

**APPLICATION REVIEW FOR
LOW IMPACT HYDROPOWER INSTITUTE
CERTIFICATION
of the
CARVER FALLS PROJECT NO. 11475**



MAY 6, 2013

Application Reviewer: Patricia McIlvaine

WRIGHT-PIERCE 
Engineering a Better Environment

**APPLICATION REVIEW FOR LOW IMPACT HYDROPOWER
INSTITUTE CERTIFICATION**

CARVER FALLS PROJECT - FERC PROJECT NO. P-11475

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
I	INTRODUCTION AND OVERVIEW	1
II	PROJECT’S GEOGRAPHIC LOCATION	1
III	PROJECT AND IMMEDIATE SITE CHARACTERISTICS.....	2
IV	REGULATORY AND COMPLIANCE STATUS.....	4
V	PUBLIC COMMENTS RECEIVED BY LIHI	5
VI	SUMMARY OF COMPLIANCE WTH CRITERIA AND ISSUES IDENTIFIED	5
VII	GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION	7
VIII	DETAILED CRITERIA REVIEW.....	7
	A. Flows	7
	B. Water Quality	8
	C. Fish Passage and Protection	10
	D. Watershed Protection	11
	E. Threatened and Endangered Species Protection.....	12
	F. Cultural Resource Protection.....	14
	G. Recreation	15
	H. Facilities Recommended for Removal.....	16

APPENDICES

- A Record of Contacts
- B Key Resource Agency Letters

REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE CARVER FALLS HYDROELECTRIC PROJECT

Prepared by:
Patricia McIlvaine
May 6, 2013

I. INTRODUCTION AND OVERVIEW

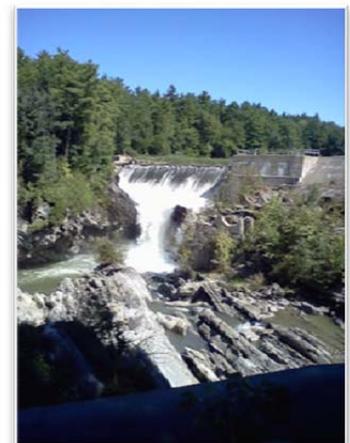
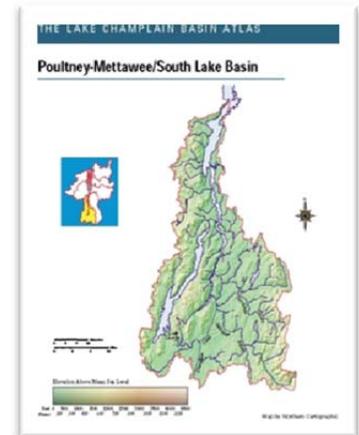
This report reviews the application submitted by Central Vermont Public Service Corporation (Applicant or CVPS) to the Low Impact Hydropower Institute (LIHI) for Certification of the Carver Falls Hydroelectric Project P-11475 (Carver Falls Project or Project), located on the Poultney River in the Town of Hampton, Washington County New York and the Towns of Fair Haven and West Haven, Rutland County, Vermont. CVPS merged with Green Mountain Power Corporation in the fall of 2012.

II. PROJECT'S GEOGRAPHIC LOCATION

The dam is located at river mile 3.8 on the Poultney River. The river forms a portion of the state border between Vermont and New York, and drains into the southern end of Lake Champlain. The Nature Conservancy's Lower Poultney River Natural Area is located approximately 1.5 -2 miles downstream.

Carver Falls which totals 126 feet in 3 main drops, is the highest major falls in Vermont, and contains two falls at the head of a limestone gorge. The dam is located at the top of the first falls. The water flows over a wide ledge and cascades beneath the penstock then over the 30' middle falls. The river gathers in the plunge pool, then over the final drop into the pool below. The falls have been altered by hydropower development since 1894. For 100 years before that date, they were harnessed to drive mill operations. The river above the falls lies in a ravine 100 feet deep. Below the falls, the ravine is 200 feet deep. A cave in a limestone cliff above the ravine is located about one mile below the falls.

The Lower Poultney River is one of four Outstanding Resource Waters (ORW) in Vermont. Based on this designation, the Vermont Agency of Natural Resources (VANR) developed a management plan for the Lower Poultney River that established the following goal: "For that portion of the Lower Poultney River within Vermont borders, the State will seek to manage certain activities affecting the water quality, flows, course, current, and cross-section of the Lower Poultney River to



preserve and enhance the exceptional natural, cultural, scenic, and recreational values of the river and river corridor.

