ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE

Carver Falls Hydroelectric Project
FERC Project No. 11475-000
New York/Vermont

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Licensing and Compliance
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SUMMARY

On April 25, 1994, Central Vermont Public Service Corporation (CVPS) filed an application with the Federal Energy Regulatory Commission (Commission) for an original license to operate the existing, unlicensed 1.85 megawatt (MW) Carver Falls Hydroelectric Project, No. 11475-000, located on the Poultney River in the Town of Hampton, Washington County, New York and the Town of West Haven, Rutland County, Vermont. The project does not occupy any federally owned lands. CVPS is not proposing to add any new capacity or make any major modifications to the project.

On April 22, 1994, pursuant to Section 401 of the Clean Water Act, CVPS applied to the New York State Department of Environmental Conservation (NYSDEC) for 401 Water Quality Certification (WQC) for the Carver Falls Project. NYSDEC issued a WQC for the Carver Falls Hydroelectric Project on April 21, 1995. The WQC was modified to incorporate the terms and conditions of a Settlement Agreement filed by NYSDEC on December 12, 1996. NYSDEC initiated the settlement negotiations and invited all intervenors in both the Commission proceeding and the certification proceeding to participate. The signatories to the Settlement Agreement are the NYSDEC, New York Rivers United, and CVPS. The other participants in the settlement negotiations included the Vermont Natural Resources Council, the Poultney River Committee, the National Wildlife Federation - Vermont Chapter, and the Vermont Agency for Natural Resources. The Settlement Agreement is unopposed.

This environmental assessment (EA) prepared for the Carver Falls Project evaluates the effects associated with issuing an original license for the hydropower project, and it recommends terms and conditions to become part of any license issued. For any license issued, the Commission must determine that the project adopted will be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued, the Commission must give equal consideration to the following purposes: energy conservation; the protection and enhancement of fish and wildlife, aesthetics, and cultural resources; and the protection of recreation opportunities. This EA reflects the Commission's consideration of these factors.

In the comprehensive development section of this EA (Section VI), we study both the environmental resource benefits and the power and economic benefits of the project. Based on our analysis, we recommend that the following measures proposed by CVPS, along with agency and staff recommended measures, be included in any license issued for the Carver Falls Project.

The applicant should implement the following measures:

- Operate the project in an instantaneous run-of-river mode (instantaneous sum of all discharges and releases from the impoundment approximates the instantaneous inflow into the impoundment), except for periods when dam leakage exceeds inflow to the impoundment.

- Provide a minimum flow of 50 cfs, or inflow, in the bypassed reach from April 1 through May 15 to enhance walleye spawning. During the remainder of the year, provide an 18.5 cfs minimum flow to protect water quality and aquatic resources in the bypassed reach. This flow should include 9.0 cfs spillage plus dam leakage of 9.5 cfs.

- Release a flow over the southern spillway of 2 1/2 inches (or inflow, if less) for aesthetic purposes on Memorial Day, July Fourth, Labor Day, Columbus Day, and every Sunday during the months of July and August. This aesthetic flow shall be released during daylight hours, commencing at 9 AM.

- Develop and implement a plan to monitor flows in the bypassed reach.

- Develop and implement a flashboard removal and replacement plan that includes (a) the annual removal of the project's 18-inch-high flashboards by September 15; (b) the periodic replacement (every 5 or 6 years) of the project's 6-foot-high flashboards at the same time as the 18-inch-high flashboards to minimize the effects of drawdowns on project area habitat; and (c) measures to monitor downstream turbidity during the first removal of the 6-foot-high flashboards after license issuance and immediately following any unplanned washout of boards caused by extraordinary high flows.

- Remove the two abandoned penstocks and 6 concrete cradles in the bypassed reach to enhance aesthetic resources.

- Improve access and recreational facilities at Carver Falls by developing and implementing a final recreational enhancement plan. This plan should include measures to control soil erosion and sedimentation during construction of the lower portage trail and river access area.

- Develop a cultural resources management plan for the protection of cultural resources.

- Develop and implement a trashrack debris disposal plan to preserve water quality.

- Participate in the Carver Falls Advisory Committee.

Overall, these environmental measures, along with standard articles provided in any license issued for the project, would protect, mitigate, or enhance fisheries resources, water quality, cultural resources, and recreational resources. In addition, the electricity generated from the project would be beneficial because it would continue to: reduce the use of fossil-fueled, electric generating plants; conserve nonrenewable energy resources; and reduce atmospheric pollution.

We did not identify any reasonable action alternatives to the project for assessment. The no-action alternative was considered and is addressed in the environmental analysis and the comprehensive development sections of this EA. Denial of the license would mean that about 7,249 megawatt-hours (MWh) of electric energy generation per year at the Carver Falls Hydroelectric Project would be lost, and no measures would be implemented to protect, mitigate, or enhance existing environmental resources.

Under Section 10(j) of the Federal Power Act (FPA), each hydroelectric license issued by the Commission must include conditions based on the recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project. In this EA, we recommend adopting all of the recommendations made by the agencies that are within the scope of Section 10(j) of the FPA.

The Secretary of the U.S. Department of the Interior (Interior) requested that any license issued for the Carver Falls Project reserve Interior's authority to prescribe fish passage facilities at this project pursuant to Section 18 of the FPA. We recommend that Interior's authority be reserved in any license issued.

Based on our independent analysis of the project, we find that issuance of an original license for the Carver Falls Project would not constitute a major federal action significantly affecting the quality of the human environment.

ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING
DIVISION OF LICENSING AND COMPLIANCE

Carver Falls Hydroelectric Project
FERC Project No. 11475-000 — New York and Vermont

INTRODUCTION

The Federal Energy Regulatory Commission (Commission) issued the Carver Falls Hydroelectric Project Draft Environmental Assessment (EA) for comment on September 30, 1996. In response, we received five comment letters. The staff reviewed all timely filed comment letters. We identify the sections of the EA that have been modified as a result of comments in the staff responses to the right of the letters of comment, reproduced in Appendix A.

I. PURPOSE AND NEED FOR POWER

A. Purpose of Action

On January 25, 1991, Commission ordered Central Vermont Public Service Corporation (CVPS) to apply for an original license for the Carver Falls Hydroelectric Project. On April 25, 1994, CVPS filed an application with the Commission for an original license to operate the 1.85 megawatt (MW) Carver Falls Hydroelectric Project, No. 11475-000, located on the Poultney River in the Town of Hampton, Washington County, New York and the Town of West Haven, Rutland County, Vermont (Figure 1). The project does not occupy any federally owned lands. CVPS is not proposing to add any new capacity or make any major modifications to the project.

This environmental assessment (EA) documents our analysis of the effects associated with the continued operation of the existing project. In this document, we also present alternatives to the proposed project and make recommendations to the Commission on whether to issue an original license. Finally, we recommend terms and conditions to become a part of any license issued. The Federal Power Act (FPA) provides the Commission with the exclusive authority to license nonfederal water power projects on navigable waterways and federal lands.

The Commission considers several important factors in its decision to license a facility. In addition to the power and developmental purposes for which licenses are issued, the Commission must give equal consideration to the protection and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, the preservation of other aspects of environmental

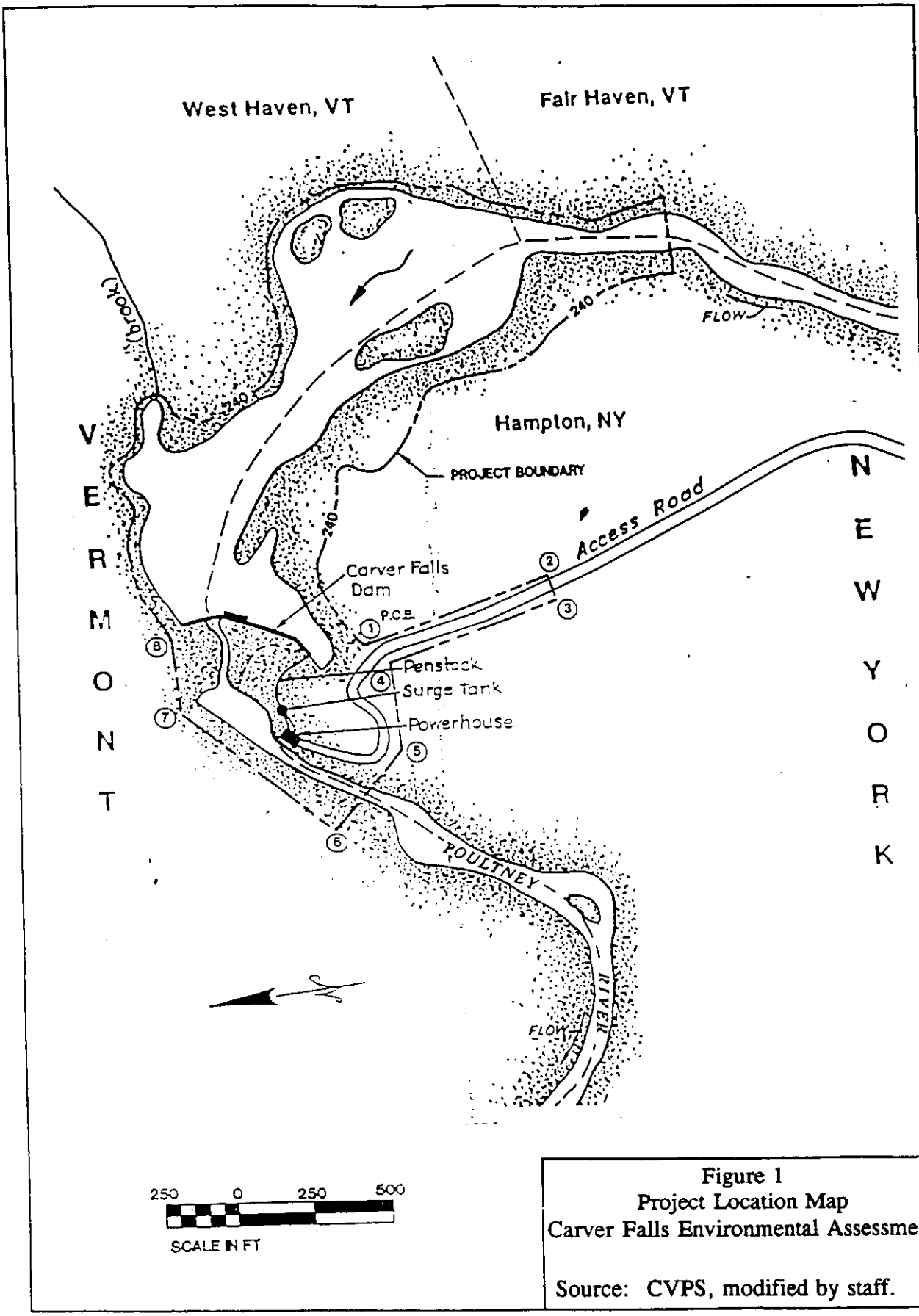

Figure 1
Project Location Map
Carver Falls Environmental Assessment

Source: CVPS, modified by staff.

quality, and opportunities for energy conservation. This EA reflects the Commission's consideration of these factors.

B. Need for Power

To assess the need for power, we reviewed CVPS's use of the project power to date and in the future, together with that of the operating region in which the project is located.

The Carver Falls Project is located in the New England Power Pool (NEPOOL) subregion of the Northeast Power Coordinating Council (NPCC) region of the North American Electric Reliability Council (NERC). NERC annually forecasts electrical supply and demand in the nation and the region for a 10-year period. NERC's report[1] on annual supply and demand projections indicates that, for the period 1994-2005, loads in the NEPOOL area will grow faster than planned capacity additions, resulting in decreased reserve margins. These margins could fall below 15 percent in later years of the forecast period.

The Carver Falls Project has historically generated an annual average of 7,249 megawatt-hours (MWh) of power for CVPS. In addition, the project displaces nonrenewable fossil-fired generation and contributes to diversification of the generation mix in the NEPOOL area.

We conclude that present and future use of the project's power, its displacement of nonrenewable fossil-fired generation and contribution to diversified generation mix support a finding that the power from the Carver Falls Project will help meet a need for power in the NEPOOL area in the short- and long-terms.

II. PROPOSED ACTION AND ALTERNATIVES

A. Applicant's Proposal

1. Project Facilities and Operation

The Carver Falls Project consists of: (1) a concrete and stone masonry dam 514 feet long having (a) a northern stone masonry spillway 110 feet long with a crest elevation of 227.8 feet U.S. Geological Survey Data (USGS) and carrying 6-foot-high wooden flashboards, and (b) a southern concrete spillway 150 feet long with a crest elevation of 231.8 feet USGS, and carrying 1.5-foot-high flashboards; (2) a 6-foot-high by 9-foot-high hydraulically operated broome gate; (3) a reservoir with a surface area of 10 acres at a normal pond elevation of 233.3 feet USGS and a gross and usable storage capacity of 1,000,000 cubic

[1] NERC's Electricity Supply and Demand Database, 1995-2004 dataset (June 1995).

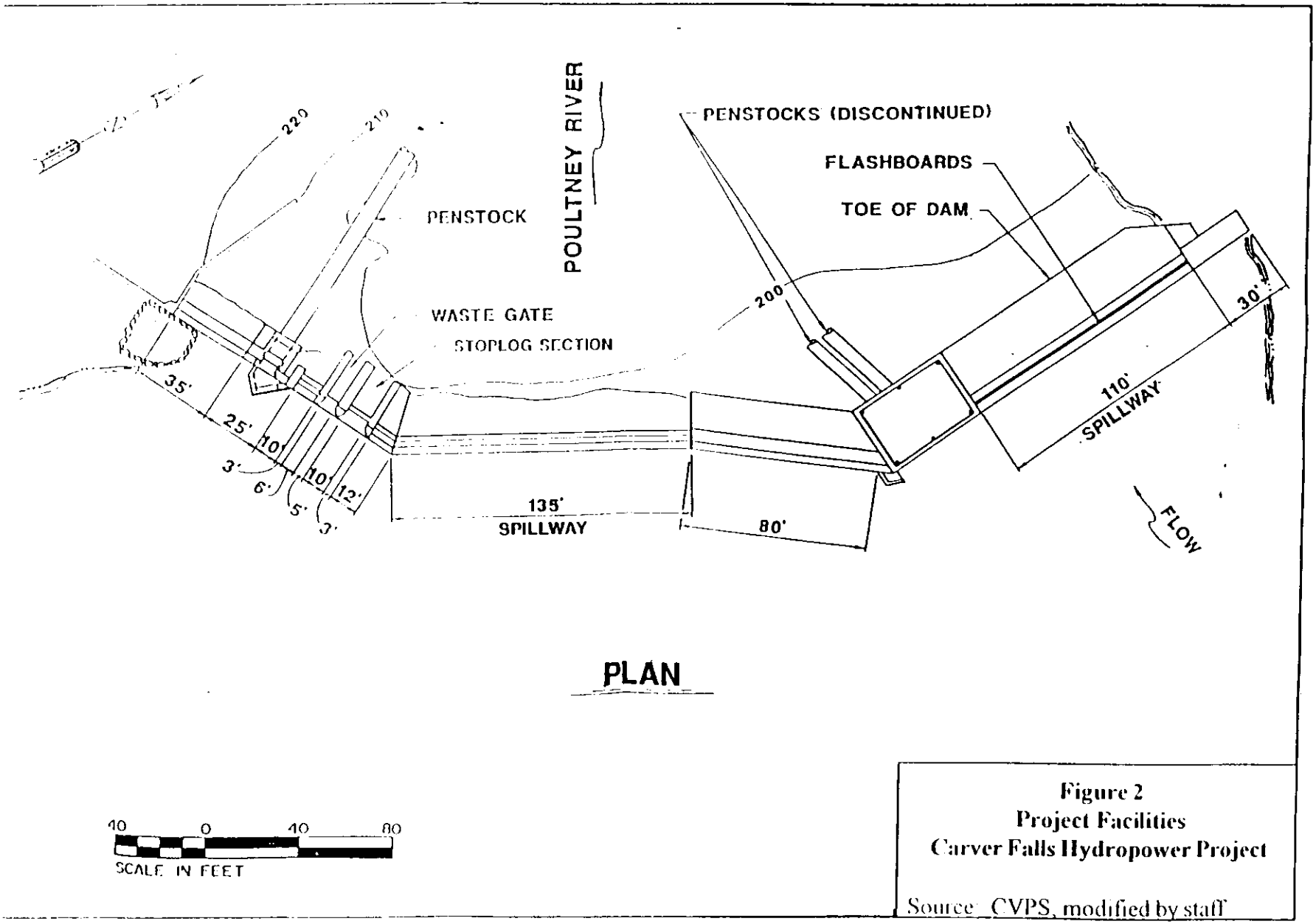

Figure 2
Project Facilities
Carver Falls Hydropower Project

Source: CVPS, modified by staff

feet and 800,000 cubic feet, respectively; (4) a 300-foot-long, 7-foot-diameter steel penstock that bifurcates to two 150-foot-long steel penstocks, 3 feet and 4 feet in diameter with surge tanks; (5) a stone powerhouse, 88-feet-long by 40-feet-wide, with two turbine/generators having hydraulic capacities of 162 cubic feet per second (cfs) and 92 cfs, and generating capacities of 1,050 kilowatts (kW) and 800 kW; and (6) appurtenant facilities (Figure 2).

The project currently operates in a run-of-river mode when flows meet or exceed the station's hydraulic capacity. During reduced summer flows, the project operates in a daily peaking mode, with impoundment drawdowns averaging 2 feet. During periods of extreme low flow, these daily drawdowns may reach 9 feet. Dam leakage at normal reservoir elevation (233.3 feet USGS) provides a flow of approximately 9.5 cfs to the bypassed reach.

2. Proposed Environmental Measures

CVPS proposes to implement the following environmental measures.

- Operate the project in an instantaneous run-of-river mode (instantaneous sum of all discharges and releases from the impoundment approximates the instantaneous inflow into the impoundment).

- Release 9.0 cfs dam spillage as a continuous 1-inch aesthetic spill over the southern spillway.

- Provide a continuous minimum flow of 18.5 cfs, or inflow if less, composed of 9.5 cfs of leakage and 9.0 cfs of dam spillage to the project's 250-foot-long bypassed reach.

- Annually remove the 18-inch-high flashboards by October 15.

- Enhance recreational access by:

  (1) improving the existing parking area;

  (2) improving the portage trail/road to the existing upstream boat launch on the impoundment;

  (3) constructing a trail/road with a vehicle turn-around and unloading area to access the downstream portage area on the Poultney River;

  (4) constructing cobble and gravel filled steps at the downstream portage trail and river access area;

(5) providing two picnic tables;

(6) Improving the existing viewing platform on top of the active penstock by adding a wider platform and safety railings;

(7) installing interpretive signage at the parking area, viewing area, and powerhouse;

(8) providing directional signage throughout the project area; and

(9) installing trail registers at the parking lot.

B. Alternatives to the Proposed Project

1. Staff's Alternative

An alternative to licensing the project as proposed by CVPS is to license the project with modifications or other resource protection, mitigation, or enhancement measures. In addition to CVPS's environmental measures, the staff recommends that CVPS do the following:

- Develop and implement a plan to monitor flows to the bypassed reach.

- Develop and implement a flashboard removal and replacement plan that includes (a) the annual removal of the project's 18-inch-high flashboards by September 15; (b) the periodic replacement (every 5 or 6 years) of the project's 6-foot-high flashboards at the same time as the 18-inch-high flashboards to minimize the effects of drawdowns on project area habitat; and (c) measures to monitor downstream turbidity during the first removal of the 6-foot-high flashboards after license issuance and immediately following any unplanned washout of boards caused by extraordinary high flows.

- Provide a minimum flow of 50 cfs, or inflow, in the bypassed reach from April 1 through May 15 to enhance walleye spawning.

- Release a flow over the southern spillway of 2 1/2 inches (or inflow, if less) for aesthetic purposes on Memorial Day, July Fourth, Labor Day, Columbus Day, and every Sunday during the months of July and August. This aesthetic flow should be released during daylight hours, commencing at 9 AM.

- Develop and implement a trashrack debris disposal plan to protect downstream water quality.

- Develop and implement a cultural resources management plan (CRMP) to manage known and previously undiscovered cultural resources.

- Remove the two abandoned penstocks and 6 concrete cradles to enhance visual resources.

- Improve access and recreational facilities by developing a final recreational enhancement plan that includes measures to control soil erosion and sedimentation during the construction of improvements to the lower portage and river access.

- Participate in the Carver Falls Advisory Committee.

2. No-action Alternative

Under the no-action alternative, the project would continue its current operation; no new environmental protection or enhancement measures would be implemented. We use this alternative to establish baseline conditions for comparison with other alternatives.

3. Alternatives Considered but Eliminated From Detailed Study

We considered two retirement alternatives (one involving removal of the dam and one involving retaining the dam but removing power generating equipment) but eliminated them from detailed study because neither is reasonable in the circumstances of this case. Either alternative would involve denial of the license application. In any retirement alternative, project capacity and energy would probably be replaced with fossil-fueled power that contributes to atmospheric pollution.

No agency or participant has suggested that dam removal would be appropriate, nor have we found a basis for recommending it at this time. The project's impoundment provides recreation opportunities and habitat for fish and wildlife. Thus, dam removal is not a reasonable alternative to licensing the project with appropriate protection, mitigation, or enhancement measures.

The second retirement alternative would involve retaining the dam and disabling or removing equipment used to generate power. Project works would remain in place and could be used for historic or other purposes. This would require us to identify another government agency willing and able to assume regulatory control and supervision of the remaining facilities. No agency or other participant has advocated project retirement with

equipment removal, nor have we found any basis for recommending it.

III. CONSULTATION AND COMPLIANCE

A. Agency Consultation

The Commission's regulations require the prospective applicant to consult with the appropriate resource agencies before filing a license application. This prefiling consultation initiates compliance with the National Environmental Policy Act, Fish and Wildlife Coordination Act, Endangered Species Act, National Historic Preservation Act, and other federal statutes. Prefiling consultation must be completed and documented for the application to be accepted. After acceptance, the Commission issues a public notice and seeks formal comments in accordance with these statutes.

CVPS filed its application for an original license on April 25, 1994, and subsequent revisions and corrections to the application on March 6, 1996. No improvements or changes to project features are proposed.

On March 18, 1996, the Commission issued a public notice that the project was ready for environmental analysis. The following entities provided comments and recommended license terms and conditions. All comments become a part of the record and are considered during the staff's analysis of the project.

Commenting Agency	Date Filed
U.S. Department of the Interior	May 14, 1996
New York State Department of Environmental Conservation	May 17, 1996
State of Vermont, Agency of Natural Resources	May 17, 1996

CVPS responded to VANR's recommended license terms and conditions by letter filed July 1, 1996.

B. Interventions

Besides providing comments, organizations and individuals may petition to intervene and become a party to subsequent proceedings and ensure consideration of comments by the Commission.

In response to the Notice of Application Accepted for Filing issued by the Commission on October 10, 1995, motions to intervene were received from the following entities:

Intervenor	Filing Date
Adirondack Mountain Club	December 4, 1995
New York State Department of Environmental Conservation	October 18, 1995
U.S. Department of the Interior	December 4, 1995
State of Vermont, Agency of Natural Resources*	December 5, 1995
New York Rivers United and American Rivers Inc.	December 4, 1995
Vermont Natural Resources Council*	December 6, 1995
U.S. Environmental Protection Agency	December 6, 1995

* Indicates motion was filed in opposition.

