Water Quality Certification Amendment
(33 U.S.C. §1341)

In the matter of: Central Vermont Public Service Corporation
77 Grove Street
Rutland, VT 05701

APPLICATION FOR CARVER FALLS HYDROELECTRIC PROJECT

The Vermont Department of Environmental Conservation (Department) has reviewed a water quality certification amendment application dated January 20, 2012 and filed by Central Vermont Public Service Corporation (CVPS), the licensee for the Carver Falls Hydroelectric Project (FERC Project No. 11475). The Licensee seeks to revise the description of the recently replaced project turbine to reflect its wider hydraulic operating range determined after installation and testing. The replacement of the turbine with a new unit that increased the project's hydraulic and generation capacity was authorized by a water quality certification amendment issued on October 20, 2010. The original water quality certification for the project was issued on December 5, 2008 and a federal license was granted on February 25, 2009.

In addition to the application, the Department considered information contained in an updated Exhibit E (Environmental Report) filed with FERC by CVPS on August 16, 2010 and in an updated Exhibit A (Description of the Project and Mode of Operation) filed with FERC by CVPS on February13, 2012.

In accordance with 10 V.S.A. § 1004, the current application is subject to review under the Vermont Water Quality Standards adopted by the Water Resources Panel that became effective on December 30, 2011 (Standards, Section 1-01. Applicability and Definitions).

The Department placed the application on public notice on May 22, 2012 and accepted comments through June 22, 2012. No comments were received.

The Department, based on the application and record before it, makes the following findings and conclusions.

Findings

1. The Carver Falls Hydroelectric Project is located on the Poultney River in the towns of West Haven, Vermont and Hampton, New York.
2. There are two turbines. The original Unit 1, manufactured by S. Morgan Smith, was rated at 1,700 horsepower and had a maximum hydraulic capacity of 162 cfs. Unit 2, manufactured by American Hydro, was rated at 1,250 horsepower at its hydraulic capacity of 92 cfs. The turbines drove 1,050 kW Westinghouse and 800 kW Allis-Chalmers generators, respectively. The minimum hydraulic capacity of the project was 30 cfs.
3. The October 20, 2010 water quality certification amendment authorized the replacement of Unit 1.
4. In 2011, Unit 1 was replaced with a turbine manufactured by Norcan Hydraulic Turbine that is rated at 1,946 horsepower. The manufacturer's specifications listed the new unit's maximum hydraulic capacity as 177 cfs, increasing total station hydraulic capacity to 269 cfs, an increase of 15 cfs.
5. The new Unit 1 turbine was connected to the existing generator. Peak output of the facility increased from 1,900 kW to 2,251 kW.

6. The turbine manufacturer's field test report shows that the maximum hydraulic capacity of Unit 1 is 206 cfs, compared to 177 cfs given in the turbine specifications. This is a total increase of 44 cfs from the original Unit 1, bringing total station capacity to 298 cfs. It increases the station capacity an additional 29 cfs from that authorized by the October 20, 2010 water quality certification amendment.
7. The replacement Unit 1 has the capability of operating at a lower flow (20 cfs) than the original turbine, which had a lower limit of 30 cfs. In order to maintain existing bypass flow conditions during periods of low inflow, the licensee has agreed that both units will be shut down when inflow is less than or equal to the bypass conservation flow plus 30 cfs, i.e., 48.5 or 80 cfs, seasonally.
8. Condition B of the water quality certification issued by the Department on December 5, 2008 requires the project to operate in strict run-of-river mode except in limited circumstances specified in Condition C.
9. Condition B further specifies bypass flows of 18.5 cfs from May 16 to March 31 and 50.0 cfs from April 1 to May 15 (or inflow, if less, for both periods). Finally, Condition B requires spillage over the dam to support aesthetics during specified periods.

Analysis

10. The project will continue strict run-of-river operation, so downstream flows will not be affected by the change in hydraulic capacity.
11. As constructed, the new turbine will enable the project to utilize an additional 29 cfs of inflow beyond the previously authorized 15 cfs. Prior to the turbine upgrade, this additional flow would spill into the bypass once inflow exceeded the station hydraulic capacity plus the required bypass flow. With the upgrade, the 44 cfs can be routed through the units rather than spilled. A flow duration analysis shows that the bypass flow will equal the conservation flow for approximately 15 additional days per year.
12. CVPS shall not operate the new unit below the lower limit of the operating range of the unit it replaced, so there will be no effect on bypass flows during low inflow periods.
13. Bypass flow requirements for support of aquatic habitat will not be changed, so aquatic habitat in the bypass will continue to be fully supported.
14. The time periods when additional bypass flows are required to support aesthetics will not be changed.
15. The limited number of days when bypass flows will change as a result of the turbine upgrade will not have a measurable effect on aquatic habitat in the bypass.

Decision and Certification

Based on its review of the applicant's proposal and the above findings, the Department concludes that the modifications at the Carver Falls Hydroelectric Project will comply with the Vermont Water Quality Standards and will be in compliance with sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, 33 U.S.C. §1251 et seq., as amended, and other appropriate requirements of state law. In making this determination, the Department amends the original certification to modify the following condition:

> **B. Flow Management.** Except as allowed in Condition C below, the facility shall be operated in a true run-of-the-river mode where instantaneous flows below the tailrace shall equal instantaneous inflow to the impoundment at all times. When the facility is not operating, all flows shall be spilled at the dam. Both units shall be shut down and all flows shall be released at the dam when inflow is less than 30 cfs plus the bypass flow release as given below. Bypass flows shall be maintained in accordance with the following table.

Period	Bypass Flow Release (cfs)
May 16 – March 31	18.5
April 1 – May 15	50

The bypass flow release is the value listed above or instantaneous inflow, if less.

Bypass conservation flows, except for uncontrolled leakage, shall be released as full crest spillage over the south spillway section. Except during the aesthetic flow release periods noted below, any portion of the flow that would exceed 1.0 inch of spillage may be routed through a gate. The full crest spillage requirement does not apply during the period November through March.

Aesthetics flow releases consisting of no less than 2.5 inches of spillage (or inflow, if less) over the south spillway shall be provided on Memorial Day, Independence Day, Labor Day, Columbus Day and every Sunday during the months of July and August. The flow release shall commence at 9:00 a.m. and continue through the daylight hours.

All other conditions in the original December 5, 2008 water quality certification issued for the project remain in effect.

David K. Mears, Commissioner
Department of Environmental Conservation
By

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Peter LaFlamme, Director
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