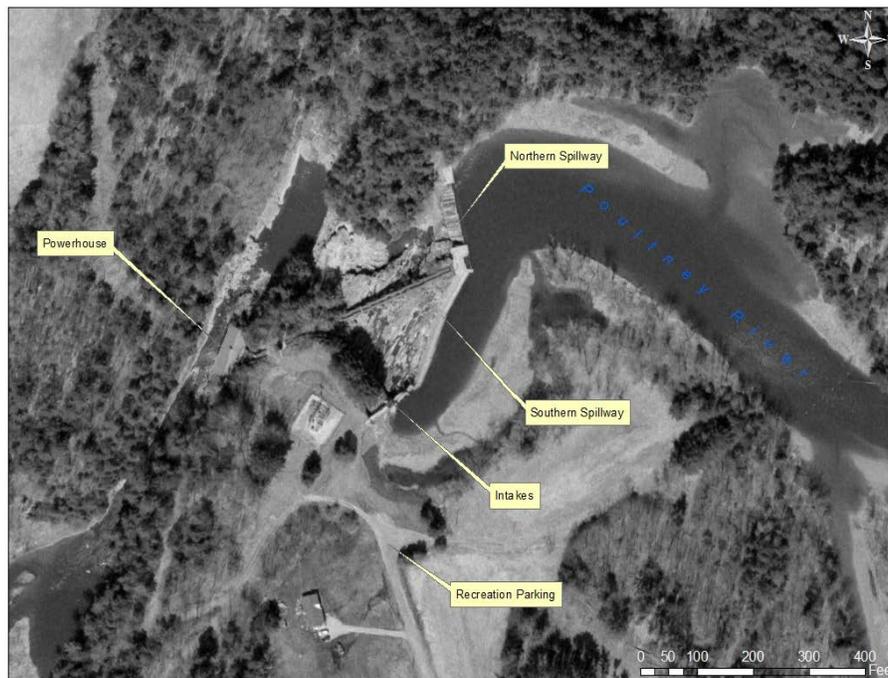
The Carver Falls Dam is the only dam on the Poultney River.

III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Project was first developed in 1894, and has changed considerably over the years. A new dam section was added following the 1927 flood, and additional repairs and expansion followed a subsequent flood in 1940. The project was acquired by the CVPS in 1929. It received an original FERC license in 2009, and an amended license in 2011.

The dam is located at the top of the first falls with one abutment on the Vermont shore of the river and the other abutment on the New York side of the river. The powerhouse, several hundred feet downstream of the falls, is on the New York side of the river. The concrete and stone masonry dam impounds a 10-acre reservoir that extends 1,770 feet upstream with an elevation of 233.3 feet above mean sea level (msl), and a useable storage capacity of 800,000 cubic feet. The dam is 514 feet long, with two spillway sections. The northern spillway is 110 feet long and topped with 6-foot flashboards. The southern spillway is 150 feet long and topped with 1.5-foot flashboards. The steel penstock is 220 feet long and 7 feet in diameter. It bifurcates into two 132-foot long, 3 to 4-foot diameter penstocks. Two steel surge tanks are located approximately 20 feet below the point of bifurcation, one for each penstock.

Carver Falls Project Overview.



Black and white digital orthophotography obtained from Vermont Mapping Program.