We address intervenor concerns in the environmental analysis section (Section IV) of this draft EA.

C. Comments on the Draft Environmental Assessment

The respondents commenting on the draft EA are shown below.

Commenting Entities	Date of Letter
Nature Conservancy	November 13, 1996
Central Vermont Public Service Corporation	December 6, 1996
State of Vermont Agency of Natural Resources	December 10, 1996
State of New York Department of Environmental Conservation	December 11, 1996
Vermont Natural Resources Council	December 11, 1996

D. Water Quality Certification

Section 401(a)(1) of the Clean Water Act (CWA)[2] requires an applicant for a federal license or permit for any activity that may result in a discharge into navigable waters of the United States to provide to the licensing or permitting agency a certification from the state in which the discharge originates that such discharge will comply with certain sections of the CWA. If a state fails to act on a request for certification within one

[2] 33 U.S.C. § 1341 (1988).

year, the certification requirement is waived.[3] Section 401(d) of the CWA[4] provides that state certifications shall set forth conditions necessary to ensure that applicant's comply with specific portions of the CWA and with appropriate requirements of state law.[5]

The Poultney River is the boundary between the states of New York and Vermont, but the project discharge and intake are located on the New York bank of the river. CVPS filed an application for Water Quality Certification with NYSDEC on April 22, 1994. NYSDEC issued a WQC for the Carver Falls Hydroelectric Project on April 21, 1995.[6] In November 1995, NYSDEC initiated settlement negotiations on the issuance of a draft WQC issued for the project that led to a Settlement Agreement among NYSDEC, New York Rivers United (NYRU), and CVPS filed on December 12, 1996. The Settlement Agreement states that, except as specifically modified by the settlement offer, NYSDEC's April 21, 1995, WQC remains in full force and effect, and that NYSDEC shall modify the WQC as appropriate to make it consistent with provisions of the Settlement Agreement. By letter dated December 13, 1996, NYSDEC modified its WQC to incorporate the provisions of the Settlement Agreement.

Our experience with Section 401 water quality conditions indicates that some states routinely include measures that, in our opinion, do not relate to water quality and, therefore, are outside the scope of Section 401. Only those measures included in a WQC for the Carver Falls Project considered to be within the scope of Section 401 will become part of any license issued.

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[3] 33 U.S.C. § 1341(a)(1) (1988).

[4] 33 U.S.C. § 1341(d).

[5] Section 401 (d) provides that:

Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a federal license or permit will comply with any application effluent limitations and other limitations, under section 1311 or 1312 of this title, standard of performance under section 1316 of this title, or prohibition, effluent standard, or pretreatment standard under section 1317 of this title, and with any other appropriate requirement of state law set forth in such certification, and shall become a condition on any federal license or permit subject to the provisions of this section.

[6] The State of Vermont has argued that CVPS must also obtain Water Quality Certification from Vermont. This is a legal issue, which will be addressed in the license order.

NYSDEC's WQC, dated April 21, 1995, for the Carver Falls Project lists terms and special conditions labeled 1 through 12. The December 12, 1996, Settlement Agreement revised Condition 3 and added four additional conditions that we number 13 through 16. In the following section, we present our analysis of NYSDEC's water quality conditions, including modifications agreed upon in the Settlement Agreement.

Condition 1. The project, including relevant records, is subject to inspection at reasonable hours and intervals, upon reasonable notice to Certificate holder, by an authorized representative of the Department to determine whether the applicant is complying with this Certification. A copy of the Certification, including all referenced maps, drawings, and special conditions, must be available for inspection by the Department during such inspections at the project.

Condition 2. The Certificate holder shall ensure that the project is operated in a strict run-of-river mode of operation. Project operation shall be based on an active storage volume of zero cubic feet at all times. Therefore, the instantaneous sum of all discharges and releases from the impoundment will equal the instantaneous inflow into the impoundment. The condition may be temporarily modified by civil or operating emergencies beyond the control of the Certificate holder, or upon mutual consent of the Department and the Certificate holder.

In implementing run-of-river operation, the Certificate holder shall not permit the elevation of the project impoundment to drop below one inch (0.08333 feet) above the top of the flashboards when the flashboards are in place, or to drop below 0.0833 feet above the crest of the dam when flashboards are out, pursuant to Condition C below.

Condition 3. The Certificate holder shall provide a continuous flow to the bypassed reach of 50 cfs (or inflow, if less) from April 1 through May 15 of each year to protect walleye spawning in the bypassed reach. From May 16 through March 31 the Certificate holder shall provide a continuous release of at least 18.5 cfs (or inflow, if less) to the bypassed reach. The applicant has ascertained that a one inch spill over the 115 foot long spillway section of the dam will result in no less than 18.5 cfs in the bypassed reach. Therefore,

calibrated pond level sensors must be used to control turbine operation to ensure that the impoundment never falls below an elevation one inch above the top of flashboards when flashboards are in place or one inch above dam crest when flashboards are out. This will ensure that the minimum instantaneous flow of 18.5 cfs is maintained.

Condition 4. The Certificate holder shall submit a flow monitoring plan for Department approval within three months of acceptance of the FERC License. This flow monitoring plan will provide for the installation and maintenance of a USGS gaging station, unless justification for an alternative gaging system is provided. The flow monitoring plan shall include all gages and/or equipment for the purpose of:

a. determining project flows through the bypass reach, and;

b. determining project headpond and tailwater elevations.

The Licensee shall keep accurate and sufficient records of the foregoing flow data to the satisfaction of the Department and shall provide such data in a format and interval as the Department may request.

Condition 5. The Certificate holder shall curtail generation and install stoplogs or otherwise shut off flow through the turbine(s) prior to commencing any maintenance dredging activities in the intake/forebay area.

Condition 6. The Certificate holder must sample any sediments to be disturbed or removed from the project waters and test them for contaminants. Sampling and testing shall be accomplished according to a protocol submitted to and approved by the Department beforehand. Prior to dredging or other excavation, the Certificate holder must secure Department approval from the project waters.

Condition 7. Prior to commencing activities which could adversely affect water quality, the Certificate holder must receive Department approval for an Erosion and Sediment Control Plan. This plan must be submitted at least 90 days before the intended date for commencing work. At minimum, the

Certificate holder must accomplish the following objectives:

a. Isolate in-stream work from the flow of water and prevent discolored (turbid) discharges and sediments from entering the waters of the river due to excavation, dewatering and construction activities.

b. Exclude heavy construction equipment from below the mean high water line until the work area is protected by an approved structure for dewatering.

c. Stabilize any disturbed banks by grading to an appropriate slope, followed by armoring or vegetating as appropriate, to prevent erosion and sedimentation into the waterbody.

d. Minimize soil disturbance, provide appropriate grading and temporary and permanent revegetation of stockpiles and other disturbed areas to minimize erosion/sedimentation potential.

e. Protect all waters from contamination by deleterious materials such as wet concrete, gasoline, solvents, epoxy resins or other materials used in construction, maintenance and operation of the project.

f. Install effective erosion control measures on the downslope of all disturbed areas and maintain them in a fully functional condition. These erosion control measures are to be installed before commencing any other activities involving soil disturbance.

g. Ensure complete removal of all dredged and excavated material, debris or excess materials from construction, from the bed and banks of all water areas to an approved upland disposal site.

h. Ensure that all temporary fill and other materials placed in the waters of the river are completely removed, immediately upon completion of construction, unless otherwise directed by the Department.

Condition 8. Placement of cofferdams, construction of temporary access roads or ramps, or other temporary structures which encroach upon the bed or banks of the river, must be approved by the Department prior to installation. These designs will be developed in accordance with Condition G.

Condition 9. During all periods of construction, the Certificate holder shall maintain adequate flows immediately downstream of work sites to ensure that the water quality standards established for the water body are met. This does not relieve the Certificate holder from Condition F, requiring run-of-river operation or Condition G, specifying the minimum flow to the bypassed reach.

Condition 10. The Certificate holder will monitor the waters of the river at a point immediately upstream of project activities and at a point no more than 100 feet downstream from any discharge point or other potential source of turbidity. The Certificate holder specifically agrees that if at any time, turbidity measurements from downstream locations exceed the measurements from the locations upstream of the work areas, all related construction on the project will cease until the source of the turbidity is discovered and the situation is corrected.

Condition 11. The Department contact specified in the Certificate must be notified in writing at least two weeks prior to commencing any work performed under the authority of the Certificate.

Condition 12. The Certificate holder shall provide cartop boat access to the impoundment as proposed in the Application, with parking as shown in Figure 15 of the Application, for no less than 5 cars. The Certificate holder shall also provide a canoe portage route to a point downstream of the powerhouse as shown in Figure 15 and described in Section E.2.6.3 of the application. These construction activities are subject to all the pertinent conditions listed under Conditions E through K of the above-described Certification.

Condition 13. The Certificate holder shall release a flow over the southern spillway of 2 1/2 inches (or inflow, if less) for aesthetic purposes on Memorial Day, July Fourth, Labor Day, Columbus Day, and every Sunday during the months of July and August. This aesthetic flow shall be released during daylight hours, commencing at 9 AM.

Condition 14. The Certificate holder shall provide improved parking and viewing access opportunities for the general public at the Falls.

Condition 15. The Certificate holder shall remove the two abandoned above-ground penstocks located at the Carver Falls facility. The stone cradles shall not be removed.

Condition 16. The Certificate holder shall be invited to attend meetings of the Carver Falls Advisory Council, a council that will be formed to keep abreast of changing conditions that may affect the Carver Falls site. This council will be representative of the various interests in Carver Falls and will make recommendations for consideration by NYSDEC and the Certificate holder regarding management of the Carver Falls site and hydropower project operations. Each member will have one vote, with Advisory Council decisions to be based on majority vote. The Advisory Council will meet at least once a year. The Certificate holder will defray the costs of the Carver Falls Advisory Council meetings, including travel expenses. The Certificate holders' obligation is subject to an overall $200 annual cap, regardless of the number of meetings held.

We are of the opinion that Conditions 1 through 14 and 16 are related to the protection and enhancement of water quality or deal with a state-designated use of the river.[7] Nevertheless, Conditions 4, 6, and 7 are considered outside the scope of Section 401 because they attempt to control the timing of activities under a federal license and transfer final approval authority from the Commission to NYSDEC. Condition 15 is considered outside the scope of Section 401 because it is not related to the protection and enhancement of water quality.

[7] Great Northern Paper, Inc., 77 FERC ¶ 61,066 (1996), at pp 61,241-244.

E. Section 18 Fishway Prescription

Section 18 of the FPA gives the Secretary of the Interior (Interior) authority to prescribe fishways at Commission-licensed projects.[8] Interior (letter dated May 13, 1996) indicated that the prescription of fishways at the project is not necessary at this time. However, the Poultney River supports a population of American eels. As more information on American eels becomes available and/or eel management efforts are instituted, it may be necessary to revisit the issue of fishways at the project. Therefore, Interior requests that the Commission include an article in any license issued for the Carver Falls Project reserving its authority to prescribe the construction, operation, and maintenance of fishways under Section 18 of the FPA.

F. Dredge and Fill Permit Conditions

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (COE) issues dredge and fill permits for specified types of construction in wetlands. These permits generally include conditions applicable to project construction activities. Because licensing the Carver Falls Project would not involve any construction activities that would affect areas we consider to be wetlands, a Section 404 permit may not be required.

If construction activities including new recreation facilities or other improvements are deemed necessary in the future, CVPS may be required to obtain a Section 404 Permit from the COE.

G. Coastal Zone Management Program

The Carver Falls Project is not located within a state-designated coastal zone management area (letter dated November 28, 1995, from William F. Barton, New York State Division of Coastal Resources and Waterfront Revitalization and telephone conversation between JH Rumpp, Jr. of Stone & Webster and Stephen Sease of VANR on March 21, 1996).

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[8] Section 18 of the FPA provides: "The Commission shall require construction, maintenance and operation by a licensee at its own expense of such fishways as may be prescribed by the Secretary of Commerce or the Secretary of Interior, as appropriate."

IV. ENVIRONMENTAL ANALYSIS[9]

We examined resource areas including water quality and quantity, fisheries, terrestrial resources, cultural resources, aesthetics, and recreation resources in the context of how the Carver Falls Project would affect them for the term of any license issued. In this draft EA, we include the details of only affected resources.

In our November 28, 1995, Scoping Document for the Carver Falls EA, we stated that the issuance of an original license for the Carver Falls Project would not result in any significant impacts on socioeconomic, land use, or geology/soil resources. We received no comments to the contrary in response. We exclude these resources from our analysis because no major construction activities or operational changes are proposed that would affect land use patterns, employment, business, infrastructure, tax revenues, or soils in the project area.

A. General Description of the Locale

The project is located on the Poultney River approximately 16 miles west of Rutland, Vermont in the Town of Hampton, Washington County, New York and the Town of West Haven, Rutland County, Vermont. The Poultney River forms part of the border between New York and Vermont, and has a total drainage area of 286 square miles. From a total drainage area of 186 square miles at the dam, the impoundment feeds the 1,850-kW powerhouse. There are no other existing hydroelectric projects on the Poultney River (FERC, 1981).

B. Cumulative Impact Summary

An action may cause cumulative impacts on the environment if it overlaps in space and/or time with the impacts of other past, present, and reasonably foreseeable future actions. The individually minor impacts of multiple actions, when added together, may amount to collectively significant cumulative impacts. The existing environment shows the effects of past and present actions and provides the context for determining the cumulative impacts of future actions.

We reviewed the project's potential to cause adverse cumulative impacts. Given the project's location and the nature of the area's resources, we conclude that the Carver Falls Project has the potential to cumulatively affect water quality in

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[9] Unless otherwise indicated, the source of our information is CVPS's application filed on April 25, 1994, and Additional Information filed on March 6, 1996.

the basin. In Section IV.C.1.d, we present our evaluation of the project's potential cumulative impact on this resource.

C. Proposed Action and Action Alternatives

In each of the following resource sections we describe the environmental setting; CVPS's proposed operating procedures and environmental protection, mitigation, or enhancement measures; and recommendations of resource agencies and other entities. We then provide our independent analysis and conclusions of the effects that the project may have on environmental resources, and make recommendations to protect, mitigate, or enhance the affected environmental resources.

Lastly, we discuss any unavoidable adverse impacts on each environmental resource as a consequence of implementing our recommended protection, mitigation, or enhancement measures.

1. Water Resources

a. Affected environment: In this section, we discuss the quantity and quality of water resources at the Carver Falls reservoir and the upstream and downstream reaches of the Poultney River.

Water Quantity

The Carver Falls Project is located at river mile 3.8 on the Poultney River at the northern tip of the Taconic Mountain range and the southern end of the Champlain Valley. The drainage area above the project is approximately 186 square miles, located in the low rolling hills of western Vermont and eastern New York. The watershed terrain is a mix of wooded hills, agricultural fields, and dairy farms. The lower portion of the Poultney River from the Poultney/Fair Haven town line above the project, to the headwaters of Lake Champlain below the project, has been designated an Outstanding Resource Waterway by the State of Vermont Water Resources Board (Section 1424C, June 28, 1991).

Flow regime information for the Carver Falls Project is derived from the USGS Gage No. 04280000, located less than one mile downstream from the project. Data from the gage is used to represent outflows from the project. Therefore, project flows were used without proration to depict annual and monthly flows. The gage data encompasses a period of record from 1929 through 1990. Annual and monthly flow duration curves indicate that project flows are typical for slower moving rivers with reasonably predictable flows and are characteristic of the Champlain Valley region. The mean annual flow at the project is 257 cfs. Maximum and minimum recorded flows were 14,800 cfs (July 20, 1945) and 2.1 cfs (August 8, 1965, and September 13, 1977).

The Carver Falls powerhouse has a total hydraulic capacity of 254 cfs. Based on the annual flow duration curve for the project, flows exceed this capacity approximately 30 percent of the time. Flows in excess of the project's hydraulic capacity are spilled over the southern spillway section.

Current operating practices call for removal of the 18-inch-high flashboards on the southern spillway section during the month of November. The boards are typically removed in mid to late November and replaced after the spring runoff in mid to late April. Heavy precipitation events can cause flows that greatly exceed the monthly mean flows, but according to CVPS, the boards seldom fail between May and November each year.

The northern spillway section is 110 feet long and carries 6-foot-high, fixed prop, wooden flashboards. These boards are designed to fail during extremely high flow events. CVPS typically replaces the boards every 5 to 6 years in the summer as they wear out. According to CVPS, the flashboard capacity, combined with the discharge capacity from the other spillway section and the broome gate, can pass typical maximum spring flow without surcharging the headpond above the normal maximum pool elevation.

CVPS currently operates the project in a run-of-river mode when flows exceed the station's hydraulic capacity. When inflow falls below this capacity during the low flow months (July through October), the project is operated as a daily peaking facility. During this period, headpond elevations fluctuate from 2 to 9 feet per day.

Water Quality

Because the Poultney River forms the border between the states of Vermont and New York, water quality standards from both states are applicable. The Vermont Water Resources Board designates the Poultney River upstream from its confluence with Lake Champlain, to the Route 22A bridge immediately above the project in Fair Haven, as a Class B warmwater fishery.

The State of Vermont Water Quality Standards for rivers designated as warmwater fish habitat require management to achieve and maintain a high level of water quality with a minimum dissolved oxygen (DO) concentration of 5 mg/l, or 60 percent saturation, and that is compatible with the following beneficial values and uses.

1. Values - Water of a quality that consistently exhibits good aesthetic value and provides high quality habitat for aquatic biota, fish and wildlife.

2. Uses - Public water supply with filtration and disinfection; irrigation and other agricultural uses; swimming, and recreation.

In 1992, the Vermont Department of Environmental Conservation issued a report to the U.S. Environmental Protection Agency (USEPA) indicating that the Poultney River is a water quality limited segment for DO concentrations due to municipal waste. Wastewater treatment plants on the Poultney and Castleton Rivers below the Carver Falls dam are allowed maximum discharges of 1.46 million gallons per day (mgd), according to the existing National Pollution Discharge Elimination System permits. The Village of Poultney Treatment facility discharges directly into the Poultney River, while the towns of Castleton and Fair Haven each have wastewater treatment plants that discharge into the Castleton River, which empties into the Poultney. Below the project, from Castleton down to Lake Champlain, the Poultney is considered an "effluent limited segment which is presently meeting water quality standards."

NYSDEC classifies the Poultney River from Lake Champlain to Carver Falls as Class C waters, which have an average daily DO standard of 5 milligrams per liter (mg/l) and an instantaneous standard of 4 mg/l. From Carver Falls upstream to the point where the Poultney River ceases to form the border between New York and Vermont, New York classifies the river as CT, defined as a stream segment recognized as containing trout, with a minimum DO standard of 6 mg/l and an instantaneous standard of 5 mg/l.

CVPS conducted a pre-dawn DO sampling program at the Carver Falls Project from mid-July through August, 1992, at 4 locations in the project area. Samples were collected on 5 occasions (July 20 and 28, and August 3, 10, and 21, 1992). Table 1 presents the data collected. No violations of New York or Vermont water quality standards occurred during this sampling effort.

Table 1. Water Quality Data Collected at the Carver Falls Project, 1992 (Source: CVPS, 1992)

Station Location	Mean Water Temp (C)	Mean DO Concen. (mg/l)	Mean % Saturation
Upstream	20.2	7.24	80
Bypassed Reach	20.3	8.3	92
Tailrace	21.2	7.7	96
Downstream	20.9	8.1	91

All samples were collected prior to 6:00 am to avoid photosynthetic influence from algae. The upstream sample was collected immediately above the impoundment in a reach of free

flowing river; the bypassed reach sample was collected approximately 100 feet upstream of the tailrace within the discharge of the lower plunge pool; the third sample was collected within the tailrace discharge; and the downstream sample was collected approximately 300 yards downstream of the tailrace. During sampling, the project was operated in the proposed instantaneous run-of-river mode. Bypassed flows were uncontrolled and were the result of leakage through the flashboards in addition to leakage through the fissures in the bedrock.

b. Environmental impacts:

Run-of-River Operation

CVPS proposes to operate the Carver Falls Project in a strict run-of-river mode. Project operation would be based on an active storage volume of zero cubic feet at all times, with the instantaneous sum of all discharges approximating the instantaneous flow into the impoundment. Therefore, impoundment levels would be stable, except during operating emergencies and the removal or installation of flashboards, and periods when dam leakage exceeds inflow to the impoundment.

VANR (letter dated May 16, 1996) recommends run-of-river operation with flows in excess of the maximum turbine capacity (254 cfs) or below the minimum turbine capacity (30 cfs), plus any required minimum bypass flow, spilled at the dam. VANR also recommends that CVPS develop a flow management plan that includes the use of the USGS gaging station below the project.

Condition 2 of NYSDEC's WQC also requires that CVPS operate the project in run-of-river mode.

Interior (letter dated May 13, 1996) comments that the proposed change to run-of-river operation would result in stabilized reservoir levels and would restore a natural flow regime in the Poultney River downstream of the project. Interior recommends that the licensee develop a plan to ensure maintenance of required flows and proper operation of the project. This plan should include methods to maintain records to verify compliance with license conditions.

The EPA (letter dated December 5, 1995) comments it is concerned that the project may directly or indirectly cause or contribute to degradation of waters of the United States, and violate state water quality standards.

Our Analysis

We reviewed the existing water quality data collected by CVPS in 1992 (Table 1) to determine whether the project meets

NYSDEC's Class C water quality standards and Vermont Class B water quality standards. We determined that, under existing operations, the project meets Vermont, but not New York, water quality standards.

The proposed run-of-river operation would result in continuous flow through the impoundment, reducing the potential for reduced DO conditions during the low flow months. Run-of-river operation would also reduce the number and magnitude of reservoir fluctuations, thereby providing adjacent wetlands with a relatively constant, stable water source. Thus, while run-of-river would not be necessary to improve existing water quality conditions, we conclude that it would better protect against water quality degradation than the existing seasonal peaking mode of operation.

Run-of-river operation would also reduce the potential for degraded water quality conditions in the Poultney River downstream of the project. Under existing peaking operations, interruptions or fluctuations in flow limit the ability of the river to assimilate discharges from the downstream Town of Castleton and the Village of Poultney wastewater treatment facilities. Under run-of-river operation, continuous flows would be provided to better assimilate these discharges, reducing the frequency and extent of declines in DO in the effluent limited segment of the Poultney from Castleton to Lake Champlain. We conclude that run-of-river operation would enhance the existing degraded water quality conditions in the downstream reach of the Poultney River associated with wastewater discharges below the project.

Therefore, we recommend that CVPS operate the Carver Falls Project in a strict run-of-river mode to ensure that the existing high water quality conditions are maintained within and below the project reservoir.

We also concur with VANR and Interior that CVPS develop a plan, for Commission approval, to ensure that the run-of-river operation is maintained. Therefore, we recommend that CVPS, in consultation with VANR, Interior, and NYSDEC, develop and implement a plan to monitor run-of-river operation and provide the resultant data periodically to the agencies for verification.

