as needed in order to complete an accurate yearly water balance.

## 3. Service Meter Installation, Reading, and Maintenance

a) Service meters are installed on all service connections and will be installed on any future connections.

b) Service meters were installed in 1998 and shall be tested or replaced per II.A.4., below.

c) Service meters will be read every 30 days.

d) Service meters will be read by drive by read.

e) It is expected it will take less than 1 day to read all service meters.

4. Meter Selection, Installation and Maintenance

- a) All meters will be American Water Works Association (AWWA) certified, with the exception of b), below.
- b) AWWA does not have standards for magnetic flow meters. If a magnetic flow meter is proposed, the meter make, model, size and manufacturer specifications will be forwarded to the NHDES Water Conservation program for review. The meter will not be installed until receiving approval for its use from NHDES.
- c) The selected size of the meters will be based on projected flow rates.
- d) Meters will be installed as specified by the manufacturer, including requirements for horizontal or vertical placement, distance of straight run of pipe upstream and downstream of the meter and strainer installation. If the manufacturer does not supply installation specifics, meters will be installed in accordance with the “Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance” (AWWA, 2012).
- e) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer’s accuracy warranty extends beyond the schedule below, the meter will be tested or changed-out no later than the warranty expiration date.

Meter Size (inches)	Testing Rate (years)
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

- f) A log of the date meters were installed, tested, calibrated, repaired and replaced will be maintained. Calibration certificates will be kept on file.

B. Pressure Management

- 1. The design pressures of the system are from 40 psi to 90 psi.

C. Leak Detection and Repair

- 1. Leak detection methodologies will be conducted in accordance with the “Manual of Water Supply Practices M36, Water Audits and Loss Control Programs” (AWWA, 2016).
- 2. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.23.

3. A log of all leaks will be maintained, including the date the leak was discovered, the date the leak was repaired, the type of leak (ex. service, main, hydrant, valve), the size of the leak (gpm) and the nearest street address to the leak.

D. Metering, Billing and Water Audits

1. Service Meter Installation, Reading, and Maintenance

- a) Service meters are installed on all service connections and will be installed on any future connections.
- b) Service meters were installed in 1998 and shall be tested or replaced per II.A.2, above.
- c) Service meters will be read every 30 days.
- d) Service meters will be read by drive by read.
- e) It is expected it will take less than 1 day to read all service meters.
- f) Service meters will be maintained in accordance with 2.g), below.
- g) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the schedule below, the meter will be tested or changed-out no later than the warranty expiration date.

Meter Size (inches)	Testing Rate (years)
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

3. Water Balance and Water Audit

- a) The system currently has service meters installed. The previous year's water balance (system input volume – authorized metered consumption) is attached to this WCP and will continue to be reported to NHDES yearly.
- b) The yearly water balance will be reported to NHDES using the NHDES online water balance reporting tool, and will be submitted no later than March 1 of each year. The electronic reporting form is located on the Water Conservation homepage of the NHDES website.
- c) The water system will prepare and submit a water audit and response plan if more than 15% of the system input volume cannot be accounted for by authorized metered consumption. The

response plan will identify how the water system intends to reduce losses to below 15% within two years.

d) Water audits will be calculated in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).

#### 4. Conservation Rate Structure and Billing

(a) Customers will be charged based on usage, and the rate per unit of water will be uniform (ex. \$4.00/1000 gallons of water) or increase with usage (ex. \$4.00/0-500 gallons of water, \$4.50/501-1000 gallons of water).

(b) The rate structure will be as follows: There is a \$17.19 monthly fee for all 5/8" residential meters plus \$6.24 per 100 cubic feet of water used.

(c) Upon implementation of the rate structure, customers will be billed monthly.

### III. Consumption Side Management

#### A. Educational Outreach Initiative

The following education and outreach initiative will be implemented: no later than one year from the date of final source approval.

1. The system will begin distributing water efficiency outreach materials twice a year with bills or Consumer Confidence Reports. Pennichuck Water currently is a WaterSense partner and promotes the WaterSense program.

2. The system will maintain a log indicating how the system has complied with III. A.1., above. The log will include dates the outreach and education actions were taken and what was done.

### IV. Reporting and Implementation

A. The water system will submit a form supplied by NHDES once every three years from the date of the water conservation plan approval documenting how compliance with the requirements of Env-Wq 2101, *Water Conservation* rules, is being achieved.

B. By no later than March 1 of each year, a water balance for the previous year will be submitted to NHDES using the electronic reporting form located on the Water Conservation homepage of the NHDES website ([www.des.nh.gov](http://www.des.nh.gov))

C. The water system will continue to report monthly production volumes quarterly to the NHDES Water Use Registration and Reporting Program upon receiving a Water Use ID number from NHDES. Monthly means once every calendar month, but no sooner than 27 days after and no later than 33 days after the previous reading.