Figure 1 – Aerial Photograph of the Project

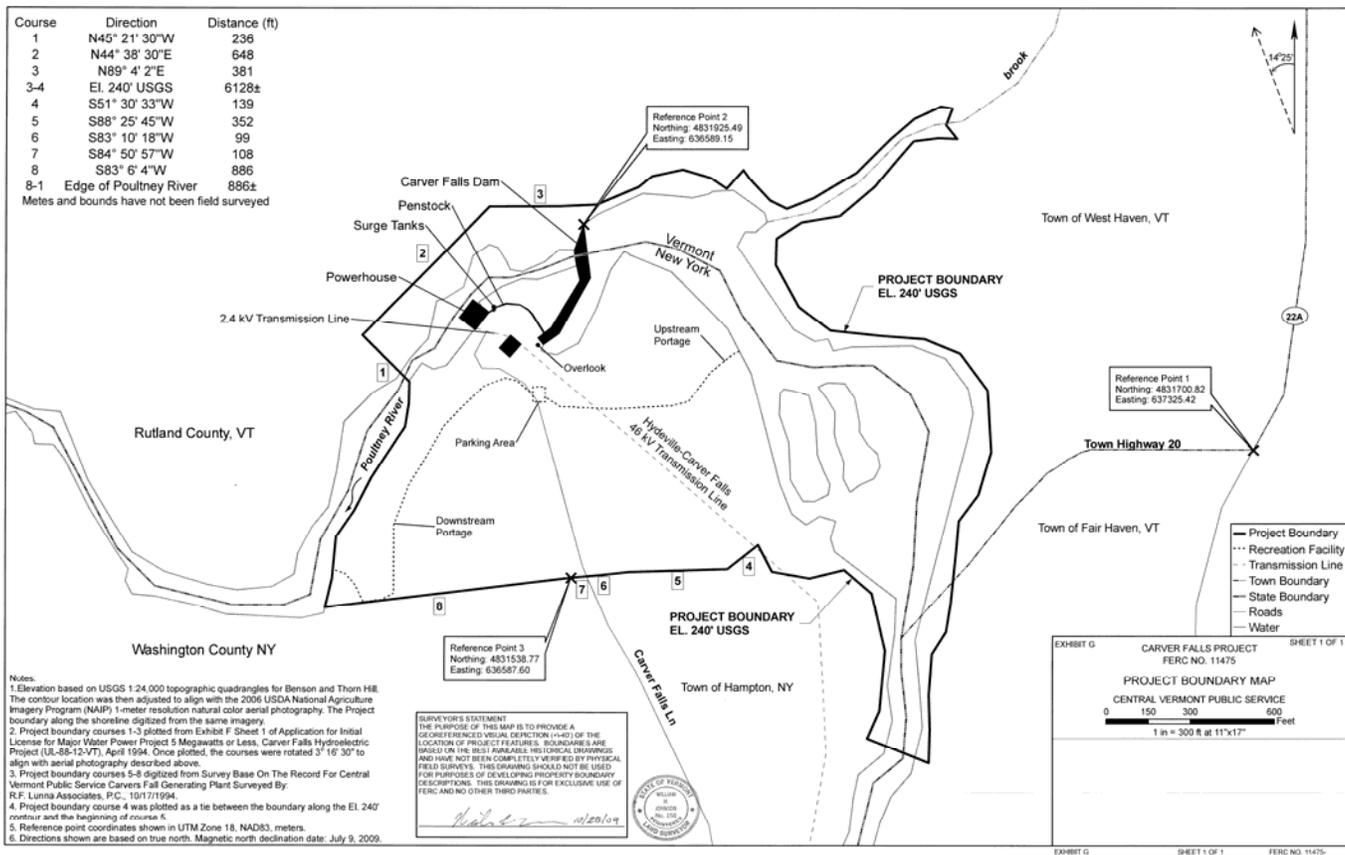


Figure 2 - Carver Falls Site Diagram

The powerhouse contains two turbine generating units, one with a capacity of 1,451 kW and the other with a capacity of 808 kW, as well as appurtenant facilities. The 1,451 kW unit replaces the former 1,100 kW Unit No. 1 Unit replacement was completed in 2011. Project power is transmitted through a 275-foot-long, 2.4-kilovolt transmission line connected to the regional grid.

The bypass reach is 700 feet long, and includes the bedrock gorge occupied by the falls and the plunge pool at its base. It also includes immediately adjoining areas on the left bank of the river that are presently occupied by the electrical substation and other Project facilities. The Project operates in a run-of-river mode.



IV. REGULATORY AND COMPLIANCE STATUS

On April 25, 1994, CVPS filed an application to the Federal Energy Regulatory Commission (FERC) for an original license to operate and maintain the then unlicensed Carver Falls Hydroelectric Project. Timely motions to intervene were filed by the U.S. Department of Interior, U.S. Environmental Protection Agency, Vermont Agency of Natural Resources (VANR), Vermont Natural Resources Council and Lower Poultney River Committee (jointly, VNRC), New York Department of Environmental Conservation (NYDEC), New York Rivers United and American Rivers. The FERC license was not issued until February 25, 2009 for a 30 year period due to legal challenges and complexities associated with water quality certifications from both New York and Vermont. The license was transferred to Green Mountain Power effective September 13, 2012.

Application for water quality certification was made to NYDEC in April 1994. The certification was issued on April 21, 1995 but appeals were filed by VANR and VNRC. In response, settlement negotiations were initiated and an agreement was reached on Dec 12, 1996. The Settlement included requirements for continuous bypass flows of 50 cfs or inflow if less between April 1 and May 15 to protect walleye spawning; removal of two abandoned penstocks, improved public parking and viewing access at the falls, and aesthetic flow release daytimes starting at 9am of 2.5 inches, or inflow if less, on Memorial Day, July Fourth, Labor Day, Columbus Day and Sundays during July and August and establishment of the Carver Falls Advisory Council chaired by NYDEC to make recommendations to the licensee and NYDEC on management of the Carver Falls site and hydropower operations.

It was also determined that water quality certification would also be needed from VANR. CVPSC filed an application to VANR in April 1999 for such Water Quality Certification; with the certification ultimately issued on December 5, 2008, after withdrawals and re-fillings made annually between 1999 and 2007. The NYDEC Water Quality Certification was also modified to be in compliance with the Settlement Agreement. Requirements of both certifications were adopted into the FERC license under Ordering paragraph D.