Replacement of 6-foot-high Flashboards

CVPS proposes to continue to replace the 6-foot-high, semi-permanent, wooden flashboards along the northern (Vermont) spillway section every 5 to 6 years, or after failure during extremely high flow events. CVPS states that the replacement of flashboards is typically completed within 12 to 24 hours.

VANR (letter dated May 16, 1996) states that replacement of the 6-foot-high flashboards along the Vermont spillway violates water quality standards by requiring large-magnitude maintenance drawdowns.

Our Analysis

When necessary, replacement of the 6-foot-high plywood flashboards is typically completed in one day during the summer, after fish spawning is complete. The impoundment drawdown occurs slowly, over a 12 to 24 hour period. We conclude that because the drawdown period associated with these replacement activities is infrequent and of short duration, any associated water quality impacts in the project impoundment would be minor and temporary.

We recommend that CVPS attempt to minimize the number of impoundment drawdowns required for flashboard installation and removal to reduce the potential impacts on water quality and other resources. Thus, when replacement of the 6-foot-high flashboards is deemed necessary due to wear or failure, it should be conducted at the same time as the fall installation of the 18-inch-high flashboards.

Turbidity Releases During Flashboard Maintenance

VANR (letter dated May 16, 1996) states that the replacement of the 6-foot-high flashboards along the Vermont spillway violates water quality standards by remobilizing and transporting impoundment sediments downstream.

NYSDEC's WQC Condition 10 requires that the licensee monitor the river at a point immediately upstream of project facilities and at a point no more than 100 feet downstream from any discharge point or other potential source of turbidity. If at any time the measurements from the downstream locations exceed the measurements from the locations upstream of the flashboard replacement work areas, all related construction on the project should cease until the source of the turbidity is discovered and the situation is corrected.

Our Analysis

We considered downstream water quality conditions that may be vulnerable to potential sediment releases when the 6-foot-high flashboards are removed or when they fail. Fine-grained sediments transported by the natural streamflow may potentially collect behind the dam, and could be released during the removal or failure of the flashboards. While the bedrock that forms the walls of the Poultney Valley would not be expected to contribute significant amounts of sediment to the reservoir, NYSDEC reports (letter dated December 11, 1996) that considerable deposits of fine sediment occur in the forebay and impoundment.

CVPS (letter dated June 27, 1996) comments that there is no evidence of sediment releases when flashboards are knocked down by ice or high water. Additionally, CVPS personnel have not noticed sediment headcutting and mobilization of impoundment sediments during flashboard removal or failure. CVPS has offered to monitor turbidity during future intentional drawdowns to determine whether sediment releases occur.

Since sedimentation rates are unknown at the project, we recommend that CVPS implement a turbidity monitoring plan during the first removal and replacement of the 6-foot-high flashboards following the issuance of any license. In addition, if flashboard failure occurs, monitoring should be conducted to identify if a turbidity problem exists immediately following the failure event. CVPS should develop this plan in consultation with the agencies and address the need for additional monitoring, if the initial studies indicate a need.

Alternative Flashboard Materials

CVPS proposes to continue using the existing plywood flashboard system at the Carver Falls Project.

VANR (letter dated May 16, 1996) recommends that alternatives to the current 6-foot-high plywood flashboards be fully investigated. Specifically, VANR states that the use of timber planks should be considered instead of the marine-grade plywood presently used.

Our Analysis

We considered alternatives to the 6-foot-high flashboards currently used at the Carver Falls Project. CVPS states that replacement of the 6-foot-high flashboards with a permanent crest would greatly reduce the discharge capacity of the dam. During the normal spring runoff, the maximum peak flow typically reaches 3,500 to 4,500 cfs. The 6-foot-high flashboards are designed to fail with approximately 2 feet of water passing over the top. We calculated that impoundment water levels would reach 2-feet above the flashboards at flows of approximately 5,700 cfs. Failure of the flashboards under these conditions enables the spillway to pass extreme flood surcharges (ten year flood or more). A permanent structure would re-direct flood surcharges around the dam abutments possibly causing shoreline flooding.

CVPS also evaluated the feasibility of replacing the 6-foot-high flashboards with an automatic structure such as a rubber dam. They concluded that a rubber dam, at a cost in excess of $350,000.00, was not economically feasible at this project.

We find that, while the existing plywood flashboard system is designed to fail under high flow conditions, these events are

rare. Further, the Commission has recently approved the use of plywood flashboards at other CVPS projects in Vermont.[10] We conclude that the present flashboard system, designed to fail under extreme flows, provides important flood protection benefits that would be lost with the installation of a permanent dam crest structure. Thus, the continued use of the 6-foot-high plywood flashboards would not have an adverse impact on water quality and would continue to provide flood control benefits in the project area.

Trashrack Debris Disposal

VANR (letter dated May 16, 1996) recommends that CVPS develop and submit a plan for the proper disposal of debris associated with project operation, including trashrack debris.

Our Analysis

In general, river debris, including lumber, floating trash, brush, and vegetation, regularly collects on the trashracks of hydroelectric projects. We concur with VANR that trashrack debris should be removed and disposed of in an appropriate manner that meets state, county, and municipal regulations. Therefore, we recommend that CVPS develop a debris disposal plan in consultation with NYSDEC and VANR, to be implemented following Commission approval.

c. Unavoidable adverse impacts: None.

d. Cumulative impacts: The proposed run-of-river operation would stabilize pond elevations and enhance flows to the downstream reach of the Poultney River below the project. This change to run-of-river operation would eliminate water quality impacts associated with daily peaking.

2. Aquatic Resources

a. Affected environment: The aquatic resources affected by the Carver Falls Project include those fish populations and aquatic biota inhabiting the project reservoir and the Poultney River.

The Poultney River above Carver Falls supports a coldwater fishery, the principal species being brown trout. Brown trout are also found downstream of the project but are limited due to the project's current regulation of streamflow.

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[10] Order Modifying and Approving Flashboard Sealing and Trashrack Debris Disposal Plans, May 10, 1996. 75 FERC ¶ 62,107.

The lower Poultney River west of Route 22A, including the vicinity of Carver Falls dam, is designated as a Class B warmwater fishery by VANR. CVPS reports that the impoundment appears capable of supporting a warmwater fishery, and evidence of successful spawning is abundant in shallow water areas.

The Poultney River is an important spawning area for walleye from Lake Champlain. East Bay, located 3 miles below the project, is presently the only Vermont tributary to Lake Champlain that has a walleye spawning run which is large enough to be used as an egg source for the Lake Champlain Fry and Fingerling Project. The bay is a large, shallow water body that provides high quality wetlands.

New York and Vermont, through an informal management plan, have cooperated with fisheries management activities that include monitoring the eastern sand darter population at Coggman's Bridge (located approximately 4 miles downstream of the project) as well as participation in both the Atlantic Salmon Program (lampricide application) and the Lake Champlain Walleye Fry and Fingerling Project.

Below the project, the Poultney River has been designated an Outstanding Water Resource by the State of Vermont Water Resources Board (February 3, 1992), in part due to its rich fisheries and aquatic resources.

The richness of the biotic community in the lower Poultney River benefits from its connection with Lake Champlain. The area is noted for its highly diverse fish and freshwater mussel species composition. Fish surveys have documented 43 of the 87 fish species (49.4 percent) known to occur in Vermont within the Poultney River basin, including 5 species of uncommon or rare fish that occur below Carver Falls. Those species include: (1) bridal shiner; (2) blackchin shiner; (3) silver redhorse; (4) eastern sand darter (threatened in Vermont and endangered in New York); (5) and channel darter. The logperch, considered a rare species in Vermont, has also been observed in the reach below the falls. The Poultney River provides important habitat to many cyprinid (minnow) species as well.

The Poultney River supports twelve species of fresh water mussels, representing 70 percent of the total species diversity known to occur in Vermont. This mussel community is one of only two of its kind currently known in Vermont. Some of the rare mussels found in the lower reach include the pink heelsplitter, the fragile papershell, and the black sandshell.

The project's bypassed reach is approximately 250 feet long and consists of a bedrock pool and ledge run at the base of the dam, ledge falls, an upper plunge pool, a lower plunge pool and a riffle area. The riffle area at existing leakage flows displays

evidence of good aquatic production, including abundant benthic invertebrates, bass fry, and other small fish. Leakage flows wet the 20-foot-wide channel (toe of bank to toe of bank) to a typical depth of 0.6 to 0.8 feet. Logperch (*Percina caprodes*), considered rare in Vermont, have been observed in this area on several occasions. Habitat management in this reach is limited to upstream stocking because of the lack of safe angler access.

Our site visit (September 27, 1995) revealed that the river reach immediately below the project tailrace contains diverse and suitable fish habitat, including rapids, riffles, and pools. This reach is periodically used by anglers who access the area immediately below the project via a steep footpath from the powerhouse access road.

The next downstream section of the river is a 4-mile-long reach from Coggman's Bridge to Whitehall. It is a diverse and productive ecosystem dominated by shallow, slow moving pools with silt substrate and steep, muddy banks. There are also several wide and long deposits of well washed sand in which a 1986 NYSDEC survey confirmed the presence of a healthy sand darter population. The eastern sand darter is considered threatened in Vermont and endangered in New York. This species requires streams with clear fine sand substrate supported by currents slow enough to retain sand, but fast enough to prevent silt deposition.

Several fishery surveys have been conducted on the Poultney River from Carver Falls to a point approximately 2.0 miles downstream of Coggman's Bridge. NYSDEC (letter dated July 1, 1992) reports that 32 fish species and 12 species of mussels have been documented in this stretch of the river. The degree of mussel diversity found in this reach of river is of statewide significance in Vermont, and is reportedly unparalleled in the other 5 New England states.

NYSDEC records show that the Poultney River was stocked with 11,500 brook trout yearlings in 1984. NYSDEC policy is to annually stock 1,500 brook trout yearling or 750 brook trout and 750 rainbow trout yearlings one mile above and below the Route 22A bridge located just north (upstream) of the project facilities.

Threatened, Rare, and Endangered Species

The FWS confirmed that no Federally listed or proposed threatened and endangered species are known to occur in the project area. VANR (letter dated September 16, 1991) identified several species found in the project area that are classified as threatened or rare in the state of Vermont. These included seven species of freshwater mussels and five fish species. Fish species identified as endangered, threatened, or rare below the

Carver Falls Project include: eastern sand darter; silver redhorse; bridle shiner; blacknose shiner; and channel darter. VANR also notes that the Poultney River may have historically been used by endangered lake sturgeon as spawning and nursery habitat.

NYSDEC (letter dated August 21, 1991) included all of the species identified by VANR with the addition of two fish species, logperch and blackchin shiner.

The mussel species identified as endangered, threatened or rare below the Carver Falls Project for both Vermont and New York include giant floater, ridged pocketbook, creek heelsplitter, fluted shell, fragile papershell, black pondshell, and pink heelsplitter.

b. Environmental impacts:

Run-of-River Operation

CVPS proposes to operate the Carver Falls Project in a strict run-of-river mode as described in Section IV.C.1.

Interior and NYSDEC concur with CVPS's proposal. VANR (letter dated May 16, 1996) recommends that flows in excess of the maximum turbine capacity or below the minimum capacity, plus the recommended minimum bypass flow of 18.5 cfs, be spilled at the dam.

Our Analysis

We reviewed the impacts associated with the present seasonal store-and-release mode of operation at this project. The change to run-of-river, along with any minimum flow release to the bypassed reach: would enhance aquatic habitat conditions below the project; and would eliminate existing impacts associated with peaking, which include dewatering, impoundment fluctuations, and daily flow fluctuations. Periodic low flows expose large downstream areas of aquatic habitat to desiccation, high temperatures, low DO, freezing, and increased predation. Consequently, there may be a loss of some aquatic species in downstream areas where there are populations of rare and endangered species (Eastern sand darter, channel darter, logperch, and blackchin shiner) and walleye spawning habitat.

Run-of-river operations would enhance the downstream fisheries located at and below Coggman's Bridge by increasing flow velocities, water depth, and wetted perimeter along the river shoreline. Additionally, these enhancements would benefit walleye and trout habitat downstream of the project by supplying more stable flow velocities and water depth that imitate the natural conditions of the river.

The diverse mussel population downstream of the project also would benefit from the water quality and streamflow enhancements associated with run-of-river operations. These mussel communities would benefit most from the more stable water depths and flow velocities, reducing the potential for desiccation.

The agencies find that run-of-river operation at the Carver Falls Project would benefit aquatic resources in both the impoundment and downstream reaches of the Poultney River. We agree with this assessment, as discussed in Section IV.C.1, and, therefore, recommend that CVPS operate the Carver Falls Project in a strict run-of-river mode.

Flows for Walleye Spawning in the Bypassed Reach

In the Settlement Agreement executed by NYSDEC, New York Rivers United (NYRU), and CVPS (filed December 12, 1996), the signatories propose that CVPS provide a continuous flow to the bypassed reach of 50 cfs or inflow, whichever is less, from April 1 through May 15, annually. The signatories state that this flow would protect spawning walleye in the bypassed reach.

VANR (letter dated May 16, 1996) recommends special spring flows to support walleye propagation in the project bypass reach. VANR indicates that to enable successful walleye movement to the lower plunge pool, and to promote spawning and incubation in the bypassed reach, a water depth of 18-inches is required in the bypass reach. This would allow large walleyes to cross hydraulic barriers and riffle areas to access the lower plunge pool and create additional walleye spawning habitat. VANR recommends a flow of 50 cfs during the walleye spawning period from April 1 through May 15 to provide a continuous zone of passage with a depth of 18 inches through the bypass.

Interior (letter dated May 13, 1996) states that the 1993 bypass flow demonstration indicates best conditions for walleye habitat and zone of passage at a flow of 26.3 cfs. At this flow, the riffle reach is passable and the plunge pool has visible circulation. The agency concludes that an intermediate flow of 18.5 cfs, between leakage (11.4 cfs) and best conditions (26.3 cfs), would provide acceptable general aquatic habitat and zone of passage conditions.

Our Analysis

We considered the recommendation for increasing the minimum flow to 50 cfs from April 1 through May 15 to enhance walleye spawning and passage conditions. Our review of the existing information indicates the existence of potential walleye spawning habitat in the bypassed reach. We find that the cobble/boulder substrate of the plunge pool and the bypass riffle substrate is

conducive to walleye spawning, and the lower plunge pool offers a high quality resting hole for walleye during the spawning season.

Literature reviewed[11] supports a water depth range of 12 to 30 inches as suitable habitat for walleye spawning. USFWS Instream Flow Incremental Methodology (IFIM) suitability index curves for walleye spawning indicate that a depth of 18 inches is nearly 0.4 on the suitability index scale (0.0 - 1.0; 1.0 is optimum suitability). Optimum spawning depth on the suitability index scale is in the range of 30 to 60 inches.

CVPS conducted a bypass demonstration of flows for walleye zone-of-passage on July 12, 1993. Water was discharged into the bypassed reach by opening the broome gate at the dam. Flows were observed from 11.4 cfs (leakage at the time of the assessment) to 23.6 cfs. Water depth was measured from 0.3 to 1.3 feet (3.6 to 15.6 inches) throughout the reach.

A release of 26.3 cfs provided a water depth variation from 0.3 to 1.3 feet for walleye passage. A release of 18.5 cfs provided a range of depths from 0.2 to 1.2 feet, with a thalweg (the deepest part of the stream channel) greater than or equal to 0.8 feet. While our review of the existing literature indicates that a water depth of 12 inches is sufficient for passage of walleye, a release of 50 cfs would provide more optimum spawning depth and conditions. Therefore, as recommended by VANR, NYSDEC, and NYRU, we recommend that CVPS release a minimum flow of 50 cfs to the bypassed reach from April 1 through May 15 to enhance walleye passage.

Minimum Flow in the Bypassed Reach from May 16 through March 31

CVPS proposes to release a year-round minimum bypass flow of 18.5 cfs, or instantaneous inflow if less, at the Carver Falls dam to maintain water quality, aquatic habitat, and to provide a zone of passage for walleye in the lower bypass. This flow would be provided through a combination of existing leakage at the dam (approximately 9.5 cfs) and 1 inch of spillage over the 18-inch flashboard section on the southern spillway (approximately 9.0 cfs).

VANR (letters dated February 16, 1994, and May 16, 1996) accepts the proposed minimum flow of 18.5 cfs in the bypass reach

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[11] Priegel, Gordon. R., 1970. Reproduction and Early Life History of the Walleye in the Lake Winnebago Region. Technical Bulletin 45.

Smith, C. Lavett, 1985. The Inland Fishes of New York State. NYSDEC, pp 348-349.

as a minimally acceptable condition for fish habitat and movement.

NYSDEC (letter dated April 15, 1996) recommends that CVPS release a flow of no less than 18.5 cfs to the bypassed reach to provide adequate habitat for aquatic resources and to meet water quality standards. NYSDEC recommends (in the WQC dated April 21, 1995) that CVPS use calibrated pond level sensors to control turbine operation and to ensure that the minimum flow requirements are met. WQC Conditions 3 and 4 mandate a minimum flow of 18.5 cfs and monitoring of headpond elevation and flows in the bypassed reach.

Our Analysis

Water quality standards for Vermont are currently met immediately above and below the project, as discussed in Section IV.C.1. The minimum flow release of 18.5 cfs to the bypassed reach from May 16 through March 31 would ensure that New York water quality standards are met and that compliance with Vermont water quality standards is continued.

Our review of the flow demonstration studies leads us to conclude that a minimum flow of 18.5 cfs would help preserve the existing high water quality standards in the bypassed reach. Therefore, we recommend that CVPS release a minimum flow of 18.5 cfs to the bypassed reach from May 16 through March 31.

In order to ensure that minimum flows are maintained in the project's bypassed reach, we recommend that CVPS include a provision for monitoring minimum flows as part of the flow monitoring plan recommended in Section IV.C.1.

Fish Passage

CVPS does not propose fish passage facilities at the Carver Falls Project. The State of Vermont is currently attempting to establish a self-sustaining population of steelhead and Atlantic salmon in Lake Champlain, but no such species have been found in the Poultney River. Also, the falls at the project present an unsurpassable natural barrier to the upstream movement of these fish.

Interior (letter dated May 13, 1996) indicates that the installation of fishways at the project is not necessary at this time. However, the Poultney River supports a population of American eels. As more information on American eels becomes available and/or eel management efforts are instituted, it may be necessary to revisit the issue of fishways at the project. By letters dated December 1, 1995, and May 13, 1996, Interior requests that the Commission reserve Interior's authority to prescribe fishways under Section 18 of the FPA.

Our Analysis

We find that a coldwater fishery exists upstream of the project and a warmwater fishery exists in the impoundment and in the river reach below the dam. Coldwater species generally do not attain good survivorship in warmwater sections of rivers and lakes. While coldwater fish (brown trout) are found in limited numbers downstream of the project, the habitat there is not suitable to support additional fish, thereby obviating the need for downstream fish passage.

Additionally, the record indicates that no anadromous species have been found to occur in the Poultney River. Therefore, we conclude that conditions do not currently exist to support the installation of upstream or downstream fish passage facilities at the Carver Falls Project. We do recommend that Interior's authority to prescribe fishways under Section 18 of the FPA be reserved to allow for any future changes in fisheries resources requiring installation of fish passage facilities at this project.

Fish Entrainment

NYSDEC (letter dated April 15, 1996) indicates that, because water velocities in front of the trashracks are less than 2 feet per second (fps), impingement is effectively minimized at the Carver Falls Project. Additionally, entrainment does not appear to be an issue due to the lack of evidence that fish entrainment and mortality are limiting fish populations in the project area.

Our Analysis

Based on our review of the information provided by CVPS, we concur that: (1) relatively low water velocities in front of the project trashracks effectively minimize impingement at the Carver Falls Project; and (2) there is no evidence to support the need to protect fish from entrainment as it is not a factor limiting fisheries resources in the project area. Therefore, we do not recommend measures to minimize impingement or entrainment of fish at the Carver Falls Project.

Flashboard Replacement and Impoundment Refill Rates

CVPS's flashboard maintenance protocol for the 6-foot-high flashboards calls for: (1) passing minimum flows through the broome gate; (2) reducing the headpond level to slightly below the dam crest; (3) installing the flashboards; and (4) reducing project generation to allow the impoundment to refill by utilizing up to 50 percent of inflow.

VANR recommends that, following the reinstallation of flashboards, CVPS should refill the impoundment by reducing

downstream flows by no greater than 10 percent. These flows would protect aquatic resources downstream of the project.

Our Analysis

To assess the impact of flashboard replacement and impoundment refill rates on resources in downstream areas of the Poultney River, we reviewed the mean monthly flows available in the river. We also calculated reservoir refill rates based on VANR's recommendation to refill the impoundment while releasing 90 percent and storing 10 percent of the river flow. Table 2 presents the data generated for this analysis.

Table 2. Mean Monthly Flows and Reservoir Refill Rates at the Carver Falls Project (Source: Staff)

Month	Mean Monthly Flow (mmf) (cfs)	10% mmf (cfs)	Impoundment Refill Time (hrs)
January	245	24.5	11.3
February	258	25.8	10.8
March	527	52.7	5.3
April	672	67.2	4.1
May	318	31.8	8.7
June	163	16.3	17.0
July	100	10.0	27.8
August	74	7.4	37.5
September	94	9.4	29.6
October	144	14.4	19.3
November	227	22.7	12.2
December	259	25.7	10.8

Project impoundment refill rates are least in the months of March and April, 5.3 and 4.1 hours, respectively. However, high spring flows may likely prohibit safe replacement of the 6-foot-high flashboards during these months (CVPS letter dated December 6, 1996) and releases of silt during drawdown may negatively affect spawning walleye (VANR letter dated December 10, 1996, and NYSDEC letter dated December 11, 1996). During the summer, water temperature is highest, project inflow is lowest, and consequently, impoundment refill time is greatest (refill times for July, August, and September range from about 28 to 38 hours).

During October, water temperature is lower, and higher flows would result in impoundment refill occurring in about 19 hours.

We estimate that flashboard replacement and impoundment refill could be completed in less than 48 hours, which would not adversely affect water temperature or DO.

Therefore, to prevent drawing the impoundment down during low-flow, high-temperature periods, and adversely affecting the aquatic resources of the impoundment, we conclude that CVPS should prepare and implement a flashboard management plan that provides for replacement of the 6-foot-high flashboards during the first two weeks of October. We recommend that CVPS refill the impoundment utilizing 10 percent of available inflow following reinstallation of flashboards.

Lamprey Control

Although a formal lamprey control plan is not in place for the Poultney River, CVPS assists NYSDEC to control lamprey for the protection of the downstream fishery by providing run-of-river flows during lampricide applications.

NYSDEC (letter dated April 15, 1996) recommends that CVPS cooperate in a sea lamprey control project scheduled for the Poultney River. This program is aimed at significantly reducing sea lamprey numbers in the river without adversely impacting other fish and wildlife species. To achieve this goal, NYSDEC requests that CVPS allow NYSDEC to access the project area, including the intake and discharge, to conduct bioassays, to apply the lampricides, to monitor concentrations of the lampricide, and to monitor spawning and larval abundance of lamprey.

Our Analysis

We reviewed existing information regarding the need for lampricide within the Poultney River, specifically at and below the project site. The population of sea lamprey within Lake Champlain and the lower Poultney River is presently at nuisance levels. The Poultney River lampricide barrier is a critical location for the control of these species.

