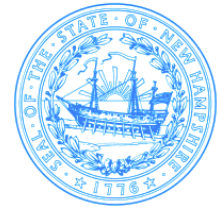




The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

WATER CONSERVATION PLAN APPROVAL

January 15, 2014

James Wrigley
Huts Manager
Appalachian Mountain Club
PO Box 298
Grantham, NH 03581

RE: Bethlehem – Zealand Falls Hydropower Project
Water Conservation Plan, December 17, 2013, NHDES # 999869

Dear Mr. Wrigley:

On December 20, 2013, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan, dated December 17, 2013, for the Appalachian Mountain Club’s (“AMC”) Zealand Falls Hydropower Project located in Bethlehem, New Hampshire (the “Plan”). On October 18, 2013, the Appalachian Mountain Club was issued Water Quality Certificate #2013-FERCX-001. Pursuant to RSA 485:61 and Env-Wq 2101, projects that require a water quality certificate pursuant to RSA 485-A:12,IV shall comply with Env-Wq 2101, *Water Conservation* rules, and submit and implement a water conservation plan.

Pursuant to Env-Wq 2101.11, the Town of Bethlehem and the North Country Council were provided the opportunity to comment on the Plan from December 4, 2013, the date of public notification, through December 25, 2013. DES received no comments.

Based on review of the Plan, DES has determined the Plan complies with Env-Wq 2101.

A waiver to Env-Wq 1201.08(b), requiring the installation of a flow meter, was requested and an alternate method for measuring flow was proposed.

DES grants the waiver request based on the following reasons:

1. Installation of a meter has the potential to reduce the energy produced for the Zealand Falls Hut, which would have to be supplemented with propane being helicoptered in;
2. An adequate method for measuring flows was proposed as an alternative.

On **January 15, 2017**, and every three years thereafter, AMC shall submit a detailed compliance report to DES documenting compliance with the Plan. Required information includes the following:

1. Contact information for the owner and for the individual responsible for carrying out plan tasks;
and

2. A log of the two dates that the hydroelectric system is tested each year and the results of those tests including and leaks or water losses found, the size of leaks or losses, and the date of repair.

The Appalachian Mountain Club shall report to the DES Water Use Registration and Reporting Program. DES has assigned **WUID 20975** to the facility. The total monthly volume withdrawn from Whitewall Brook shall be reported to DES on a quarterly basis. The first quarter report (January through March) is due **April 15, 2014**. The water system shall register as a data provider and utilize the DES OneStop reporting tool to submit water use data. Instructions for using the tool are enclosed with this letter. If you have any questions about Water Use Registration and Reporting or registering as a data provider please contact Derek Bennett at 271-6685 or derek.bennett@des.nh.gov.

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

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at stacey.herbold@des.nh.gov.

Sincerely,



Stacey Herbold
Water Conservation Program
Drinking Water and Groundwater Bureau

cc: David Owen & Greg Comstock, NHDES
Town of Bethlehem
North Country Council



November 13, 2013

Derek S. Bennett
Department of Environmental Services
Drinking Water and Groundwater Bureau
29 Hazen Drive
Concord, NH 03302

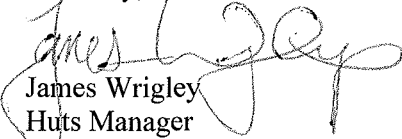
Dear Mr. Bennett,

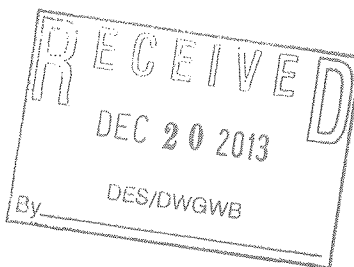
The Appalachian Mountain Club (AMC) submitted a 401 Water Quality Certification application to New Hampshire Department of Environmental Services (NHDES) on April 15, 2013. The application passed through a public comment period and was approved on October 24, 2013. One of the requirements for approval was the submission to NHDES of a water conservation plan. Attached is a water conservation plan following Env-Wq 1201.8 for Industrial, Commercial and Institutional Users.

In addition to the information provided is a waiver request for the Env-Wq 1201.8 (b) requiring that a water meter is installed in the AMC's hydroelectric project. This request is made so that the AMC may use the water withdrawn from the Whitewall Brook to its maximum efficiency. Further details are described below.

Also enclosed are the certified mail receipts from AMC's submission of the water conservation plan to the Bethlehem Select Board and North Country Council the regional planning commission.

Sincerely,


James Wrigley
Huts Manager
Appalachian Mountain Club
PO Box 298
Gorham, NH 03581
603-466-8110
jwrigley@outdoors.org



The following information is being submitted to meet the requirements of Env-Wq 1201.8 as required by WQC # 2013-FERCX-001 E-14.

(a) ICI water users shall identify the location and amount of water used for existing and anticipated future uses of water associated with the following:

- (1) Heating;*
- (2) Cooling;*
- (3) Processing;*
- (4) Product ingredient;*
- (5) Sanitary use; and*
- (6) Outdoor water use.*

There is no current use and there is no intended future use of water for heating, cooling, processing, product ingredient, sanitary use or outdoor water use.