Appendix A  
Definitions

**Authorized metered consumption:** billed metered water plus unbilled metered water.

**Community water system (CWS):** a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

**Consecutive water system:** a public water system that buys or otherwise receives some or all of its finished water from one or more wholesale systems for at least 60 days per year.

**Final source approval:** the date of final well siting approval or the date of issuance of the large groundwater withdrawal permit.

**Large community water system:** a community water system that serves more than 1,000 persons.

**Privately owned redistribution system (PORS):** A system for the provision of piped water for human consumption which does not meet the definition of a public water system and meets all of the following criteria:  
(1) Obtains all of its water from, but is not owned or operated by, a public water system; (2) serves a population of at least 25 people, 10 household units or 15 service connections, whichever is fewest, for at least 60 days per year; and (3) has exterior pumping facilities, not including facilities used to reduce pressure, or exterior storage facilities which are not part of building plumbing.

**Public water system (PWS):** a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

**Small community water system:** a community water system that serves 1,000 people or less.

**Source activation date:** the date the source is placed into use.

**System input volume:** the volume of water input to the water supply system after treatment, analysis and storage.

**Water balance:** the difference between the system input volume and authorized metered consumption.

**Water conservation:** any beneficial reduction in water losses, waste or use.

**Wholesale system:** a public water system or an industrial, commercial or institutional (ICI) water user that treats source water and then sells or otherwise delivers finished water to a consecutive water system or privately owned distribution system.

## Appendix C Notification Process

### **Public Notification Instructions**

Once a final draft of the water conservation plan is agreed upon by the applicant and NHDES, NHDES will send a signature line to the applicant for addition to the plan along with a summary of the requirements of Env-Wq 2101, *Water Conservation* rules. Within 10 working days of receiving the summary from NHDES, the applicant is required to provide a copy of the water conservation plan via certified mail with return receipt requested 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 receipts (the green cards) must be forwarded to NHDES along with the final, signed water conservation plan.

### **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](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.

### **Notification of Consecutive Water Systems and Privately Owned Redistribution Systems**

Within 5 working days of obtaining final approval of the source from NHDES, the system is required to notify any consecutive water system or privately owned redistribution system receiving water from the system, that pursuant to Env-Wq 2101.13, the systems must implement a water conservation plan and should contact the NHDES Water Conservation Program using the contact information below.

Kelsey Vaughn, Water Conservationist  
New Hampshire Department of Environmental Services  
Drinking Water and Groundwater Bureau  
PO Box 95  
Concord, NH 03302-0095  
[kelsey.vaughn@des.nh.gov](mailto:kelsey.vaughn@des.nh.gov)  
Phone: (603) 271-0659  
Fax: (603) 271-0656

Pennichuck East Utility  
2015 Unaccounted For Water Report

	Hardwood
January Pumpage (100 cubic feet) -	555
January Sales (100 cubic feet) -	573
January Unaccounted % -	-3%
February Pumpage (100 cubic feet) -	524
February Sales (100 cubic feet) -	471
February Unaccounted % -	10%
March Pumpage (100 cubic feet) -	507
March Sales (100 cubic feet) -	468
March Unaccounted % -	8%
April Pumpage (100 cubic feet) -	474
April Sales (100 cubic feet) -	462
April Unaccounted % -	3%
May Pumpage (100 cubic feet) -	617
May Sales (100 cubic feet) -	600
May Unaccounted % -	3%
June Pumpage (100 cubic feet) -	456
June Sales (100 cubic feet) -	472
June Unaccounted % -	-4%
July Pumpage (100 cubic feet) -	422
July Sales (100 cubic feet) -	419
July Unaccounted % -	1%
August Pumpage (100 cubic feet) -	574
August Sales (100 cubic feet) -	580
August Unaccounted % -	-1%
September Pumpage (100 cubic feet) -	457
September Sales (100 cubic feet) -	441
September Unaccounted % -	4%
October Pumpage (100 cubic feet) -	618
October Sales (100 cubic feet) -	653
October Unaccounted % -	-6%
November Pumpage (100 cubic feet) -	nda
November Sales (100 cubic feet) -	479
November Unaccounted % -	nda
December Pumpage (100 cubic feet) -	nda
December Sales (100 cubic feet) -	466
December Unaccounted % -	nda
<b>Total Pumpage (100 cubic feet) -</b>	<b>5204</b>
<b>*Total Sales (100 cubic feet) -</b>	<b>5139</b>
<b>2015 Unaccounted% -</b>	<b>1%</b>

nda - no data available

All calculations are made by comparing monthly pumpage records against monthly sales records. Monthly readings of the pumpage and sales meters are generally made on the same day.

\* Total Sales is reduced when there is an nda in the pumpage numbers to more accurately reflect the total comparison.