Therefore, we recommend that CVPS cooperate in the sea lamprey control project by providing NYSDEC: (1) access to the project area, including the intake and discharge, to conduct bioassays, to apply the lampricides, and to monitor concentrations of lampricide; (2) parking and staging areas for any necessary vehicles and equipment; (3) access to the site to monitor spawning and larval abundance of lamprey.

Stable flows would be provided during lampricide application as a result of the project's run-of-river operation.

Flow Interruptions - Lag Time

VANR (letter dated May 16, 1996) indicates that, under the applicant's proposal, downstream flows could be interrupted between the time of turbine shut down and when spillage flows reach the tailrace area below the powerhouse, thereby adversely affecting downstream aquatic resources. The agency, therefore, recommends that CVPS develop a flow management plan to track flows during maintenance activities and other project outages. If lag times are significant, flow release alternatives such as temporary use of the broome gate should be considered.

Our Analysis

There is no indication that downstream impacts associated with lag times exist. Nevertheless, we have considered the need for CVPS to develop a plan for management of downstream flows during project outages.

When the turbines trip out during the low flow season under the existing operating conditions, downstream flows may be interrupted and reduced to leakage only flows, until the impoundment fills sufficiently to pass inflows, and these flows reach the tailrace area.

We have evaluated the potential lag time from turbine shutdown until run-of-river flows resume as spillage over the dam under the proposed operating conditions.

Using a minimum turbine flow of 30 cfs, we calculate that it may take approximately 2.5 hours until the impoundment refills sufficiently (1 1/8 inches) to provide additional spillage and leakage equivalent to the flows below the tailrace prior to unit shutdown. We conclude that, under this worst case scenario described above, flows resume to run-of-river levels within 2.5 hours. Although run-of-river flows are interrupted, the streambed is not dewatered, because it receives dam leakage and spillage of approximately 18.5 cfs. Any impacts associated with these isolated events are, therefore, minor and temporary.

To minimize the potential for adverse impacts associated with planned project outages, however, we recommend that CVPS include a provision in its flow monitoring plan to maintain run-of-river flow conditions during scheduled project outages. This plan also should provide for recording: the frequency and duration of turbine shutdowns, planned or unplanned; and any resultant deviations from run-of-river operations, and associated lag times.

c. Unavoidable adverse impacts: None.

d. Cumulative impacts: Cumulative impacts associated with the release of 18.5 cfs to the bypassed reach would be positive. The increased flows would allow for a maintenance of high water quality conditions, increased water depth providing a zone of passage for larger walleye, and potential spawning habitat for walleye within the bypassed reach.

3. Terrestrial Resources

a. Affected environment:

Wetlands

Wetlands mapped by the National Wetlands Inventory (NWI) associated with the Carver Falls Project include two Class 2 wetlands.[12] NWI designated this river segment as Riverine Lower Perennial Open Water wetland (R2OWZ). NWI classifies the 19 acre impoundment of the Carver Falls Project as lacustrine limnetic open water (L1OWH).[13] The steep slopes of the impounded area restrict development of lacustrine wetlands along the littoral zone. As noted by NYSDEC (December 26, 1995), the store and release mode of operation has historically limited the development of aquatic vegetation, and existing wetlands are limited to small floating and emergent wetland areas.

Small local wetlands, assigned a Class 3 designation, provide shoreline stabilization, wildlife habitat, and maintenance of the water quality of the Poultney River in the impoundment. These wetlands are too small to be included in the NWI classification system; however, they can be considered part of the larger Class 2 wetland that has been mapped.

CVPS identified wetlands consisting of emergent and forested wetland species in several areas associated with the project.

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[12] Class 1 and 2 wetlands are considered "significant" and are protected. Class 1 wetlands are exceptional or irreplaceable and receive the highest level of protection. Class 3 wetlands are not protected under Vermont rules; however, they may be protected by other federal, state, or local regulations.

[13] According to Interior's freshwater wetlands classification system, littoral-wetlands extend from the lakeshore to a depth of 6.6 feet below low water or the extent of nonpersistent emergent vegetation such as arrowhead, pickerelweed, or spatterdock. The limnetic-deepwater habitat extends beyond the 6.6 feet at low water.

North Shore: Below the steep banks on the north shore of the impoundment are several areas of fringe emergent wetland covering 1.1 acres dominated by joe-pye weed, purple loosestrife, arrow arum, sedges and rushes.

South Bank: Immediately upstream of the dam, 1.2 acres of silt deposits have become vegetated with emergent herbaceous species, including cattails, reed canary grass, purple loosestrife, soft rush, and arrow head. The shoreline on this bank slopes gradually to a forested wetland, including black willow, green ash, dogwood, and speckled alder.

Islands in the Impoundment: Within the impoundment are three islands covering a total of 2.6 acres with vegetative cover consisting of 2.1 acres of emergent and forested wetland species.

Wildlife

The lower Poultney River is noted for its exceptional wildlife habitat (CVPS, 1994). The river corridor is mainly lined with forests and emergent wetlands supporting populations of mammals, birds, reptiles and amphibians. Likely species include white-tailed deer, fisher, bobcat, weasel, striped skunk, red and gray squirrel, cottontail rabbit, snowshoe hare, raccoon, mink, otter, beaver, and muskrat. Avian fauna include sparrows, wrens, vireos, warblers, thrushes, swallows, wild turkey, great horned owls, kingfishers, and the great blue heron. Small carnivores (coyote, mink, and bobcat) prey upon fauna dependent, at least some part of the year, on the local freshwater marshes and wet meadows.

The project area contains optimal habitat for native Vermont species of amphibians (toads, frogs, and salamanders) and reptiles (turtles and snakes). Known to the project area are non-poisonous black snakes, and mud and snapping turtles. Within the impoundment area the insulating qualities of the watery habitat provide reptiles and amphibians overwintering habitat. Reptiles and amphibians hibernating in the mud are vulnerable during drawdowns which can remove insulating waters and cause exposure to freezing air temperatures.

Threatened and Endangered Species

Interior and NYSDEC (letters dated August 29, 1991, and August 21, 1991) state that no threatened rare or endangered wildlife species have been observed within the project area.

A field investigation was conducted on August 26, 1992, to search for rare, threatened, or endangered plants within the Carver Falls Project area. The search included the ledges of Carver Falls, the gorge immediately downstream, the shores and aquatic habitats of the impoundment, and the river reach

downstream to Coggman's Bridge. No federally threatened or endangered plant species were identified.

While no state rare plants listed by the New York or Vermont Natural Heritage Programs were identified within the project area, eight state listed rare species were identified along the Poultney River downstream of the project area. Several of the listed species are located at or near their northeastern-most range, so while they are rare in Vermont, they may be common in New York and further south. One listed species, meadow horsetail (*Equisetum pratense*), is more common in more northern boreal habitats, and can be found in a meadow area in the project vicinity considered toward the southern edge of its range.

b. Environmental impacts:

Run-of-River Operation

CVPS proposes to operate the project in a run-of-river mode and release a year-round minimum bypass flow of 18.5 cfs, or inflow. CVPS states that the proposed mode of operation may result in increased productivity of existing aquatic and emergent wetlands.

NYSDEC (letter dated April 15, 1996) recommends the run-of-river operation, which would eliminate the impacts of the current store-and-release mode of operation. NYSDEC believes that stable impoundment water levels would greatly enhance the impoundment's ability to support vegetative communities such as the floating and emergent wetland areas of the project impoundment and the wooded wetland that borders the western side of the impoundment. The wooded wetland is located in a low lying floodplain that may benefit from stable impoundment levels.

NYSDEC states that the proposed change to run-of-river operation also would have a beneficial impact on wildlife species. Specifically mentioned are several species of state rare mussels found in the Poultney River below the project.

VANR supports the conversion to run-of-river and maintenance of a more stable headpond to support project wetlands. VANR expects that, in the absence of drawdowns, aquatic bed wetlands would expand primarily in the shallow waters from 1 to 5 feet deep.

Our Analysis

As discussed in our analysis in Sections IV.C.1 and 2, we recommend run-of-river operation to maintain existing water quality standards and to enhance aquatic resources. We further conclude that shifting to a run-of-river mode of operation would stabilize water levels and increase vegetative productivity along

the shorelines of the three islands and along the outer rim of the impoundment. We, therefore, recommend that CVPS implement a run-of-river mode of operation to enhance terrestrial resources.

Removal of 18-inch-high Flashboards

CVPS originally proposed to remove the 18-inch-high flashboards in November prior to ice formation. CVPS (letter dated December 6, 1996) modified its proposal for the removal of the 18-inch-high flashboards, moving the date from the current November 15 to October 15, in an effort to protect wildlife and allow maximum generation.

VANR (letter dated May 16, 1996) recommends annual removal of the 18-inch-high flashboards by September 15, unless delayed by inflows beyond project control, in order to minimize impacts on wildlife. Flashboard removal later than September 15 could result in the dewatering and exposure to freezing conditions of perennial plant rootstocks.

Lowering the pond elevation during flashboard replacement can also be detrimental to wildlife that reside in the impoundment or use the impoundment during critical periods, such as nesting or hibernation. The earlier seasonal removal of the 18-inch boards would avoid or minimize fatalities to muskrats, reptiles, and amphibians that select overwintering habitats within the impoundment by the late fall and depend on the insulating qualities of watery habitat for winter survival.

Our Analysis

We agree that the removal of the 18-inch-high flashboards should be conducted during the fall, prior to the onset of temperatures consistently being below freezing. The earlier seasonal removal of flashboards would avoid or minimize fatalities to muskrats, reptiles, and amphibians that select overwintering habitats within the impoundment by the late fall. Removal of these flashboards by September 15 would stabilize impoundment water levels prior to the selection of overwintering habitat by amphibians and reduce the potential for exposure of perennial plant rootstocks to freezing conditions. Vermont experiences freezing temperatures of 32 degrees Fahrenheit or below in the month of September approximately seven out of every ten years (SCS, 1975). The earlier seasonal removal of flashboards would avoid or minimize fatalities to muskrats, reptiles, and amphibians that select overwintering habitats within the impoundment by the late fall. Therefore, we recommend that CVPS remove the 18-inch-high flashboards by September 15. In years when the 6-foot-high flashboards are replaced, CVPS should remove and replace the 6-foot-high and the 18-inch-high flashboards concurrently.

Flashboard Management Plan

We have identified several resource areas that are affected by the use and scheduling of both the 18-inch-high and 6-foot-high flashboards, including water quality, aquatic resources, and terrestrial resources. The resource specific impacts associated with the use of these flashboards were discussed previously in the individual resource sections.

Our Analysis

We recommend that CVPS develop, in consultation with VANR, NYSDEC, and Interior, a comprehensive flashboard management plan that provides for the removal of the 18-inch-high flashboards by September 15 yearly and the concurrent removal of the 18-inch-high and the 6-foot-high flashboards during those years when the 6-foot-high flashboards are scheduled to be replaced. The plan also should provide for turbidity monitoring during the first removal and replacement of the 6-foot-high flashboards following license issuance and also following any flashboard failure.

c. Unavoidable adverse impacts: None.

4. Cultural Resources

a. Affected environment: By letter dated March 6, 1992, the New York State Historic Preservation Officer (SHPO) determined that the proposed project would have no effect on cultural resources, and that the project facilities would not be eligible for inclusion in the National Register of Historic Places (NRHP). However, the Vermont SHPO recommended that a Phase 1A cultural resource study be conducted, and that the powerhouse be nominated for listing on the NRHP.

Based on these recommendations, CVPS conducted an historical assessment and Phase 1A archeological survey to determine the potential effects of project licensing on any significant cultural resources in the project area. Based on the recommendations of the Phase 1A report, CVPS conducted a Phase 1B survey. As of this writing, the Phase 1B report has not been filed with the Commission.

The Phase 1A study determined that the Carver Falls Hydroelectric Project could be eligible for listing on the NRHP. The basis of the Carver Falls Project's eligibility is its distinctive characteristics of a type, period, and method of hydroelectric facility engineering and construction. Constructed in 1894, it is one of the oldest continuous suppliers of hydroelectric power to Vermont customers, and among the oldest operating plants in New York.

The study identified the following elements as contributing to the historic significance of the Carver Falls Project: (1) the original 1894 masonry dam; (2) the original 1894 intake structure; (3) the two penstocks projecting from the 1894 intake structure and the piers on which they rest; (4) the 1940 concrete spillway sections; (5) the 1940 intake structure; (6) the two surge tanks; (7) the air compressor house; and (8) the powerhouse, including generating unit #1 (installed in 1932). The powerhouse, in particular, is a good example of early powerhouse architecture; with its massive rubble-stone construction, it may be unique among hydroelectric projects serving Vermont and New York.

The Phase 1A study also identified a cluster of potentially significant cultural resources located within the project boundary near the upper end of the impoundment on both the Vermont and New York sides of the Poultney River, and on the New York side near the lower portage trail.

The historic resources near the impoundment are comprised of four sites, located on terraces above the river and impoundment. These sites contain nineteenth century archaeological remains of mill, factory, and dwelling structures and a pair of bridge abutments.

The remains of a Powder Mill-Cloth Factory and the foundation of the Armstrong-Austin House are located on the New York side of the Poultney River. These two sites were probably part of a small-scale industrial enterprise situated on the narrow channel of the Poultney River above the impoundment to take advantage of waterpower opportunities. Also located at this narrow point, on both the New York and Vermont sides of the river, are the remains of fieldstone abutments of the Carver Fall's Bridge. The fourth site is located on the Vermont side of the impoundment, and consists of the remains of J. Moore's Mill, a saw mill and grist mill.

A potentially significant archeological resource exists on the New York side of the Poultney River near the lower portage trail. This area is considered historically sensitive because of its use as a landing place by Hessian (German) mercenaries during the Revolutionary War.

The study also identified seven locations around the impoundment and one site on the Poultney River near the lower portage trail as having potential prehistoric archeological significance.

b. Environmental impacts:

Run-of-River Operations

CVPS proposes to operate the project in a run-of-river mode, eliminating peaking during low flow events.

Our Analysis

Project operations at Carver Falls could have a direct effect on discovered and undiscovered cultural resources. The literature search and field survey have established that the cultural sensitivity of the project area is largely confined to the upper end of the Carver Falls impoundment, and to the one site on the Poultney River near the lower portage trail. The Phase 1A study identified eight sites with potential for archeological significance. We conclude that the proposed run-of-river operation would reduce shoreline erosional effects on any significant cultural resources located around the impoundment by eliminating regular drawdowns associated with current peaking operations. Therefore, we recommend that CVPS operate the project in run-of-river mode to protect cultural resources.

Removal of Abandoned Penstocks

VANR recommends removal of the abandoned penstocks and concrete cradles between the last stone cradle and the river embankment, in consultation with the Vermont Division of Historic Preservation, to enhance visual resources at the project.

Our Analysis

As discussed in Section IV.5.b, we concur with VANR concerning the aesthetic value of removing the abandoned penstocks. However, because these features may have historic value and are located entirely within the state of New York, we recommend that CVPS consult with the New York SHPO prior to penstock removal to determine if the abandoned penstocks contribute to the historic significance of the project. If the New York SHPO finds that the penstocks are a contributing historic element, further documentation involving the application of criteria of affect would be required. If a determination of affect is made, penstock removal would require mitigation through the preparation of an Historic American Engineering Record.

We also recommend that CVPS develop and implement a CRMP that details processes and procedures for management of known and previously undiscovered Historic Properties that may be affected by project operation. The Commission intends to execute a Programmatic Agreement (PA) with the Advisory Council on Historic Preservation, and the New York and Vermont SHPOs (with CVPS as a concurring party), that requires the development of a final CRMP

within one year of licensing. We recommend that the removal of these project features be addressed in the CRMP to ensure that construction activities do not adversely affect any significant cultural features at this site.

Recreational Construction

CVPS proposes to implement recreational enhancements for the lower portage trail and canoe put-in area, including drainage improvement, erosion control, and a series of cobble and gravel filled steps down the steep bank to the river (see Section IV.C.6).

Our Analysis

The proposed construction of the portage trail/road and turnaround would require excavation and grading, which could adversely affect cultural resources in the vicinity. Since the new canoe put-in area may coincide with the potential Hessian landing site, CVPS proposes to determine the exact location of the canoe put-in on completion of the Phase 1B survey.

We concur with CVPS's proposal to defer locating the canoe put-in in the vicinity of the potential Hessian landing site pending the results of the Phase 1B survey. We recommend that the Phase 1B report be completed and that the CRMP address construction of recreational facilities at the project. This would ensure that the proposed river access enhancement avoids the potentially significant cultural site during construction.

c. Unavoidable adverse impacts: None.

5. Aesthetic Resources

a. Affected environment: The State of Vermont has designated the Poultney River below Carver Falls an "Outstanding Resource Waterway," in recognition of its exceptional scenic quality. Vermont's comprehensive plan entitled The Waterfalls, Cascades and Gorges of Vermont (Jenkins and Zika, 1986) describes Carver Falls as the largest waterfall, and possibly the only horseshoe-shaped waterfall in Vermont. The ravine below Carver Falls is noted for its cliffs and limestone gorge.

Views of Carver Falls are available from three viewpoints that are reached by a trail from the parking lot at the entrance to the project. The first viewpoint, located at the head of the trail leading to the active penstock, and the second viewpoint, located on a small platform on top of the active penstock, provide views of the upper falls, the dam, and the abandoned penstocks. The third viewpoint, located on a precarious promontory and reached by a steep trail, provides a broad view of the dam, upper fall, active and abandoned penstocks, lower fall,

and the river downstream of the falls. CVPS does not currently release minimum flows over the dam for aesthetic purposes.

b. Environmental impacts:

Flows over Carver Falls Dam

CVPS proposes to provide a 1-inch spill over the 18-inch flashboard section to enhance the visual resources of the Carver Falls Project.

On December 4, 1995, CVPS conducted a flow demonstration study of 1 inch, 2 inches, and 3.25 inches of water over the 150-foot-long concrete spillway at the southern end of the dam. Combined with the 8.3 cfs leakage flows at the time of the demonstration, the total demonstration flows were 19.9 cfs at 1-inch release, 41.1 cfs at 2-inch release, and 76.2 cfs at 3.25-inch release.

The flow demonstration was viewed from three locations: location A at the head of the trail to the active penstock; location B on top of the active penstock; and location C on the promontory viewpoint. When viewed from locations A and B, a release of 1 inch over the spillway results in visual contrast between the frothy, white, aerated water flowing over the spillway, and the darker, smoother unaerated water in the impoundment. At a release of 2 inches, the volume of water over the falls increases, and the contrast between the white, frothy aerated water and the smooth, dark, unaerated water begins to diminish. At both 1-inch and 2-inch releases, there is a distinct sound of falling water. At a release of 3.25 inches, the falls no longer produce the high visual diversity and variation found in the lower flows, and the sound of falling water changes to a thundering roar.

Location C provides a views of the lower falls and plunge pool, in addition to the upper falls and dam. A release of 1 inch creates two waterfalls at the lower falls, and results in high contrast between the frothy, aerated, falling water and the smooth pool below and rock outcroppings that frame them. At a release of 2 inches, the contrast between the white, frothy, cascading water and the smooth, dark water in the pool begins to diminish. At both 1-inch and 2-inch releases, there is a distinct sound of falling water. At 1- and 2-inch releases, water in the plunge pool passes through subterranean fissures into a lower plunge pool unseen by the viewer. At a release of 3.25 inches, the water falling over the lower falls becomes a roaring, single fall of frothy, opaque water that contrasts strongly with the smooth water in the upper plunge pool. At this release, the flow of water exceeds the capacity of the subterranean fissures; and the resulting flow from the upper plunge pool to the lower plunge pool creates a frothy, turbulent

fall. A fall forms at the lower plunge pool at the threshold release of 2.5 inches at 57.2 cfs total flow.

VANR recommends aesthetic flows of 80 cfs during daytime and 57 cfs during nighttime for the period from April 1 through October 30.

NYSDEC recommends an aesthetic flow release of 2.5 inches during daylight hours on Memorial Day, July 4, Labor Day, Columbus Day, and every Sunday during July and August for the first year of the license. NYSDEC also recommends that CVPS monitor the frequency and timing of visitors to the falls during the first year of license, and in consultation with VANR and the National Park Service, submit the information for FERC's determination of the public value of requiring permanent aesthetic flows at the project.

Our Analysis

We considered the aesthetic value of the Carver Falls Project for visitors based on alternative flow releases over the falls. During our site visit, flows viewed at the falls resulted from a 1-inch release over the southern spillway of the dam.

From the lookout on top of the active penstock, only the upper falls are visible. A view of the lower falls, which requires a threshold flow of 2.5 inches, is available from a precarious promontory lookout, and from the Vermont side of the Poultney River below the falls, which is privately owned and inaccessible land.

Based on our evaluation of flows at the site and results of the flow demonstration study, we conclude that a minimum flow of 1 inch is adequate to enhance the aesthetic quality of the falls for the majority of visitors who would view the falls from the penstock outlook. While some visitors may seek out other viewing locations, most visitors will access the site from the New York side of the river, and will view the falls from the improved viewing area on top of the active penstock.

As part of the Settlement Agreement for the Carver Falls Project, filed December 12, 1996, CVPS has agreed to release an aesthetics flow of 2 1/2 inches over the southern spillway during daylight hours (commencing at 9 AM) on Memorial Day, July Fourth, Labor Day, Columbus Day, and every Sunday during the months of July and August. While we conclude that a flow of 1-inch over the spillway is adequate for aesthetic purposes, we agree that these additional flows would further enhance the visual interest of the cascading water as it flows over the falls and through the bypassed reach. Therefore, we recommend that CVPS release aesthetic flows as discussed above and required by the December 12, 1996, Settlement Agreement.

We do not agree with NYSDEC's recommendation that CVPS monitor the frequency and timing of visitors to the falls during the first year of license. Recreational use on project land is monitored through Section 8.11 of the Commission's regulations, which requires the licensee to collect and file information with respect to existing and potential recreation use at developments within the project area where recreation occurs. This information is submitted to the Commission every six years, based on the previous year's activities, and helps to identify the need for additional facilities.

If information collected indicates a need for additional recreational facilities or aesthetic procedures, the need can be addressed through the standard license reopener. In addition, CVPS proposes to install trail registers to gather recreational use data at the project for future evaluation of facility needs. Therefore, we conclude that NYSDEC's recommended study is not required to monitor recreation use at this project.

Removal of Abandoned Penstocks

CVPS proposes to leave the abandoned penstocks in place to maintain the historic integrity of the project.

NYSDEC states that the abandoned penstocks are an unsightly visual intrusion on the view of the falls, and, therefore, recommends their removal.

VANR recommends removal of the abandoned penstocks and concrete cradles between the last stone cradle and the river embankment, in consultation with the Vermont Division of Historic Preservation, and within two years of licensing.

Our Analysis

Based on our site visit to the Carver Falls Project, we agree that the abandoned penstocks are a significant visual intrusion on the view of the falls. We concur with NYSDEC and VANR that the removal of the abandoned penstocks and 6 concrete cradles would significantly improve the scenic values of the site for visitors by eliminating abandoned and deteriorating structures that traverse the falls and interrupt views of cascading water. Further, CVPS has agreed to remove the abandoned penstocks and concrete cradles under the terms of the December 12, 1996, Settlement Agreement. Therefore, we recommend that CVPS be required to remove the abandoned penstocks and concrete cradles.

c. Unavoidable adverse impacts: None.