According to CVPS's application for LIHI certification, an amendment was issued for the FERC license and WQCs for a turbine replacement project, which were again amended in 2012 when field studies showed the capacity of the turbine was higher than originally approved. An amendment request was also issued to NYDEC in September 2012 to eliminate the condition associated with the Carver Falls Advisory Council as NYDEC never formed the Council. This is expected to be issued as a minor modification within the next several weeks based on email communication between the NYDEC and the applicant. A review of FERC's eLibrary from January 2007 through April 15, 2013, appears to generally support the position that the project is in compliance with its requirements. No license modifications were noted within this period other than that discussed above.

Review of FERC's eLibrary and as noted in the LIHI Application, one flow deviation occurred on May 10, 2011 for which FERC issued a Notice of Violation on June 12, 2011. The incident was caused by measures taken to dislodge a dead tree root ball that had become lodged in the broome gate during heavy flows the day before. These measures caused flow to be stopped for a

period of about three hours during the tree removal process.

Consultation was only undertaken with the NYDEC due to the currentness of the project licensing efforts and resource agency comment letters received directly by the applicant. These communications are summarized in Appendix A, followed by copies of the letters received from the resource agencies in Appendix B.

V. PUBLIC COMMENT RECEIVED BY LIHI

The public notice for LIHI certification was posted December 4, 2012, with a deadline for submission of comments on the certification application by February 4, 2013. No public comments letters were received by LIHI, however a letter dated December 24, 2012 was received by the applicant from the VANR and one from the NY SHPO which are contained in Appendix B.

VI. SUMMARY OF COMPLIANCE WITH CRITERIA AND ISSUES IDENTIFIED

Criterion A - Flows - The facility appears to be operated in compliance with the established minimum and aesthetic flow requirements, reservoir elevation and re-filling rates and deviation reporting. Only one deviation was reported. No specific areas of concern were identified by the resource agencies contacted.

Criterion B - Water Quality - The facility appears to be operated in compliance with all water quality related conditions of the FERC license and Water Quality Certificate. The Poultney River listing of the section from the falls and downstream of the Poultney River on the 303d listing in Vermont is due to atmospheric deposition of mercury and not project activities. The river is not included on New York's impaired waters list. No specific areas of concern were identified by the VANR nor NYDEC.

Criterion C - Fish Passage and Protection – There are no mandatory anadromous fish passage requirements although the USFWS reserved the authority to prescribe fish passage. The falls are deemed a natural barrier to such passage. American eel are present but passage has not yet been required by the USFWS or VANR/NYDEC. No passage requirements have been identified for riverine species. No other fish protection requirements have been requested.

Criterion D - Watershed Protection - There are no requirements for a buffer zone, shoreline protection fund or shoreline management plan for the Facility. An enhancement fund that does exist provides regional protection, but not enhancement to the specific project's watershed/shoreline. Thus, as all requirements, of which there are none, are nonetheless being met, this Facility passes for this criterion. No additional term for certification is appropriate.

Criterion E - Threatened and Endangered Species Protection – The federally endangered Indiana Bat and several state endangered or threatened species are all expected to, or are known to, occur at the Project. Recovery plans only exist for the Indiana bat and bald eagle. Listed fish

and mussel species all occur in downstream waters. A full Section 7 consultation was not found necessary by USFWS upon incorporation of tree removal restrictions within the FERC license. No tree removal activities have occurred since license issuance.

Criterion F - Cultural Resources - The Project is subject to the provisions of "Programmatic Agreement Among FERC, the Advisory Council on Historic Preservation and the New York and Vermont State Historic Preservation Officer (SHPO)." There are no issues identified with adherence to cultural resources protection requirements at the Facility.

Criterion G - Recreation - The Project was found to be in compliance with all recreational requirements.

Criterion G - Facilities Recommended for Removal - No resource agencies have recommended dam removal.

VII. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

The following recommendation is based on my review of information submitted by the applicant, the additional documentation obtained during the review process and the public comments submitted in writing or through my consultations with various resource agencies. I believe that the Project would be compliance with the LIHI criteria, provided the information identified in the recommended condition, which is associated with water quality, is provided. This condition is summarized below and discussed in more detail later in this report.

- 1) Should Green Mountain elect to move forward on impoundment drawdown to perform gate testing and repair within the term of this LIHI Certification, a copy of approvals by applicable state resource agencies and FERC if required, of any sampling, analysis and preventative measures needed to ensure protection of the water quality from potential release of sediments, shall be forwarded to LIHI within two weeks of their receipt. A summary letter report at the completion of the work, denoting any problems encountered and remediation implemented, shall also be provided to LIHI with two weeks of project completion.

THE CARVER FALLS PROJECT CONDITIONALLY MEETS THE LIHI CRITERIA FOR CERTIFICATION

VIII. DETAILED CRITERIA REVIEW

A. FLOWS

Goal: The Flows Criterion is designed to ensure that the river has healthy flows for fish, wildlife and water quality, including seasonal flow fluctuations where appropriate.

Standard: For instream flows, a certified facility must comply with recent resource agency recommendations for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the “good” habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.

