

**CENTRAL VERMONT PUBLIC SERVICE CORPORATION
CAVENDISH PROJECT (P-2489)**

**LOW IMPACT HYDROPOWER CERTIFICATION APPLICATION
ATTACHMENT D
DETAILED RESPONSES TO APPLICABLE LIHI QUESTIONS**

<u>Question A.1</u>	Flows – Flow Conditions
<u>Question C.1</u>	Fish Passage and Protection – Anadromous Passage
<u>Questions E.1-E.2</u>	Threatened and Endangered Species Protection
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<u>Question G.1</u>	Recreation

A.1 – Flow Conditions

The Project is in compliance with flow conditions and reservoir elevations for fish and wildlife protection, mitigation and enhancement for reaches below the tailrace and the bypassed reach. These requirements are included in License Articles 401 through 404, and water quality certificate (WQC) Conditions B through G. Those provisions are subject to being temporarily modified if required by operating emergencies and in consultation with Vermont Agency of Natural Resources (VANR) and with notification to FERC. CVPS submitted, and FERC approved (August 17, 1995) a Flow Management Plan for the Project. Subsequently, FERC approved the Project’s Flow Fluctuation Reduction Plan (November 22, 1996) required under the Flow Management Plan, which included requirements to minimize flow fluctuations during Project shutdown.

Power generation and reservoir elevations are monitored continuously. Minimum flows are maintained by adjusting generation output in response to headpond levels. There have been no reported flow deficiencies or compliance violations related to flow conditions.

Summary of Flow Requirements

Minimum Flow	Other Flow Conditions
10 cubic feet per second (cfs), or inflow if less, to the bypass reach.	<p>When refilling the impoundment:</p> <ul style="list-style-type: none"> • 42 cfs from June 1 to September 30. • 83 cfs from October 1 to March 31. • 332 cfs from April 1 to May 31. • 90% of instantaneous inflow through turbines when inflow is less than minimum flows above. <p>Minimize reservoir fluctuation by matching instantaneous outflow, approximately, with the sum of inflows. Additional requirements are included in the Project’s Flow Management Plan and Flow Fluctuation Reduction Plan (see supplemental documents).</p> <p>Maintain impoundment no lower than 6 inches below crest of the flashboards, except during flashboard or control system failure when the level cannot exceed 12 inches below flashboard crest.</p> <p>Limit changes in elevation to no more than 2 feet of drawdown from normal operating levels.</p>

C.1 – Fish Passage and Protection – Anadromous Passage

The Project is in compliance with *Mandatory Fish Passage Prescriptions* as specified in Articles 405 through 407 of the License and WQC Condition H for downstream passage of anadromous fish, specifically for Atlantic salmon. The Black River is considered nursery habitat for Atlantic salmon and fry are stocked each year. Adult salmon are precluded from entering the river below the Project due to downstream barriers in the Black River.

There are no License or WQC provisions for upstream passage at this time; however, authority to require future upstream passage facilities is reserved by FERC in Article 408 of the License.

As part of the renewed License, CVPS constructed interim downstream passage facilities, and then permanent passage facilities for Atlantic salmon smolts in consultation with the resource agencies. The downstream fish passage facility consists of a transition box in the spillway adjacent to the penstock intake. Inflow to the box is controlled by a motor-operated gate, allowing variable flow. Stoplogs are installed to form the back of the box to maintain a minimum water depth. Fish enter the box and pass down the spillway on a 3-foot wide chute into a 3-foot deep plunge pool, with a channel at the downstream end for flow return to the Project's bypass channel. Downstream passage facilities are operated from April 1 to June 15, and from September 15 to November 15 for spring and fall out-migrations.

E.1 – Listed Species

The bald eagle (*Haliaeetus leucocephalus*) is a state-endangered species under the protection of the Vermont Endangered Species Law, and is known to occur, at least on a transient basis, within or in the vicinity of the Project area. The peregrine falcon (*Falco peregrinus*) was also identified during relicensing, as occurring on an occasional transient basis around the Project area. However, peregrines were removed from Vermont's Endangered and Threatened Species List in April 2005.

The Cavendish Gorge area was identified as the only known location in the state to have a rare bryophyte (*Scapania umbrosa*) a moss-like species of liverwort present at six sites. This species is not listed as rare, threatened or endangered at the state or federal levels. Article 409 of the License and Condition I of the WQC required CVPS to undertake a five-year study of the effects of alternative bypass flow regimes on the species. FERC approved the study plan on May 10, 1996. Results from the 5-year study indicated that alternative flows were more detrimental than the 10 cfs minimum flow required under Article 402 and WQC Condition C.

E.2 – Recovery Plans

Vermont Fish and Wildlife has drafted a recovery plan for the bald eagle¹, dated October 2010. The plan includes a bald eagle recovery initiative in the Lake Champlain region, to aid in the establishment of breeding pairs along the Lake, and through educational efforts, set the stage for necessary habitat protection for bald eagles on Lake Champlain. However, the Project is not located in the vicinity of any recovery plan activity.

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http://www.vtfishandwildlife.com/library/Reports_and_Documents/NonGame_and_Natural_Heritage/Recovery%20Plans/Vermont%20Bald_Eagle_Recovery_Plan.pdf

F.1 - Cultural Resource Protection

Article 412 of the Project License stipulates implementation of the “*Programmatic Agreement Among the Federal Energy Regulatory Commission and the Vermont Historic Preservation Officer*” (SHPO) executed on September 8, 1994. CVPS developed in consultation with the SHPO, and FERC approved, the Cultural Resources Management Plan (CRMP) on June 21, 1999.

The CRMP identified the Project's powerhouse, dam, and gatehouse as eligible for inclusion in the National Register of Historic Places. Within the Area of Potential Effect one archaeological site (Fitton Woolen Factory) was identified. It consists of ruins of the former mill complex including mill buildings, an office, storehouse, boarding house, and several worker tenement buildings. In addition, a former dam, located upstream of the current dam was associated with the mill complex. CVPS conducted Phase 1A archeological surveys and identified a canoe and boat landing along the impoundment, and a canoe portage and put-in around the dam.

The CRMP describes guidelines for dealing with project modifications which do not require an amendment to the Project License. CVPS will consult with the Vermont Division for Historic Preservation (SHPO) when a planned activity or project may alter the characteristics of the property that may qualify the property for inclusion in the National Register. In addition, all structures are monitored on a five-year schedule, and erosion is monitored annually.

G.1 - Recreation

The Project is in compliance with Article 413 and 415 of the License and WQC Conditions M and N for recreational access, accommodation and facilities, and occupancy and use. A recreation and landscaping plan was developed in consultation with VANR, the Village of Cavendish, and the USDA Soil Conservation Service. It was approved by FERC on May 2, 1996.

The plan included provisions for construction and/or enhancement of:

- A public parking area and picnic area near the powerhouse.
- A trailhead, directional signs and trail improvements along an 800-foot path leading from the parking area to a fishing and canoe launch site downstream of the powerhouse.
- A scenic overlook and interpretive platform downstream of the powerhouse.
- A canoe take-out, portage and put-in, with directional signage.