6. Recreational Resources

a. Affected environment: Recreational use of the Poultney River at the Carver Falls Project is comprised of occasional fishing, canoeing, scenic viewing, and wildlife observation. Road access is available only from the New York side of the river. The rugged topography, extreme slopes, and private property on the Vermont side make access difficult. Recreational visitors include local residents, school groups, naturalists, and group educational and recreational trips organized by the Nature Conservancy, the Pember Museum, and other organizations. Canoeing and fishing are the most popular activities in the project area.

Existing recreational facilities at the project include a small parking area near the dam, a trail to the powerhouse and tailrace area, and two overlooks of the dam. The first overlook is a small platform located on top of the active penstock, and the second viewpoint is located on a precarious promontory. A trail from the parking area leads across a meadow to an informal canoe launch on the impoundment, which is used by recreationists as a canoe take-out area. An abandoned forest road leading from the powerhouse trail to the river is used by canoeists as a portage trail to the river below the project.

b. Environmental impacts:

Recreational Improvements

CVPS proposes to improve access to the Poultney River by: (1) improving the parking area; (2) improving the existing canoe landing and portage trail on the impoundment; (3) constructing a canoe portage trail/road from the parking area to the Poultney River below the powerhouse; (4) constructing cobble- and gravel-filled steps down the steep bank to the river at the canoe put-in area; (5) installing two picnic tables along the trail to the penstock overlook; (6) placing directional and interpretive signage at the parking area and along the portage trails; and installing trail registers in the parking area.

CVPS proposes to finalize the specific location of the canoe put-in area and steps following completion of archeological studies to ensure the protection of the potentially significant cultural resources in this area.

VANR requests that CVPS prepare and implement an erosion and sediment control plan for the construction of the portage trail/road to the downstream canoe put-in area. VANR also recommends that CVPS prepare a final recreational enhancement plan. VANR (letter dated May 16, 1996) states that, although the

recreation plan in CVPS's licensing application is generally adequate, VANR wishes to be consulted on specific wording of the interpretive signs and final designs for project recreational enhancements.

The Adirondack Mountain Club (AMC) recommends that CVPS provide a 900 telephone information line with daily reports of flow conditions on the Poultney River. AMC (December 4, 1995) states that a 900 telephone line would help canoeists determine if there is enough river flow for good canoeing.

Our Analysis

The construction and use of the downstream portage trail and river access could adversely affect cultural resources, animals, and vegetation. We concur with CVPS's proposal to identify the specific location of the steps to the canoe put-in area following the completion of the Phase 1B archeological survey.

We also concur with CVPS' proposal to install signage to enhance the scenic and recreational quality of the site. The proposed signs would identify CVPS as the owner of the site, inform the visitor of the significance and history of the project, and direct visitors to project recreational areas. In addition, the proposed trail registers would enable CVPS to gather recreational use data at the project for future evaluation of facility needs.

We have reviewed the preliminary plans and designs provided by CVPS for its proposed recreational improvements. We find that they adequately address all relevant recreational concerns at the project, with the exception of the final location of the steps at the canoe put-in area.

Nevertheless, we recommend that CVPS prepare a final recreation plan, in consultation with VANR and NYSDEC, to identify the location of the steps at the downstream canoe put-in area, to specify the wording of the interpretive signs, and to determine measures for controlling erosion and sedimentation during construction of the proposed road/trail to the river below the powerhouse. The final recreational plan should include, at a minimum, the following information: (1) scale drawings showing the specific location of the proposed steps and canoe put-in area near the lower portage trail; (2) drawings showing the dimensions and wording of interpretive signs; and (3) a soil erosion and sediment control plan for the construction of the portage trail/road to the downstream canoe put-in area.

We do not agree with AMC's recommendation that CVPS provide daily information about flow conditions. CVPS proposes to operate the project in a run-of-river mode, eliminating flow changes resulting from the existing peaking operations.

Consequently, the operation of the project would not affect flows in the Poultney River. Therefore, we conclude that daily flow reporting is not warranted at this project.

Improvements at Viewing Locations

CVPS proposes to improve the existing overlook on top of the active penstock at the project to enhance the scenic and recreational experience of visitors to the site. Improvements would include: (1) a new 4-foot-wide, pressure treated, pine deck; (2) a 42-inch-high safety railing; (3) replacement of the steel carrier beams anchoring the deck; (4) placement of gravel on the penstock trail; (5) improvements to interpretive signage; and (5) removal of vegetation obstructing views.

CVPS also proposes to discourage use of the unsafe promontory lookout by removing the planks that cross a ditch along an informal trail to the promontory, and by posting warning signs near the trail.

VANR recommends that CVPS maintain, but not encourage, continued access to the promontory overlook. In a letter dated May 16, 1996, VANR states that it strongly supports CVPS's proposal to permit, but discourage, access to the promontory, and the proposed wording and location of the warning signs.

Our Analysis

Based on our site visit to Carver Falls, we agree that the proposed enhancements would improve the safety, scenic, and educational values of the site for the visitors to the falls. Specifically, the proposed measures at the penstock overlook would provide a more secure viewing location, while the proposed measures at the promontory overlook would discourage use of the unsafe viewpoint. In addition, views of the falls would be improved by removal and maintenance of foreground vegetation. Therefore, we recommend that CVPS be required to implement its proposed enhancements.

Access for the Disabled

Currently, there are no developed recreation facilities at the Carver Falls Project that allow access for the disabled. CVPS's design plans for the proposed recreational enhancements do not indicate consideration of disabled access.

VANR (letter dated February 14, 1996) states that the trail to the (penstock) lookout should be packed limestone so that it is accessible to persons in wheelchairs.

Our Analysis

CVPS's design plans for recreational enhancements at the Carver Falls Project do not indicate that these facilities would provide access for the disabled. Therefore, we recommend that CVPS's final recreation plan, to be developed in consultation with the VANR and NYSDEC, include a discussion of how the proposed facilities conform to the requirements of the Americans with Disabilities Act of 1990.

Recreation Master Plan/Comprehensive Evaluation

VANR recommends that CVPS prepare a recreation master plan, including monitoring provisions, for filing with the Commission within one year of licensing.

VNRC (letter dated December 6, 1995) recommends that the Commission perform a comprehensive evaluation of recreational opportunities within the lower Poultney River Basin and condition any license on enhanced recreational opportunities. VNRC states that the lower Poultney River is a significant recreational resource in the region, and that CVPS's proposed recreational enhancements are insufficient regarding access for fishing, canoeing, and viewing the falls.

Our Analysis

We do not agree with VANR's recommendation that CVPS prepare a recreation master plan with monitoring provisions. Recreation use on project land is monitored through Section 8.11 of the Commission's regulations, which requires the licensee to collect and file information every six years with respect to existing and potential recreation use at developments within the project area where recreation occurs. In addition, CVPS proposes to install trail registers to gather recreational use data at the project for future evaluation of facility needs. Therefore, we conclude that an additional recreation master plan is not required to monitor and assess recreation use at this project.

We also do not agree with VNRC's recommendation that the Commission perform a comprehensive evaluation of recreational opportunities within the lower Poultney River Basin. The Commission is required only to evaluate recreational resources and identify recreational opportunities within the area affected by project licensing. We reviewed CVPS's proposed recreational enhancements, and find that they adequately address all concerns regarding recreational access and opportunities at this project. Therefore, we conclude that a comprehensive evaluation of recreational opportunities within the lower Poultney River Basin is not necessary.

c. Unavoidable adverse impacts: None.

V. DEVELOPMENTAL ANALYSIS

In this section, we analyze the project's use of the river's water resources to generate hydropower by estimating the economic benefits of the proposed project. We also address the economic effects of various measures considered in the EA for the protection, mitigation, or enhancement of area resources.

We base our independent economic studies on current electric power conditions. We do not consider potential future inflation or escalation of prices.[14]

We base our estimate of the cost of alternative capacity on an assumed capacity value of $109/kW-year (at a fixed charge rate of 14 percent), which is based on a combined-cycle combustion turbine plant fueled by natural gas (the cheapest, most reasonable capacity addition available). The project cost of energy generation is based on natural gas-fueled electric plants in the New England Region of the United States. We base our estimate of the amount of fuel that would be displaced on fuel consumption at a heat rate of 6,200 Btu/kWh. We estimate the 1996 cost of fuel based on information from the Energy Information Administration (EIA, 1995). We use a composite energy value of 32.0 mills/kWh. We base our economic analysis of the alternatives on the data shown in Table 3.

Table 3. Staff's assumptions for economic analyses of the Carver Falls Hydroelectric Project (Source: Staff)

Assumption	Value	Source
Yearly O & M costs (1996 dollars)	$69,600	CVPS
Discount rate	8.3%	CVPS
Taxes and insurance (1996 dollars)	$63,000	CVPS
Net investment	$1,095,200	CVPS
Application preparation cost (through March 1994)	$114,900	CVPS

Based on these assumptions, we estimate that the annual cost of the existing project to produce about 7.249 gigawatt-hours (GWh) of energy annually would be about $11,000 (1.5 mills/kWh) more than the currently available alternative.

[14] See Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027 (July 13, 1995).

In the following section, we discuss the economic benefits for the alternatives considered in this EA: (1) CVPS's proposed project; (2) CVPS's proposed project with additional staff-recommended measures based on our review of recommendations of resource agencies; and (3) the no-action alternative. We did not develop a specific agency alternative, as the resource agencies made specific environmental recommendations that we evaluated independently and included, as appropriate, in the staff's alternative. We include the annualized cost of each agency-recommended measure in Section VII.

A. Proposed Project

In this section, we present CVPS's proposal, which consists of continued operation of the Carver Falls Hydroelectric Project with its proposed environmental measures. Table 4 summarizes the costs and current net annual benefits of CVPS's proposal.

The current net annual benefits for CVPS's alternative would be -$35,700 or about -5.3 mills/kWh.

B. Staff's Alternative

In this section, we present the additional costs and current net annual benefits of the staff's recommended alternative, which consists of the applicant's proposed project with staff modifications. Table 5 presents the summary of these costs and the current net annual benefits.

The current net annual benefits for the staff's alternative would be -$54,300 or about -8.3 mills/kWh.

Table 4. Summary of costs and current net annual benefits of the applicant's proposed project - 1996 $ (Source: Staff)

Measure	Lost Generation (GWh)	Capital Cost	Yearly O & M	Annual Net Benefit
Operate existing project		--	--	-$11,000
Operate the project as a run-of-river facility	0.093	--	--	-$3,000
Provide minimum bypass flow of 18.5 cfs[a]	0.470	$7,500	$1,800	-$17,500
Remove 18-inch-high flashboards annually by October 15	0.005	--	--	-$200
Improve the parking area	--	--	$300	-$300
Improve portage trail/road to upstream boat launch	--	--	$300	-$300
Construct trail/road with turn-around for downstream portage area	--	$15,000	$500	-$1,900
Construct steps at downstream portage	--	$1,900	$200	-$400
Provide two picnic tables	--	$500	--	<-$100
Improve scenic viewing area on penstock	--	$8,500	$200	-$1,000
Install interpretive signage in three locations	--	$1,500	--	-$100
Provide directional signage	--	$500	--	<-$100
Install trail registers at parking lot	--	$500	--	<-$100
Total:	0.568	$35,900	$3,300	-$35,700

[a] CVPS proposes to provide a minimum bypass flow of 18.5 cfs consisting of 9.5 cfs leakage and 9.0 cfs (1 inch) spillage over the flashboards or dam crest when flashboards are not installed.

Table 5. Summary of costs and current net annual benefits of the staff's alternative - 1996 $ (Source: Staff)

Measures	Lost Generation (GWh)	Capital Cost	Yearly O & M	Annual Net Benefit
CVPS's proposed project	0.568	$35,900	$3,300	-$35,700
Prepare flow monitoring plan	--	$2,000	--	-$200
Prepare a turbidity monitoring plan	--	$2,000	--	-$200
Prepare a flashboard removal and replacement plan	--	$2,000	--	-$200
Remove 18-inch-high flashboards by September 15	0.005	--	--	-$200
Prepare a CRMP	--	$2,000	--	-$200
Release a flow of 50 cfs, or inflow, to the bypassed reach from April 1 to May 15 to enhance walleye spawning	0.086	--	--	-$2,800
Release aesthetics flow during daylight hours over the southern spillway of 2 1/2 inches (or inflow, if less) on Memorial Day, July Fourth, Labor Day, Columbus Day, and every Sunday during the months of July and August	0.024	--	--	-$800
Develop and implement a trashrack debris disposal plan	--	$2,000	$2,500	-$2,700
Remove penstock and six concrete cradles	--	$120,000	--	-$11,000
Prepare final recreation plan	--	$2,000	--	-$200
Participate in the Carver Falls Advisory Committee	--	--	$200	-$200
Prepare soil and erosion control plan	--	$500	--	<$100
Total	0.683	$166,400	$5,800	-$54,300

C. No-action Alternative

Under the no-action alternative, the project would continue to operate under the current mode of operation, and no new environmental protection, mitigation, or enhancement measures would be implemented.

The annual cost of the existing project, including carrying charges on net investment and application preparation costs, is

about $243,200 (33.5 mills/kWh). Thus, under no-action, the project would produce power at an annual cost of about $11,000 (1.5 mills/kWh) more than the currently available alternative.

D. Economic Comparison of the Alternatives

Table 6 presents a summary of the current net annual benefits for the various alternatives.

Under the Commission's policy regarding the economics of a project, as articulated in Mead, supra, a proposed project is economically beneficial so long as its projected cost is less than the current cost of alternative energy to any utility in the region that can be served by the project. To determine whether the project proposed is economically beneficial, we compared the cost of energy from the proposed project to the cost of an alternative source of energy.

Table 6. Comparison of economic analyses for Carver Falls Hydroelectric Project alternatives (Source: Staff)

	Alternatives		
	CVPS's	Staff's	No-Action
Installed capacity (MW)	1.85	1.85	1.85
Annual generation (GWh)	6.681	6.566	7.249
Net annual cost of alternative power			
(thousands $)	$214.0	$210.3	$232.2
(mills/kWh)	32.0	32.0	32.0
Net annual project cost			
(thousands $)	$249.6	$264.4	$243.2
(mills/kWh)	37.3	40.3	33.5
Current net annual economic benefits			
(thousands $)	-$35.7	-$54.3	-$11.0
(mills/kWh)	-5.3	-8.3	-1.5

Our economic evaluation of CVPS's proposal and the staff's alternative shows that both appear to cost more than currently available alternative power. As we explained in Mead, project economics is only one of the many public interest factors we consider in determining whether or not, and under what conditions, to issue a license. Based on the record in this proceeding, we conclude that it is in the public interest to license the project, conditioned as appropriate under Section 10(a)(1) of the FPA, and leave to the applicant the decision of whether or not to continue operating the existing project in light of the economic analysis set forth herein.

E. Pollution Abatement

The Carver Falls Hydroelectric Project annually generates about 7.249 GWh of electricity. This amount of hydropower generation, when contrasted with the generation of an equal amount of energy by fossil-fueled facilities, avoids the unnecessary emission of atmospheric pollutants. Assuming that the 7.249 GWh of hydropower generation would be replaced by an equal amount of natural gas-fired generation, generating electrical power equivalent to that produced by the Carver Falls Hydroelectric Project would require combustion of about 74 million cubic feet of natural gas annually. Removal of pollutants from the emissions to levels presently achievable by state-of-the-art technology would cost about $3,400 annually.

VI. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a hydropower project, fish and wildlife, recreational opportunities, and other non-developmental values of the waterway are considered equally with its electric energy and other developmental values. In deciding whether or not and under what conditions to issue a hydropower license, the Commission must weigh various economic and environmental tradeoffs.

We considered CVPS's proposed project; agency recommendations; our recommended protection, mitigation, or enhancement measures; and the no-action alternative under Sections 4(e) and 10(a) of the FPA. From our independent analysis of the environmental and economic effects of the alternatives, we selected CVPS's proposed project with our additional recommended measures (staff's alternative) as the preferred alternative.

This alternative requires CVPS to implement the measures described below.

- Operate the project in an instantaneous run-of-river mode (instantaneous sum of all discharges and releases from the impoundment approximately equals the instantaneous inflow into the impoundment), except for periods when dam leakage exceeds inflow to the impoundment.

- Provide a minimum flow of 50 cfs in the bypassed reach from April 1 through May 15 to enhance walleye spawning and habitat. During the remainder of the year, provide an 18.5 cfs minimum flow to protect water quality and aquatic resources in the bypassed reach. This flow should include 9.0 cfs spillage plus dam leakage of 9.5 cfs.

- Release an aesthetics flow during daylight hours over the southern spillway of 2 1/2 inches (or inflow, if less) on Memorial Day, July Fourth, Labor Day, Columbus Day and every Sunday during the months of July and August.

- Develop and implement a plan to monitor minimum flows and run-of-river operation.

- Develop and implement a flashboard removal and replacement plan that includes (a) the annual removal of the project's 18-inch-high flashboards by September 15; (b) the periodic replacement (every 5 or 6 years) of the project's 6-foot-high flashboards at the same time as the 18-inch-high flashboards to minimize the effects of drawdowns on project area habitat; and (c) measures to monitor downstream turbidity during the first removal of the 6-foot-high flashboards after license issuance and immediately following any unplanned washout of boards caused by extraordinary high flows.

- Develop and implement a trashrack debris disposal plan.

- Develop and implement a CRMP for the protection of cultural resources.

- Remove the two abandoned penstocks and 6 concrete cradles.

- Improve access and recreational facilities at Carver Falls by developing and implementing a final recreational enhancement plan. This plan should include measures to control soil erosion and sedimentation during construction of the lower portage trail and river access area.

- Improve the existing scenic overlook.

- Participate in the Carver Falls Advisory Committee.

Implementation of these measures would improve water quality, fisheries, recreation, and aesthetic resources; and would provide for the best use of the waterway. The costs of some of these measures, however, would reduce the net benefits of the project.

Specifically, 11 of the recommended measures would reduce economic benefits of the project: (1) operating the project in an instantaneous run-of-river mode; (2) providing a minimum flow of 50 cfs in the bypassed reach from April 1 through May 15 to enhance walleye spawning and habitat; during the remainder of the year, providing an 18.5 cfs minimum flow to protect water quality and aquatic resources; (3) releasing periodic aesthetics flows of 2 1/2 inches; (4) developing and implementing a flow monitoring plan; (5) removing the 18-inch-high flashboards by September 15;

(6) developing and implementing a flashboard removal/replacement plan; (7) removing the two abandoned penstocks and 6 concrete cradles; (8) improving recreational facilities, including improving the scenic overlook on the active penstock, and developing a final recreational enhancement plan; (9) developing and implementing a trashrack debris disposal plan; (10) participating in the activities of the Carver Falls Advisory Committee; and (11) developing a CRMP. We summarize these recommendations in the following section.

A. Carver Falls Operation

CVPS proposes to operate the project in a run-of-river mode and pass a minimum flow of 50 cfs in the bypassed reach from April 1 through May 15 to enhance walleye spawning and habitat. During the remainder of each year, CVPS would release a continuous minimum flow of 18.5 cfs, or inflow, to protect water quality and aquatic resources in the bypassed reach. The minimum flow would consist of a combination of existing leakage at the dam (approximately 9.5 cfs) and 1 inch of spillage over the 150-foot-long flashboard section on the New York State side of the dam (approximately 9.0 cfs). This flow would be passed to maintain water quality, aquatic habitat, and aesthetics in the bypassed reach.

We also recommend that CVPS release an aesthetics flow of 2 1/2 inches, (or inflow, if less), during daylight hours over the southern spillway on Memorial Day, July Fourth, Labor Day, Columbus Day and every Sunday during the months of July and August. We estimate that the current annual cost of implementing these recommendations would be $24,100.[15]

B. Flow Monitoring Plan

We recommend that CVPS develop and implement a flow monitoring plan for the bypassed reach to ensure the maintenance of year-round run-of-river operation and minimum flows at Carver Falls. We estimate that the current annual cost of implementing this recommendation would be $200.

C. Flashboard Removal/Replacement Plan

Current project operations include the removal of the 18-inch-high flashboards along the 150-foot-long spillway during mid-to-late November and replacement in mid-to-late April.

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[15] This total cost estimate includes CVPS's proposals to operate run-of-river ($3,000) and to provide minimum bypass flows of 18.5 cfs ($17,500), from Table 4, and staff recommendations to release a bypass flow of 50 cfs from April 1 to May 15 ($2,800) and provide aesthetic flows ($800), from Table 5.

Additionally, the 6-foot-high semi-permanent flashboards along the 110-foot-long spillway are replaced every 5 to 6 years. Flashboard removal results in temporary drawdowns of the impoundment, which expose rootstocks of wetland plant species and affect the habitat of muskrats, reptiles, and amphibians who overwinter in the impoundment.

Downstream water quality conditions may also be vulnerable to sedimentation when the 6-foot-high flashboards are removed after 5 or 6 years. Fine-grained sediments transported by the natural streamflow are likely to collect, and may be released during the removal of the 6-foot-high flashboards or during flashboard failure.

We recommend that CVPS develop and implement a plan that calls for removal of the 18-inch-high flashboards annually on or before September 15. During those years when the 6-foot-high flashboards are scheduled to be replaced, CVPS should remove and replace them at the same time as the 18-inch-high flashboards (on or before September 15) to minimize any associated water quality impacts downstream and in the impoundment. We also recommend that turbidity monitoring during the removal and replacement of the 6-foot-high flashboards and immediately following failure events be included in the development of this plan. We estimate that the current annual cost of implementing this recommendation would be $600.

D. Removal of Abandoned Penstocks

The removal of the two abandoned penstocks and concrete cradles would significantly improve the scenic values of the site for visitors to the falls. We recommend that the abandoned penstocks and concrete cradles be removed within a period of two years following the issuance of any license. We calculate that the current annual cost of implementing this recommendation would be $11,000.

E. Recreational Facilities

CVPS proposes to improve access to the Poultney River by: improving the parking area; improving the existing take-out portage trail on the impoundment; constructing a canoe portage trail/road to the Poultney River below the dam; constructing cobble and gravel filled steps down the steep bank to the river at the canoe put-in area; installing two picnic tables; placing directional and interpretive signage; and installing trail registers. CVPS proposes to finalize the specific location of the canoe put-in area and steps following completion of the Phase 1B survey to ensure the protection of the potentially significant cultural resources in this area.

Based on our inspection of facilities at the Carver Falls Project, we conclude that CVPS's proposed improvements to the parking area, upstream and downstream canoe portage trails, and canoe put-in area are necessary to maintain recreational access to the reservoir. We also recommend that CVPS prepare a final recreational enhancement plan, in consultation with VANR and NYSDEC, that includes: (1) scale drawings showing the specific location of the proposed steps and canoe put-in area near the lower portage trail; (2) a plan for controlling erosion along the portage trail/road, and sedimentation and slumping at the river bank caused by the construction and operation of project facilities; (3) drawings showing the dimensions and wording of interpretive signs; and (4) a discussion of how the needs of the disabled were considered during facility design.