Criterion:

- 1) **Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

YES – The flow requirements were contained in both the FERC License and WQC. Only one exception to the flow requirements was reported by the Applicant and confirmed through FERC eLibrary since licensee issuance in 2009. In summary these flow requirements, which remain valid, include:

- Instantaneous run-of-river operation;
- prohibition of flashboard use on the southern spillway from September 15 through mid-late April;
- maintain reservoir elevation of at least 1 inch above the flashboards or dam crest when the flashboards are not in;
- release of aesthetic flow release daytimes starting at 9am of 2.5 inches, or inflow if less, on Memorial Day, July Fourth, Labor Day, Columbus Day and Sundays during July and August
- restrictions on impoundment refilling rates;
- reporting of minimum flow deviations, the cause and corrective actions taken to minimize reoccurrence to FERC within 30 days of the deviation.

Review of FERC's eLibrary and as noted in the LIHI Application, one flow deviation occurred on May 10, 2011 for which FERC issued a Notice of Violation on June 12, 2011. The incident was caused by measures taken to dislodge a dead tree root ball that had become lodged in the broome gate during heavy flows the day before. These measures caused flow to be stopped for a period of about three hours during the tree removal process. Based on review of information provided, FERC's eLibrary and consultation with M. McMurray of NYDEC and a comment letter issued by VANR, no concerns regarding compliance with these requirements has been reported.

This Project passes Criterion A - Flows- Go to B

B. WATER QUALITY

Goal: The Water Quality Criterion is designed to ensure that water quality in the river is protected.

Standard: The Water Quality Criterion has two parts. First, an Applicant must demonstrate that the facility is in compliance with state water quality standards, either through producing a recent Clean Water Act Section 401 certification or providing other demonstration of compliance. Second, an applicant must demonstrate that the facility has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d).

Criterion:

1) Is the Facility either:

a) In compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the facility after December 31, 1986? Or in compliance with the quantitative water quality standards established by the state that

support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?

Yes. The operation of Carver Falls appears to be in compliance with the requirements of the 401 Water Quality Certifications issued by VANR and NYDEC, and with the FERC License, based on review of information provided, FERC's eLibrary and consultation with M. McMurray of NYDEC and a comment letter issued by VANR. These requirements remain valid, with the exception of establishment of the Carver Falls advisory Council which was stipulated in the NYDEC WQC. At the suggestion of NYDEC, Green Mountain has requested this Council be deleted from the WQC as the NYDEC has never established the Council, preventing the Applicant from fulfilling this requirement. NYDEC expects to issue this as a minor modification to the WQC within the next several weeks per an email dated May 2, 2013.

In 2012, Green Mountain Power proposed testing/repair of a bottom gate that appeared to be showing some operation concerns. Consultation with NYDEC indicated that an assessment and probable testing of sediments behind the gate would need to be implemented to ascertain potential release of contaminated sediment from impoundment drawdown needed for the gate evaluation. Per discussion with Beth Eliason of Green Mountain Power on May 3, 2013, the gate evaluation project has yet to be implemented. To ensure that all agency concerns are appropriately addressed, given the issue was raised by Mr. Michael McMurray of the NYDEC when consulted for his opinion about the Craver Falls Project, and to ensure conformance with the FERC license Article 402, it is recommended that certification of this project be conditioned on demonstration of these compliance requirements

YES, go to B2

2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?

YES. The 2010 Clean Water Act Section 303(d) List of Impaired Waters issued by the Vermont Agency of Natural Resources, Division of Water Quality identifies the waters in the area of the Project as impaired. The Poultney River listing of the section from the falls and downstream of the Poultney River on the 303d listing in Vermont is due to atmospheric deposition of mercury, and not project activities. The US Environmental Protection Agency approved a Regional Mercury Total Maximum Daily Load (TMDL) on December 20, 2007. The river is not included on New York's impaired waters list. **GO TO B3**

3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?

YES. The Carver Falls Project is not identified as causing or contributing to this water quality impairment of the impaired sections of the Poultney River. Atmospheric deposition is the listed cause.

The Project Passes Criterion B - Water Quality - Go to C

C. FISH PASSAGE AND PROTECTION

Goal: The Fish Passage and Protection Criterion is designed to ensure that, where necessary, the facility provides effective fish passage for riverine, anadromous and catadromous fish, and protects fish from entrainment.

Standard: For riverine, anadromous and catadromous fish, a certified facility must be in compliance with both recent mandatory prescriptions regarding fish passage and recent resource agency recommendations regarding fish protection. If anadromous or catadromous fish historically passed through the facility area but are no longer present, the facility will pass this criterion if the Applicant can show both that the fish are not extirpated or extinct in the area due in part to the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency. When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

Criterion:

1) Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?

NA. There are no Section 18 mandatory anadromous or catadromous fish passage requirements for the Project although the USFWS reserved the authority to prescribe such fish passage.