(b) ICI water users shall install and maintain water meters as described below prior to initiating a withdrawal from a new source of water:

- (1) Water meters shall be installed for each groundwater and surface water source; and*
- (2) Water meters shall be maintained in accordance with "Manual of Water Supply Practices, Water Meters-Selection, Installation, Testing, and Maintenance," document identification number AWWA M6, American Water Works Association, 1999.*

The Appalachian Mountain Club is seeking to waive the requirement to install water meters on the Zealand Falls Hydroelectric System.

(c) If water is used in a single-pass cooling system, the water user shall replace or retrofit the process by using one or more of the following methods to achieve maximum water efficiency within 5 years of initiating a withdrawal from a new source of water:

- (1) Recirculating cooling techniques;*
- (2) The use of sensors and automatic shut-off devices to reduce water used for cooling processes;*
- (3) Implementation of water treatment processes;*

Water is not being used in a single pass cooling system.

(d) Processes that result in the discharge or disposal of unused water shall be identified and modified as described below:

(1) Any processes where water is used to control temperature shall be identified; and

(2) Any process where water within a given process may be discharged or otherwise disposed of unused through an overflow shall be identified;

There are no processes that result in the discharge or disposal of unused water.

(e) Processes identified in (d), above, shall be modified within 5 years of initiating a withdrawal from a new source of water by using one or more of the following methods:

(1) Automatic shut-off devices preventing the discharge of water to waste shall be installed for all processes identified in (d), above; and

(2) Sensors that optimize the use of water shall be installed for all processes identified in (d), above.

No processes were identified in section (d).

(f) Water conservation practices not described in paragraphs (a) through (e), above, shall be implemented as described below:

(1) The water user shall provide the department a description of water conservation best management practices or best available technologies that might be applicable to the types of water-using processes at the facility;

(2) The water user shall develop a plan and schedule to implement the plan that demonstrates these processes will be implemented within 5 years; and

(3) The water users shall implement the plan according to the schedule upon obtaining approval from the department pursuant to Env-Wq 2101.12.

The Zealand Hydroelectric facility is a very basic system which uses best practices at all opportunities. All water that is taken in from the Whitewall brook is used to run the generator. The system is tested twice annually to ensure that there are no leaks or areas of water loss. Of the various generators on the market the Pelton Wheel generator that is employed is the most efficient for the type of low scale system that we operate. All water that enters the system is returned to the Whitewall brook at the discharge.

(j) If an ICI water user is establishing new lawns, it shall immediately implement the following water efficiency processes:

(1) All new automatic watering devices used to irrigate the lawns, shall be equipped with technology that will prevent the systems from starting automatically and that will shut down the systems when not needed;

(2) All automatic watering systems installed after the effective date of this document shall be audited at no less than once every 3 years to ensure the technology required by (1), above, is functioning properly; and

(3) All new lawn areas shall be underlain by 6 inches of loam

No new lawns are being created in association with this project.

Waiver Submission for 1201.8 (b)

(b) All requests for waivers shall be submitted in writing to the department and include the following information:

(1) The name, mailing address, and location of the water system requesting the waiver;

Appalachian Mountain Club PO Box 298 Gorham NH 03581. Zealand Hydroelectric facility

(2) The name, daytime telephone number and, if available, fax number and e-mail address of the individual at the water system who is knowledgeable about the request;

James Wrigley, 603-466-8110, fax: 603-466-2720, jwrigley@outdoors.org

(3) A description of the facility or site to which the waiver request relates, including the population served by the water system;

The Zealand Falls Hydroelectric Facility is a small scale hydroelectric system located in the backcountry of the White Mountain National Forest. This facility serves to produce electricity for the neighboring Zealand Falls Hut which serves full service meals for up to 36 backcountry guests a night during ice free months.

(4) A reference to the specific section of the rules from which a waiver is being sought;

This waiver is being sought for Env-WQ 1201.08 (b), regarding the installation of water meters.

(5) A full explanation of why a waiver is necessary, including the hardship that will be suffered if a waiver is not granted;

Installing a water meter on this system would cause the system to run less efficiently and produce less energy. If the waiver is not granted and a water meter is installed the facility will provide less power to the hut resulting in more propane being used at the hut requiring more helicopter flights in the fall season. The monetary cost of flying propane in and out of the backcountry is high and it has an additional negative impact on those that are trying to experience the wilderness of the Zealand Valley.

(6) A full explanation with supporting data of the alternative(s), if any, proposed to be implemented or used in lieu of the section's requirements;

Due to the constant size of the penstock and the limited intake of the generator there is a limited flow that can pass through the system. We propose to use a direct measurement method to monitor this flow rate. A designated staff member will time the rate at which a known volume fills with water from the discharge point. This process will be repeated 3 times and averaged to ensure accuracy. This number will be reported to New Hampshire Department of Environmental Services as required through our water monitoring program.

(7) A full explanation of how the proposed alternative(s), if any, is consistent with the intent of RSA 485:61.

The purpose of RSA 485:61 is to conserve water so that it does not go to waste. By using a direct measurement method rather than a water meter the Appalachian Mountain Club is using the water that it is removing from the Whitewall Brook most efficiently. This maximum efficiency ensures that all no water taken from the Whitewall Brook goes to waste meeting RSA 485:61's intent of conserving water. The additional goal of the RSA to ensure that water is conserved by monitoring usage would still be met by the direct measurement method.

Signature Line

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

Owner Name (print): James Wrigley

Owner Signature: James Wrigley Date: 12/17/13