We also recommend that CVPS improve the existing overlook on top of the active penstock at the project to enhance the scenic and recreational experience of visitors to the site. This measure would include new decking and safety rails, placement of gravel on the penstock trail, signage; and vegetation management.

We calculate that the current annual cost of implementing these recreation-related recommendations would be $4,200.

F. Trashrack Debris Disposal Plan

In general, river debris, including lumber, floating trash, brush, and vegetation regularly collects on the trashracks of hydroelectric projects. Therefore, we recommend that CVPS develop a debris disposal plan in consultation with VANR, to provide for removal and disposal of trashrack debris that meets state, county, and municipal regulations. We calculate that the current annual cost of implementing this measure would be $200.

G. Carver Falls Advisory Committee

Under the Settlement Agreement, CVPS has agreed to participate in the formation of the Carver Falls Advisory Committee to monitor and evaluate the changing conditions that may affect resources at the Carver Falls Project. CVPS would defray the costs of Committee meetings up to an overall annual cap of $200. We calculate that the current annual cost of implementing this measure would be $200.

H. Cultural Resources Management Plan

We recommend that CVPS develop and implement a cultural resources management plan that details processes and procedures for management of known and previously undiscovered Historic Properties that may be affected by project construction or operation. We calculate that the current annual cost of implementing this measure would be $200.

I. Conclusions

Based on our independent review and evaluation of the proposed Carver Falls Project, agency recommendations, the proposed project with our recommended enhancement measures, and the no-action alternative, we have selected as the preferred alternative CVPS's proposed project with our additional recommended measures.

VII. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Under the provisions of the FPA, as amended by the Electric Consumers Protection Act of 1986, each hydroelectric license issued by the Commission must include conditions based on recommendations of federal and state fish and wildlife agencies for the protection and enhancement of fish and wildlife and their habitat affected by the project.

Section 10(j) of the FPA states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of the agency.

For the Carver Falls Project, VANR, NYSDEC, and Interior have had the opportunity to make comments and recommendations. All of the agencies have provided recommendations, and all recommendations are evaluated and discussed in the water, fisheries, terrestrial, and recreational resources sections of this EA. We present our conclusions concerning the merits of these recommendations there. In Table 7, we summarize VANR's, NYSDEC's, and Interior's recommendations, show the annual cost of environmental measures, indicate if they are within the scope of 10(j), and state whether they are recommended for adoption under the staff's alternative.

Table 7. Summary of fish and wildlife agency recommendations (Source: Staff)

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
VANR, Interior and NYSDEC	Operate the project in true run-of-river mode. All flows to be spilled over the dam when the facility is not operating.	yes	$3,000	yes

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
VANR	From November 1 to March 31, minimum flow shall equal 18.5 cfs or inflow.	yes	$5,000	yes
VANR	Provide a minimum bypass flow of 50 cfs from April 1 to May 15 to provide a continuous zone of passage for walleye.*	yes	$3,000	yes
VANR	Provide a minimum flow of 80 cfs (daylight) and 57 cfs (nighttime) from April 1 to October 30 for aesthetics.*	no(a)	$35,000	no. Low site usage does not warrant high cost of lost generation. We have adopted NYSDEC's periodic flow of 2.5 inches for enhancement of aesthetic resources.
VANR	The impoundment will be refilled by reducing downstream flows by no greater than 10 percent after reinstallation of flashboards.	yes	$0	yes
VANR	Annual flashboard removal of the 18-inch boards shall occur on or before September 15, unless delayed by inflows beyond project control.	yes	$400	yes
VANR	Development of alternatives for current use and/or methods of 6-foot-high flashboards.	no(a)	$500	no. No substantial evidence that existing flashboards are inadequate.

* Dates and flows modified to be consistent with VANR analysis.

(a) Not a specific measure to protect fish and wildlife resources. It is considered as an FPA Section 10(a) recommendation.

(b) Agencies may not dictate timing of plan submittal under Section 10(j) of the FPA.

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
VANR	Develop a plan for methods to meet flow standards and reservoir management requirements.	yes	$200	yes
VANR	Develop a plan for erosion and sediment control, water level and flow management during construction activities, including recreational facility development.	yes	$100	yes
VANR	Install erosion control measures associated with use of recreational facilities.	yes	$200	yes
VANR	Remove concrete cradles and abandoned penstock sections after removal of penstock.	no(a)	$11,000	yes
VANR	Draft a recreational master plan including monitoring provisions. Plan would be updated by the end of a five-year period and would include a provision for recreational development and enhancement.	no(a)	$500	no. Recreation use monitored through FERC Form 80 reporting (Section 8.11 of the Commission's regulations).

* Dates and flows modified to be consistent with VANR analysis.

(a) Not a specific measure to protect fish and wildlife resources. It is considered as an FPA Section 10(a) recommendation.

(b) Agencies may not dictate timing of plan submittal under Section 10(j) of the FPA.

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
VANR	Provide public access for utilization of public resources.	no(a)	$0	yes
VANR	Consult with the Agency for wording on interpretive signage.	no(a)	$0	yes
VANR	Submit a plan for debris disposal.	yes	$200	yes
VANR	Install a timber flashboard system to replace the plywood system on the New York spillway.	no(a)	$3,000	no. Existing flashboards are adequate.
VANR	Applicant shall allow the Department to inspect the project area at any time to monitor compliance with certification conditions.	no(a)	$0	no. WQC under NYSDEC's jurisdiction.
VANR	Department may request FERC to reopen license for modifications to assure compliance with Vermont Water Quality Standards.	no(a)	$0	no. Commission's standard reopener clause will be included in any license issued.
VANR, NYSDEC and Interior	Release a year-round minimum flow of 18.5 cfs to the bypassed reach.	yes	$17,500	yes

* Dates and flows modified to be consistent with VANR analysis.

(a) Not a specific measure to protect fish and wildlife resources. It is considered as an FPA Section 10(a) recommendation.

(b) Agencies may not dictate timing of plan submittal under Section 10(j) of the FPA.

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
VANR, NYSDEC and Interior	Bypass flows may be modified under agreement with Interior, VANR, and NYSDEC.	no(a)	indeterminate	no. Usurps the Commission's authority under the FPA.
Interior	Within 3 months of licensing, prepare and file a plan for maintaining run-of-river operations for Commission approval.	no(b)	$200	no. Agencies may not dictate timing of plan submittal.
Interior	Prepare a plan for maintaining run-of-river operation and minimum flow releases.	yes	$200	yes
NYSDEC	License should not be issued until the questions concerning the WQC are resolved in the Settlement Agreement or are adjudicated and a modified certificate issued.	no(a)	$0	no. Usurps Commission's authority under FPA.
NYSDEC	Implement CVPS's proposed recreational access plan.	no(a)	$0	yes

* Dates and flows modified to be consistent with VANR analysis.

(a) Not a specific measure to protect fish and wildlife resources. It is considered as an FPA Section 10(a) recommendation.

(b) Agencies may not dictate timing of plan submittal under Section 10(j) of the FPA.

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
NYSDEC	CVPS should provide NYSDEC access to project area, including intake and discharge, to conduct bioassays, apply lampricides, and monitor conditions of the lampricide.	yes	$0	yes
NYSDEC	CVPS should provide NYSDEC access to the site to monitor spawning and abundance of larval lamprey.	yes	$0	yes
NYSDEC	Consult with the Department concerning any future work on Carver Falls.	no(a)	$0	no. Usurps Commission's authority under the FPA.
NYSDEC	Consult with Department at the time of any construction which may affect flooding of the flood plains of the Poultney River.	no(a)	$0	yes
NYSDEC	Remove abandoned penstock.	no(a)	$11,000	yes

* Dates and flows modified to be consistent with VANR analysis.

(a) Not a specific measure to protect fish and wildlife resources. It is considered as an FPA Section 10(a) recommendation.

(b) Agencies may not dictate timing of plan submittal under Section 10(j) of the FPA.

Agency	Recommendations	Within Scope of 10(j)	Annual Cost of Environmental Measures	Adopted
NYSDEC	Release 2.5 inches of water over the flashboards during daylight hours as an aesthetic flow on Memorial Day, July 4, Labor Day, and Columbus Day and every Sunday through July and August during the first year of the license. Provide monitoring for use of this scenic resource.	no(a)	$800	yes. Adopted under December 12, 1996, Settlement Agreement.

As shown in Table 7, we determined that 13 of the 30 recommendations made by fish and wildlife agencies are within the scope of Section 10(j) of the FPA. We recommend adopting all of these measures.

Recommendations Outside the Scope of Section 10(j)

We determined that 17 of the 30 recommendations of the federal and state fish and wildlife agencies are outside the scope of Section 10(j) because they require actions to be completed in a specific time frame or are conditions that are not specific measures for the protection and enhancement of fish and wildlife and their habitat affected by the project. These recommendations are therefore considered under the public interest standards of Section 10(a) of the FPA.

We determined that 7 of these recommendations have merit fully or partially and, therefore, we recommend adopting them. The remaining 10 recommendations are not in the public interest, and we did not recommend them for the following reasons.

* Dates and flows modified to be consistent with VANR analysis.

(a) Not a specific measure to protect fish and wildlife resources. It is considered as an FPA Section 10(a) recommendation.

(b) Agencies may not dictate timing of plan submittal under Section 10(j) of the FPA.

- We do not recommend that CVPS release, from April 1 to October 30, a minimum spillage flow of 80 cfs in the daytime and 57 cfs at night, or inflow, to enhance aesthetic resources.

  While we conclude that a minimum flow of 1 inch is adequate to enhance the aesthetic quality of the falls for the majority of visitors at the project, we recommend adoption of NYSDEC's aesthetic flows contained in the Settlement Agreement. This measure requires the release of 2.5 inches of water over the flashboards during daylight hours on Memorial Day, July 4, Labor Day, and Columbus Day and every Sunday during July and August.

- We do not recommend that CVPS develop alternatives to the existing 6-foot-high flashboards on the Vermont side of the dam.

  We find no site-specific evidence to indicate that the use of the existing 6-foot-high flashboards results in negative impacts to project area resources.

- We do not recommend that CVPS draft a recreational master plan including monitoring provisions, update the plan by the end of a five-year period, and include a provision for recreational development and enhancement.

  CVPS already has filed preliminary plans for recreational enhancements at the project. We do not recommend CVPS develop a recreation master plan because the total acreage owned by CVPS is limited, and recreational use of project land is already monitored through Section 8.11 of the Commission's regulations, which requires the licensee to collect and file information with respect to existing and potential recreation use at developments within the project area where recreation occurs. This information is submitted to the Commission every six years, based on previous year's activities, and helps to identify the need for additional facilities. If this information indicates a need for additional recreational facilities, the need can be addressed through the standard license reopener. Therefore, an additional recreation master plan is not required to monitor and assess recreation use at this project.

- We do not recommend that a timber flashboard system replace the plywood system on the New York spillway section.

  Our review of the present system indicates that the use of marine grade plywood for flashboards is adequate and

supported by a recent Commission decision.[16] We also find no site specific information to indicate that the current materials result in negative environmental impacts to project area resources.

- We do not recommend that CVPS allow VANR to inspect the project area at any time to monitor compliance with its certification conditions because water quality certification is under NYSDEC's jurisdiction.

- We do not recommend that the license contain an article that allows VANR to request the Commission to reopen the license and make modifications to assure compliance with Vermont Water Quality Standards because any license issued will contain the Commission's standard reopener clause.

- We do not recommend that bypass flows be modified under agreement with VANR, NYSDEC, and Interior because this would usurp the Commission's authority to regulate projects under the FPA.

- We do not recommend that CVPS prepare and file, within 3 months of licensing, a plan for maintaining run-of-river operations for Commission approval because agencies may not dictate the timing for plan submittal. We do recommend that a license article requiring that this plan be filed for Commission review and approval be included in any license issued.

- We do not recommend that any license not be issued until the questions concerning the WQC are resolved in a settlement agreement or are adjudicated and a modified certificate issued because this would usurp the Commission's authority to license non-federal waterpower projects under the FPA.

- We do not recommend that CVPS consult with NYSDEC concerning any future work on Carver Falls because this would usurp the Commission's authority to regulate non-federal waterpower projects under the FPA.

VIII. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

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[16] See 75 FERC ¶ 62,107. Order Modifying and Approving Flashboard Sealing and Trashrack Debris Disposal Plans (May 10, 1996), Central Vermont Public Service Corporation, Project Nos. 2396-007 and 2399-007.

Under Section 10(a)(2) federal and state agencies filed a total of 48 federal and state qualifying comprehensive plans of which we identified 8 Vermont, 4 New York, and 5 United States comprehensive plans to be applicable. We did not find any conflicts. We list comprehensive plans relevant to this project in Section XI.

IX. FINDING OF NO SIGNIFICANT IMPACT

None of the resources that we analyzed – including water quantity and quality, fisheries, terrestrial, cultural, aesthetic and recreation resources – would experience significant adverse effects under the proposed action or any of the alternatives considered in this EA.

On the basis of our independent analysis, issuing an original license for the project as proposed by CVPS with our additional recommended measures would not constitute a major federal action significantly affecting the quality of the human environment.

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XI. LIST OF PREPARERS

Federal Energy Regulatory Commission

Jim Haimes - Task Monitor (M.A., Economics - 20 years experience in hydropower and licensing)

Stone & Webster

Maria Brown - Fisheries and Water Quality (Biologist/Geologist; B.S. Biology, B.S. Geology - 8 years experience)

Ellen Hartig - Terrestrial Resources (Ecologist; M.A., Geography - 12 years experience)

Ed Kurkoski – Project Description and Economics (Civil Engineer; B.S., Civil Engineering – 23 years experience)

Suzanne Low - Recreation Resources (Recreation Planner; M.A., Community and Regional Planning - 16 years experience)

J. H. Rumpp, Jr. – Project Management (Land Use Planner; M.A., Urban Affairs – 9 years experience)

APPENDIX A

AGENCY COMMENT LETTERS ON THE DEA FOR THE CARVER FALLS PROJECT AND COMMISSION'S STAFF RESPONSES

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AGENCY COMMENT LETTERS ON THE DEA FOR THE CARVER FALLS PROJECT AND COMMISSION'S STAFF RESPONSES

Introduction

The DEA was mailed to federal, state, and local agencies and individuals for comments on September 30, 1996. The Notice of Availability of the Draft Environmental Assessment (DEA) was published in the *Federal Register* on Friday, October 4, 1996.

All timely letters of comment that address specific analyses in the DEA were reviewed by Commission staff. Suggestions for correcting text or data and requests for further discussion of a subject have been considered. Those editorial changes and suggestions that were practicable, reasonable, and that improved the quality of the EA are incorporated herein.

Constructive criticism presenting a major environmental point of view or one in opposition to staff, when persuasively supported, is treated by making revisions in the appropriate part of the EA. When the major point of view is not persuasive, reasons are given why the staff did not change its point of view.

Comment Letters Received on the DEA

Specific comments within the comment letters have been bracketed and numbered sequentially for easy identification. Our responses are numbered to match the comments. Where possible, our responses are presented to the right of the beginning of the comments, which may extend for several pages.

The sections or pages of the DEA that we modified as a result of comments received are identified in the staff responses. Other staff responses are self-explanatory.

The Nature Conservancy
NEW YORK REGIONAL OFFICE

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tel: 518 463-6133
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[illegible] Seventh Avenue, Suite 601
New York, New York 10018
tel: 212 997 1880
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International Headquarters
Arlington, Virginia
tel: 703 841-5300

November 13, 1996

Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

COPY

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FILED
OFFICE OF THE SECRETARY
FEDERAL ENERGY REGULATORY COMMISSION

Subject: Carver Falls Hydroelectric Project, No. 11475-000

Dear Ms. Cashell:

NC-1 The New York and Vermont Offices of The Nature Conservancy (the "Conservancy") are submitting comments on the draft environmental assessment of the Carver Falls Hydroelectric Project that the Federal Energy Regulatory Commission has prepared pursuant to the National Environmental Policy Act.

NC-2 In general, the Conservancy is pleased with the instantaneous run-of-river operating regime proposed by Central Vermont Public Service ("CVPS"). We believe that a critical step in conserving native fish and mussel populations in the lower Poultney River is to restore natural flows in this downstream reach. Run-of-river conditions should increase the amount of wetted stream bottom during summer low flow periods and result in greater dissolved oxygen levels and lower water temperatures in this downstream reach. While the dam will continue to operate, and flashboard repair and maintenance will still be necessary, we feel that CVPS, the state agencies, and FERC have developed adequate plans to mitigate for these issues. In particular, we support the FERC staff recommendation that CVPS monitor flows to the bypassed reach.

NC-3 We recommend that FERC go one step further by requiring CVPS to develop and at least partially fund a modest aquatic monitoring program to assess the following: 1) suitability of 18.5 cfs for walleye passage in the bypass reach, and 2) trends in populations and habitat conditions for darters and selected mussel species in the river below Carver Falls. While we believe that run-of-river will improve conditions for biota downstream from the dam, this should be clearly documented in an objective, scientific manner. With this information, CVPS can clearly demonstrate its commitment to protecting river biota while continuing to generate power. The regulatory agencies can benefit by having objective data from this case study to apply in other locations where it is believed that restoration of natural flows is warranted.

NC-4

A-1

Responses to Comments of The Nature Conservancy on the Draft Environmental Assessment for the Carver Falls Project

Letter dated November 13, 1996

NC-1. No response required.

NC-2. Opinion noted.

NC-3. Under terms of the Settlement Agreement filed December 12, 1996, CVPS agreed to annually release a minimum flow of 50 cfs, or inflow, into the bypassed reach during the walleye spawning period, from April 1 through May 15. This minimum flow represents a considerable increase over the 18.5 cfs flow originally proposed and would benefit walleye spawning. As discussed in the draft EA, we have determined that a minimum flow of 18.5 cfs released to the bypassed reach during the rest of the year is adequate for fish habitat and movement. Therefore, there is no need to monitor the suitability of 18.5 cfs in the bypassed reach.

NC-4. Operation of the project in run-of-river mode would approximate flow conditions occurring in an unregulated river system, eliminating the impacts associated with current peaking operations. Because restoration of natural flows in the Poultney River downstream of the project would benefit resident biota, staff concludes that a long-term assessment of numbers and habitat of darters and mussel species below the project is not necessary.

NC-5 On page 45 of the assessment document, reference is made to improvements to interpretive signage. We recommend that interpretive information should include a description of the ecological significance of the Poultney River system and the various partners involved in conservation efforts on this river.

Thank you for providing us with the opportunity to comment.

NC-6 Sincerely,

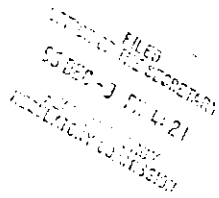
Jonathan C. Kaledin
New York Regional Counsel

cc: Robert Klein, Chris Fichtel, John Roe, Mary Droege--TNC VTFO
Peg Olsen, Michael Batcher, Maria Trabka--TNC ENY

NC-5. The proposed interpretive signs would identify CVPS as the owner of the site, inform the visitor of the significance and history of the project, and direct visitors to project recreational areas. We conclude that this information is adequate to orient and educate visitors to the project. While we are not recommending including any additional information on the interpretive signs, the Nature Conservancy may approach CVPS regarding funding and maintenance of additional ecological signage at the project.

NC-6. No response required.

Central Vermont Public Service Corporation



December 6, 1996

Ms. Lois Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington D.C. 20426

RE: Carver Falls Hydroelectric Project, No. 11475-000
Draft Environmental Assessment Comments

Dear Secretary Cashell:

CVPS-1 Central Vermont Public Service Corporation (CVPS) hereby offers the following comments on the Draft Environmental Assessment (DEA) issued for the above referenced project on September 30, 1996:

CVPS-2 1) In numerous locations, the output of the generating station is referred to as 1.6 MW (pages 1, 15, and 51). While the nameplate outputs of the generators sum to 1.63 MW, actual capability of the units are 1150 KW for unit 1, and 800 KW for unit 2. Due to penstock losses the combined maximum rating of the turbines is 1.9 MW. Further discussion of this matter is provided in the response to Additional Information Request #11, filed with the Commission on March 4, 1996. The turbine horsepower capabilities listed in the license application are accurate. CVPS requests that any license issued for this project indicate an authorized capacity of 1.9 MW to avoid confusion for the Commission's New York Regional Office Engineer during future operational inspections of the site.

CVPS-3 2) On pages 6 and 37 a recommendation to remove the 18 inch flashboards by September 15 each year is presented. Staff discussion suggests that CVPS' current practice of removing the boards in November may result in mortality of muskrats, reptiles and amphibians. CVPS proposes a removal date of October 15 as a compromise that protects wildlife yet allows maximized generation.

CVPS-4 Herptile hibernacula within the Carver Falls impoundment is likely to be found in the deeper water where silt and detritus settle out. The banks of the impoundment are high, steep and hard-packed, and would not be sought out as denning sites. Substrate at the head of the impoundment is not conducive to hibernation as it is coarse material and bedrock. Consequently, should amphibians such as bull frogs or leopard frogs seek early hibernation, they will not be exposed as the 18 inch drawdown will not dewater viable

77 Grove Street
Rutland, Vermont 05701
802-773-2711

Responses to Comments of the Central Vermont Public Service Company on the Draft Environmental Assessment for the Carver Falls Project

Letter dated December 6, 1996

CVPS-1. No response required.

CVPS-2. The authorized installed capacity is the sum of the lesser value of the turbine at best gate and the generator. Based on the information provided in the license application and in the response to AIR #11, the authorized installed capacity of the Carver Falls Project should be 1.85 MW (1,050 kW for unit 1 turbine and 800 kW for both unit 2 turbine and generator). We have made the appropriate changes on pages iii, 1, and 55 of the EA.

CVPS-3. Staff believes that flashboard removal should occur as early as possible in the fall season to reduce wildlife mortality. Flashboard removal by mid-September would protect overwintering amphibians from exposure to freezing temperatures by stabilizing water levels prior to the selection of hibernation sites. We have adopted this recommendation pursuant to the requirements of Section 10(j) of the FPA.

CVPS-4. No response required.

CVPS-4 | hibernacula. Reptiles using the site (ie , snapping turtles and painted turtles) are of even less risk since they are often mobile during the winter months, adjusting their position in the pond as necessary.

CVPS-5 | Muskrat habitat is extremely limited due to the smallness of the impoundment, its riverine characteristics, and small pockets of aquatic vegetation with limited species preference. Should a muskrat family unit exploit this site, ample time to adjust to a lowered water level would be afforded with a flashboard removal date of October 15th.

CVPS-6 | In light of the above, CVPS proposes to adjust its flashboard removal date from mid November to October 15th. This should offer more than adequate time for muskrat adaptation should they use the impoundment, provide higher quality habitat to waterfowl migrating through the Champlain Valley, provide for more efficient use of the hydroelectric facility, and not affect herptile hibernacula.

3) CVPS-7 | On pages 20 and 31 the DEA suggests that the 6 foot flashboards should be replaced as necessary in April after the ice has gone out, yet prior to fish spawning. While this may be possible some years, it can only be achieved safely after river flow has dropped below the combined hydraulic capacities of the turbines and broome gate.