GO TO B2

2) Are there historic records of anadromous and/or catadromous fish movement through the facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?

The falls are deemed a natural barrier to such passage of anadromous species. The studies performed for licensing did not find any such species in the project waters. American eel are present but passage has not yet been required by the USFWS or VANR.

Go to C2a

a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?

YES. The falls at which the project is located falls are deemed a natural barrier to such passage

of anadromous species. American eel are present. *Go to C2b*

- b) If a Resource Agency recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?**

YES. The USFWS has reserved authority for mandating anadromous and/or catadromous fish passage if the need arise. This is included as Article 403 in the FERC license. As written, this prescription is not limited to any specific species, although this is more likely to involve eel passage only due to the natural falls based on comments from VANR. There are currently no anadromous fish passage initiatives for the Poultney River at this time. The VANR Water Quality Certificate states that neither type of fish passage is required based on their consultation with NYDEC. Consultation with NYDEC on May 2, 2013 confirmed the same position.

Go to C5

- 5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?**

NOT APPLICABLE. No fish passage prescriptions have been issued for riverine fish. *Go to C6*

- 6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?**

YES. No protection measures have been requested. The site currently is equipped with 1-3/8 inch spacing trashracks.

The Project Passes Criterion C - Fish Passage and Protection - Go to D

D. WATERSHED PROTECTION

Goal: The Watershed Protection criterion is designed to ensure that sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.

Standard: A certified facility must be in compliance with resource agency and Federal Energy Regulatory Commission (“FERC”) recommendations regarding watershed protection, mitigation or enhancement. In addition, the criterion rewards projects with an extra three years of certification that have a buffer zone extending 200 feet from the high water mark or an approved watershed enhancement fund that could achieve within the project’s watershed the ecological and recreational equivalent to the buffer zone and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license-approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

Criterion:

1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the average annual high water line for at least 50% of the shoreline, including all of the undeveloped shoreline?

NO, *go to D2*

2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1), and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?

NO. An enhancement fund was created to protect the entire Lake Champlain Basin, but not just the sub-watershed in which the project is located. It therefore does not provide equivalent protection to the specific project area. *go to D3.*

3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders, with state and federal resource agencies' agreement, an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)

NO, *Go to D4*

4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

NOT APPLICABLE. No Shoreland Management Plan, buffer zone or enhancement fund specific to protect the project's shoreline was required for the Carver Falls Project.

The Project Passes Criterion D - Watershed Protection - Go to E

E. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Threatened and Endangered Species Protection Criterion is designed to ensure that the facility does not negatively impact state or federal threatened or endangered species.

Standard: For threatened and endangered species present in the facility area, the Applicant must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and receive long term authority for a "take" (damage) of the species under federal or state laws.

Criterion:

1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?

YES. One federally endangered species (Indiana bat (*Myotis sodalists*)) and several state-listed species are expected or are known to occur near the Project. The bald eagle (*Haliaeetus leucocephalus*) is a state-endangered species under the protection of the Vermont Endangered Species Law. It is also listed as a threatened species in New York, and is known to occur on a transient basis, within or in the vicinity of the Project area.

The peregrine falcon (*Falco peregrines*) was also identified during licensing as occurring on an occasional transient basis around the Project area. Peregrines were removed from Vermont's List in April 2005 but remain listed as an endangered species in New York, with possible breeding habitat in the vicinity of the Project area, although none have been observed there.

Several species of fish are listed as threatened or endangered in Vermont and/or New York including the eastern sand darter, channel darter and lake sturgeon, all of which may be found in the Poultney River within the Project area, downstream of the falls and project dam. In addition, several species of mussels are also listed in one or both states including the black sand shell mussel, giant floater, fluted shell, fragile papershell, and pink heelsplitter, all found downstream of the project's tailrace.

Go to E2

2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?

YES. US Fish and Wildlife Service (USFWS) has drafted a Recovery Plan for the Indiana bat. Applicable provisions/restrictions were incorporated into the FERC license under Article 405

Vermont Fish and Wildlife has drafted a recovery plan for the bald eagle, 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. Efforts under this Recovery Plan are undertaken remote from the Carver Falls Project and CVPS is not involved with this restoration program as the bald eagle is only a transient in the vicinity of the Carver Falls Project.

Recovery plans have not been drafted for any of the other species expected in the Project area.

Go to E3

3) If the Facility has received authority to Incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental take

statement; (ii) Obtaining an incidental take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authorization?

NOT APPLICABLE. The USFWS concurred with the Biological Assessment issued by FERC and in a letter dated December 29, 2008, confirmed that the time-of-year restriction for tree removal would avoid the potential taking of Indiana bats. It was determined that no further consultation under Section 7 of the Endangered Species Act was required.

5) If E2 and E3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

YES. USFWS agreed that the time-of-year restriction for tree removal included in License Article 405 would avoid the potential taking of Indiana bats, therefore would not impact this species. The Environmental Assessment notes that the improvement in bypass flows and run-of-river operation in the 2009 License would result in improved downstream water quality, water depth and wetted area, thus enhancing habitat available for these species. Recent consultation indicates that NYDEC and VANR continue to support this position. No tree removal activities have occurred since license issuance.

The Project Passes Criterion E - Threatened and Endangered Species Protection - Go to F

F. CULTURAL RESOURCE PROTECTION

Goal: The Cultural Resource Protection Criterion is designed to ensure that the facility does not inappropriately impact cultural resources.

Standard: Cultural resources must be protected either through compliance with FERC license provisions, or through development of a plan approved by the relevant state or federal agency.

Criterion:

1) If FERC-regulated, is the Facility in compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?

YES. License Article 406 requires implementation of the "Programmatic Agreement Among FERC, the Advisory Council on Historic Preservation and the New York and Vermont State Historic Preservation Officer (SHPO)", which was executed on September 8, 1997. A Historic Properties Management Plan (CRMP) was developed and approved on May 3, 2011. The powerhouse, dam and gatehouse are considered potentially eligible for inclusion in the National Register of Historic Places. Phase 1A and 1B archeological surveys and identified five previously recorded sites within or near the Project. The HPMP addresses protective measures for the historic properties, including an evaluation of any site that will be impacted by an activity. Historic resources are evaluated during planning for any alterations to Project facilities,

and in consultation with the Vermont and New York SHPOs if activities could impact those resources. Any archeological sites discovered during Project activities will also be subject to the HPMP. An ongoing program of condition monitoring of built historic properties will be conducted on a five-year schedule. In addition, archeological resources will be monitored on an annual basis for three years, and if the sites appear stable, monitoring will be conducted every other year, thereafter to ensure continued integrity and stability of the sites.

Documentation, including a letter from the NY SHPO dated February 9, 2012, provided by the applicant has demonstrated compliance with cultural resources protection requirements. When contacted by the Applicant, the VT SHPO's office stated they do not comment on compliance with federal requirements.

The Project Passes Criterion F - Cultural Resource Protection - Go to G

G. RECREATION

Goal: The Recreation Criterion is designed to ensure that the facility provides access to the water without fee or charge, and accommodates recreational activities on the public's river.

Standard. A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a certified facility must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.

Criterion:

1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?

YES. The Project appears to be in compliance with License Articles 401 and 407, Conditions B, J, L and N of the Vermont WQC, and Conditions 12, 15 and 16 of the NYSDEC WQC for recreational access, accommodation and facilities, aesthetic flow releases, and occupancy and use. CVPS prepared a recreation plan in consultation with VANR, NYSDEC, and US Fish and Wildlife Service. FERC approved the recreation plan in 2010. Requested recreational facility enhancements were completed. FERC conducted an environmental and recreation inspection in 2009 and subsequently requested the applicant to ensure that recreation signage contains the required Part 8 information. These signs were subsequently installed.

2) Does the Facility allow access to the reservoir and downstream reaches without fees?

YES. A statement issued by the applicant indicates that such access is provided free of charge.

The Project Passes Criterion G - Recreation - Go to G

H. FACILITIES RECOMMENDED FOR REMOVAL

Goal: The Facilities Recommended for Removal Criterion is designed to ensure that a facility is not certified if a natural resource agency concludes it should be removed.

Standard: If a resource agency has recommended removal of a dam associated with the facility, the facility will not be certified.

Criterion:

1) Is there a Resource Agency recommendation for removal of the project dam?

NO. No resource agency has recommended removal of this dam.

The Project Passes Criterion H -Facilities Recommended for Removal

APPENDIX A

INDEX OF PRIMARY CONTACT INFORMATION FOR LIHI CRITERIA

The following lists direct consultation initiated by the Reviewer. Extensive consultation with other resource agencies was initiated by the Applicant's representative and provided in the application or as follow-up to questions raised by the Reviewer.

LIHI CRITERION	PRIMARY CONTACT INFORMATION
Flows	Michael McMurray, NYDEC
Water Quality	Michael McMurray, NYDEC
Fish Passage & Protection	None required
Watershed Protection	None required
Threatened & Endangered Species	Michael McMurray, NYDEC
Cultural Resources Protection	None required
Recreation	None required
Facilities Recommended for Removal	None required

RECORD OF CONTACTS

NOTE: The information presented below was gathered by telephone communication between the Reviewer and agency representative listed below.

Date:	April 28 and May 2, 2013 emails
Contact Person:	Michael McMurray
Contact Information:	518-897-1234; mjmcsmurr@gw.dec.state.ny.us
Area of Expertise:	All resource issues except cultural resources

In response to questions asked, Mr. McMurray confirmed that they are not aware of any compliance concerns associated with the project and that the only the only potential issue they have had in meeting all water and flow requirements have been some past issues associated with opening of the bottom gate during testing. This however did not warrant a concern regarding the facility receiving LIHI certification. He confirmed that no fish passage of any kind is currently required and that no know concerns regarding protected species has been brought to his attention.