4) CVPS-8 | The DEA on page 23 adopts the Vermont Agency of Natural Resources' (VANR) recommendation for a debris disposal plan. CVPS does not object to developing a plan, but suggests that it would be more appropriate for the New York State Department of Environmental Conservation to comment on a plan for the collection and disposal of debris in New York State rather than the VANR.

5) CVPS-9 | Page 29 of the DEA includes the following statement. "NYSDEC states that the 1-inch spill over the southern spillway section proposed by CVPS may not result in a minimum flow release of 18.5 cfs." CVPS has not located this statement in NYSDEC's letter dated April 15, 1996 or in the Water Quality Certificate (WQC). CVPS believes that the WQC requirement for pond level sensors is to ensure that one inch will pass over the spillway because NYSDEC believes that one inch of spillage will result in a total minimum flow of 18.5 cfs.

6) CVPS-10 | During discussions of turbine trips on page 33, the DEA indicates that the streambed may receive only 9.5 cfs for short periods. CVPS believes that the minimum flow in the streambed would be 18.5 cfs

7) CVPS-11 | The boundary between the States of Vermont and New York, illustrated on Figure 1 of the DEA, cuts through the middle of the northern spillway. As such, the old headworks and penstocks are entirely within the State of New York. Therefore the consultation with the Vermont SHPO on the removal of the old penstocks suggested on page 39 should be revised to consultation with the New York SHPO.

CVPS-12 8) | The estimated cost for debris disposal listed on page 55 is vastly underestimated at

CVPS-5. Opinion noted.

CVPS-6. See our response to CVPS-3.

CVPS-7. Staff agrees that high spring flows may not allow flashboard replacement during the month of April. Therefore, we revised our recommendation for the scheduled replacement of the 6-foot flashboards. We conclude that flashboard replacement should occur concurrently with the replacement of the 18-inch-high flashboards. We modified page 23 of the EA to reflect this change.

CVPS-8. Staff concludes that debris disposal may affect resources in Vermont and New York, and therefore recommends that both VANR and NYSDEC be consulted during the development of the trashrack debris disposal plan. We modified page 25 of the EA to reflect this recommendation.

CVPS-9. We revised page 31 of the EA to clarify the headpond monitoring requirement.

CVPS-10. Staff agrees that the minimum flow of 18.5 cfs, or inflow, would continue to flow in the bypass reach following unit shutdown. We revised our analysis on page 35 of the EA to reflect this.

CVPS-11. Our review of Figure 1 and the penstock removal analysis on page 39 of the DEA confirm this comment. We modified our recommendation concerning SHPO consultation to require consultation with the New York SHPO on penstock removal.

CVPS-12. The annual cost of debris removal in the DEA was for the development of the debris removal plan. We did not include implementation costs in the DEA because we considered debris removal a function of normal operation and, therefore, included it in the existing O&M cost. However, we added $2,500 in O&M costs for debris removal in the FEA to cover any additional costs of debris removal required by the recommended plan.

CVPS-12 | $200 per year. A more appropriate cost would be $2500 per year considering labor, trucking, and disposal costs.

9) CVPS has entered into a settlement agreement with the NYSDEC, New York Rivers United and possibly other agencies and non governmental organizations. In exchange for certain parties dropping an objection to the New York State Water Quality Certificate and agreeing to support the licensing of the Carver Falls Project, CVPS has agreed to the following:

A) Walleye Spawning CVPS shall provide a continuous flow to the bypassed reach of 50 cfs (or inflow, if less) from April 1 through May 15 of each year.

B) Penstock Removal (as described in the DEA)

C) Site Access (as described in the license application and the DEA)

CVPS-13 | D) Aesthetic Releases CVPS agrees to release a flow over the southern spillway of two and one half (2½) inches (or inflow, if less) for aesthetic purposes on Memorial Day, July Fourth, Labor Day, Columbus Day and every Sunday during the months of July and August. Said aesthetic flows shall be released during daylight hours commencing at 9 AM.

E) Carver Falls Advisory Council CVPS agrees to the formation of a group consisting of the signatories to the settlement to make recommendations for consideration by NYSDEC, CVPS, (and eventually the Commission if applicable) regarding management and operation of the Carver Falls site. CVPS will defray the cost of the meetings up to an annual cap of $200.

CVPS-14 | It is my understanding that the NYSDEC will file a copy of the settlement agreement when it is fully executed with the Commission.

Thank you for your consideration of these comments.

Sincerely,

Bruce M. Peacock
Manager of Production Engineering

cc: Service List

A-5

CVPS-13. Staff reviews the conditions of the Settlement Agreement in the EA. and recommends adoption of all items.

CVPS-14. No response required.

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

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FEDERAL ENERGY REGULATORY COMMISSION

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AGENCY OF NATURAL RESOURCES
OFFICE OF THE SECRETARY
103 South Main Street
Center Building
Waterbury, Vermont 05671-0301

802-241-3770

December 10, 1996

COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT

CARVER FALLS HYDROELECTRIC PROJECT
FERC PROJECT NO. 11475-000
CENTRAL VERMONT PUBLIC SERVICE CORPORATION

Lois Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Dear Secretary Cashell:

VANR-1 The Vermont Agency of Natural Resources (Agency) herein files comments on the Draft Environmental Assessment (draft EA) for the Carver Falls Hydroelectric Project, for which a "Notice of Availability of Draft Environmental Assessment" was issued on September 30, 1996.

Summary Section

VANR-2 On p. iv of the summary section, it is stated that 7,249 megawatt-hours of generation would be lost if the project is denied a license. Technically, this historical level of generation should be adjusted for projected generation after the institution of minimum flows in the bypassed reach.

Section II. PROPOSED ACTION AND ALTERNATIVES

VANR-3 Section II.B.1. Alternatives to the Proposed Project -Staff's Alternative

Under the second bullet, the staff suggests monitoring turbidity levels in the bypass during removal and replacement of the six-foot flashboards. If the impoundment is drawn through the

A-6

Responses to
Comments of the Vermont Agency of Natural Resources
on the Draft Environmental Assessment
for the Carver Falls Project

Letter dated December 10, 1996

VANR-1. No response required.

VANR-2. All lost generation is compared to baseline (existing) conditions. Therefore, if a license were denied in this case, 7,249 megawatt-hours of generation would be lost.

VANR-3. Staff agrees that turbidity monitoring should occur downstream of the dam following removal/replacement of the project's 6-foot flashboards. We recommend that the final monitoring locations be developed in consultation with VANR and NYSDEC as part of the turbidity monitoring plan.

VANR-3 | turbine instead of using the broome gate at the dam, it would be necessary to monitor turbidity at a location below the tailrace instead of in the bypass.

Section III. CONSULTATION AND COMPLIANCE

C. Water Quality Certification

VANR-4 | In the footnote on p. 9, FERC staff notes that Vermont had argued that CVPS (Central Vermont Public Service Corporation) must obtain a Water Quality Certification from Vermont, pursuant to 33 U.S.C. § 1341(a)(1). FERC staff simply states that this is a legal issue that will be addressed in the license order. The Agency objects to the Commission's continued delay in addressing the Water Quality Certification issues raised in the Agency's Motion to Intervene and Protest as to Acceptance of Application, dated December 5, 1995, and the Agency's Response to December 20, 1995 Response of Central Vermont Public Service Corporation, dated January 3, 1996.

VANR-5 | It has been, and continues to be, the Agency's position that the Commission is prohibited from issuing a license order because CVPS's application is deficient under 18 C.F.R. § 4.32(e) for failure to comply with 18 C.F.R. § 4.38(f)(7)(I).

VANR-6 | It has been, and continues to be, the Agency's position that, alternatively, the Commission is prohibited from issuing a license order until such time as the Commission commences and complies with the procedures set forth in 33 U.S.C. § 3141(a)(2). Vermont has not received formal notice under Section 401(a)(2) and an opportunity to request a public hearing.

Section IV. ENVIRONMENTAL ANALYSIS

VANR-7 | Section IV.C.1. Water Resources

a. Affected environment:

Water Quality

VANR-8 | Under the second paragraph of this section (p. 17), the draft EA associates the Vermont dissolved oxygen standards with the river's classification (Class B). Technically, the dissolved oxygen standard is associated with the river's designation as warm water fish habitat below Carver Falls, not the Class B designation.

A-7

VANR-4. Your objection is noted. The Commission will respond to the issues raised in your Motion to Intervene dated December 5, 1995, in any order issuing or denying a license for the Carver Falls Project.

VANR-5. Your opinion is noted.

VANR-6. Your position is noted.

VANR-7. No response required.

VANR-8. Staff agrees, and we have modified the discussion on page 19 of the EA accordingly.

VANR-9

By letter dated February 18, 1994, the Agency commented on CVPS's draft license application, including the results of the 1992 water quality sampling study. Table 1 (p. 18) of the draft EA contains average data from that study. As noted in the Agency's 1994 letter, the data appears to be somewhat suspect as the bypass samples exhibited dissolved oxygen concentrations lower or equivalent to those measured in the tailrace. The Agency does agree, however, that the project as proposed can be expected to comply with dissolved oxygen standards.

b. Environmental impacts:

Turbidity Releases During Flashboard Maintenance

VANR-10

The monitoring program should disclose whether or not elevated turbidity levels result after flashboard failure or during the periodic replacement. The Agency cited, in its May 18, 1996 terms letter, the silt release that occurred at the site in 1982 and believes that this is an important issue for fish and benthos downstream.

Alternative Flashboard Materials

VANR-11

The Agency had recommended the use of alternative flashboard materials to the plywood currently in use. This relates to both the 18-inch and six-foot flashboards. The Agency discourages the use of plywood primarily because it becomes discharged into the downstream river environment when the boards fail, and the material does not biodegrade readily; the flashboard system is not designed to collapse and be retained on the crest when the flashboards fail. The Agency made the same recommendations concerning the use of plywood for four projects on the Passumpsic River (Project Nos. 2396, 2397, 2399, and 2400), and FERC staff apparently was swayed by the licensee's contention that the plywood was, in most cases, retrieved and reused. The Agency does not believe that the same claim has been made here. At the Passumpsic River, CVPS has five dams in series and stated that the boards washed out at one dam could be retreived at the next dam downstream. The decision on the Passumpsic River was, therefore, very case specific, and FERC staff should not use that decision to broadly sanction use of plywood flashboard systems at other projects.

VANR-12

In this section, FERC staff addresses the Agency's request for an evaluation of alternatives. The evaluation of alternatives actually related more to engineering alternatives that would eliminate or reduce the drawdowns associated with the six-foot flashboards. The type of materials used (plywood versus timber) is an ancillary issue. The flood-safety necessity of the six foot flashboard section has not been shown. Neither has it been shown that adequate relief can not be attained with alternatives like raising the permanent crest three feet and installing

A-8

VANR-9. Opinion noted.

VANR-10. Staff has addressed these issues by recommending that CVPS implement a turbidity monitoring plan during (1) the first removal and replacement of the 6-foot high flashboards following license issuance; and (2) immediately following a failure of the flashboards.

VANR-11. Staff evaluated your recommendation to use alternative materials for flashboards and concluded that continued use of the existing plywood system would not have an adverse impact on water quality because incidences of failure are rare.

VANR-12. Staff's review of this issue indicates that failure of the 6-foot flashboards rarely occurs and therefore alternative flashboard configurations are not warranted. VANR has identified only one occurrence (January 1996) of flashboard failure in the project's history. This high flow event (10,300 cfs) appears unique, caused by an atypical early thaw that resulted in flood surges throughout the region. Staff finds no evidence that current spillway and flashboard design results in negative impacts on downstream aquatic resources.

VANR-12 | three-foot boards, thereby reducing the scale of the periodic drawdowns. FERC staff does not
VANR-13 | investigate the magnitude of downstream flow fluctuations when the boards fail under high water conditions.

VANR-14 | Bathemetric information was not provided to enable FERC to assess the extent to which upstream habitat would be impacted--dewatering and fish stranding. Neither was there an
VANR-15 | analysis of the entrainment impact on fish resident in the impoundment during a controlled drawdown for flashboard replacement or the loss of fish when the boards fail. Wetland
VANR-16 | impacts were not addressed.

VANR-17 | The draft EA recommends flashboard replacement in April. This would require drawing the impoundment through both the turbines and the broome gate, as April flows generally exceed the station capacity. CVPS normally draws the impoundment using the turbines alone. As walleye are present in April, release of silt would be a particular concern if work is done at that time of year.

VANR-18 | Another issue related to drawdowns is dam leakage. The draft EA does not address the fact that the impoundment drains via bedrock and structural leakage during protracted low flow conditions. The leakage apparently exceeds the river's base flow conditions. This issue was one of the subjects of AIR No. 3.

Section IV.C.2. Aquatic Resources

VANR-19 | b. Environmental impacts:

Flows for Walleye Spawning in the Bypassed Reach

VANR-20 | The Agency incorporates by reference the comments it made in its Section 10(j) letter response of November 14, 1996 on this issue. A flow of 18.5 cfs, or 0.10 csm, is not an adequate spring flow to support the walleye spawning run from Lake Champlain.

Flow Interruptions - Lag Time

VANR-21 | FERC staff concludes that the impacts of the lag time for reestablishment of run-of-river conditions after the station trips off-line are minor and temporary. The section indicates that 9.5 cfs would be maintained downstream through dam leakage. Technically, a flow of 18.5 cfs would be maintained during the initial portion of the lag time instead of 9.5 cfs. Data is
VANR-22 | lacking on the downstream impacts. The station could be operating at 250 cfs, for example,

VANR-13. We agree that flashboard failure would cause flow fluctuations downstream. However, no information, beyond reference to the January 1996 incident, has been provided to show that flashboard failure is a problem at this project.

VANR-14. Run-of-river project operation would minimize dewatering of impoundment habitat and fish stranding. Impacts from periodic impoundment drawdowns, necessary for flashboard replacement or due to flashboard failure, would be short-term. Existing information does not indicate that dewatering of impoundment habitat or potential stranding of fish resulting from these periodic drawdowns has adversely affected the aquatic resources in the project impoundment.

VANR-15. Our analysis of fish entrainment issues on page 33 of the EA concludes that entrainment of resident fish is not an issue due to the lack of evidence that fish entrainment and mortality are limiting fish populations in the project area.

VANR-16. FERC staff discussed wetland impacts from flashboard removal in the DEA and concluded that removal after ice build up could result in damage to wetland plant species. Staff recommends that maintenance drawdowns occur early in the fall to minimize exposure of rootstocks in the drawdown zone to freezing conditions.

VANR-17. We agree that drawing the impoundment down during April high flows to replace the 6-foot flashboards could negatively affect spawning walleye. Therefore, we have revised our analysis of this issue (page 34 of the EA) and recommend that scheduled replacement of the 6-foot flashboards occur concurrently with the replacement of the 18-inch-high flashboards.

VANR-18. Staff agrees that there may be periods when dam leakage exceeds inflow resulting in a decrease in reservoir elevation. This leakage results from fissures in the natural bedrock formation underlying the dam and is beyond the control of the project. We considered mitigation options (grouting and pumping) and concluded they are not warranted due to the the prohibitive cost of these measures and the limited potential for adverse impacts on important downstream aquatic resources which would result from interruption of these historic leakage flows.

VANR-19. No response required.

VANR-20. Opinion noted.

VANR-21. We modified the EA on page 35 to reflect this information.

VANR-22. The impacts associated with flow interruptions and the lag time between unit trip-out and flow restoration downstream of the project were discussed in the DEA for worst case (low flow) conditions. Under high flow conditions as outlined in this comment, water would already be spilling over the flashboards, and flows in the bypassed reach would immediately increase after unit trip-out. We find no indication that downstream resources would be adversely affected under this scenario.

VANR-22 and have the flow quickly drop to 18.5 cfs when the station trips off. The amount of riverbed dewatered and the impact on stream biota are unknown.

Section IV.C.5. Aesthetic Resources

a. Affected environment:

VANR-23 The draft EA notes the vantage points that were used in viewing the falls during the December 1995 study. There were actually three vantage points. Locations A and B were not both on the penstock platform. Location A is at the head of the trail to the platform; it is on the height of land nearer the gatehouse.

VANR-24 Other vantage points are available but were not used as viewing locations for the study. Visitors to the site have free access to the falls proper, so there are many vantage points available to those who want to hike around on the falls. Access can also be gained from the Vermont side; however, one must walk in for some distance. With the passage of flows over the falls, there may be more of an attraction to people to visit the site. Flow over the lower falls would make it more worthwhile for visiting from the Vermont side.

b. Environmental impacts:

Flows over Carver Falls Dam

VANR-25 As indicated by the heading of this section, the focus of the environmental review is the appearance of spillway flows instead of flows over the natural falls formation. Location C (the old promontory), the falls proper, and the Vermont side[1] provide excellent views of both natural falls. FERC staff instead emphasizes locations A and B. Flows have apparently been set based on the appearance of the test flows over the concrete spillway. While the 1-inch of spillage is adequate to provide an attractive veil of water over the spillway, this flow does not do justice to the natural falls, which are managed by Vermont as part of a designated Outstanding Resource Water.

[1]On p. 42 of the draft EA, FERC finds that the Vermont side of the river below the falls is "privately owned and inaccessible land." The Agency is not aware of access restrictions on the Vermont side. CVPS, in its response to AIR No. 3, states that one must trespass in order to access the river from Vermont. We do not believe that the land is posted against trespass. Further, many Vermont landowners allow free access on their lands for general recreational use, like hunting, fishing, and hiking, especially if users are courteous enough to first ask permission. Even if the lands were posted and access denied, there is no assurance that such a condition would exist for the term of the license.

VANR-23. Our review of the aesthetic flow demonstration study and video confirms VANR's comment. We have revised the aesthetic flow demonstration discussion on page 45 of the EA.

VANR-24. Opinion noted.

VANR-25. The aesthetic flow demonstration analysis in the DEA provides equal consideration of the demonstration flows viewed from all three (A, B, and C) locations. Our conclusion concerning aesthetic flows is based on the consideration that most visitors to the site will view the falls from the proposed lookout on top of the active penstock (Location B), not from the promontory lookout (Location C) or from the Vermont side of the Poultney River. The promontory lookout is precarious, steep, and unsafe. Visitors wishing to view the falls from the Vermont side of the river would have to walk through private property for a considerable distance from the nearest road. While acknowledging that some visitors will seek out these and other viewing locations, we continue to believe that most visitors will access the site from the New York access road, and view the falls from the improved viewing area on top of the active penstock.

VANR-26 A spillage of 3.25 inches is necessary to adequately support aesthetics. A spillage of 2.5 inches was determined to be the threshold flow above which water started to discharge over th lower (main) falls. In other words, almost no flow goes over the lower falls at 2.5 inches of spillage. The 2.5-inch spillage flow was not observed during the study and cannot be judged as an adequate flow to support aesthetics.[2]

VANR-27 On p. 41, the flow demonstration is summarized, with the description drawn from CVPS's text of the aesthetics study (AIR No. 3 response). CVPS actually was contrasting the frothy, white, aerated water on the spillway face to the appearance of the water spilling over the flashboards (a laminar, unaerated flow with the darker flashboards as a backdrop). The impoundment was visible only from Location A. Both the AIR response and the text of the draft EA (p. 41) use the term "headwall" when referring to the spillway; we would suggest changing this in the draft EA for clarity.

VANR-28 The Vermont Water Resources Board has recently ruled in an appeal of the Water Quality Certification for the Lamoille Project (FERC No. 2205). In Vermont, the Board is responsible for promulgating the Vermont Water Quality Standards. In its decision, the Board clarified application of the aesthetics management objective to Class B waters. A copy of the relevant portion of the decision is provided as an attachment to this filing.

VANR-29 The management objective for Class B waters is "[w]ater of a quality that consistently exhibits good aesthetic value." (Vermont Water Quality Standards, §3-03(1)). New York State does not have a comparable management objective for the Poultney River. Most importantly, the Board determined that:

1. The evaluation should not be limited to "only those areas which can be readily viewed by the public." (decision at p. 62)

2. Because land ownership and access locations change over time, present-day limitations should not be considered as a factor in providing support of aesthetics. (decision at p. 62)

3. On a continuum, "adequate" does not support "good" aesthetic value. (decision at p. 62)

[2]Please reference AIR No. 3(d). FERC staff had specifically requested that the threshold flow be determined. CVPS filmed this flow from the promontory for the videotape that was provided with its response to AIR No. 3. A small amount of flow trickles over the lower falls at this spillage level.

VANR-26 Opinion noted. However, staff finds that the flows required by the Settlement Agreement (dated December 5, 1996) of 2.5 inches over the southern spillway during daylight hours commencing at 9 AM on Memorial Day, July Fourth, Labor Day, Columbus Day, and every Sunday during the months of July and August are appropriate to meet the aesthetic needs at this site.

VANR-27. We agree that the recommended change would enhance clarity and have changed headwall to spillway on page 45.of the EA.

VANR-28. No response required.

VANR-29. No response required.

4. In determining appropriate flows, factors to consider include uniqueness of the landscape feature; the scale, scope, contrast, and context of the feature in relation to its immediate surroundings; and the naturalness of the feature where natural elements are present at the site. (decision at p. 63-4)

VANR-29

5. "[C]onsistently exhibits good aesthetic value" means that continuous support of aesthetics, with an appropriate flow regime, is required.

As we read the Board decision, the FERC staff-recommended flow would not support this management objective, and would, therefore, be inconsistent with State law and the requirement of the Federal Clean Water Act. On p. 62 of the draft EA, FERC staff concludes that the high flows are not justified because of "the limited useage of this site, the lack of suitable viewing locations from which any higher flows could be seen, and the high cost of lost generation." FERC staff has recognized the importance and uniqueness of this falls; it is the largest falls in Vermont and is located on a Outstanding Resource Water, designated so, in part, due to its scenic values. Although the Agency agrees that one inch of spill is adequate for viewing by the "majority" of visitors from locations A or B, the ability of a small number of visitors to view the falls from other vantage points has a special value which, for the individual, is far greater than the viewing of the spillway with a veil of water. The Agency continues to recommend the flow regime set forth in its May 16, 1996 terms letter:

VANR-30

> From November 1 to March 31, the minimum bypass flow shall equal 18.5 cfs, or instantaneous inflow if less. From April 1 to October 30, the minimum bypass flow shall be 80 cfs in the daytime and 57 cfs at night, or instantaneous inflow if less. Daytime shall be defined as one half hour before sunrise to one half hour following sunset.

Under Section V. **Developmental Analysis**, FERC staff did not evaluate the cost of agency alternatives that were not selected for use in the FERC staff-recommended alternative. As a result, there is no analysis of the cost of the above flow recommendation. The Agency, in its May 16, 1996 terms letter, provided information on the mitigation costs of its flow recommendation as compared to the licensing proposal. This information should be considered in the NEPA analysis and the evaluation provided in the final EA.

VANR-31

The Agency appreciates FERC staff's recognition that access to the promontory should be allowed but not encouraged. Prohibition of access would deny visitors one of the best views of a major falls in this area.[3] Further, it is clear that this vantage point has been used probably for centuries.

VANR-32

[3]It should be noted that even CVPS elected to use a photograph of the falls taken from the promontory for the cover page of its aesthetics study.

VANR-30. Our analysis indicates that the proposed spillage of 1 inch would enhance the aesthetic quality of the upper falls (spillway) for the majority of visitors. Your recommended higher flows would only be seen from unsafe, steep, or inaccessible viewing locations. The annual cost (in terms of lost generation) of implementing your recommended higher flow regime is $35,000. We conclude that this high cost is not justified by the relatively low recreational usage of the site, and the absence of safe and easily accessible viewing locations from which the higher flows could be seen.

VANR-31. In the DEA, staff provides a cost analysis of the recommended flow regime in Table 7, Summary of Fish and Wildlife Agency Recommendations.

VANR-32. No response required.

Removal of Abandoned Penstocks

VANR-33 The Agency supports removal of the steel penstocks and concrete cradles as recommended by FERC staff, after consultation with the state historic preservation offices. Vermont has recommended that further consideration be given to retaining a portion of the upper sections of the penstocks, instead of complete removal. These sections have little or no impact on aesthetics, and retaining some of the hydroelectric station's original fabric may be warranted.

Thank you for the opportunity to comment on the draft EA.

VANR-34

Sincerely yours,

Jeffrey R. Cueto

Jeffrey R. Cueto, P.E.
Principal Hydrologist

encl. exerpt from Lamoille decision
c distribution list
FERC service list

VANR-33. Staff continues to recommend removal of the penstocks and six concrete cradles in the project's bypassed reach. We agree with VANR's original recommendation for removal (May 16, 1996), that states that civil works should generally be removed when they are no longer functional, and when they compromise environmental values and public use. We note that as part of the Settlement Agreement to the Water Quality Certificate for the Carver Falls Hydroelectric Project, dated December 5, 1996, CVPS has agreed to remove the two abandoned penstocks and the concrete cradles, while retaining the stone cradles.

VANR-34. No response required.

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York, 12233

MICHAEL D. ZAGATA
COMMISSIONER

December 11, 1996

Hon. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: **Central Vermont Public Service Corporation**
Carver Falls Hydropower Project
FERC Project No. 11475-000

Dear Secretary Cashell:

DEC-1 The purpose of this submittal is twofold. First, the New York State Department of Environmental Conservation (NYSDEC) is pleased to forward to the Commission for its consideration the enclosed Settlement Offer executed by NYSDEC, New York Rivers United (NYRU) and the applicant, Central Vermont Public Service Corporation (CVPSC). Second, NYSDEC submits four technical comments on the Draft Environmental Assessment issued by the Commission on September 30, 1996.

DEC-2 During the past year, NYSDEC has been working with CVPSC and several other entities in New York and Vermont in an effort to develop a comprehensive settlement proposal designed to resolve issues associated with the water quality certificate issued by NYSDEC as well as the underlying federal license application. We were successful, as noted by the attached Settlement Offer, signed by NYSDEC, NYRU and CVPSC.

DEC-3 NYSDEC strongly recommends that this Settlement Offer be adopted by the Commission. The Settlement Offer is similar to the terms and conditions recommended by Commission Staff in the Draft Environmental Assessment; however, our settlement offer differs in three key areas- - by providing enhanced Walleye spawning flows in the bypass reach, a schedule for aesthetic releases and the creation of the Carver Falls Advisory Council. Most significantly, CVPSC has indicated it can and will implement these measures.

DEC-4 We believe this settlement offer warrants serious consideration by the Commission. The settlement is similar to others entered into in New York (Salmon River Project, FERC No. 11408; Black River Project, FERC No. 2569; Beaver River Project, FERC No.2645; Genesee

Responses to Comments of the New York State Department of Environmental Conservation on the Draft Environmental Assessment for the Carver Falls Project

Letter dated December 11, 1996

DEC-1. No response required.

DEC-2. No response required.

DEC-3. We recommend that the Commission adopt the terms included in the Settlement Agreement. We have modified the EA accordingly.

DEC-4. See DEC-3.

River Upper Falls and Lower Falls Projects, FERC Nos. 2583 and 2582) and should be accorded the same deference and weight, even in instances where specific conditions agreed to go beyond those thought necessary by Commission Staff.

DEC-5 This settlement offer also resolved outstanding questions raised by NYRU and the Vermont Natural Resources Council (VNRC) concerning the April 21, 1995 water quality certificate issued by NYSDEC. As a result of this settlement, these entities are withdrawing their request for a hearing concerning the water quality certificate. Further, in accordance with the settlement offer, the water quality certificate will be modified as appropriate to make it consistent with the provisions of the settlement offer.

DEC-6 In reviewing the Draft Environmental Assessment, NYSDEC determined there were four items of a technical nature requiring clarification. These items are addressed below.

DEC-7 **Replacement of 6 foot High Flashboards.**

The DEA recommends that the 6 foot high flashboards be replaced during the month of April. NYSDEC does not concur with this recommendation for the following reasons.

DEC-8 First, according to the license application the Poultney River flows exceed the turbine capacity 85-90% of the time during April. The river must be drawn down 6 feet to replace the boards. Having control of the river in April is a rare event, having control enough to draw down the river will be even more infrequent. It does not appear feasible to replace the flashboards in April.

DEC-9 Second, April is a critical month for walleye spawning in the Poultney River. The Poultney serves an important function in providing walleye spawning habitat for walleye running up out of Lake Champlain to spawn. NYSDEC wants to ensure that complications for the walleye are minimized. Replacing flashboards during April has the potential to effect walleye spawning through flow changes during reservoir drawdown and refilling, and the potential for transport of sediments. How significant these impacts might be is uncertain, but considering the importance of the walleye spawning to fisheries management plans, NYSDEC recommends against replacing flashboards during April.

DEC-10 Third, weather and temperatures in this area are frequently at or near freezing during parts of April. This could lead to unsafe conditions for personnel attempting to reinstall the flashboards.

DEC-11 **Recommendation:** The best time for planned replacement of the 6 foot flashboards would be after July 1. This is outside of the spawning and incubation season for walleye and the species in the impoundment. Flows are normally within the range that can be controlled for much of the month. Refill times are not ideal during the summer, but for that impoundment, once every 5-6 years, should not have a significant impact if the replacement occurs when river flows are sufficiently high. The goal is to have enough water to refill the impoundment relatively quickly and still maintain an adequate flow in the river below the project. The board replacement should not occur if inflow is less than 50 cfs. This will allow a continuous base flow of 30 cfs to maintain the river ecosystem, and 20 cfs to refill the impoundment. There

DEC-5. No response required.

DEC-6. No response required.

DEC-7. Opinion noted.

DEC-8. Opinion noted. See response to DEC-9.

DEC-9. Staff agrees that it may not be possible for CVPS to sufficiently control flows to draw the impoundment down in April. We have revised our analysis of this issue and recommend that the scheduled replacement of the 6-foot flashboards occur concurrently with the replacement of the 18-inch-high flashboards.

DEC-10. Opinion noted.

DEC-11. Staff agrees that scheduled replacement of the 6-foot flashboards should occur when inflows are sufficient to refill the impoundment and provide downstream flows. Therefore, to minimize impacts to spawning walleye and to prevent drawing the impoundment down during low-flow, high-temperature periods, we recommend that the scheduled replacement of the 6-foot flashboards occur concurrently with the replacement of the 18-inch-high flashboards. Also, see our response to VANR-17.

should be a sufficient time period during July, August, September, October to look for a window where flows are seasonally high.

Turbidity During Flashboard Replacement

DEC-12 The discussion of sediment buildup behind the flashboards does not appear to be supported by what could be visually observed in the forebay and impoundment during site visits. Much of the impoundment is completely filled in with sediments. From what can be seen, there is considerable fine sediment accumulation. The sediments on the surface appear to be silt and muck with emergent aquatic vegetation growing from it. There would appear to be the potential for sediments to build up. That is part of the reason NYSDEC included turbidity monitoring requirements in the water quality certificate. We agree with Staff's ultimate recommendation, but recommend the supporting analysis be revised.

Water Quality Standards

DEC-13 On page 29 of the DEA, second paragraph, it states that New York State water quality standards are currently met above and below the project. This is not true. When the conditions of the water quality certificate issued by NYSDEC are implemented, then standards will be met.

Flow Interruptions- Lag Time

DEC-14 The potential for downstream impacts due to lag times between turbines tripping off and spillage flows beginning is a very real and potentially significant issue. At Carvers Falls this was addressed, in part, through the spillage flows and keeping the impoundment above the crest of the flashboards or crest of dam when boards are out. The bypass flow of 18.5 cfs includes a minimum of 9 cfs of spillage. This is to be accomplished by maintaining the impoundment levels at least 1 inch above enough of the crest to maintain at least 18.5 cfs. Therefore, in the event of turbine trips, flow to the river will always be at least 18.5 cfs. Further, since part of the impoundment will be above crest, spillage will begin to increase immediately. This should minimize the period of time when flows in the river will be reduced. Certainly flows will be restored much faster than 2.5 hours. During times when maintenance is occurring, flows will be provided through a gate.

DEC-15 The analysis in the DEA appears to overlook the benefit of operating with part of the impoundment above crest, and should be clarified. NYSDEC and CVPS have worked out agreements and procedures to minimize lag times, as discussed above.

DEC-16 The Commission has an opportunity to significantly improve the ecosystem at the Carver Falls Project by adopting the recommendations made in the Draft Environmental Assessment, as supplemented by those found in the enclosed Settlement Offer. The Settlement Offer is the result of a complex yet cooperative negotiation and should be accorded deference by the Commission.

DEC-12. We revised the analysis on page 23 of the EA to include this additional information.

DEC-13. We revised the text on page 22 of the EA to include this information.

DEC-14. No response required.

DEC-15. We agree that operating the project with the impoundment at or above the crest will reduce the amount of time required to provide run-of-river flows in the bypass and downstream of the project. We revised the text in the EA accordingly.

DEC-16. Opinion noted.

DEC-17

Respectfully submitted,

New York State Department
of Environmental Conservation

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DEC-17. No response required.

Vermont Natural Resources Council

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December 11, 1996

Lois Cashell, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, DC 20426

RE: VNRC Comments on Draft EA
Central Vermont Public Service Corp., Carver Falls Hydroelectric Project
FERC Project No. 11475 - 000 - VT/NY

Dear Ms. Cashell:

VNRC-1 The Vermont Natural Resources Council (VNRC) hereby provides comments on the Commission's Draft Environmental Assessment (EA) for the Carver Falls Hydroelectric Project (September 1996). VNRC generally agrees with the Draft EA and supports recommendations regarding run-of-river operation, penstock removal, flow and turbidity monitoring and improvements for recreational access. However, the recommendations in the Draft EA inadequately address minimum flows for habitat and aesthetics required for CVPS's operation of the Carver Falls Project to satisfy the Vermont Water Quality Standards.

VNRC-2 Furthermore, the Draft EA notes that "[t]he State of Vermont has argued that CVPS must also obtain Water Quality Certification from Vermont. This is a legal issue, which will be addressed in the license order." Draft Environmental Assessment, Carver Falls Hydroelectric Project, FERC Project No. 11475-000-VT/NY, at 9 n. 6 (September 1996). As outlined below, the Commission is without the authority to "address" this legal issue, and cannot issue a license order until the State of Vermont issues a water quality certification, or, in the alternative, until the Commission complies with the provisions of 33 U.S.C. § 1341(a)(2).[1]

[1] If the Commission intends to "address" this legal issue in the above-referenced license order by requiring CVPS to obtain a Vermont Water Quality Certificate prior to issuing a final FERC license order, VNRC reiterates its request that the Commission require CVPS to apply for a Vermont § 401 Certificate immediately.

VNRC, 9 Bailey Avenue, Montpelier, Vermont 05602 (802) 223-2328 Facsimile: 223-0287

Responses to
Comments of the Vermont Natural Resources Council
on the Draft Environmental Assessment
for the Carver Falls Project

Letter dated December 11, 1996

VNRC-1. Opinion noted.

VNRC-2. Opinion noted.

VNRC-3 I. The Draft EA studies and recommendations are inadequate to prevent CVPS's operation from violating Vermont Water Quality Standards (VWQS).

VNRC-4 A. Analysis and studies of habitat for aquatic biota in the bypass reach are flawed and inadequate.

VNRC-5 The Draft EA notes that the VANR recommends special spring flows for walleye spawning in the bypass reach of at least 50 cfs from April 1 through May 15. DEA at 27. FERC Staff concludes that 18.5 cfs (with its associated water depth of 12 inches) "is sufficient for passage of walleye." Id. at 28. The VANR recommendation of 50 cfs is to provide high quality habitat for walleye spawning and incubation, not simply provide a sufficient zone of passage for walleye. The two cannot be equated as the EA suggests or as Staff recommends.

VNRC-6 The DEA accurately notes that the USFWS Instream Flow Incremental Methodology (IFIM) suitability index curves for walleye spawning indicate that optimum spawning depth is in the 30 to 60 inch range. Twelve inches of depth is well below even 0.5 on the suitability scale. DEA at 28. Simply put, a zone of passage is not spawning habitat.

VNRC-7 The Lower Poultney River has been designated as an Outstanding Resource Water (ORW) by the Vermont Water Resources Board. *See*, Re: Poultney River Outstanding Resource Water, Docket No. 90-01 (June 28, 1991). Such designation indicates the remarkable assemblage of aquatic species (eleven freshwater mussel species, 43 of 87 fish species represented, including the New York State endangered eastern sand darter). The minimum flows recommended by the Staff for the bypassed reach are exceeded nearly one hundred percent of the time. Such low flows neither enhance the environmental quality of the river nor mitigate the impacts of CVPS's operation of its facility in the river.

VNRC-8 B. Analysis and studies of minimum flows for aesthetics are flawed and inadequate.

VNRC-9 In addition to the significant habitat available in the Lower Poultney River, the Vermont Water Resources Board designated the Poultney River an ORW due to the exceptional scenic qualities present in and around the river. Vermont's comprehensive plan, The Waterfalls, Cascades and Gorges of Vermont, Vermont Agency of Natural Resources (1988), recognizes Carver Falls as the highest major falls in Vermont and possibly the only horseshoe shaped falls in Vermont. *See attached* ,Excerpt from The Waterfalls, Cascades and Gorges of Vermont at 71. FERC Staff recommends that one inch of flow (9 cfs) be continuously provided over the southern spillway for aesthetics.

VNRC-3. Opinion noted.

VNRC-4. Opinion noted.

VNRC-5. Opinion noted.

VNRC-6. No response required.

VNRC-7. Opinion noted.

VNRC-8. Opinion noted.

VNRC-9. No response required.

VNRC-9 | Such meager flows are exceeded nearly 100% of the time, as shown by the flow duration curves from the USGS gage.

VNRC-10 | VWQS require that waters "consistently exhibit good aesthetic value." The Vermont Water Resources Board recently discussed the aesthetic analysis in another CVPS facility water quality certification. *See*, In re: Lamoille River Hydroelectric Project (CVPS) § 401 Water Quality Certificate, Docket Nos. WQ-94-03 and WQ-94-05 (November 5, 1996) at 61-64. The aesthetics analysis includes the "uniqueness" and "naturalness" of the feature. Id. There is nothing "natural" about the meager provision of 9 cfs over one-half of the project works at Carver Falls - the highest falls of the State of Vermont in a unique horseshoe shape. Such a flow cannot comply with the VWQS.

VNRC-11 | II. The Commission is without authority to interpret the Clean Water Act for purposes of determining 401 jurisdiction.

VNRC-12 | It is a fundamental precept of administrative law that administrative agencies have only the authority expressly conferred upon them by enabling legislation and permissive interpretations of the statute which they administer. The Commission's actions must be primarily based upon the authority granted to it under the Federal Power Act, 16 U.S.C. § 791a, et seq. The only incidental authority conferred upon the Commission by the Clean Water Act is a limited role in the orderly processing and coordination of licensing applications to assure that certifications are obtained prior to issuance of final licensing decisions. Keating v. F.E.R.C., 927 F.2d 616, 624-25 (D.C. Cir. 1991) (noting that while the state alone decides whether to certify under section 401(a)(1), under 401(a)(3) the Commission must determine whether procedural requirements have been met (i.e. timeliness and state allegation of change of circumstances)).

VNRC-13 | The court noted in Keating that where a determination as to certification issues would, as in this proceeding, "involve a question of state law or an application of state water quality standards" it "could hardly doubt the wisdom of FERC's declination of jurisdiction to resolve the [certification] question." Id. at 624. In the present case, the Commission has the limited responsibility to formally notify CVPS that the State of Vermont and EPA have determined that certification is required and that no licensing decision will be forthcoming from the Commission until such certification is obtained.

VNRC-14 | In Keating, the court discussed the statutory framework of the CWA as it integrates state and federal authority. The court noted that the section 401 certification requirement is "one of the primary mechanisms through which the states may assert the broad authority reserved to them." Keating at 622.

VNRC-10. Opinion noted.

VNRC-11. No response required.

VNRC-12. Opinion noted.

VNRC-13. Opinion noted.

VNRC-14. No response required.

VNRC-14 The court further noted there was no doubt that the Commission was bound by federal law to refuse a license application which was not supported by a valid state certification. Id..

VNRC-15 Assuming arguendo, that the Commission has some authority to interpret the CWA, the decision to grant certification pursuant to § 401, or not, is expressly and solely reserved to the individual states. The Commission has little competence, and no authority whatsoever, to determine whether a certification should be required and which, or to what extent, substantive state environmental law applies. In Keating, the court cited numerous decisions in summarizing "that disputes over such matters, at least so long as they precede the issuance of any federal license or permit, are properly left to the states themselves." Id. (emphasis in original)(citations omitted).

VNRC-16 The Commission's involvement in water quality certification is specifically limited to the orderly processing and coordination of licensing applications by determining whether affected states have issued valid certifications before the Commission issues a license under the FPA. The Commission has little, if any, responsibility for interpretation of the Clean Water Act and should pursue the wise course and decline to adjudicate the jurisdictional issue presented in this matter.

VNRC-17 III. The State of Vermont has authority to determine necessity of application for 401 certification.

VNRC-18 The State of Vermont has primary authority to determine the necessity for application for water quality certification pursuant to state enabling authority and the Vermont Water Quality Standards. "[C]ertification under section 401 is set up as an exclusive prerogative of the state and is not to be reviewed by EPA or any agency of the federal government." Mobil Oil Corp. v. Kelley, 426 F. Supp. 230, 234 (1976); cf. Roosevelt Campobello Int'l Park Comm'n v. EPA, 684 F.2d 1041, 1056 (1st Cir. 1982), *and*, U.S. v. Marathon Dev. Corp., 867 F.2d 96, 101-102 (1st Cir. 1989).[2] "[T]he state, alone, decides whether to certify under section 401(a)(1)." Keating V. F.E.R.C., 927 F.2d 616, 624 (D.C. Cir. 1991).

VNRC-19 In this proceeding, it is uncontroverted that the Vermont Agency of Natural Resources in applying the Vermont Water Quality Standards has repeatedly notified the Commission and CVPS that a water quality certification is required from the State of Vermont for the Carver Falls project. *See e.g.*,

[2] Of course, the State of Vermont must comply with Federal regulations promulgated by the Environmental Protection Agency governing certification.

VNRC-15. The Commission will respond to this issue in any order issuing or denying a license for the Carver Falls Project.

VNRC-16. Opinion noted.

VNRC-17. No response required.

VNRC-18. Opinion noted.

VNRC-19. No response required.

VNRC-19 Letter dated February 20, 1992 from Jeffrey Cueto, VDEC to Jerome Jensen, NYSDEC ; Transcript of First Stage Consultation Meeting dated April 7, 1992; VANR Comments on Draft Application for Initial License dated February 16, 1994 at p.13; and, Letter dated March 29, 1995 from Jeffrey Cueto to Bruce Zeisel re: Comments on the New York State Draft 401 Water Quality Certification for the Carver Falls Project. The State of Vermont's determination that certification is required binds the Commission and the appropriateness of this determination is not subject to review by the Commission. The Commission must respond to Vermont's determination by either notifying the applicant that a certification from Vermont is required before FERC will issue a license order, or by notifying the EPA Administrator to begin proceedings in accordance with the provisions of § 401(a)(2).

VNRC-20

VNRC-21 IV. The U.S. Environmental Protection Agency has advised the State of Vermont that certification is required and EPA's interpretation is entitled to substantial deference.

The U.S. Environmental Protection Agency has notified the State of Vermont that certification is required from both New York and Vermont for the Carver Falls Project. *See attached,* Letter dated December 12, 1995 from Tonia Bandrowicz, Esq. to James A. Caffry, Esq. The United States Court of Appeals for the First Circuit has recently noted that "[l]ike other executive agencies acting within their respective bailiwicks, EPA is due substantial deference in interpreting and implementing the Clean Water Act - 'so long as [its] decisions do not collide directly with substantive statutory commands and so long as procedural corners are squarely turned.'" Caribbean Petroleum Corp. v. U.S. E.P.A., 28 F.3d 232, 234 (1st Cir. 1994), *citing,* Puerto Rico Sun Oil v. U.S. E.P.A., 8 F.3d 73, 77 (1st Cir. 1993), *and,* Chevron U.S.A. v. Natural Resources Defense Council, 467 U.S. 837, 843, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). Indeed the U.S. Supreme Court has recently accorded substantial deference to EPA's interpretation of its own regulations implementing § 401. PUD No. 1 of Jefferson County v. Washington Dept. of Ecology, 511 U.S. ___, 114 S.Ct. 1900, 1909 (1994).

VNRC-22

Furthermore, EPA regulations governing certification specifically note that an EPA Regional Administrator may, and upon request from any interested person shall:

> provide licensing and permitting agencies with determinations, definitions and interpretations with respect to the meaning and content of water quality standards where they have been federally approved under section 10 of the Act, and findings with respect to the application of all applicable water quality standards

VNRC-23

VNRC-20. Opinion noted.

VNRC-21. No response required.

VNRC-22. No response required.

VNRC-23. No response required.

VNRC-23 in particular cases and in specific circumstances relative to an activity for which a license or permit is sought.

VNRC-24 40 CFR § 121.30. The EPA has the ultimate Federal responsibility for interpretation and implementation of the Clean Water Act. While states are delegated responsibility to implement certain Clean Water Act regulatory programs, EPA's interpretation of the Act assures consistent implementation of the Federal water pollution control scheme. The VANR made such a request to EPA and EPA's determination that certification is required from the State of Vermont is not reviewable by the Commission.

VNRC-25 The Commission has substantial authority and responsibility to license hydroelectric projects under the Federal Power Act. However, the Commission's authority does not extend to water quality certification jurisdictional determinations. Because both the State of Vermont and the U.S. Environmental Protection Agency have determined that a water quality certification must be obtained by CVPS from the State of Vermont, the Commission should immediately notify CVPS that it must apply for and obtain a water quality certification from the Vermont Agency of Natural Resources and that without such certification no license will be issued by the Commission.

VNRC-26 Finally, VNRC has participated in settlement negotiations regarding the disputed NYSDEC § 401 Certificate. The settlement agreement will be filed with the Commission by NYSDEC. Although VNRC will not be a signatory to the proposed agreement, VNRC will not oppose it.

Thank you for this opportunity to comment.

Sincerely,

VNRC-27 Christopher M. Kilian, Esq. by: MEN
Staff Attorney, VNRC

Mark E. Naud, Esq.
Legal Clerk, VNRC

VNRC-24. Opinion noted.

VNRC-25. Opinion noted.

VNRC-26. No response required.

VNRC-27. No response required.