APPENDIX B

KEY RESOURCE AGENCY LETTERS

Vermont Department of Environmental Conservation

Watershed Management Division

1 National Life Drive, Main 2

Montpelier, VT 05620-3522

<http://www.vtwaterquality.org>

[phone] 802-828-1535

[fax] 802-828-1544

Agency of Natural Resources

DISTRIBUTED ELECTRONICALLY

December 24, 2012

Ms. Beth Eliason
Green Mountain Power Corp.
77 Grove St.
Rutland, Vermont 05701

RE: Carver Falls Hydroelectric Project (FERC No. 11475)
Comments on LIHI Certification

Dear Ms. Eliason,

Thank you for this opportunity to comment on Green Mountain Power Corporation's (GMP) application to the Low Impact Hydropower Institute (LIHI) for certification of the Carver Falls Hydroelectric Project as a low impact hydroelectric project.

The Carver Falls Hydroelectric Project was certified in 2008 by the Department of Environmental Conservation (Department). In 2010 the certification was amended to authorize the replacement of the Unit 1 turbine with a Norcan Hydraulic turbine that would increase the projects hydraulic and generation capacity. In 2012 an additional amendment to the certification was issued to reflect the new turbine manufacturer field test which indicated a higher hydraulic capacity than the 2010 amendment. Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. Except for the self-reported violation below, the Department does not have any information suggesting that the project is not operating in full compliance with the conditions in its water quality certification.

During the Department's review, GMP identified errors in the data being recorded in the SCADA system for Carver Falls. The errors consisted of an incorrectly calibrated transducer measuring impoundment elevation, resulting in a lower operating elevation being recorded than specified in the project's certification. Furthermore, the spillage flow equation was incorrectly entered into the program, resulting in lower flows being recorded in the bypass than specified in the certification. GMP indicated to the Department that measurements from daily station checks that bypass flows and impoundment elevation were maintained in accordance with the water quality certification, and that it was in the process of correcting the problems.

Documented violation of the Water Quality Certification

The Department's compliance records document the following certification compliance issues. We have no additional information concerning project compliance.

- 5-17-2011 Central Vermont Public Service Corporation (now Green Mountain Power Corp.) filed a Notification of Nonconformance with Article 402 and Condition B of Vermont Water Quality Certification as detailed in a letter dated 5-10-2011 to the Department.

As part of the review, the Department consulted with fisheries biologists from the Vermont Department of Fish and Wildlife (DFW) on the need for upstream and downstream fish passage for anadromous fishes and American eels. The water quality certification did not require upstream or downstream passage for anadromous fishes, citing *A Strategic Plan for Development of Salmonid Fisheries in Lake Champlain* (NYS Department of Environmental Conservation October 4, 1977) which identified Carver Falls as a natural barrier for salmonids. The DFW has not made any plans regarding eel recovery or passage in Lake Champlain tributaries. Currently, there is a substantial management effort to restore the American eel to Lake Champlain outlined in *The Strategic Fisheries Plan for Lake Champlain* (Lake Champlain Fish and Wildlife Management Cooperative, Fisheries Technical Committee, 2009). Recent surveys by regional fisheries biologists have documented eels in Lake Hortonia which drains into the Hubbardton River, and joins the Poultney River approximately 2.5 miles downstream of Carver Falls, indicating these efforts in restoring eel populations are working.

Sincerely yours,

Jeff Crocker
River Ecologist

Attachment

c: Rod Wentworth, Department of Fish and Wildlife
Chet Mackenzie Department of Fish and Wildlife
Shawn Good, Department of Fish and Wildlife
John Warner, U.S. Fish and Wildlife Service
Melissa Grader, U.S. Fish and Wildlife Service



New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

www.nysparks.com

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

February 9, 2012

Beth Eliason, P.E.
Central Vermont Public Service Corporation
77 Grove Street
Rutland, VT 05701

Re: Carvers Falls Hydroelectric Facility
FERC Project # 11474
T/Hampton, Washington Co., NY

Dear Ms. Eliason:

The New York State Historic Preservation Office is pleased to confirm that, to the best of our knowledge, the Carvers Falls hydroelectric facility is in compliance with the Cultural Resources Management Plan, implemented in accordance with the Programmatic Agreement regarding the treatment of historic resources, in fulfillment of the requirements of Section 106 of the National Historic Preservation Act.

If you have any questions regarding this matter, please call me at (518) 237-8643, extension 3283 or email me at james.warren@oprhp.state.ny.us.

Sincerely,

James Warren
Historic Sites Restoration Coordinator